2015

Examining Barriers with Implementing Augmentative and Alternative Communication in a Midwest School

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COLLEGE OF EDUCATION

This is to certify that the doctoral study by

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a Midwest School

by

Ashley Fields

MA, University of Central Missouri, 2006

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of Doctor of Education

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Abstract

Many speech-language pathologists (SLPs) in a Midwest urban public school system have experienced barriers that prohibit the effective use of augmentative and alternative communication (AAC). The result has left some students with speech language impairments (SLI) without the communication skills for meaningful relationships and success in and out of school. The purpose of this exploratory case study was to determine the perceived barriers of 8 local school SLPs regarding the successful implementation of AAC and their suggestions for addressing the problem. Data were collected from semi-structured interviews with the SLPs. Data collection and analysis were grounded by Ely's conditions of change theory to better understand what conditions were not being met for implementing AAC. The findings suggested that SLPs and teachers lacked the needed knowledge, experience, and time to properly implement AAC. The participants also indicated the need for more participation and commitment from their colleagues, school leaders, and the students' family members, which would also require additional training and collaborative planning time. The recommendations are that school administrators provide additional training and time for SLPs, their colleagues, and students' family members to learn how to properly help students with SLI use AAC in the classroom. The results of this study could help students with SLI by increasing the use of AAC in the school setting, home, and community. This could increase learning opportunities, student achievement, and relationships for students using AAC.

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Dedication

To God; may this degree be used for His greater plan, one which I do not yet fully understand but have full trust in. My steadfast husband Britton who supported me every step of the way, always reminding me to take just "one bite at a time." I can never thank you enough for believing in me and filling me up when I needed it. I love you. You are, and always will be, my rock. To my beautiful children Shelby Sue, Charlie Rose, and our precious baby boy on the way; you are my true inspiration for this and what has kept me going. My hope is that you will always believe in yourself and selflessly give of yourself so that you can serve others. You can build mountains if you just dream and believe in it. To my devoted friends and family. Britton and I couldn't have gotten through this without you. Thank you for your time and encouragement. And Heather, there is no way I could have done this without you. Thank you for talking me off the ledge and always pushing me forward one step at a time. We did it!

Acknowledgments

I owe a heart-filled, indebted thank you to Dr. Schroll. I warned him at the beginning that I could be a squeaky wheel, that I would be finished with this in the fall of 2014. Even though I was determined, there is no way I could have done it without your generous guidance. Thank you for the e-mails, phone calls, and text messages. We did it! I even think I got you to laugh along the way!

To Dr. Desoto, thank you for your support and encouragement. Your kind words and insight helped me get to this point. I truly appreciate your excitement for this study. It gave me more confidence than you could ever imagine.

To Dr. Englesberg, thank you for your help and suggestions throughout this process. It meant a lot to have someone who was so willing to answer questions and provide help and insight throughout this process. I am grateful for the time you spent on this dissertation.

Lastly, I want to thank Walden University. I would have never completed this degree if it wasn't offered online. I will forever be a proud Walden alumna.

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Section 1: Introduction to the Study

Introduction

The field of augmentative and alternative communication (AAC) has made

dramatic changes in the last 50 years. This area of speech-language pathology attempts to

compensate (either temporarily or permanently) for the impairment of severe expressive

communication disorders (American Speech-Language-Hearing Association [ASHA],

2002). An individual may use AAC to enhance his or her current speech, or it may serve

as the individual's primary mode of functional communication. A variety of options are

available including unaided communication systems, which rely on the user's body to

convey messages such as sign language or gestures, or aided systems that require the use

of tools or equipment in addition to the user's body (ASHA, 2013c). Aided systems range

in complexity from low-tech pencil and paper systems, to high-tech speech-generating

devices. Aided and unaided systems are not mutually exclusive, and individuals often use

them in combination much like one would pair natural speech with gestures, body

language, and facial expressions to express one's thoughts, wants, and needs.

What was once thought of as a "last resort" in assisting individuals with speech

language impairments (SLI), AAC is now known to be a successful method to increase

expressive language and provide a functional mode of communication for individuals of

all ages and abilities (Light & McNaughton, 2012; Williams, Krezman, & McNaughton,

2008). AAC is no longer reserved for individuals without communication; rather, it is

often utilized in situations where a child is at risk for expressive language disorders, is

difficult to understand, or has motor planning difficulties. Research has supported the use

of AAC for children with autism spectrum disorders (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010; Paul, 2008; Schlosser & Wendt, 2008) as well as adults with progressive or temporary communication needs (Light & McNaughton, 2012).

While the latest research has supported the use of AAC, many speech-language pathologists (SLPs) experience barriers implementing AAC. Leaders in the communication disorder field are finding that SLPs experience a number of perceived barriers in evaluating, designing, implementing, and maintaining the use of AAC for their students (Baxter, Enderby, Evans, & Judge, 2012). Because of these barriers, SLPs do not receive the tools and support that is necessary to overcome this challenge. As a result, their students do not receive the support required to access and utilize AAC in the classroom. This leaves the child without a functional way to express his or her basic wants, needs, and knowledge with peers and adults.

Since the 1980s, AAC interventions have made drastic advancements due to changes in technology. Hourcade, Pilotte, West, and Parette (2004) stated this might be the most prevalent challenge for SLPs. In January 2011, there were 65 applications designed for AAC; only 5 months later there were 133, and in 2013 there were 265 (AppsforAAC, n.d.). Research has provided evidence that SLPs have difficulty understanding and keeping up with these changes in technology and incorporating this information in the decision-making process (Fager, Bardach, Russell, & Higginbotham, 2012; Higginbotham, Shane, Russell, & Caves, 2007). Devices are now interactive and function as a cell phone, computer, or Internet browser (Dynavox, 2013). Just like all technology, individuals use AAC throughout the day in a variety of environments for

both educational purposes and entertainment. Training is necessary to know what product is appropriate for the student, how to use the device, and how to implement a treatment plan (DeRuyter, McNaughton, Caves, Bryen, & Williams, 2007; Fager et al., 2012).

SLPs are responsible for leading the school's individualized education plan (IEP) team in the implementation of AAC. This requires SLPs to train staff, peers, and adults on how to use the device and generalize its use in all settings. Research has indicated that many SLPs experience barriers during this process (Zangari, 2012). They may struggle maintaining the device, updating, and making appropriate clinical decisions regarding the device. They may also encounter challenges with time management, buy-in, and commitment to the device (Iacono & Cameron, 2009; Zangari, 2012).

Some experts have suggested another barrier could be in preservice training (Fishman, 2011; Zangari, 2012), due to the lack of preservice classes focusing on AAC or ineffective training. P. Hart (personal communication, November 26, 2013), a professor of communication disorders and sciences at Rockhurst University, identified this as a concern for future SLPs, stating that many SLPs lack the knowledge to effectively implement AAC.

Without the knowledge to implement AAC, inexperienced SLPs may encounter obstacles. Ratcliff, Koul, and Lloyd (2008) reported 27% of students in a speech-language pathology program did not complete a class that contained AAC content. This group of individuals would enter the work force without the necessary background knowledge to make appropriate clinical decisions regarding AAC. These factors can make it difficult for some SLPs to implement AAC and may result in neglect or complete

abandonment of the device (Cooper, Balandin, & Trembath, 2009; Johnson, Inglebret, Jones, & Ray, 2006; Soto, Muller, Hunt, & Goetz, 2001).

One should consider the neglect or abandonment of AAC to be a breakdown in the confirmation stage of Rogers's (2010) innovation-decision process. If the individuals involved in the implementation process receive conflictive or negative feedback, they may discontinue the process entirely. They do this because their needs (or the child's needs) are not being met, or they are not satisfied with performance. In terms of AAC, the abandonment results in a lack of functional communication for the child.

Problem Statement

SLPs in a Midwest school have experienced many perceived barriers during the implementation of AAC. Past research has revealed a number of these barriers to include difficulty understanding and integrating new technology with AAC (DeRuyter et al., 2007; Fager et al., 2012; Hourcade et al., 2004), lack of preservice training (Calculator, 2009; Costigan & Light, 2010; Crema & Moran, 2012; Fishman, 2011; Ratcliff, Koul, & Lloyd, 2008;), lack of resources, and a lack of buy-in from family and the decision-making team. However, more information is needed (Baxter et al., 2012; Sutherland et al., 2005; Stoner, Angell, & Bailey, 2010). These barriers need to be addressed to increase the application of this innovation. Ely (1978) suggested to "enhance the factors that will help to bring about the best results" (p. 151) and also to identify resistance factors that could delay change.

Many SLPs in a large, urban public school in the Midwest have also experienced challenges in the implementation of AAC. Some district therapists stated that children

may not receive the required support to produce functional communication. This results in the inability to communicate their basic wants, needs, and knowledge with others.

By using Ely's (1978) conditions for change theory as a framework for this study, I determined what factors impacted the implementation of AAC at the local setting. These factors included, but were not limited to, "dissatisfaction with the status quo, knowledge and skills, available resources, available time, rewards or incentives, participation, commitment, and leadership" (Ely, 1990, p. 1). A proactive approach was developed to contribute to solving the problem of students not being able to utilize AAC in the classroom by establishing conditions that could promote change based on the participants' perceptions.

Research Question and Objectives

The study was guided by the following research questions to better understand teachers' experiences with AAC, to determine why teachers had decided not to adopt AAC, and what could increase their use of this innovation:

1. What are the school-based SLPs' described experiences with using AAC communication at the local setting?

2. What are the perceived barriers experienced by school-based SLPs' during the implementation of AAC communication at the local setting?

3. What are the school-based SLPs' suggestions for improving the implementation of AAC communication?

The Nature of the Study

An exploratory case study research design was used to answer the research questions. A case study design is selected when evaluating contextual phenomena (Baxter & Jack, 2008). In this study, I evaluated barriers to AAC in the school setting from the perspective of the SLP. Other case study designs were considered such as explanatory and descriptive; however, because I did not have a clear set of outcomes regarding the barriers associated to AAC implementation, an exploratory design was selected (Yin, 2003).

Purposeful sampling was used to select eight SLPs who had experience working with AAC in the classroom setting. These therapists worked in a large, urban public school in the Midwest with children from preschool to 12th grade. Each therapist participated in a semi-structured interview that lasted approximately 45 minutes. All interviews were recorded and categorized according to themes grounded by Ely's (1978) conditions of change theory.

Document analysis was also conducted. Bowen (2009) described appropriate documents for a systematic evaluation to include, but not be limited to, agendas, attendance registers, meeting minutes, event programs, letters, program proposals, or reports. It also included documentation for access to technology (hardware or software). This includes technology that the district has rented or purchased. For this study, I requested all professional development trainings, events, conferences, and communications from leaders in AAC at the research site. The data were used to determine how the school district was addressing AAC. Follow-up questions were used

to explain the documents, provide a context for their use, and describe necessary background knowledge regarding the document. In Section 3 I provide a detailed explanation of the methods used in this study.

Purpose Statement

There are a number of perceived barriers that contribute to the implementation of AAC, including some found at the research site and others found outside of the local setting (Iacono & Cameron, 2009; Mukhopadyay & Nwaogu, 2009; Sutherland et al., 2005). This is a social problem that needs a resolution because individuals who do not have the ability to functionally communicate within their community miss opportunities to grow and learn. These individuals also miss social opportunities to develop relationships and gain acceptance in their community (Cooper, Balandin, & Trembath, 2009). The purpose of this study was to identify the barriers to implementation of AAC in the school setting.

Theoretical Framework

The implementation of a new innovation such as AAC involves change on behalf of all participants. This can be difficult and would require specific conditions to be established. Ely (1978) discovered there were specific factors that could promote the adoption or rejection of an innovation. The author was specifically addressing changes needed to promote acceptance of both hardware and software usage in the classroom, library, and by school staff members. Ely labeled eight conditions that appear to facilitate effective implementation education technology used in schools. The author added that

although all eight conditions do not need to be fully addressed for change to occur, they must be addressed on some level. Without this, the change process is at risk of failing.

Ely (1978) stated that the first condition of change was dissatisfaction with the status quo. This dissatisfaction was necessary because individuals involved with the change must feel that they could improve a situation. The second condition necessary for implementation of technology innovation was sufficient knowledge and skills on behalf of those involved. Ely (1990) added that resources and time must be made available.

Ely (1990) also questioned, "If a current practice is going reasonably well, why risk new techniques?" (p. 4). Ely believed a reward or incentive must exist to create change. Two additional conditions required to make change included the establishment of participation and commitment from all team members. Ely (1990) also addressed leadership, stating that leadership was two-pronged. The author described the first as the executive officer of the organization and the second as the project leader who is closely involved in day-to-day activities. Both must support the change.

Although Ely (1978) evaluated each condition individually, it is important to consider the relationship between each condition as well. Often one is connected to another. What looks like dissatisfaction with the status quo may actually be an issue of leadership, time, or resources. Conditions are not mutually exclusive and would likely occur at the same time.

Definitions of Terms

Augmentative and alternative communication (AAC): ASHA (2013a) defined AAC as any form of communication other than oral speech. This includes gestures, sign language, pictures, speech generating devices, or written modes of communication.

Speech-language pathologist (SLP): A SLP who is qualified to evaluate and diagnose speech, language, cognitive-communication, and swallowing disorders and treat such disorders in individuals of all ages, from infants to the elderly (ASHA, 2013b).

Individualized education plan (IEP): A documented, individualized program for children requiring special education services. It contains information regarding the child's current performance, annual goals, special education and related services, accommodations, participation in state and district-wide tests, needed transition services, and measured progress needed to be successful learners (National Center for Learning Disabilities, n.d.)

IEP team: This term was also referred to as *the decision-making team* throughout this paper. This team includes a regular education teacher, special education teacher, related service providers (such as the SLP, occupational therapist, or physical therapist), and the parents. Other members such as the school or district administrators are also participants, when appropriate (National Center for Learning Disabilities, n.d.).

Functional communication: This includes any behavior including personalized movements, gestures, verbalizations, signs, pictures, words, and AAC devices that express an individual's needs, wants, feelings, and preferences that others can understand, regardless of context or familiarity to the speaker (ASHA, n.d.).

Assumptions

The following assumptions have been made regarding the study: (a) appropriate documentation regarding professional development, training, and expenses from the research site have been filed and are available; (b) all documents related to AAC professional development, training, and expenses would be provided upon request; (c) SLPs would hold current ASHA certification; (d) SLPs would have worked with children in the past or would currently be working with children requiring AAC; (e) SLPs would fully participate in the interview process including follow-up interviews and member checks as needed; and (f) SLPs would truthfully answer all questions asked during the interview process.

Limitations

Limitations are uncontrollable threats to the internal validity of the study (Ellis & Levy, 2009). A number of these were revealed through the development of this study. The first limitation was the application of the results to the greater population due to the small number of interviews, only within the large, urban public school in the Midwest. Small sample size decreased the transferability of the findings (Lodico et al., 2010). Other characteristics such as the individualized nature of AAC and each setting would make transferability more difficult. Another limitation is that only SLPs were questioned regarding the implementation of AAC, limiting the perception of this process. This provided only one perception of the implementation process, although research suggested using a team approach to AAC implementation (Baxter et al., 2012; Bruce, Trief, & Cascella, 2011; Stoner et al., 2010). A related limitation is the small number of SLPs that

typically work with children requiring AAC. The final limitation identified in this study was that member checking only included the review of interview transcripts with participants, rather than the review of analyzed and coded data.

Scope

This study evaluated the experiences of SLPs during the implementation of AAC. It was limited to the experiences of SLPs in a large, urban public school in the Midwest. Data were collected through eight interviews with SLPs and document analysis. Participants were SLPs who had worked with or were currently working with children requiring AAC. Data were obtained regarding factors they considered when using AAC, motivation for AAC, what barriers they encountered when using AAC, and their overall experience using AAC. It did not include the effectiveness of the AAC techniques or plans developed.

Delimitations

There are specific delimitations, or specific areas that were not intended to be studied (Ellis & Levy, 2009). The study evaluated the process in which AAC was implemented or not implemented. I was not studying the effectiveness of AAC in the classroom. Research supported this rationale. Baxter et al. (2012) stated, "If practitioners and potential users are to make informed recommendations and choices, having knowledge regarding the process of implementation and ongoing usage of available technology is essential" (p. 116). This research indicated that appropriate knowledge of AAC is necessary for SLPs to determine its effectiveness in the classroom.

This study only involved SLPs in a large, urban public school in the Midwest. This excludes experiences from special education teachers, parents, and students from other school districts and geographical locations. Differences among grade levels and classroom settings (inclusion, direct therapy, groups therapy, etc.) were not considered. This limited my ability to determine specific barriers regarding setting and grade level.

Significance of the Study

The results of this study could lead to more effective implementation of AAC in the schools. With this new knowledge, appropriate trainings, tools, supports, and education can be provided to those involved with AAC implementation. At the time of this research, these factors were not in place at the research site. Research has found that without them, AAC is not being implemented effectively or is abandoned entirely (Baxter et al., 2012; Stoner et al., 2010). Staff had observed this at a large, urban public school in the Midwest. The results of this study will be presented to the district, as along with suggestions for supporting successful AAC implementation.

Professionally, the results could be used to help fill the gap in literature currently observed and provide a starting point for professional learning (Baxter et al., 2012). By sharing this new knowledge with the speech-language pathology field, universities and school districts everywhere could help facilitate more effective AAC implementation. This creates generations of SLPs that have the skills to implement AAC, as well as generations of students that benefit from this service. The results of this study could lead to more substantial quantitative research in the future.

Social Change

Historically, individuals with severe expressive communication disorders were forced to live in institutions isolated from the outside world without a way of communicating. Society has made enormous strides toward acceptance since that time; however, scholars and practitioners need to continue to better help those who use AAC. Communication is a critical component of lasting relationships, decreasing loneliness, and creating independence. Without it, individuals with profound communication needs must rely on others to communicate for them. These individuals have an unmet social and emotional need without the ability to interact with others (Light & McNaughton, 2012). Cooper et al. (2009) found that outside of strong family and friendship supports, AAC and communication technology were the leading factors to decreased loneliness for individuals with profound expressive communication disorders.

Light and McNaughton (2012) stated, "The ultimate measure of the success of AAC intervention is the degree to which it improves access and participation in valued activities and experiences of everyday life" (p. 8). The use of AAC would increase a child's involvement in the classroom setting, allowing the teacher to share knowledge and experiences with the child. Students and teachers need to be provided multiple ways to communicate and share knowledge (Williams et al., 2008). This creates an opportunity for the child to learn and grow.

Individuals with profound expressive language disorders are important members of a community. DeRuyter et al. (2007) stated that these individuals needed access to effective AAC because they have the same human rights as those without disabilities and

because these technologies may help overcome challenges imposed by their disability. With adequate knowledge in AAC, SLPs can effectively implement AAC and provide this opportunity to young students in their community. Williams et al. (2008) stated, "Failure to provide appropriate AAC technology and services means not only that the individual loses an opportunity to be involved, but also, that society loses the contributions that individual would have made" (p. 201). Through new research, those working with AAC can create a positive social change that ultimately empowers individuals using AAC.

Summary

SLPs in a large, urban public school in the Midwest had been experiencing barriers during the implementation of AAC. The purpose of this study was to evaluate SLPs' perceived barriers to the implementation process of AAC in the school setting. Research has presented a number of factors that contribute to this, but few studies determined which ones are most likely to impact this process. Additional research is needed to evaluate this problem (Baxter et al., 2012).

The results of this study provided the research site with new knowledge that could be used to produce more successful AAC implementation. These data also helped fill the gap in literature. These changes would hopefully produce more knowledgeable SLPs in the area of AAC and successful individuals with profound expressive language disorders.

A critical component to new research is the review of literature. This is completed in order to determine what research has already been done, identify holes in the literature, determine how new research could add to the knowledge base, and rationalize the need

for the study (Randolph, 2009). Section 2 includes the literature review for this study. In

Section 3, I explain the methodology procedures selected for the study. This includes

how it was selected based on the study, ethical considerations, role of the researcher,

participant selection, and data collection and analysis.

Section 2: Literature Review

Communication is a critical component to meaningful relationships and the enjoyment of life. The ability to express one's thoughts, wants, needs, and knowledge is often taken for granted by those who do so freely without effort; however, for individuals with profound expressive language disorders, verbal speech may be extremely difficult or impossible. A life without fluid communication can create isolation and loneliness (Cooper et al., 2009; McNaughton et al., 2008). In these situations, communication is nonfunctional and an augmentative and alternative mode of communication may be used to enhance current speech or serve as the individual's primary mode of communication.

This section reviewed the history of AAC and benefits discovered through research. Identified problems and difficulties associated with the implementation of AAC are explained. The conceptual framework chosen to evaluate this study is Ely's (1990) conditions of change theory, is justified and specific barriers are identified. This section also describes how these barriers could be resolved and future implications of this study. The last section also describes the research method chosen to evaluate this problem, as well as those not selected and a rationale for why.

Strategy for Searching the Literature

A number of databases were used to conduct this review of literature including EBSCO (Elton B. Stephens Company), Education Resource Information Center (ERIC), Education Research Complete, Sage and Google Scholar. Additional websites such as the ASHA website were used to access definitions and roles and responsibilities for SLPs regarding AAC.

Key terms included *AAC barriers, AAC perceptions, AAC challenges, inclusion of AAC, implementation of AAC, effectiveness of AAC,* and *history of AAC.* Limits were set to all search engines requiring the findings to be between the years of 2008 and 2013. Additional sources were identified through the literature as key studies before 2008.

History of AAC

In the 1960s there was essentially no public awareness of individuals with severe expressive language disorders. This group of nonverbal individuals were often isolated from society and forced to live in institutions, dismissed from the community. Private advocates developed few alternative forms of communication, but none were available on the market. Michael Williams, a leader in AAC advocacy, was a young adult with cerebral palsy during this time (Williams et al., 2008). He struggled with expressive communication and often took a considerable amount of time attempting to speak. He would help his communication partner by writing letters in the air with his finger. As an adult, a friend gave him a checkbook with the alphabet glued on top. This was his first experience with AAC and it changed his life.

At this time, experiences like this were the exception to the rule. AAC was implemented only after traditional approaches failed and candidates had the prerequisite skills deemed necessary to attempt AAC (Light & McNaughton, 2012). Since then, many changes have taken place that increased the use of AAC. First, there has been an increase in awareness of people that could benefit from AAC (Light & McNaughton, 2012). This includes people from a variety of cultural backgrounds and with a variety of diagnoses. Currently, the most discussed population is children with autism spectrum disorders.

Many children with autism spectrum disorders show signs of language disorders and may very likely require AAC for functional communication (Paul, 2008). Advances in medicine have resulted in an increase of birth rate. This reflects a higher percentage of children with birth defects and infants with disabilities that may benefit from AAC (Light & McNaughton, 2012). Adults with degenerative diseases or temporary loss of communication are also benefiting from AAC (Light & McNaughton, 2012).

Another change that increased the use of AAC included a social acceptance and advocacy for those without functional communication. Changes in legislation such as the Individuals with Disabilities Education Act, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act continue to be the most foundational pieces of legislation that have impacted social acceptance (Fowler, Hulett, & Kieff, 2011). This indicated that society was beginning to recognize that these individuals had rights, including the right to communicate. These changes placed children with severe expressive communication disorders back in the classroom and allowed adults to become a part of society. AAC has supported their participation and communication in these settings (Light & McNaughton, 2012).

The third largest change that increased the use of AAC has been technological advances. Phenomenal changes have taken place in the technology world since the 1980s (Fager et al, 2012). AAC was initially supplemental signs, gestures, pictures, and letters on paper, but it quickly transformed into switches that played a recording or typed text. AAC devices now function as the individual's cell phone, computer, or Internet browser and communication device (Dynavox, 2013).

Benefits of AAC

With the expansion in the field of AAC, a body of evidence has been developed supporting its use. Historically, therapists viewed AAC as a last resort and only used it when traditional attempts failed. SLPs and families believed that the use of AAC would decrease a child's verbal communication. AAC experts now know that this is not true. In fact, AAC may increase speech production (Schlosser & Wendt, 2008).

SLPs also believed that only a select group of individuals would benefit from AAC, assuming they had the qualifying prerequisite skills necessary to do so. Today AAC experts know that is simply not required. In a systematic review of literature, Branson and Demchak (2009) found that the use of AAC with infant and toddlers increased communicative behaviors. They found this to be true regardless of age, diagnosis, or ability. In fact, children as young as 8 months old benefited from the use of AAC. Children with profound and multiple learning disabilities have also been found to improve their communication through the use of AAC (Harding, Lindsay, O'Brien, Dipper, & Wright, 2011).

Roles and Responsibilities of the SLP in AAC

SLPs are responsible for a number of roles when working in the schools. ASHA (2010) has determined six critical roles for SLPs working in the schools, which include the following:

- Working across all levels (Pre-K, elementary, middle, junior high, and high schools).
- Serving a range of disorders.

- Ensuring educational relevance.

- Providing unique contributions to curriculum.

- Highlighting language/literacy.

- Providing culturally competent services.

SLPs may be hired by the school for specific roles within these; however, this list serves as the basis for SLPs in the school to promote efficient and effective outcomes for all students (ASHA, 2010). ASHA (2010) stated SLPs are responsible for a range of duties, including prevention, assessment, intervention, program design, data collection and analysis, and compliance. SLPs are also required to collaborate with other professionals and become leaders in their area of expertise (ASHA, 2010).

SLPs are also required to complete evaluations to determine if AAC is appropriate. They have a large number of factors to consider during this evaluation. Assessment of the child includes evaluation of their current speech and language, as well as their vision, hearing, motor skills, seating and positioning, cognition, and interaction with their environment (Fishman, 2011; Proctor & Oswalt, 2008). The SLP then determines if aided or unaided communication would be appropriate, and if high or low technology would be necessary (ASHA, 2012a, 2013a). Environmental, cultural, and social needs are also considered (ASHA, n.d.).

Training of the SLP in AAC

SLPs are responsible for collaborating with a multidisciplinary team, counsel families, develop treatment plans, and manage ongoing updates for devices (ASHA,

2005). They also hold the responsibility for staying up to date on current advances in technology and applications that are used in AAC.

Much of their knowledge is gained through graduate and undergraduate course work. This must be from an accredited University by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (ASHA, n.d.a). Districts typically also require that SLPs hold their ASHA Certificate of Clinical Competence. This is maintained by completing 30 hours of continuing education every three years (ASHA, n.d.c). Athough SLPs undergo rigorous training, researchers continue to discover that many graduating SLPs lack sufficient knowledge in the area of AAC (Feiler & Watson, 2011; Fishman, 2011; Ratcliff, Koul, & Lloyd, 2008; Stuart & Ritthaler, 2008).

Difficulties with the Implementation of AAC

SLPs play a critical role in the implementation of AAC. This can be an overwhelming experience for SLPs and many barriers can arise as a result of these factors. These barriers can even result in the abandonment of AAC by the team and family, which leaves the individual requiring the device without functional communication (McNaughton et al., 2008; Shepherd, Campbell, Renzoni, & Sloan, 2009; Stoner et al., 2010).

There is a lack of research identifying specific barriers to AAC implementation (Baxter et al., 2012). Researchers have identified ease of use, reliability, availability of technical support, voice and language of the device, decision making, time generating a message, family perceptions and support, the role of the communication partner, service

provision, and staff training as the top barriers. (Baxter et al., 2012). Although this information was valuable, there is a need for further studies investigating this process and to learn more about SLPs' experiences working with AAC, the barriers they are faced with, and what strategies could be developed to help overcome them (Baxter et al., 2012; Bruce et al., 2011; Gonzales, Leroy, & DeLeo, 2009). Without this valued information leaders in AAC do not know what is necessary to be successful.

Conceptual Framework

The theoretical structure used to help explain the problem of perceived barriers during the implementation of AAC was Ely's (1978) conditions of change. Ely explained that change is inevitable and we should attempt to increase factors that could help during this change. Rather than assuming a passive or resistant response to change, Ely suggested to make deliberate movements that would increase the success of change.

Ely (1978) associated this idea with Rogers' diffusion of innovations theory (Rogers, 2010). This theory clarifies that change is a process rather than an event. Each stage is critical in the acceptance to change and includes the knowledge stage, persuasion stage, decision stage, implementation stage, and confirmation stage (Rogers, 2010). Rogers also identified four main elements that influence the implementation of a new innovation including the innovation, communication channels, time, and a social system (Rogers, 2010). Ely (1978) recognized these elements, but suggested there were eight factors that contributed to the adaption of an innovation. Each of these conditions must be addressed at some level or the change process is at risk of failing.

With the understanding that change is a process involving many stages as described by Rogers (2010), I can apply the research from Ely (1978) to determine how each condition can increase the rate of success for each stage. The term implementation also indicates a process. This implementation process for AAC begins with an assessment, development of an AAC plan, and the activation of that plan (ASHA, 2002). Therefore, the application of Ely's conditions of change is very appropriate to determine factors that contribute to effective implementation of AAC.

Barriers to the Implementation of AAC

Research has revealed a number of difficulties during the implementation of AAC, although the focus of each study varied. Researchers were typically evaluating the effectiveness of a specific AAC system and may have revealed one to three barriers to AAC. Very few studies evaluated barriers to AAC as the main focus of the study; however four studies were very close to this concept. This section reviews specific studies that identified barriers associated with the implementation of AAC. I also explain how the theoretical frameworks developed by Ely (1978) and Rogers (2010) can help explain the barriers discovered in the literature.

Baxter et al. (2012) evaluated the use of high-technology AAC devices. They determined a number of barriers including (a) ease of use; (b) reliability; (c) availability of technical support; (d) voice and language of the device; (e) decision making; (f) time generating a message; (g) family perceptions and support; (h) the role of the communication partner; (i) service provision; and (j) staff training as the top barriers.

These barriers were developed through a systematic review and qualitative synthesis of research. The date of references ranged from 2000-2010.

Bruce et al. (2010) conducted a qualitative design evaluating SLPs' and teachers' perception about tangible symbol intervention. During an interview with teachers and SLPs, Bruce et al. (2011) explored specific issues related to only tangible symbol AAC systems. Questions asked included, "Do you feel this communication form helped the children in the study… what do you see as a future direction in your classroom for the use of the tangible symbols?" (p. 174). These researchers discovered 14 specific different barriers, most of which pertained specifically to tangible symbols, but other barriers that could be generalized to implementation of any AAC system included: (a) early resistance of adults; (b) physical and medical issues of children; (c) protocol; (d) poor attendance; (e) non-optimal alertness states; (f) irritability or moodiness; (g) need for more time to learn; (h) bilingualism; and (i) adult implementation errors.

In a study by Iacono and Cameron (2009), Australian SLPs were interviewed regarding their perceptions and experiences using AAC in an early childhood setting. The three main barriers identified through this study included (a) a lack of time required to implement and manage AAC; (b) negative family attitudes; and (c) dealing with the demands within their clinical role. A systematic review of literature completed by Gonzales et al. (2009) also identified important information in the field of AAC. These researchers identified barriers supporting factors, and overall best practices for AAC. Once again, an overwhelming number of barriers were revealed, many in which could only be applied to low or high technology systems. Barriers applied to the

implementation process included (a) lack of knowledge; (b) attitudes; (c) culture; (d)

technology; (e) service delivery; (f) collaboration; and (g) stability and reliability of AAC

system.

After an analysis of these four main studies, four overlapping characteristics were

revealed. The common topics included a lack of knowledge, issues regarding attitudes of

parents and staff, collaboration, and lack of time. Although the researchers determined

these are critical barriers, no conclusive evidence was identified as the specific cause of

AAC failure. It is difficult to draw an empirical based conclusion on the top barriers to

the implementation of AAC based on minimal research. Using other studies to build on

this concept is difficult because of the differences in linguistics, and the reporting of the

results. Therefore, a literature was presented based on Ely's eight conditions of change.

Dissatisfaction with the Status Quo

One condition described was the dissatisfaction with the current status (Ely,

1978). The author later added, "dissatisfaction is turned into a call for action" (Ely, 1995,

p. 12). Historically, SLPs were hesitant to attempt AAC in fear that its use would prohibit

oral communication development (Hourcade et al., 2004). AAC was not attempted until

the SLP believed the child was unable to develop verbal communication. Perceptions

have changed since that time; however the SLP, family, and support team might consider

their own opinion on using AAC. As Ely (1990) described, the team must feel as though

"there must be something we can do to improve" (p. 3). Kessel and Sickman (2009)

suggested that teachers might not understand AAC and how it could be used in the

classroom; therefore they may not find ways to improve it and settle for the current

conditions. This resistance was echoed in the study by Bruce et al. (2011). These researchers found that resistance had little to do with the child's skills; rather the participants had difficulties helping the team see *why* AAC was necessary and how to do it.

The Presence of Knowledge and Skills

Ely (1978) suggested that knowledge and skills must exist to implement a change. Constigan and Light (2010) stated, "The low levels of AAC knowledge and competence reported in four surveys of practicing SLPs likely arise, at least in part, from inadequacies in preservice AAC training." (p. 208). This is found repeatedly throughout the literature (Alquraini & Gut, 2012; Baxter et al., 2012; Bruce et al., 2011; Crema & Morgan, 2012; Feiler, & Watson, 2011; Fishman, 2011; Kramlich, 2012; Zangari, 2012). Without the basic knowledge of AAC assessment, management, and technology SLPs have difficulty effectively providing this service (Calculator, 2009). Undergraduate and graduate training could be the cause of this (Ratcliff et al., 2008; Crema & Moran, 2012). Costigan and Light (2010) found that up to 38% of speech-language pathology programs failed to offer a specific course in AAC. This resulted in students graduating without overt instruction in AAC.

Keeping up with the changes in technology is also difficult for SLPs. Without ongoing training and professional development, it is difficult for SLPs to stay up to date with technology and the current philosophy of AAC intervention (Alquraini & Gut, 2012; Fager et al., 2012; Fishman, 2011).

This need for ongoing training in AAC was found throughout the literature. Not only was this a problem for the SLP, but also for the teachers and families involved. Just as SLP students are graduating without sufficient knowledge in AAC, general and special education teachers are also underprepared for this population (Zangari, 2012).

Resources are Available

The use of high-technology devices began in the 1980's and has dramatically increased since that time (Fager et al., 2012). What began as a simple playback of recorded messages has evolved into a multifunctioning device (Dynavox, 2013). In January 2011, there were 65 applications designed for AAC, later in June of the same year there were 133, and by 2013 there were 265 (AppsforAAC, n.d.). Researchers have stated that SLPs should have access to these resources, to technology support to learn how to use the device, and how to implement a treatment plan (Fager et al., 2012; Feiler & Watson, 2011). One issue could be a lack of financial resources. School budgets have been cut and families struggle to afford these expensive devices; however, the children need them in order to functionally communicate (Marshall & Goldbart, 2008; McBaughton et al., 2008).

Time is Available

Ely (1990) described this condition, stating that *quality* time was needed during the work day to implement an intervention. The lack of time is specifically described in few studies (Bruce et al., 2011; Calculator, 2009; Calculator & Black, 2009; Iacono & Cameron, 2009; Makhopadhyay & Nwaogu, 2009; Parette & Stoner, 2008). SLPs need quality time to collaborate, trial, adapt, and reflect on the use of AAC in the classrooms

(Calculator, 2009; Iacono & Cameron, 2009). Time should also be available for continuous education (Baxter et al., 2012; Kramlich, 2012). This has been found a critical component when looking at populations that are just beginning to learn about AAC such as those in other areas of the world (Makhopadhyan & Nwagu, 2009).

Rewards or Incentives Exist for Participants

Another condition for change described by Ely (1978) was a reward for change. This condition indicates some form of incentive for making a change (Ely, 1990). For SLPs and teachers working in a school district the reward for working with children is not found in the salary or an end of the year bonus; it is in the success of their students. In the case of AAC, it could be a chance for a child to communicate when previous therapy techniques had not worked efficiently. The intrinsic desire for the student to make progress surpasses the SLPs' resistance to change, or lack of confidence or knowledge of AAC. This concept was echoed in the study by Bruce et al. (2011). The researchers stated, "Student success motivated teachers to use the symbols [AAC] in the future" (Bruce et al., 2011, p. 178). If teachers, therapists and family members did not feel that AAC was successful, and therefore rewarding, then they were at risk of abandoning it entirely (McNaughton et al., 2008; Stoner et al., 2010).

Participation is Expected and Encouraged

It was suggested that all members of the decision-making team participate and feel included when making AAC decisions (Alqurani & Gut, 2012; Baxter et al., 2012; Iacono & Cameron, 2009; Kessel & Sickman, 2010; Stoner et al., 2012). Without this participation, the plan may not be fully implemented (Ely, 1978). Participation comes

from a number of people including administration, general education teachers, special

education teachers, SLP, occupational therapist, physical therapists, paraprofessionals,

school psychologist, and the child. Researchers also suggest that families be included in

this decision making process (Iacono, 2009; Kramlich, 2012; McNaughton et al., 2008;

Stoner et al., 2010). Baxter et al. (2012) also found this to be one of the barriers to

successful implementation of AAC. These researchers found that family participation

varied across literature, but for teams that included the family, the individual with

communication difficulties benefited from this relationship. Participation from all staff

members is also critical. Bruce et al. (2011) found that the top barrier to AAC success

was early resistance of adults. This came before all behaviors, development and health of

the child with communication difficulties. Without this, the abandonment of the device is

at risk (McNaughton et al., 2008; Shepherd et al., 2009; Stoner et al., 2010).

This participation includes following through with developed plans and goals.

Typically the SLP develops these initially and would monitor the progress as the student

works in the classroom or at home. Participation also includes advocating for the student

when problems to arise as they often do with AAC. Stoner et al. (2012) found that

participants of the study identified problems and barriers with AAC implementation but

did not take appropriate actions to resolve them. In the end, AAC was not successful for

the child as it intended to be.

Commitment by Those Who are Involved

This condition involves the support for the innovation by all stakeholders (Ely,

1978). This is true for the implementation of AAC. Baxter et al. (2012) added, "without

support people, with communication difficulties cannot exploit the potential that these technologies bring" (p. 115). There are many individuals who participate in the decision-making process (Alqurani & Gut, 2012; Baxter et al., 2012; Iacono & Cameron, 2009; Kessel & Sickman, 2010; Stoner et al., 2012). It would be expected that those same individuals would commit to the agreed AAC implementation process. This has been found to be difficult for some SLPs as they do not always consider themselves an "expert" in the area of AAC (Iacono & Cameron, 2009). This lack of participation and acceptance for their role has prohibited children from receiving necessary AAC interventions (Stuart & Ritthaler, 2008; Williams et al., 2011).

Leadership is Evident

Ely (1990) described two roles of leadership, the first as the executive officer of the organization and the second as the project leader who is closely involved in day-to-day activities. This relationship could be between the school principal and SLP, or between the SLP and classroom teachers.

School administrators and leaders play a critical role in the implementation process (Alquraini & Gut, 2008; Calcluator & Black, 2009). Alquraini and Gut (2008) stated, "Administrators are key players in creating a successful inclusive environment for student with severe disabilities through collaboration with other staff members in the schools" (p. 52). Staff relies on administration to assist in problem solving, facilitating training, modeling collaboration, and communication. School administrators are also expected to provide resources and time necessary to engage in these efforts. Often, these leaders are asked to provide emotional support during difficult times.

SLPs also hold an important leadership position when implementing AAC (Stoner et al., 2010). This is a part of the SLP's role in the implementation of AAC (ASHA, 2002). SLPs need to be the leader and expert on AAC in their school. Roles and responsibilities range but leaders and researchers in speech-language pathology have stated that SLPs should lead the team through the assessment process, monitor and update the AAC system, train all participants, and design and implement therapy (ASHA, 2002; Zagnia, 2009).

Relationship Between Conditions

Each of these components contributes to the success of educational change. As Ely (1990) described, not all components must be met to their full potential for change to occur. However, with intentional improvement, change is more likely to be effective if each one is addressed (Ely, 1990). Ely (1990) also described relationships among the conditions. Often one or more conditions were linked with others. The following relationships were identified:

- Dissatisfaction with the status quo was linked with leadership.

- Knowledge was linked with resources, reward, leadership and commitment.

- Resources was linked with commitment, leadership, and rewards.

- Time was linked with participation, commitment, leadership and rewards.

- Rewards was linked with dissatisfaction.

- Participation was linked with time, commitment, knowledge, and rewards.

- Commitment was linked with time, resources, and rewards.

- Leadership was linked to participation, commitment, time, resources, and
rewards.

These connections have also been identified in the literature on AAC. Often, more than

one of the eight conditions were described. For example, Baxter et al., (2012) labeled

family perceptions and support as a key theme regarding the use of AAC. According to

Ely's theory (1990), this would include conditions of collaboration, participation, and

knowledge. Bruce et al. (2011) listed the need for more time to learn as a barrier to

student learning. This would be categorized under time and knowledge according to Ely

(1990). Calculator (2009) stated that resources were a critical component to effective

AAC practices, and that sufficient time should be considered to do this. Again, these

could be coded under each category. For the purposes of this study combinations such as

those listed will be coded separately.

Resolving Barriers

Much of the research in the past has focused on determining the effectiveness of

AAC. This may be for a specific demographic, age group, culture, or setting. As new

technology became readily available more research developed in an attempt to determine

the effectiveness of specific types of AAC such as sign language, speech-generating

devices, or the Picture Exchange Communication System (PECS). While these studies

often identified components that aided or hindered the implementation of the specific

AAC system, overall barriers to the process have not been evaluated in recent years. Few

historical studies evaluated specific barriers associated with AAC (Sutherland et al.,

2005). More research is being added to this knowledge base, but there is a need for more

(Baxter et al., 2012; Bruce et al., 2011). Researchers are also finding that using more than one mode of communication benefits students (Light & McNaughton, 2012; Williams et al., 2008); therefore barriers associated with just one system are simply not enough.

With knowledge of common barriers in the school system, researchers could provide knowledge and training to overcome these barriers and support SLPs in the implementation of AAC. This would impact teachers, therapist, support staff, students, and their families. This impacts the student's life in and outside the school setting.

Research has provided evidence that communication not only allows a student to share their knowledge, but it is also a critical component to the quality and enjoyment of life (Cooper et al., 2009; Shepherd et al., 2009; Stoner et al., 2010; Williams et al., 2008). Collier, McGhie-Richmond, and Self (2010) stated, "the means by which human beings connect and establish relationships with each other, is central to the process of belonging, sharing, and connecting with communities" (p. 48). By using AAC individuals with SLI can communicate to anyone, anywhere. Williams et al. (2008) stated, "As participants in society, individuals who use AAC have the legitimate expectation that AAC technology will support communication with familiar partners and strangers, and enable participation in a range of educational, social, and employment activities" (p. 197). This is a magnificent challenge. The future of AAC begins with successful early implementation and continues with sustainability.

Research Method

Most research in the area of barriers to AAC was performed through qualitative research designs. This design allows researchers to investigate "why" or "how" a

phenomenon occurs (Kuper, Reeves, & Levinson, 2008). The purpose is to explore an individual or group's behavior, values, and experiences in their natural setting (Kitto, Chesters, & Grbich, 2008). This method is inductive and allows themes to emerge from data collected through interactions with the participants (Kuper et al., 2008). A variety of qualitative studies have been used in past years; however, over half of the articles identified for this study utilized previous research as the primary source of data. The most recent study was a systematic review of studies from 2000-2010 (Baxter et al., 2012). Of the 27 studies reviewed, 19 included interviews in their research design. These articles were related to family and staff perceptions regarding the barriers and facilitators to AAC. Upon analysis of these articles, Baxter et al. (2012) was able to identify barriers and facilitators of AAC.

Two additional studies related to barriers to AAC included Iacono and Cameron (2009) and Stoner et al., (2010). Both of these studies utilized qualitative research designs. Iacono & Cameron (2009) explored SLPs' perceptions and experiences using AAC in the early childhood setting. Interview questions were designed to explore the participants' beliefs, attitudes, and knowledge of AAC. After interviewing 14 early childhood SLPs in a combination of group and individual settings, the data were coded based on predetermined themes. These themes included (a) perceptions and use of AAC; (b) best practice; (c) role of family; (d) barriers to AAC; (e) clinical struggles; and (f) clinical expertise.

Stoner et al. (2010) utilized a case study design, evaluating the experiences of an educational team (including the student, SLP, special education teacher, teaching

assistant, and three general education teachers) during the implementation of AAC in an inclusive classroom setting. These researchers interviewed participants and completed document analysis to evaluate their research questions. Interviews were completed before and after the school independently conducted the implementation of AAC. The researchers also evaluated all academic and personal records regarding the students' education and AAC experiences. The data were coded to reveal facilitators and barriers to the implementation of AAC.

Researchers have determined more evidence is needed to evaluate the implementation process of AAC (Iacono & Cameron, 2009; Stoner et al., 2010). Therefore, researchers should evaluate this change process in detail. This implementation of AAC technology can be compared to the research in adaptation of educational technology by Ely (Ely, 1978; 1990). Ely (1978) discovered that educators struggled with integrating technology, such as computers, in the classroom. The author identified specific conditions that must be addressed to promote successful implementation of technology in the school. This theory has been used in previous literature in related topics of education.

Turcotte and Hamel (2008) evaluated the perceived importance of Ely's conditions in regards to Remote Networked Schools (RNS). RNS was an initiative by the Quebec Ministry of Education that was utilized to evaluate information and communication technologies in the school. Thirteen educators completed a questionnaire evaluating their perception of the following conditions: (a) dissatisfaction with the status quo; (b) the existence of knowledge and skills; (c) the availability of resources; and (d)

the availability of time. Turcotte and Hamel (2008) found that most educators ranked resources, and knowledge and skills as the most influential conditions to the acceptance of RNS.

In another related study, Ensminger and Surry (2008) compared how people working K-12 schools, higher education, and business ranked Ely's eight conditions. There were 635 participants who completed online surveys designed to capture their perception of technology and process innovation. Results indicated there were differences among all three groups in terms of values placed on each condition. Their results suggested that leaders take into consideration the type of organization and nature of the innovation.

A final study using Ely's conditions of change as the framework for research was completed by Colley (2012). Using a case study design, Colley (2012) evaluated the adaptation of a new teaching philosophy in a nursing school. Nine faculty members were interviewed exploring their experience with the new innovation. Data were coded and 20 themes were identified within the following five categories: (a) understanding of the philosophy; (b) teaching approaches; (c) mixed responses from students; (d) factors affecting implementation; and (e) perceptions of the current state. The two most critical conditions were availability of time and resources, also identified by Ely (1990).

Summary

The field of AAC has developed in depth and breadth over the last 60 years. Beginning with what was essentially nonexistent, AAC devices are now as accessible as an application on a smart phone. However, access is only a very small part in the

implementation of AAC. Research has found that a number of barriers have been identified that threaten the implementation process of AAC. Researchers do not yet know what factors are most prevalent and which ones are impacting SLPs to the greatest extent. By using Ely's (1990) conditions of change theory, as well other theories and research regarding barriers, I have explained the framework used for this study. It is evident that a study is required to determine which of the factors, combination of the factors, or additional factors impact SLPs during the implementation of AAC at the local setting. The next section will examine methodological considerations for the development of this study. This includes the research design, research questions, ethical protection of the participants, methods for protecting human subjects, role of the researcher, data collection, and data analysis.

Section 3: Research Method

Research Method

To further understand the barriers of AAC, the experiences of SLPs working in a large, urban public school in the Midwest were explored. An exploratory case study design was developed and conducted to do this. This section includes the research design, research questions, ethical protection of the participants, methods for protecting human subjects, role of the researcher, data collection, and data analysis.

Research Design

Quantitative designs explain the relationship between two or more variables (Nenty, 2009). Researchers start by developing a hypothesis about the variables and then begin the study. Researchers have revealed that they are unsure which variables cause the most significant barriers during the implementation of AAC (Baxter et al., 2012; Bruce et al., 2011). Researchers now need to explore common themes through data analysis to identify contributing variables. More information is needed to further understand the barriers of AAC implementation; therefore a qualitative research design was most appropriate.

To explore the experiences of SLPs during the implementation of AAC, an exploratory case study design was selected. Case studies focus on an in-depth exploration of a case (Creswell, 2012). This case is described as an event, entity, individual, or unit of analysis (Yin, 2009). Researchers use multiple sources of data to research this case to ensure that several facets of the event are explored (Baxter & Jack, 2008). An exploratory case study was selected because there was no clear, single set of outcomes (Yin, 2009).

Other qualitative research designs were considered such as a phenomenological design. This design was rejected because it focuses on an in-depth understanding of human behavior associated with an event rather than describing the activities of the group (Creswell, 2012). Grounded theory was also rejected because it is used to generate a theory that explains an event (Ellis & Levy, 2009). In this situation, the research on barriers to AAC implementation is relatively new. A widely accepted theory does not yet exist and most likely an original theory would not be developed based on this study. An ethnographic study was also considered but rejected based on the involvement necessary for the researcher to fully merge with the environment and participants (Blomberg & Burrell, 2009). That level of understanding was not the purpose of this study.

Research Question

Based on the local problem of barriers during the implementation of AAC and the literature review of this topic, the following research questions were developed for this study:

1. What are the school-based SLPs' described experiences with using AAC communication at the local setting?

2. What are the perceived barriers experienced by school-based SLPs' during the implementation of AAC communication at the local setting?

3. What are the school-based SLPs' suggestions for improving the implementation of AAC communication?

Criteria for Selecting Participants

To explore this problem, SLPs working in the schools were targeted. The school studied was a large, urban public school in the Midwest. This school had over 19,000 students in 21 elementary schools, five middle schools, four high schools, and four preschool programs. Eight SLPs were selected to participate in semi-structured interviews.

When selecting a number of participants, researchers should consider the amount of participants that will be required to explore the phenomena (Yin, 2013). With a small number of participants, researchers risk the ability to apply their results to the greater population; however, with large sample sizes researchers struggle analyzing such a large amount of data (Yin, 2013). Yin (2013) stated, "The only way of increasing the number of cases to some substantial level would mean sacrificing the in-depth and contextual nature of the insights inherent in using the case study in the first place" (p. 325). With eight participants, I was able to deeply analyze the data and provide recommendations to the sample population. The eight therapists needed to meet the following criteria: (a) SLPs held current ASHA certification; (b) SLPs were employed through the research site; and (c) SLPs had worked with children in the past or were currently working with children requiring AAC.

Ethical Protection of the Participants

Steps were taken to gain Walden IRB approval before any further actions were taken. This assured ethical protection for all stakeholders. The next step in my research was to gain approval from the research site. This involved the completion of the conduct

research application (Appendix A). This application requested a summary of the research purpose and scope, methods, evidence the study had been approved through the human subjects process, evidence that building principals and teachers were aware they could opt out of participation without consequence, and assurance I would report results at the end of the study.

Once approval was granted from both the research site, and Walden University's IRB, the conduct research application was signed by the director of research, evaluation and accountability. This confirmed full cooperation from the district. From that point, eight SLPs were selected through purposeful sampling. I sent an e-mail to request participation (Appendix B) to all SLPs working preschool through 12th grade, explaining the study and the necessary qualifications for their participation in the study. A follow up e-mail was sent 2 weeks after the original, requesting additional participants (Appendix C). After the volunteers replied indicating their interest in the study, they were asked about their experience with AAC. The selection of eight participants was then based on grade level served and their experience working with AAC.

Once this was completed, informed consent (Appendix D) was obtained from the SLPs. This consent included aspects of voluntariness, comprehension, and disclosure (National Institutes of Health Office of Extramural Research [NIH Office of Extramural Research], 2011). Voluntariness addressed the individuals' decision about participating in the study and assured they were not influenced by anyone conducting the research, including myself (NIH Office of Extramural Research, 2011). By including aspects of comprehension, the consent assured the participants had the mental capacity to

understand the study and make an informed decision. This indicated they had sound

mental health and cognitive ability to choose to participate in the study, and understood

the results of doing so. Although no foreseen risks were involved with this study, a

disclosure was also provided as a part of the informed consent to participate. According

to the National Institutes of Health Office of Extramural Research (2011), this would

include the purpose of the study, any reasonably foreseeable risks to the individual,

potential benefits to the individual or others, the extent of confidentiality protections for

the individual, contact information for questions regarding the study, and the conditions

of participation, including right to refuse or withdraw without penalty.

Role of the Researcher

In qualitative research, there is a potential for biases in that the researcher's own

conceptions or ideas will influence the participant and the researcher may analyze the

data in ways that are not accurate. Validity is increased as the researcher controls

personal bias (Creswell, 2012). This process requires intentional efforts to set aside all

bias and personal beliefs, but this also meant that I would not influence the participants'

opinions or views of the problem (Chan, Fung & Chien, 2013). I am aware of my own

bias toward AAC. I believe there are a number of factors that delay or prohibit the

implementation of AAC. Those that impact me to the greatest extent include the lack of

time, participation of the whole team, and lack of resources. These were controlled

through reflective field notes, gaining clarification from each participant throughout the

interview, as well as the review of these notes with my chairman (Bogdan & Biklen,

2007; Creswell, 2012).

At the time of this study I was a SLP for the district and worked in the early childhood special education setting. For this particular study, it was likely I would know some of the SLPs due to current employment with the district; however, my experiences and relationships were not likely to impact how the SLPs answered the questions. We all held parallel positions within the district and my opinions and responses would not impact their jobs whatsoever. However, because there was a chance the SLPs would provide answers to appease me, steps were taken to address this issue. Before the interview, I expressed the importance of honesty and that their experiences would be used to benefit research. I also assured them that all interviews were confidential and participants would remain anonymous to protect their identity. Many of these issues were addressed during the review of informed consent.

Data Collection

Interviews have been found to be the most common and effective form of data collection for case studies (Noor, 2008). The researcher should ask broad, open-ended questions that allow themes to emerge throughout the study to answer the research question (Creswell, 2012). Unlike observations, interviews allow the researcher to explore topics connected to the study as they emerge through conversation. More control is granted to the researcher to probe for more data, resulting in a deeper understanding of the phenomenon (Creswell, 2012). For this study, interview questions that connect to Ely's theory were asked to identify key themes during the implementation of AAC. Additional themes emerged from the data through this process. The interview questions

did not lead the participants to admitting a relationship to the Ely's theory; rather they created an opportunity for the participants to share their experiences.

Each of the eight selected SLPs participated in individual, semi-structured interviews. Data were collected through an audio recording of the interview that lasted approximately 40 minutes. Additional notes were taken in the event that the recorder did not work, and was used as a tool to probe for additional questions throughout the interview. Description of the participant's body language, tone, positioning, and other suprasegmental characteristics were also noted. This additional information added to my understanding. Sarcasm, exaggeration, and eye rolling all provided additional meaning to speech. Once a time and a quiet, distraction free location was determined the interview began. After each interview, additional field notes were completed to document a description of the people, conversations, personal reflection, and possible bias (Bogdan & Biklen, 2007).

The interview protocol (Appendix E) included questions exploring the SLPs' experience with AAC. Additional follow up and probing questions were asked as well. Those probes will included (a) tell me more about that; (b) describe that to me more; and (c) will you explain that in more detail. These questions were used to assure accurate interpretation of the data provided by the participant (Creswell, 2012). Additional notes were taken during the interview process documenting body language, changes in tone, or facial expressions. These nonverbal cues contributed to the interpretation of the data.

Participants were tracked by using numerical codes to increase confidentiality (NIH Office of Extramural Research, 2011). To increase credibility and dependability of

the study an audit trail was documented. Rumrill et al. (2011) stated an audit trail

included raw data as well as the reconstruction and synthesis of data. This information

could be used to replicate the study or to develop future research.

Additional data was also collected for this study. This data was analyzed through

a process called document analysis. A key characteristic of case study design requires

multiple sources of data (Noor, 2008). My second course of data came from documents

related to professional development and funding connected to AAC. This could have

included agendas, attendance registers, minutes of meetings, event programs, letters,

program proposals, or reports. Documents yielding data related to the hardware or

software access for student requiring AAC was requested, as well as all professional

development trainings, events, conference, or communications. This request was sent to

the leaders in AAC at research site. These data were used to determine how the school

district was addressing AAC. Follow up questions were necessary to fully understand the

document.

Data Analysis

Once data were collected, analysis process began. All data were coded and

categorized by theme to help develop concepts about the study (Bogdan & Biklen, 2007).

Each transcript was examined individually. This began with a typed transcription of all

interviews. Each participant received a copy of this transcript and reviewed it for

accuracy. Ordinary themes or statements associated with Ely's theory were then color-

coded and categorized. Additional colors were used for unexpected or weakly noted

themes such as family involvement or legal concerns. If two or more of Ely's (1978)

conditions overlapped, each condition was highlighted separately. For example, if the

participant stated the IEP team did not fully participate because of time constraints, both

participation and lack of time were highlighted. Documents were also coded.

Next, an analysis of all data took place. A synthesized summary of each theme

was developed. I evaluated prevalent themes and justified them through descriptive

narrative of the data. After this analysis, follow up interviews were utilized to further

comprehend the perceived barriers if responses were not sufficient enough to answer the

research question. Data was be presented in a narrative rather than table format. This

allowed me to describe in detail what the data revealed.

Validity and Trustworthiness

Once all data are transcribed member checking was completed. This process was

used to determine the accuracy of the researcher's understanding. This ultimately

increased the validity of the findings and assured accurate interpretation of the data

(Creswell, 2012). However, this process was limited, as only transcriptions were shared

with the participants. Transcripts were e-mailed to the participants and they were asked to

review them to confirm the accuracy of the transcription. Conversations were done

through e-mail and over the phone. Triangulation of data was also completed through

review of interview data and document analysis. This contributed to the accuracy and

credibility of the study (Creswell, 2012). Personal bias was reviewed at the beginning of

this proposal as well as the assumptions, limitation, and delimitations associated with this

study. Personal bias was controlled by writing reflective field notes which included

describing personal feelings, insights, or ideas regarding the conversation after interview

(Creswell, 2012). Frequent communication and debriefing with my chairman regarding the study contributed to controlling personal bias.

Summary

By developing a detailed method of research, a study is more likely to produce legitimate, valid results and conclusions (Ellis & Levy, 2009). This section described the research design as a qualitative, case study research design. Three research questions were developed focusing on the perceived barriers to the implementation of AAC. Ethical protection of the participant as well as the methods to accomplish this were discussed. This involved gaining the research site's conduct research application and IRB approval, as well as signing the consent form. Once these steps were finalized, data collection began through individual semi-structured interviews and document analysis. The data were analyzed, evaluating which of Ely's conditions emerged and what combinations of barriers the participants presented.

Section 4: Results

Overview

SLPs were experiencing barriers implementing AAC effectively in a large, urban public school in the Midwest. The purpose of this study was to better understand these problems and obtain suggestions for change by exploring the perceptions of purposefully selected SLPs who had experience working with AAC at the local research site.

In this section I describe the research tools and analysis methods I used to address each of the three research questions for this study. The research questions for this study included the following: (a) what are the school-based SLPs' described experiences with using AAC communication at the local setting; (b) what are the perceived barriers experienced by school-based SLPs' during the implementation of AAC communication at the local setting; and (c) what are the school-based SLPs' suggestions for improving the implementation of AAC communication? Data were collected to answer these questions through individual, semi-structured interviews with eight SLPs, as well as document analysis.

Collection of Data

On June 24, 2014, I e-mailed all district SLPs serving students from early childhood through 12th grade requesting participation in the study; an additional e-mail was sent out after 2 weeks. Out of 38 SLPs, a total of 13 responded expressed interest in the study over a 5-week span. A follow-up e-mail was automatically sent to all SLPs expressing interest, exploring their background and experience working with student using AAC. Three of the SLPs did not meet the criteria established for the study, such as

having legitimate experience working with students requiring AAC. Three of the SLPs did not respond to follow-up e-mails.

Between July 10, 2014 and August 27, 2014, eight interviews were conducted. A copy of the consent form was sent via e-mail for the participants to review. I explained the study, reviewed the consent form, answered any questions that the participant asked, and then had the participant sign the consent form before I began the interview. All interviews were recorded using a digital voice recorder, and field notes were taken on context, nonverbal cues, and follow-up questions to ask. Interviews were guided by the interview protocol (Appendix E) with additional probing questions asked, as needed. I also confirmed their answers throughout the interview by summarizing their responses and asking for verification (for example, "And it sounds like you are making all of these decisions. Is that correct?"). I then transcribed all interviews and e-mailed them to the participants for member checking. Five of the participants did not change anything on the transcripts. Three made a few grammatical corrections and changed the spelling of a name. This entire process took approximately 9 weeks to complete.

For document analysis a total of 15 e-mails, three phone calls, and one personal meeting were conducted with leaders in AAC, including the related services coordinator and assistive technology specialists (ATS). A total of eight documents were provided, including a document describing trainings, outside sources utilized, IEP team members, and the evaluation process. The other seven documents included evidence of AAC trainings provided to an elementary school, and blank data sheets, AAC request forms, a grant request form, and a blank review of existing data documentation form. Of the eight,

one of the documents was included in evidence used for analysis; other forms were utilized as supplemental information from personal communications. Documents were also requested from the early childhood special education administrators. Additional research was conducted using the district website. Public school board documents were searched using a variety of search terms including *augmentative and alternative communication, assistive technology, AAC, technology, AT,* and *assistive technology specialists*. Several documents were found associated with technology and the districts plans to increase the use of technology; however, few were also connected with special education or AAC. An additional two documents were identified as applicable to the study. These included the IDEA Compliance Plan 2014 and Balanced Scorecard 2014-2015.

Participants

All eight SLPs participating in the interviews had earned their Clinical Certification of Competency from ASHA. All were women with varying degrees of work experience ranging from 1 to 16 years. Within those years of experience, the SLPs had worked with AAC for 1 to 15 years. One SLP stated they had worked with one to five students with AAC; two SLPs had worked with five to 10 students with AAC; and five had worked with 15 or more students with AAC. Five of the eight SLPs worked in early childhood special educations, while the remaining three worked with kindergarten through fifth grade (K-5) students. All SLPs stated they had at least one course on AAC in undergraduate or graduate school. They all currently had one student using some form of AAC (low or high tech) and had previous experiences using AAC as well.

System of Tracking Data

All interviews were initially transcribed into a Word document and saved according to their participant code 1-8. This document was sent to each participant for member checking. Field notes were kept in a notebook. Once transcripts were reviewed by all participants, they were copied into an Excel spreadsheet. Each interview was saved onto its own spreadsheet and saved as its corresponding participant code. Four columns were used to code and provide additional information. The first column was used to code each response according to themes associated with Ely's theory (1978), as well as new themes including family, funding, and legal. Many responses were coded with more than one theme. For example, SLP 5 responded, "Well sometimes it's hard to convince others to have that buy-in and to understand the necessity for it", which was coded under knowledge and participation. The second column was utilized for paraphrasing the response to increase my own understanding and aid in merging the data. The third column was for coding each response according to which research question it addressed. This aided in the analysis of the information. The final column was used for noting any nonverbal behaviors, changes in tone, or posture demonstrated by the participant. Filters were then applied to each spreadsheet to further support the analysis of each theme and research question. Spreadsheets were also printed out to use during analysis. For document analysis, documents were saved to a protected jump drive as a PDF and printed out for review.

Results

The purpose of this study was to better understand the barriers SLPs experience when implementing AAC in a large, urban public school in the Midwest. Analysis of the data revealed the following results for each research question.

Research Question 1

Information was gathered during the interviews regarding the SLPs' experience using AAC. Topics included their years of experience working as a SLP and working with AAC. I also asked how many children they had served using AAC. The SLPs explained their level of involvement evaluating and maintaining AAC, team participation, motivation to use AAC, and their training in AAC. The following data were revealed.

Professional experience. All SLPs had worked with at least one child using high-tech AAC, low-tech AAC, or a combination of the two. Two had worked with five to 10 students with AAC and five had worked with 15 or more students.

Evaluation experience. The SLPs' involvement with the AAC evaluation varied. The early childhood SLPs were responsible for leading the AAC evaluation, whereas the K-5 SLPs collaborated and provided additional speech and language data for the district's ATS but were not responsible for the actual AAC evaluation. SLP 6, a K-5 SLP, explained:

> So then she [ATS] is part of the IEP team so she would sit in on a diagnostic
> meeting and go over data after she does her evaluation and she would meet with
> the IEP team or the diagnostic team and normally she talks about the AAC part of
> it specifically, and then I talk more about the communication and classroom and

what happens throughout the day and that kind of thing. And then we talk about

merging those two together and what, how we can benefit the child more.

Other members such as the special education teacher, regular education teacher, and

occupational therapist also contributed information during this evaluation. Once the

evaluation was complete, the K-5 SLPs continued to collaborate, troubleshoot, and

problem solve with the ATS as needed or indicated on the student's IEP. SLP 3 stated:

for the school age aspect when they have a device they still leave AAC consult.

And it's something really little maybe 15 minutes a quarter… And then they

check in with us. And then typically, they're then invited to the IEP

Two of the three K-5 SLPs reported that their special education teachers would also

contact the ATS for help as needed. SLP 3 explained:

I think that [who the teacher goes to for support] also kind of depends on the

teacher. Like one of them [special education teachers]… one goes to me

predominately and the then other one she usually comes to me first and if we

can't figure it out, she will seek [ATS] out instead of me… And then for any low

tech it's usually just the teacher and I.

All of the K-5 SLPs found this an important element in the success of AAC

implementation and did not feel comfortable conducting an AAC evaluation

independently without this support. SLP 6 stated:

the evaluation phase I wouldn't have a clue how to do that. If [ATS] weren't there

doing it for me I wouldn't know how to do and I wouldn't know the resources

where those devices come from and all of that stuff.

The early childhood SLPs independently led AAC evaluations; however, three of the five were not confident in doing this independently and collaborated with other SLPs when doing this. When asked what the participant would do if an evaluation was needed, SLP 5 explained, "I would consult with another therapist… I'd say 'hey where do I even start? What would be your first step?"

This indicated that some SLPs had little experience conducting AAC evaluations independently.

Team participation. All eight of the SLPs had some level of IEP team participation and collaboration, including the special education teacher, instructional assistants, occupational therapists, and occasionally physical therapists. This team participation varied between each SLP. Three of the SLPs believed their IEP team was fully participating. When asked who was involved on her team, SLP 6 replied, "Regular ED teacher, special ED teacher. Yeah other therapists. OT and PT both."

SLP 5 stated that the team did not participate, "It [participation] is a huge problem, and I feel like I end up becoming the bad person or the snot, you know we have to use it because someone says we have to." The remaining four participants had mixed levels of participation throughout the implementation process.

This lack on participation could be related to other factors such as a decrease in knowledge of AAC and time allowed for training and team building. SLP 8 explained the results of increased team participation, "when I was in the building longer and they had me. When they had a problem they could come get me and help me walk, walk them through that. That's when I started seeing a big change." SLP 3 on the other hand stated,

"Only the teacher and myself are the ones that do most of the programming. And it's mostly me; the teacher just doesn't do it enough to feel comfortable with it". In this situation, the SLP did not have team participation.

Motivation to use AAC. SLP 2 explained why she enjoyed using AAC, "it's one of my highlights when they figure out a system that works for them and you can just see some of their frustration and behaviors kind of disappear." Overall, seven of the eight SLPs were motivated to use AAC. Conversely, SLP 7 stated she was not motivated by AAC, stating, "It's a lot of work due to the time requirement to learn the device and to program it." All other SLPs indicated they were rewarded or motivated by student progress, personal connections made with the child, and positive feedback from the student and other staff members. Two of the SLPs added that this motivation often wears off as the novelty of the AAC device decreases for the students, but that it increased again each year as they updated the child's IEP and established new goals.

Education. In terms of education, all SLPs had some level of exposure to AAC in graduate school. This ranged from participating in AAC labs, taking courses in AAC, or learning about AAC as it was related to other courses. None of the SLPs appeared to feel like this was enough training. SLP 2 stated:

> I took AAC classes, a course in grad school and then we had access to the KU
> AAC lab, which basically let me see and play around with a lot of the different
> devices. You know I guess I could go and pick one and figure it out now but I'm
> not familiar with most of them anymore.

Post graduation, all early childhood SLPs had attended at least one official AAC

conference or training. This was confirmed through document analysis (PECS Training).

Although the K-5 SLPs had not attended official AAC conferences or trainings they

received in-house trainings from onsite employees. SLP 6 explained:

> I did like; it wasn't like a PECS certified training, but it was like a district level,
>
> kind of just overview. It was a research site person. And it would have been like
>
> 10 years ago probably. And that's all the training I've had.

It was indicated that all the SLPs thought they needed to know more about AAC and they

required more training. When asked what was hindering SLP 5 the most from using AAC

successfully, she replied, "My own confidence in it. And my own knowledge of it". This

lack of knowledge was reflected in her lack of confidence.

Research Question 2

Many topics emerged from this data when discussing SLPs perceived barriers

during the implementation of AAC. Main themes discussed included the eight conditions

described by Ely (1978) as well as family involvement. Data from these themes will be

described.

SLPs dissatisfaction with the status quo. SLPs referred to dissatisfaction with

the current status as a reason for attempting or continuing AAC. SLPs were unhappy with

the progress the child had previously made so they attempted AAC. However, three of

the SLPs stated that their teams were not dissatisfied enough to commit to using AAC.

SLP 6 explained that her teachers did not have an urgency to use the device and would

choose to go without if they had difficulties with it. The participant explained this situation,

> And so then I get there and it's, "well, for three days chocolate milk hasn't been working and so he hasn't had to use his device to request for that. You know the assistant has been saying 'say chocolate milk'."

This indicated that the teachers and instructional assistants were not dissatisfied with how the student was performing in class and simply abandoned the device. However, this could be directly related to the lack of knowledge and commitment to using the device. SLP 6 added, "Well sometimes is hard to convince others to have that buy-in and to understand the necessity for it." When asked if the teachers had asked for more training SLP 6 replied, "I don't think so and I don't think they really care, if that makes sense."

SLP 8 assumed teachers were more open to using AAC if they could see that it would help classroom management. SLP 8 stated, "I think the more the child is struggling and the more it is impacting their day, the teacher's day, the more likely they are to use it, if they see it succeed."

SLP 1 felt that dissatisfaction with student progress was why parents were motivated to use AAC, "they [families] were just so excited to have something [AAC] and have somebody believing that their child may benefit from something."

According to document analysis, it was interpreted that the district had been somewhat dissatisfied with the status quo and had made attempts to increase AAC training, resources, and provided more devices to SLPs. The district created an Assistive Technology Specialists position in 2010 to provide extra support training, evaluating,

implementing and maintaining AAC in the K-5 setting. In the early childhood setting,

several devices had been bought over the last 4 years and all special education teachers

and SLPs had attended an official PECS training according to purchase orders obtained

from the building administrator. Additional purchase orders provided evidence of two

SLPs attending an advanced PECS training, and three staff members attending an

Assistive Technology Convention in 2014.

District administrators stated that technology would be used as an "exemplary

learning tool" across the district but they did not go into detail regarding technology

bought for special education purposes (█████████████ Schools, 2014a). The IDEA

Compliance Plan (█████████████ Schools, 2014b) did explain that assistive

technology devices and services would be provided if the student required those services.

Need for more knowledge and training. All SLPs stated that they or their teams

needed more knowledge and training in AAC. Further analysis revealed that although all

early childhood SLPs had attended an official AAC training or conference, none of the

K-5 SLPs had. Their trainings were in house and provided by the ATS. Document

analysis supported this claim, based on purchase orders obtained from the early

childhood setting, and an agenda from an elementary school AAC training. One major

benefit of the ATS was that trainings were provided for the IEP team staff including

teachers and instructional assistants. SLP 3 stated, "ATS has come out at the beginning of

the year to try to work with people I think in a one-on-one basis like depending on what

device the student has." SLP 6 explained:

> That person [ATS] came in and trained me and the classroom teacher in one
>
> training and trained the parents at a different training. So there's definitely
>
> opportunities to get the training on the device before you are expected to know
>
> how to use it in the classroom.

Only two of the eight SLP felt comfortable conducting AAC evaluations independently.

SLP 4 stated:

> I'm not trained to do AAC evaluations… there are pieces of it that I know I'm
>
> missing that someone who is trained specifically in that area would be able to take
>
> even a 10 minute observation of what I'm looking at and pull completely different
>
> information out of it.

At the K-5 level, the ATS leads the AAC evaluation and all relied on this support. The K-5 SLPs explained that they provided valuable information regarding the child's overall communication skills, and worked with the IEP team and ATS to make initial AAC decisions. All K-5 SLPs were pleased with this process but also explained that they wished they knew more. SLP 6 stated:

> I wouldn't have a clue how to do that [an evaluation]. If [ATS] weren't there
>
> doing it for me I wouldn't know how to do it and I wouldn't know the resources
>
> and the contacts where those devices come from and all of that stuff.

This support continued through a 6-8 week trial period to determine if the device was appropriate and then as needed.

Several SLPs revealed this lack of knowledge translated to a lack of confidence when implementing and making AAC decisions. Several of the SLPs related this to

decreased team participation and commitment to AAC. SLP 4 stated, "If I don't have the training and I'm a little unsure as to what I might be doing, it's hard to get other people on board." If the SLP did not have enough knowledge to confidently implement AAC, the team was impacted by this and also appeared to be less confident in the AAC process. SLP 5 described similar feelings, "I feel like if were more knowledgeable, then… you present better when you are more knowledgeable about something. And you can get the buy-in if you have more confidence in it."

Knowledge was not limited to the SLP. All SLPs expressed that the IEP team, including building principals, regular education teachers, special education teachers, instructional assistances, therapists, and other building staff members, lacked experience and needed training. SLP 3 explained, "when [school principal] first came to our building we talked and [school principal] just does not have a strong background in SPED. Like that's an area [school principal] feels uncomfortable with just because [school principal] has limited experience." All SLPs stressed the importance of AAC knowledge, as well as overall language acquisition. SLP 1 stated that team knowledge was her primary barrier to AAC because of the close relationship to buy-in and commitment to using it. SLP 1 stated, "… my biggest area of concern to be more effective would be that more people would have more training within our building." SLP 1 added, "That OTs would get training, PTs would get training, that there would be a wider base of educationally relevant knowledge on how to implement the devices in multiple ways within the building or within the child's day." SLP 6 justified the importance of training and knowledge, adding that when her IEP team was more confident and familiar with AAC it

was more successful. SLP 5 specifically mentioned she believed administrators should also have training, "the administrator would need to be involved in that training too. So they can be another contact person for saying, 'I'm having problems with this can you help'."

Many also stated that there were concerns about staff members' knowledge of language acquisition and service delivery models such as pull-in therapy versus push-in methods. SLP 3 explained her difficulties with using a push-in delivery model:

It's [push-in therapy] hard to explain to the team and I sometimes feel a little outnumbered, even if you are like the specialists in your area. Where there are four people that don't understand that [service delivery model] and what the goal is and what I would be doing. I think that's hard. And I don't think… a lot of SLPs do that; a lot of push-in. And so I think its something that they are unfamiliar with and what that could look like.

SLP 8 also explained how this applies to parents as well, "I think that's a lot of the education process is helping the parents understand how it [AAC] can facilitate communication."

It is very important to consider the causes of lack of knowledge. Time is a critical factor associated with training. This involves the training for SLPs and all other members of the team. When asked why they did not get more training or learn more about AAC, all SLPs discussed their lack of time available to do so. There simply was not enough time in the workday to learn the device themselves, as well as teach others how to use it. When asked why she did not learn on her own SLP 4 stated, "I probably could, but not in

my workday." When asked what she needed to be more successful SLP 6 stated more training for staff members but also added, "Well I mean I think more training for me too. Because like I said I have very limited training on specific devices and the only training I have is from [ATS]." Overall, SLPs wanted to know more about AAC evaluation, implementation, maintenance, and upkeep of the device. Although none of the SLPs mentioned it, financial resources are also needed to either send people to trainings or come to the building site to provide training for the team, as well as administrative support to address the factors and provide training.

Lack of resources. Many different resources were mentioned during the evaluation, including materials needed to implement AAC, more staff, troubleshooting and technology support, and devices. Two of the SLPs stated that one of their greatest areas of difficulty was making all of the materials that were needed to implement AAC. This was the direct result of not having enough time. SLP 7 explained:

> I don't have enough time. Even to create the static communication boards because for every aspect of the day it's needed. Even just using visuals with most of our kids could take up my entire day making, making boards, putting pictures together and creating something for each kiddo. And each kiddo has seven different activities they need it for and then it changes and routines changes and classrooms change.

SLP 8 explained, "Usually it's that teachers come to me the last minute 'oh I need this'. OK well it's going to take me a week to get it made and to get it laminated." She added

that it would be nice to have things already made but due to the individual needs of her students they are typically not developed beforehand.

Many SLPs discussed the need for help troubleshooting AAC devices and their concerns with having the resources to help during these times. All K-5 SLPs utilized the ATS for help learning and troubleshooting their device. Early childhood SLPs did not have direct access to the ATS, in fact they did not mention them as a possibility. This demonstrates a lack of a knowledgeable leader in this area. Rather, they relied on calling the device's technology support line or consulting with other early childhood SLPs. SLP 1 stated that they needed someone to help with this issue:

It feels like I need constant feedback from somebody who is really immersed in that area of expertise that is telling me or that I would seek them out to get more feedback on what's happening now.

All SLPs discussed issues of shared responsibility of making materials, programming devices, and learning AAC. Varied results were revealed. SLP 1 explained she had never received help programming devices, whereas SLP 2 had a team who could implement the beginning stages of AAC even if she was not present. She stated, "So they can start implementing it [AAC] immediately at snack and I'm not even always the one to start."

Several SLPs utilized trained, instructional assistants to help with this process, but it was still difficult for them to have everything made and ready to go. Others did not have the time to train teachers and instructional assistants to use computer software to make necessary materials or to program the device. SLP 2 said, "I personally can't

picture trying to train them to use Boardmaker and when they would have the time to do it." Half of the SLPs interviewed expressed that they needed access to more voice output devices to be effective. Two of the four did directly relate this to a funding issue, however the other two did not. Overall, all SLPs needed help making materials and programing devices. They said there was a lack of devices and staff to support AAC implementation.

   Lack of time. The lack of time was one of the top barriers discussed during the interviews. This could be due to the direct connection to training, building knowledge, planning with team members, making materials, programming devices, involving family, and working with students. A substantial amount of quality time is needed for each of these factors and SLPs stated that they simply did not have enough. SLP 7 said, "We don't have time during the school day. If we get it done it's because we are going in early or staying late when we don't have IEP meetings."

SLP 1 explained:

   Programing a device takes a lot of time… I want to say that it doesn't hold me

   back, because I want to say that if it needs to be done I do it. But in the back of

   my mind I can't ignore the fact that it takes a lot of time.

In terms of learning more about AAC, SLP 4 stated, "I probably could [learn on my own], but not in my workday." Planning was also impacted when SLPs did not have enough time. SLP 6 explained, "Just having time to go to those different settings with them and figure out what they need and having the time to develop boards and pictures or whatever and I mean that just takes up time."

Some SLPs felt that time with the students was what they needed the most. SLP 2 stated, "It's the actual implementation when the kids are in the building. That time is so limited for me." SLP 8 explained that because she spent more time in each site she visited, AAC had been more successful:

Some of them… I just didn't have the time that first and second year I was here. I went to a lot of spots. And literally it was drive by. I came, I saw the kid I ran out the door and so with those teachers I don't think, even if I would have given them training time; I think they would have needed to see me longer. I would have needed some consistent consulting time with them to implement those.

When discussing factors that helped her, SLP 8 went on to explain she needed more time to provide training, education, and modeling for her teachers:

And provide them that model and enough information so that they feel comfortable … Until they feel comfortable working it in naturally to their routine it doesn't get effectively used typically. So making sure they understand where that can come in and where it can help. I think that's one of the biggest pieces is making that connection with the teacher as to why we are using this and how to use it and make them feel really comfortable with it.

Because of the significant amount of time required for AAC, SLP 7 stated that she was not motivated to use it. She explained:

It's difficult to continue to be motivated with AAC especially with the high tech ones. With every AAC device being so different and being programed differently. And you not only have to teach yourself but teach your patient or client how to

use the device and to trust that it is used when you aren't around. So generally speaking, I think that most SLPs probably have the opinion of when they see an AAC device that they are like 'oh great, here we go'. Because they know it's a headache of, 'I know I'm gonna have to take this home over the weekend, when I'm not being paid for this, to figure out how use it, what to do with it, how to teach the patient to use it'.

The lack of time was discussed by all SLPs. It was a top barrier for many and impacted several other areas including materials, participation, and motivation.

Reward and motivation to use AAC . Except for one SLP, all others stated that they were motivated or rewarded by student progress to use AAC. Those SLPs who discussed this demonstrated great expressions of joy on their faces with smiles and a positive tone of voice. SLP 2 said, "It's one of my highlights when they figure out a system that works for them." SLP 1 also discussed the importance of reward and praise from administration:

I just get excited to see kids progress. It just drives me to see kids come to that [point] who are essentially nonverbal, nonfunctional with their communication; and then when you figure out that just right challenge and they start progressing, it's just so exciting. I think that in my experience, I've had limited no, well I won't say no, but I've had limited accolades, I don't know how else to say it. Or positive feedback from other professionals like 'hey good job'. You don't get anything like that, but internally I know the kids have progressed.

She went on to explain that the more praise they got, the more likely they were to continue their behavior. She stated:

> I think that people really like feedback. They like positive affirmation from administration… When you actually see a teacher follow through to the best of their ability, it's because they've gotten positive feedback, some kind of acknowledgement of how good they are at something, how well they are implementing something and it sparks their 'oh yeah I should do that more'.

This feedback can also come from their students. SLP 5 explained why she thought teachers continued to use AAC:

> For the people that don't have the background of knowing how important something like this is to keep trying; when they see that it's being used, then the team is more opt to keep it going because they see a difference.

> Not everyone was motivated to use AAC. SLP 7 stated, "It's a lot of work because it took a significant amount of time to learn the device and train others to use it." This was most likely linked to lack of time. SLP 6 stated that her teachers were not motivated or rewarded to use AAC, "Yeah, and it's not important to them [special education teachers]. They don't see the reward in it."

Aside from one SLP who was not motivated to use AAC, all other SLPs were motivated to use it regardless of the difficulties they may encounter; however, some SLPs did not believe the whole team felt this way. This negatively impacted the implementation of AAC.

Team participation. Participation was a very frequent theme discussed during all interviews. Six of the eight SLPs had team participation during the evaluation process, and two mentioned involving families during the evaluation. Once the AAC plan was developed, SLPs had mixed participation. All other SLPs stated that participation was a barrier at some level during the implementation of AAC. Some SLPs struggled with participation from regular education teachers as well. SLP 6 stated, "I feel like the part that we are really missing is the regular ED piece. Because it's not like I can be in the regular ED room every single day with that child." For other SLPs, they struggled with all members of the IEP team. SLP 5 explained: "The buy-in… Yeah. It's a huge problem." SLP 4 stated:

> the [AAC] duties are kind of always put on the SLP but it takes the whole team to keep it going. I mean if the child is going to use the device then the PT should know how to use it, the OT should know how to use it, as well as program it and that kind of stuff.

> SLP 7 stated that the device was often abandoned by the teacher and instructional assistant. "I often found that when I came into the classroom they [special education teacher and instructional assistant] had taken the device away from the student because he was playing with it."

The cause of decreased participation varied. For some, it was believed that the lack of participation was due to lack of knowledge, understanding of language acquisition, and understanding the importance of using AAC. SLP 5 stated, "Well

sometimes is hard to convince others to have that buy-in and to understand the necessity

for it."

At times, the lack of confidence in the SLP appeared to be related to be decreased

participation. SLP 5 went on to explain:

> My own confidence in it and my own knowledge of it hinders the AAC process.
>
> Because I feel like if were more knowledgeable, then I would; you present better
>
> when you are more knowledgeable about something. And you can get the buy-in
>
> if you have more confidence in it and say, 'hey this is awesome and this has
>
> worked so many times'. And if I don't have that in myself, then it's hard to get
>
> that from someone else.

> Overall, several SLPs, including those who had full participation, suggested that

an increase of team participation increased the effectiveness of AAC. The SLPs also

acknowledged that this participation began by increasing knowledge of AAC.

Team commitment. Commitment was another commonly discussed barrier

during the interview process. All SLPs mentioned that commitment from the IEP team

was critical for the success of AAC. This commitment was described in terms of using

the device throughout the entire day, as well as consecutive days at a time. Three of the

eight SLPs stated that it was one of the top barriers in their setting. SLP 7 stated that the

device was often not available to the student because it was taken away or not in an

accessible location for the student:

> Regardless of what type of organizational system we tried to set up, that PECS
>
> board was always in some place different in the classroom. It was not at his desk

because it was taken away from him, or his desk was turned around and he

couldn't get into his desk, or it was removed and was on the shelf.

SLP 6 stated her frustrations with the lack of commitment using AAC throughout the

child's entire day including time spend in regular education:

I know for a fact that especially in like specials… those teachers don't have any

training, they don't have any idea what those kids are capable of communication

wise. You know nobody sends their device with them to PE because they don't

want anything to happen to it so they leave it in the classroom.

And SLP 8 explained her difficulties getting continuous commitment to using AAC:

Some teachers don't give it enough time. That's when, 'well we tried that'. 'OK

well I just gave it to you three days ago. We need a good two weeks then we can

talk but we really need to give them a full month for them to even try this'.

As mentioned by SLP 6, commitment could be related to other factors such as lack of

education, time spent on training, and working as a team. SLP 6 explained an

unsuccessful experience working with a new teacher with little to no background working

with AAC:

She [the new special education teacher] did not have a lot of experience with

severely disabled kids and she would flat out tell the administration, 'I have no

idea what I'm doing. I need help, I need training, I need support'. And she really

felt like she didn't know what she was doing and she didn't get the training that

she needed. And she didn't stay in that job for very long. I mean I know; I

absolutely know that is what happens usually. So I just so happen to be lucky to

be in a situation where the people I'm working with are very experienced at it.

Commitment was a concern for several SLPs. Many struggled gaining full team

participation. This was often associated with lack of knowledge and experience using

AAC.

Leadership support. Very mixed results were revealed when discussing

leadership. Although all participants described their leadership roles within their building

in terms of speech, language and AAC, there was much variability in the importance and

involvement of administrators within their building and district. Two of the eight SLPs

thought that they were receiving appropriate support and leadership from their

administrators. SLP 8 said "having good administrative support of, 'yes you can do this

within these parameters. And here's the resources we can give you. What else do you

need?' So I felt like that's been a good piece." SLP 6 also felt supported by her

administrators stating, "They are always at the meetings and they are really supportive of

pretty much everything in my building, special ED in general. They've been really

sportive of anything we need."

All other SLPs believed that they did not receive the support they needed from

their administrators. Their needs ranged from needing leaders to be more knowledgeable

in AAC and a resource for help to the teams, providing more emotional and financial

buy-in, interact more with students, stress the importance of AAC to all staff members,

establish high expectations, and be willing to provide more devices. The following are

comments made about this barrier: SLP 1 stated:

How administrators play into it? I think they that they definitely have to have buy-in; figuratively and literally. Because they have to want to put their funds towards the devices so that we can try them out. Also funding professional development and funding our time, or seeing it valuable that we're putting ourselves as speech pathologists time into it.

SLP 5 also felt this way adding, "I feel like having leadership buy-in, who expresses the need and the importance of it would help other team, I mean staff members." Others discussed the importance of the administration and leaders learning about AAC and including themselves in the training. SLP 1 stated:

Those administrators who attended trainings have had more buy-in and more demand on the teachers to follow through with PECS because they went to the training and they saw how it worked and how streamlined it is, and how researched based it is and the effects. So I think that administrators, their buy-in comes from them getting training and also it could be just more observations and being in the classroom and seeing first hand.

SLP 3 explained:

Yeah I would say that most of them [administrators] don't know probably the levels of communication in the functional skills classroom…. actually knowing each students' language abilities and what they are using for their main form [of communication], they don't really know with the exception of if like the device is attached to the child they see them walking with it.

She went on to add:

And [school principal] did observe that one time so I think that was good. And

[school principal] did make a comment afterwards that [school principal] just,

even with the functional skills classrooms, that's just not [school principal]

strength and [school principal] has a hard time interacting with any of the

students… I think it's just not knowing their abilities and not knowing what they

are capable of and how [school principal] should interact with them.

SLP 2 stated that her concern was with her administrators providing enough staff support

to implement AAC:

I have had some in class support sporadically, to help with some AAC

implementation. But it was sporadic so we couldn't necessarily plan on having

that support there which was hard. I mean that's the hardest piece when you don't

know whether you can count on that.

A final concern was with the distribution of AAC devices. SLP 7 assumed she was

encouraged to not use high technology AAC modes of communication due to the

financial cost of the device:

I feel like we are definitely pushed toward verbal because of the cost of AAC

devices. If we have limited resources then they are only going to make sure that

those resources are allocated to the students most in need. So I feel like they

[administrators] are very careful about how they distribute those resources. So if

there is a child that might benefit they maybe don't end up using an AAC device

for that reason.

There was much variability in the SLPs opinions regarding the importance of building leadership. Some SLPs felt fully supported while others believed that they were needing more support from their leaders in terms of more emotional and financial buy-in, team involvement, and establishing a high standard for using AAC.

Family involvement. An additional theme identified but not connected to Ely's conditions of change was family involvement. All SLPs discussed families at some point during their interview. This was typically mentioned when discussing the evaluation process or other decision-making moments. Very few families were involved in the evaluation process, in making major AAC decisions, or in carrying over AAC methods at home. When discussing suggested steps for evaluation SLP 6 stated:

> I would hope they [an SLP completing an AAC evaluation] would have already
>
> met with the team or met with the parents and they have already kind of talked
>
> about the direction they were going to go. You know what I mean. Hopefully
>
> those conversations have already happened before you are starting the evaluation

This indicated that she believed families should always be included from the beginning, whereas no other SLP mentioned contacting families first.

Beyond the evaluation, all SLPs discussed that families needed more training and knowledge in AAC and language acquisition. This was connected to other barriers such as lack of time to provide the training and resources (having someone do training for them). When asked if there was more success when families were involved, SLP 7 stated:

> being able to go into the home and explain how you can use it [makes it more
>
> successful]… a lot of it I think would be parent training with AAC which is not

something that we are given time for. As a school speech therapist you can't go

into the child's home and it's more difficult to say just come in the middle of the

school day and we'll sit down for an hour and I'll teach you all about this.

Two of the K-5 SLPs mentioned the ATS would provide trainings for families and that

this was required in order for the student to take the device home.

Not all SLPs agreed that family involvement was a critical component in the

effectiveness of AAC. SLP 2 stated, "I can't say for sure whether or not that kid with

family involvement made more progress than the other child without family involvement.

Whereas SLP 3 said:

So I think there is a lot of difference between those children with and without

family involvement. And like the way he will rely on his device, when it's not on

his chair, if they've taken it off… he will seek it out himself now, whereas the

other student is like, if the device is there, it's there; if it's not. He will just try to

point, or gesture or use adaptive sign. So I think there is a huge difference

between their ability to use it.

SLP 6 also felt that family involvement was critical:

Well it definitely is not going to be successful for the child to communicate if

they are communicating one way at home and then a completely different way at

school. They aren't learning 'this the way that I communicate and these are my

words and it follows me everywhere and everything I do'. Then I don't know

what the point is, because you are teaching them a separate way to function at

home versus the way that you function at school.

The level of family involvement varied among SLPs. Some included families from the beginning and found it very important, whereas other SLPs did not find family involvement a critical component to the success of AAC implementation.

Research Question 3

A variety of suggestions were provided by the SLPs that could improve the implementation of AAC. SLPs stated what had worked for them in the past and others stated what would have helped them if it were offered. Each SLP provided a combination of themes, and although no two answers were the same, there were several overlapping themes suggested. These included time, knowledge, resources, leadership, commitment, and participation. Dissatisfaction was one additional theme suggested but not supported by a great quantity of data. Each of these themes are discussed.

Lack of time. Several SLPs discussed time as a factor that would help the implementation of AAC. SLP 7 stated that she needed more time. "Of course with more time you could get so more done and I'm sure every teacher or therapist feels that way. 'If I only had more time I could get this much more done'." SLP 2 stated that having more time with the children, as well as having time to plan and make new materials had been the most beneficial factor in AAC implementation. She discovered children are more independent using AAC when she had time to work with them before the group lessons begin:

> I think definitely having one-on-one time initially just to provide some training
> with the student; it's really helpful. I've tried the opposite where, oh I'll program

something for an activity and let's just throw it in and see what they do. It's not

very independent.

SLP 3 also stated that getting enough time with her students positively impacted AAC

implementation. She preferred push-in therapy but explained that it was a change in

service delivery for the IEP team; therefore she received some push back from team

members. As a result, she suggested more training and education in service delivery

models for AAC, which also takes time to do. SLP 7 also explained the benefits of

increased time with the student in the classroom:

It was nice if I could push into the classroom with a student because then if I was

seeing 10 other students in that classroom between sessions I can pipe in over

here and give help and aid and model, and that was a lot of the hands on training

that the other team members received.

SLP 8 also suggested increasing time spent with teachers to plan, teach and

model. She explained:

I think being in the program. Like being with [off-site program] longer. Like I'm

there all day one day this year and almost all day a second day. So even though I

have a lot of kids to get seen, I'm still in the building where if they are really

struggling they can pull me in. So I think being able to have more hands on with

the classroom team and the kids and see where they are breaking down in their

routines.

She added:

And provide them that model and enough information so that they feel

comfortable that they can work it in easily into their routine… Until they feel

comfortable working it in naturally to their routine it doesn't get effectively used

typically. So making sure they understand where that can come in and where it

can help. I think that's one of the biggest pieces is making that connection with

the teacher as to why we are using this and how to use it and make them feel

really comfortable with it.

This clearly is closely connected with education provided during this time but also leads

to further commitment and participation of team members. As other themes emerged (and

are discussed in this section) time was a reoccurring underlying issue for the SLPs. They

needed more training and to teach others, they needed to work with the team more to

increase participation and commitment, they needed leaders to understand their needs;

however, time is needed to accomplish these goals.

The need for more knowledge and training. Many SLPs suggested getting more

training for successful AAC implementation. SLP 4 stated, "Get training. From wherever

you have to get training". She explained that this was a critical component because it led

to participation, commitment, and knowledge building for the team. She stated:

If I don't have the training and I'm a little unsure as to what I might be doing, it's

hard to get other people on board. And to be able to; if they have questions to be

able to explain why we are using this versus this.

She ended with, "I feel like I would benefit most if I kind of understood more of it."

SLP 5 shared a similar view. When discussing what was hindering the AAC process the most, SLP 5 explained that her own knowledge was the source, "…my own knowledge of it. Because I feel like… you present better when you are more knowledgeable about something. And you can get the buy-in if you have more confidence in it."

Another factor that appeared to be successful was the education and experience that her IEP team had in AAC. SLP 2 stated, "they [teacher and instructional assistant] can start implementing it immediately at snack and I'm not even always the one to start." She also sought the help of trained instructional assists to help in making materials and programming which ultimately helped her by saving time as well.

SLP 4 stated that she needed more training in order to be successful and suggested for other SLPs to do the same. She stated:

> I would like to be a part of that evaluation so where I could see… how they are determining what device is used, why they are determining if a device should be used at all and then go from there. So that I'm also being educated even though I'm not the person doing the evaluation.

SLP 6 also suggested more training in AAC:

> I think just the training [would help]. And like the, you know like a clear outline of, like a flow chart of when this works do this, and whenever when it doesn't work try this. Or these are the steps to follow; this is the process kind of thing.

SLP 7 explained:

> The SLP has to be knowledgeable about the AAC device and what's effective and knowledgeable enough to train the team on it, because we are the ones that are the

speech therapists and speech-language pathologists and the experts on communication. So we should be the ones to teach other coworkers and people that work with the child on how they should approach communicating.

After analyzing this information, it was revealed that increased knowledge was believed to increase team participation and commitment, and confidence in AAC implementation for the SLPs. However, again time is needed for the SLPs to go to trainings and work with members on their team. Several SLPs explained that their teams needed more knowledge. Several stressed that this impacted other areas of implementation and it highly needed for more successful AAC implementation.

Need for more resources. SLPs explained that they needed more resources including materials, and support staff. Above all things, SLP 3 suggested getting help from her ATS. She stated that having the support from her ATS was the most important factor in AAC implementation by saving her time by training others, doing the evaluation, troubleshooting, making materials, collaborating with the team, and helping to make AAC decisions. SLP 6 also suggested calling the ATS, "I would refer someone who has all that information, knows the resources and who to contact and how to start." SLP 6 also stated that she found the ATS relieved stress, "now that I feel like I'm not fully responsible for this whole child's basics of communication, that there is support and someone who can show me and be a bit more knowledgeable than I am." SLP 7 also suggested contacting an ATS, "I would probably say use your best resources and assistive technology and call [ATS]. [ATS] can help you explore what devices would be

effective.". The use of an ATS appeared to be a critical component that could help improve AAC implementation.

The need for leadership support. SLP 1 had stated that collaborating with other SLPs was important but when asked if that was enough she added, "No then training, and more buy-in from administration." She also suggested that administrators should expect participation during the implementation of AAC. She added that the SLP and team needed to have a high level of knowledge in AAC.

SLP 2 described the need for more time with the student; however, one factor that is needed to provide this one-on-one support is strong leadership that provides additional staff and time to the SLP when needed.

SLP 2: I have had some in class support sporadically. To help with some AAC implementation. But it was sporadic so we couldn't necessarily plan on having that support there which was hard. I mean that's the hardest piece, when you don't know whether you can count on that.

Interviewer: So did you feel supported by your administrator when you asked for that time?

SLP 2: Initially yeah, but the follow through; if you can't trust it, then it's worthless.

Another factor mentioned by SLP 8 was having enough therapists to appropriately treat all the children on their caseload. She stated, "So I think having that time, having enough therapists to really cover what's on the caseload and really have time in those

programs is making it more successful." This is a factor that would most likely be handled by administrators.

SLP 4 explained that she wished she had leadership within the building that could provide a supportive role in the implementation of AAC. She suggested that this came from her administrator, "sometimes I feel like we are left to our own devices as far as how to get devices or what we should be doing."

SLP 8 explained the importance of building community relationships:

The other programs that I go to I don't feel like I can do as much because we're not as much ingrained together. We aren't as strong of a community partner. So leadership wise I think that would help… really go into the community. That we have those stronger community connections with the leadership of those agencies.

She went on to explain, "I don't know how we can do that but I feel like that would help with AAC needs because I don't see a lot of carry over."

Although all K-5 SLPs knew whom their leader was in AAC (the ATS), none of the SLPs referred to any one specific leader to contact. Rather, they collaborated with other coworkers who had experience in AAC. They did not appear to have access to a leader in AAC.

Increase in team commitment. Along with leadership, SLPs needed increase in whole team commitment. SLP 4 stated that what had helped her the most was ongoing commitment from her IEP team. She stated, "Why it worked? Um, because we kept at it." Other SLPs also mentioned commitment, but explained that it was the result of time spent with the team and education provided. As SLP 8 explained:

And provide them that model and enough information so that they feel

comfortable that they can work it in easily into their routine… Until they feel

comfortable working it in naturally to their routine it doesn't get effectively used

typically. So making sure they understand where that can come in and where it

can help. I think that's one of the biggest pieces is making that connection with

the teacher as to why we are using this and how to use it and make them feel

really comfortable with it.

Commitment was a component that SLPs felt impacted successful AAC implementation.

At this time, most believed that they needed an increase in this commitment from their

team.

Increase in team participation. Several SLPs struggled with team participation.

They stated that an increase in this participation would positively impact AAC

implementation. SLP 4 believed AAC was successful because the team worked together.

She stated, "I think things worked because we talked as a team and gathered the

information that we need." She also added:

Oh you have to have the whole team. You have to. I have the luxury of being in

one classroom so I can be in there more, but I'm not in there all day long… The

whole team has to understand, what it is, why we are doing it, what, how to use it.

SLP 6 was the only one who stated that participation from the family was helpful in AAC

implementation. She stated, "Well it definitely is not going to be successful for the child

to communicate if they are communicating one way at home and then a completely

different way at school."

Many SLPs mentioned the importance of collaborating with other SLPs during the implementation of AAC. This was not specific to AAC leaders (ATS) provided to K-5 SLPs. SLP 4 stated,

I asked a lot of questions of other people and other SLPs who have had more experience and I think that is huge piece too. If I have something that isn't working or might work, or I'm not really sure where to go with it; just having those of conversations… I think that has helped a lot.

SLP 5 stated observing other SLPs implement AAC was helpful for her and suggested the same for those beginning AAC. She stated, "Watching it in action [helped the most]. Watching another therapist do it. And it's been helpful to have another therapist with me during my implementation, during my initial stages of implementation to give suggestions and ideas." She added, "I would probably suggest that SLPs consult with another coworker or another SLP. And maybe that that SLP… observe that child and give their feedback and suggestions. I think it's easier to have a hands-on observation."

For new SLPs beginning AAC, SLP 1 suggested pairing them up with an SLP who had previous knowledge and experience working with AAC. She stated:

I think that other SLPs should seek out speech pathologists that are currently using devices with children and come observe. Because I think that once they can see a child having success that then they will be like, 'oh that's how it works' and 'oh that's what they can do'.

SLP 6 explained that collaboration between early childhood staff and elementary staff was helpful in implementing and continuing AAC. She stated, "What's helpful too is when we have those transitions from the early childhood to school age to be able to talk to the team members but to also come and observe those kids." Some SLPs stated that an increase in participation was a critical factor to successful AAC implementation. Those that did not have full team participation thought that it would positively influence its implementation.

Motivation and dissatisfaction with the status quo. Motivation to continue using AAC was also discussed as a positive factor influencing AAC. The first SLP stated that her own personal drive and excitement for student progress was what made AAC so successful in the past. She was never satisfied with the previous progress students made and always pushed for more. "What has helped me? Probably just internally being excited about aug com [augmentative communication] and knowing the benefit and wanting to just keep on keeping on." This personal drive and motivation to continue to use AAC appeared to help support AAC implementation.

Discrepant Cases and Nonconfirming Data

Overall, participants discussed most of the same themes with a variety of stress and importance on each one. They provided a variety of individual thoughts but also had many common experiences. The only major discrepancy identified was legal concerns. SLP 1 expressed her concern about legal issues associated with AAC. SLP 1 stated that that process and devices had changed from when she began implementing AAC 14 years ago, "In today's world there is so much more legality and people worried about getting

sued, or I don't know. I guess we were just a little more free with trying things." No other SLPs brought up this factor.

Summary of Major Findings

Data was analyzed based on each research question. A summary of the major findings are described below.

Research Question 1

Overall, SLPs had worked with a varying number of students using AAC and had been working in the speech-language pathology field for a wide range of years. Most SLPs had one class containing AAC content in graduate school and had received minimal training outside this preservice training. Although all SLPs participated in the AAC evaluation, only the early childhood SLPs independently conducted this evaluation; however very few felt confident doing so. SLPs working with K-5 students utilized support from the district ATS.

Most SLPs were motivated to use AAC because of the progress their students made. They were pleased to see these students find a way to functionally communicate with others. One SLP explained that she was not motivated because of the intensive time demands that were associated with AAC.

Research Question 2

Several barriers to AAC implementation were described by the SLPs during the interview. These themes included Ely's (1978) eight conditions, as well as family involvement. SLPs often began using AAC because they were unhappy with the progress the student had made with other alternative treatment approaches; however this urgency

to use AAC was not a universal feeling across the team. Several SLPs explained that other team members did not always use AAC and would even abandon the AAC plan. However in situations where using AAC decreased inappropriate student behaviors, they were more likely to use and commit to AAC.

A major theme identified was the lack of knowledge and training in AAC. Most SLPs did not feel comfortable conducting an AAC evaluation and stated that they needed to know more about AAC implementation. This lack of knowledge reflected a feeling of low confidence as the leader on their team in AAC. This lack of knowledge was not limited to the SLPs. Participants explained that the whole IEP team needed more training and knowledge in language acquisition and AAC implementation. For the K-5 SLPs, access to an ATS provided much support, knowledge, and training when needed.

SLPs also discussed a lack of resources necessary for AAC implementation. These resources included having materials need to implement AAC, sufficient staff members, and support to help with troubleshooting and managing technology. Several struggled making materials needed for AAC, but also did not have anyone on the team who could help in this process. Few K-5 students did access the ATS for this support.

Time was another very common theme described during the interview. All SLPs stated they needed more time to make more materials, train team members, model for team members, plan, prepare, teach, and learn about AAC. SLPs simply did not feel that they had enough time in the day to do everything they needed to. Several SLPs also described that as they spent more time with team members, AAC implementation was

more successful. In these situations, team members became more confident using AAC and had time to learn how to use and generalize AAC.

Most SLPS were motivated and rewarded to use AAC. They continued to use AAC because they could see the positive results in the student data. One SLP explained that she was not motivated to use AAC because of the time needed to implement it. SLPs assumed IEP team members were not always equally motivated to use AAC. They believed that members were more likely to continue to use AAC when they received praise from others including the student, families, and administrators.

Team participation and team commitment were two more themes identified. Most SLPs struggled with both. This lack of participation and commitment was from special education teachers, instructional assistances, general education teachers, therapists, and administrators. The team would give up easily on the AAC plan and at times AAC devices were completely abandoned. SLPs connected these factors with a lack of knowledge in AAC for team members. However, they also felt if they knew more about AAC they would be more confident and gain more team participation and commitment.

Leadership support was also discussed by the participants. Most felt supported by their administrators but also believed that leaders should be more of a support by helping troubleshoot, implement AAC, and establish the expectation that all staff would participate and commit to using AAC. SLPs who had talked to their administrator about getting more resources or finding time to complete AAC tasks did not feel that support was consistent.

Another theme was family involvement. The importance of family involvement varied across SLPs. Some believed family involvement was a critical component and that families should be involved from the very beginning. Other SLPs felt that it was a bonus but that family involvement did not necessary increase the success of AAC.

Research Question 3

Several suggestions for improving AAC implementation were provided by the participants. They also described what had helped them in the past with AAC implementation. These themes included increased time, knowledge, resources, and leadership support. SLPs thought that they needed more time to make materials, program devices, train others, and learn more about AAC. Some SLPs explained that when they were able to spend more time in the classroom teaching student and spending time with the student they recognized it positively impacted student progress.

Increasing knowledge in AAC was also suggested for improving AAC implementation. SLPs said that although they needed more training and knowledge, the whole team would benefit from this. Everyone needed to know more about AAC and they felt that this would increase confidence as an educator, team participation, and team commitment.

An increase of resources was another theme identified. SLPs thought that they needed more materials or devices, and staff to appropriately implement AAC and cover their caseload. However, all K-5 SLPs highly recommended contacting the district's ATS as a resource support. This person could help with making materials, getting devices, train others, and provide help and knowledge to the SLP.

Leadership support was also suggested by the SLPs. They believed that their administrative leaders needed to establish high expectations for implementing AAC. They also suggested that administrators gain more knowledge in AAC so that they could be another resource for the SLP when they are having difficulties implementing AAC.

Evidence of Quality

Techniques such as bracketing, strategic questioning to verify information, member checking, and field notes were used to increase the validity of the data. Bracketing is a technique suggested by Chan (2013) that requires researchers to set aside personal bias and feelings toward the research topic. This played an important role in this study, as I am an SLP who implements AAC on a regular basis and have an overall positive opinion on using AAC. I required myself to focus on the conversations and the individual perceptions and experiences from their point of view, rather than what I would have done in their given situation.

Throughout the interview process, I attempted to verify my understanding by reviewing what the participant said. This was another way to assure the accuracy of the interpretation of what they were reporting. The following is an example of this communication exchange:

Interviewer: "So it sounds like maybe they do need that training on what to actually do with the device, but then also language acquisition and the importance of it."

SLP 4: "Yes"

Member checking was completed by sending transcripts to the participants to determine the accuracy of the document. This increased the validity of the findings and assured accurate interpretation of the data (Creswell, 2012). Minor changes were made on three of the transcripts including grammatical corrections and the spelling of a name. I also wrote field notes and reflections document any personal opinions or thoughts from the interview.

Summary

In this section, I explained this study and how I explored the experiences of SLPs when implementing AAC in the school setting. The methods used for conducting the study, collecting data, and data analysis were described. Results were revealed by answering all three research questions. Section five describes the findings and connects them to current literature and the conceptual framework used. Social and practical implications of these findings, recommendations for action and future research are also included. This section includes my personal reflection elaborating on my own experience during the research process.

Section 5: Discussion, Conclusions, and Recommendations

Overview of Study

The purpose of this study was to better understand why the problem of SLPs struggling to effectively implement AAC was occurring in a specific school district. Several studies have evaluated AAC implementation; however, the evidence was inconclusive and more information is needed to fully understand this situation before a solution can be drawn (Baxter et al., 2012; Bruce et al., 2011; Light et al., 2012; Williams et al., 2008).

The conceptual framework used to help explain the SLPs' experiences implementing AAC was Ely's (1978) conditions of change. This a study was developed to examine SLPs' perceptions of which conditions were not being met at the local research setting and their suggestions for change.

A qualitative case study design was chosen to explore the experience of eight SLPs when implementing AAC at a large, urban public school in the Midwest. Five of the SLPs worked in the early childhood setting, while the remaining three worked with kindergarten to fifth grade students. All SLPs participated in individual, semi-structured interviews explaining their background, experience, difficulties, and helpful factors related to implementing AAC in the school setting. I transcribed all interviews and verified with the corresponding interviewee. I then analyzed and coded all data to identify common themes. I also conducted a document analysis by researching the district's public school board documents and requesting documents from the school leaders in AAC.

Research Questions

Based on this problem of SLPs struggling to effectively implement AAC, three research questions were developed. These questions guided interviews, and the data collected contributed to the gap in literature as well as deepened my understanding of this problem:

1. What are the school-based SLPs' described experiences with using AAC communication at the local setting?

2. What are the perceived barriers experienced by school-based SLPs' during the implementation of AAC communication at the local setting?

3. What are the school-based SLPs' suggestions for improving the implementation of AAC communication?

Overall, it was found that SLPs lacked knowledge in AAC. This negatively impacted their ability to lead their teams to full participation and commitment to using AAC. It was also determined that SLPs needed administrative support to provide the time for training, planning, and implementation. Finally, family involvement was also a critical element of successfully implementing AAC. Detailed interpretation of the research findings based on each question asked is provided below.

Interpretations of Findings

My interpretations of the results are based on the theoretical framework from Ely's (1978) eight conditions of change theory. The data from this study revealed that several of the conditions Ely (1978) described were missing from the implementation of

AAC at the research site. As suggested by Ely (1990), it was also determined that several of the conditions influenced other factors. I describe the interpretation of the data below.

Interpretation of Research Question 1

SLPs shared their experiences with preservice training, postservice training, evaluation of AAC, and their experiences making continued AAC decisions. Overall, they had little preservice training. Most had one class in AAC and few had access to an AAC lab where they could explore a variety of devices; however, it was not enough. They still explained they needed to know more about AAC. These results were comparable with research indicating that SLPs need more training in AAC (Crema & Morgan, 2012; Costigan & Light, 2010; McNaughton et al., 2008; Ratcliff et al., 2008). In fact, in 2008 it was reported that 27% of students in a speech-language pathology program did not have a class on AAC (Ratcliff et al., 2008). Many of the SLPs in this study entered the workforce at or before this time. They all had concerns about continued training and education in AAC and expressed their concern about the lack of training they had experienced.

Crema and Morgan (2012) stressed the importance of on-the-job training due to this lack of preservice training and the ongoing advances in technology. SLPs at the research site explained that few training opportunities had been offered. There were differences between the early childhood and special education in terms of the amount and type of training they had received. All early childhood SLPs had received official training on one specific type of AAC intervention (PECS training). Two SLPs received an advanced training in this intervention and another two attended a conference on AAC. All

other learning opportunities were on their own time, from coworkers, or from calling device manufactures. The K-5 SLPs had not been to official trainings or conferences; however, they received more child or device specific training from their ATS. Similar results were discovered by Iacono and Cameron (2009). These researchers stated that most SLPs were gaining new knowledge primarily from other colleagues and other professional development offerings. Even with these trainings, all SLPs in this study explained they needed to know more about AAC.

Fishman (2011) explained the importance in understanding how to complete an evaluation and why it is so important. This is a critical component in beginning AAC correctly and as a result would have lasting impressions on the success of the plan. For the SLPs who utilized the ATS, they appeared more confident in the results of the assessment, but they also revealed that they would not know how to evaluate the child if they had to do it on their own. Although it has been suggested to utilize an ATS at the research site, it does not dismiss the fact that SLPs need to have an understanding of how to evaluate AAC independently as well (Fishman, 2011; McNaughton et al., 2008; Proctor & Oswalt, 2009). Assessment should be ongoing rather than a single event that occurs before the annual IEP.

SLPs also discussed the lack of knowledge for their IEP team. This included special education teacher, regular education teacher, therapists, family members, and administrators. Kramlich (2012) suggested that all members need training and that leaders need to provide time and support of collaboration and training for AAC. Kramlich (2012) specifically described the need for teachers as very few experience AAC at all

during their preservice training. SLPs also made this connection. For the SLPs that admitted team members needed more training, those members also struggled with continued participation and commitment to using the AAC. SLP 6 made the connection between knowledge and commitment and participation by explaining that when her team had the knowledge and experience, AAC was successful and used consistently.

Not only does the team need to understand how to use AAC and why it is important, they need to have an understanding of language acquisition and service delivery models. SLPs explained their need to spend time with the student inside the classroom. This is a change in service delivery from pulling the student out of the natural environment to teach AAC. Stoner et al. (2010) also found this to be an indicator of student success using AAC stating that the school needs to have an understanding of inclusive education. This was a change that would need to start with school administrators and be enforced throughout the building. As found in the study by Stoner et al. (2010), some SLPs in this study also found their teams abandoned AAC entirely. This could likely be due to their lack of education and training.

The lack of knowledge in AAC impacted the SLPs' confidence and ability to lead their teams into full participation and commitment. Few stated that they had an overall lack of confidence in AAC. This echoed Ely's (1990) findings that knowledge is also connected to leadership and commitment. However, in this setting it had expanded to participation as well. I interpreted from the data that SLPs also lacked the time to get more training and that their administrators did not realize, or did not acknowledge that this was such a significant need. Kramlich (2012) suggested school leaders become aware

of this need and provide the training and time needed to fully support collaboration and the implementation of AAC. Alquraini and Gut (2012) also considered time a critical factor for training, collaboration, and planning AAC implementation.

Interpretation of Research Question 2

Interpretation of research question two involved analyzing all themes identified through coding. These themes included Ely's (1978) eight conditions of change, as well as family involvement. Each of these themes are be discussed below connecting it to current literature and conceptual framework.

Dissatisfaction with the status quo. Ely (1990) suggested that this component was closely linked to leadership. The author explained that the feeling of dissatisfaction could be induced by a movement endorsed by leadership. Ely (1990) also stated that although this wasn't the most important factor of change it was still considered important in adoption of an innovation, which was also evident in this study. Only two SLPs mentioned personal dissatisfaction with the current status of a student's progress. Other SLPs stated that they believed the reason some teachers participated and committed to using AAC was also because of the lack of student progress and negative behaviors in the classroom as a result. However, personal dissatisfaction was not influenced by leadership, as suggested by Ely (1990). Other SLPs described a lack of dissatisfaction from their team members, which could also be a result of lack of leadership endorsement. This behavior was also identified in current research (Stoner et al., 2010).

Although researchers support the importance of leadership and factors they should provide to staff including time, training, and funding (Alquranini & Gut, 2012), they do

not describe the importance of establishing an atmosphere of high expectations for all students to communicate in some way. This expectation would promote change and discourage basic contentment for little to no progress in expressive language. As I asked SLPs about the message their administrators send to staff, none of them felt that they stressed the importance of AAC use.

Existence of knowledge and skills. Lack of knowledge was discussed in great detail by all SLPs. As described in the interpretation of Research Question 1, SLPs received relatively little AAC training before entering the work force. Currently, only one SLP thought that she had adequatel knowledgeable in the area of AAC, but also admitted to needing updated on what was current research in the area of AAC. All participants expressed significant concerns with their lack of education on AAC. A major concern was training on AAC evaluations and making AAC decisions post evaluation.

Ely (1990) stated that sufficient knowledge of the intervention was one of the most important factors in successful implementation. This condition was critical because it is closely connected to other factors such as resources, rewards and incentives, leadership, and commitment (Ely, 1990). SLPs in this study also made these connections due to their own lack of knowledge and the lack of knowledge from the other members of the team. The lack of knowledge in AAC, language acquisition, and service delivery models greatly impacted the success of AAC. Some stated that their lack of knowledge could be the cause of decreased team participation and buy-in. This relationship is also evident in current literature (Fishman, 2011; Iacono & Cameron, 2009; Kramlich, 2012; McNaughton et al., 2008; Proctor & Oswalt, 2009; Stoner et al., 2010). In a study by

Baxter et al. (2012) full staff training was found to be a significant component to successful AAC and also associated the lack of knowledge with negative feelings toward AAC. Several SLPs also made this connection. In situations where staff members did not have adequate training in AAC, abandonment of the device, decreased participation, and decrease commitment were evident.

When discussing issues to gaining new knowledge, most SLPs stated concerns with finding enough time to learn themselves and to train others. Some stated that they would only have the option to learn outside of their workday. Studies have stressed the importance of leaders recognizing this need and providing the time for staff to learn (Kramlich, 2012; Stoner et al, 2010). Ely (1978) also stressed the importance of providing quality work time for learning.

Availability of resources. As Ely (1990)connected resources to anything that is required to make implementation work. Examples included hardware, software, publications, media, teaching materials, and clerical help for the adaption of technology in the classroom. These all translated to this study; however a significant addition was the support of an assistive technology specialist. This resource was critical in the eyes of all K-5 SLPs. They all stated that they were unable to perform an evaluation without it. The ATS also saved the participants time by creating materials, training other staff members, provided, completed trouble shooting for the SLP, and helped repair AAC devices. All early childhood SLPs mentioned the importance of collaborating with other SLPs. Only one mentioned wanting access to someone who was a leader in AAC, however this could be because the other early childhood SLPs were not aware of this position.

In terms of other resources mentioned, some SLPs did explain that they wish they had more access to devices, which is most commonly described in the research (Baxter et al., 2012; McNaughton et al., 2008). However the most common resource discussed were materials used for therapy or programming rather than actual devices. SLPs stated they just needed to have more materials for therapy. The cause of this was associated with their lack of time to make materials and the lack of shared responsibility of the team. The SLPs were the ones making these materials. Few participants had trained instructional assistants, but all the discussed this as a barrier. They explained that it would take too much time to train teachers and that the teacher would likely not make materials because it would take up too much of their time as well.

Two SLPs elaborated on the need for enough staff to appropriately implement AAC. This included the need for staff in the classroom working with the children; especially in the beginning stages of using AAC. Another concern for staff was having enough SLPs to properly serve students with AAC because of the increased time needed to implement AAC. due to learning about the device, training, planning, and implementing. Therefore, the root cause of this was most likely based on the demands of time. It can be interpreted that for SLPs that have students with AAC, they will need a smaller caseload because of these time demands. As a result, more SLPs would be required to cover the remaining students.

Availability of time. Ely (1978) stressed the importance of "good" paid time to learn, plan, adapt, integrate, and reflect on the implementation process. The author linked this to other factors such as participation, commitment, leadership and rewards, and

incentives. Time was a factor discussed by all SLPs and is found repeatedly throughout the research (Bruce et al., 2011; Calculator, 2009; Calculator & Black, 2009; Iacono & Cameron, 2009; Kramlich, 2012; Mukhopadhyay & Nwaogu, 2009; Parette & Stoner, 2008). Iacono and Cameron (2012) stated, "One of the most important resources of all early childhood education professionals is 'time'… there is often little time to devote to learning how to use devices and how to implement them effectively" (p. 314).

This opinion was supported by SLPs in this study repeatedly. There was simply not enough time for learning, training others, planning, making materials, or working with the student. It was connected to all other conditions mentioned in the Iacono and Cameron (2009) study. The participants also identified time as a top barrier to successful implementation of AAC. The researchers found it was a problem for all members of the team and the families; however it was an overwhelming issue for the SLPs and often took up personal time as well. Many SLPs in this current study discussed that there was not enough time. Researchers have stressed this issue to school leaders stating that administrators need to provide flexible time for their staff to address these needs (Kramlich, 2012).

Rewards or incentives exist. Ely (1990) explained that this factor was difficult to quantify and describe. Ely also linked this condition to others such as participation, resources, time, and dissatisfaction with the status quo, which was also discovered in this study.

Ely (1990) explained that a reward was considered something that was given for performance. In the context for this study, extrinsic rewards included praise from

administrators, other professionals, family, or the student were considered. External

rewards included praise given by their administrators, parents, other staff members, or the

student. This praise ultimately increased the use of AAC. When the praise ended,

teachers often did not continue implementing AAC.

Intrinsic rewards were comments made by the SLP explaining their personal

satisfaction or enjoyment using and seeing the benefits of AAC. Many SLPs expressed

joy and excitement when students made progress and added that was the reason they were

motivated to use AAC. Bruce et al. (2011) also found that professionals were more

motivated to use AAC if they experienced student success.

Ely (1990) further explained that incentives were anything that served as an

expectation of the reward or the fear of punishment. This could be anything that would

promote the initiation of the implementation. At times, team members appeared to only

use AAC to avoid the repercussions of not using it; however at times team members

abandoned using AAC altogether. Researchers have also found that in situations where

AAC was not rewarding, and viewed as unsuccessful they were at risk of abandoning it

completely (McNaughton et al., 2008; Stoner et al., 2010).

Participation. This indicated that decisions were made as a team, and that all

members communicated effectively. Ely (1990) explained that although this condition

was somewhat ambiguous it was considered one of the most important factors of

implementation. All SLPs struggled with participation at some extent and two of the eight

felt that it was a major barrier. All described a relationship between knowledge and

participation, explaining that as knowledge increased, participation did as well. Several

researchers have also made this connection (Greenstock & Wright, 2011; Kessel & Sickman, 2010; Kramlich, 2012; McNaughton et al., 2008). Knowledge may be in terms of how and why to use AAC, or in understanding their roles and responsibilities. Greenstock and Wright (2011) explained that when multidisciplinary professionals combine to collaborate and participate using AAC, it must be based upon a shared understanding of their roles in the implementation. They added that these professionals must be given time and flexibility in workload to share professional reasoning and decision-making processes between professional groups.

Ely (1990) also related this condition with others such as time, commitment, knowledge and skills, and rewards and incentives. Other researchers (Bruce et al., 2011; Iacono and Cameron, 2009) identified time as a critical component of participation because of the time it took to plan and implement, but also to learn individually and as a team. Many of the SLPs in the study had similar opinions. It was found that as teams spent more time working together, the more the teachers participated in AAC implementation. All SLPs appeared to be fully participating in AAC implementation with some taking the lead role in assessment, while others provided critical speech and language data to make AAC decisions.

Commitment. This condition requires "firm and visible evidence that there is endorsement and continuing support of implementation of the innovation" (Ely, 1990, p. 5). Several SLPs explained a major problem was team commitment to using AAC when the SLP was not present. Some teams waited days before asking for help using a device.

This abandonment has also been documented in research (McNaughton et al., 2008; Stoner et al., 2010).

Ely (1990) linked commitment to time, resources, and rewards and incentives, as did the SLPs in this study. However, throughout the interview it was apparent that if the teams were not participating in the implementation of AAC, then they did not demonstrate commitment. Some SLPs explained that rewards were an important factor in the commitment from the team for using AAC. SLP 1 believed that praise from administration, staff members, or families was a major factor in continued use of AAC. Intrinsic rewards, such as joy from student progress, were why most SLPs were so committed themselves to using AAC with their students. Bruce et al. (2011) also found that student progress motivated staff to continue using AAC.

SLPs also suggested that administrators should first demonstrate their commitment to using AAC and withhold this standard throughout the building. Several SLPs felt that they needed to have training in AAC and that administrators should hold an expectation that all staff members would commit to using AAC as well. Although SLPs thought they had support from administrators, all had concerns in this area and wished leadership could be stronger and more supportive. Leadership support could come in terms of providing enough staff to facilitate AAC, flexible time for planning and implementation, and setting a standard across the building to have high expectations for all children. Research supports this suggestion (Alquraini &Gut, 2012; Calculator & Black, 2009; Kramlich, 2012; Stoner et al., 2010). Calculator and Black (2009)

specifically mentioned providing time, resources, and maintaining a high expectation for all students to increase commitment and support successful implementation of AAC.

Leadership. Ely (1990) explained that leadership had two components including leadership from the executive offices of the organization and the project leader who was more closely related to the day-to-day activities of the implementation. Researchers identified the importance of leaders providing appropriate resources and time for staff to implement AAC (Alquraini & Gut, 2012; Calculator & Black, 2009; Kramlich, 2012; Stoner et al., 2010). The SLPs in this study felt the same way. It was not that they felt disregarded by their administrators; rather they felt that they needed more intentional efforts from administrators to support AAC. Alquraini and Gut (2012) stated, "Administrators are key players in creating a successful inclusive environment for student with severe disabilities through collaboration with other staff members in the schools" (p. 52). The researchers explained that leadership duties should include joint problem solving, maintaining data, facilitating staff development programs, providing emotional support in tough times, modeling collaborative traits and communication, providing resources, providing advocacy, providing time for staff to engage in collaboration, and assessing program efforts.

Ely (1990) linked this factor to participation, commitment, time, resources, and rewards and incentives. SLPs also made an additional connection to knowledge. They believed that they needed more knowledge to be a strong leader within their team and to become a more confident therapist. Several connected this confidence with an increase to team buy-in and commitment. The participants also stated that their building leaders

should be more knowledgeable in AAC so that they could understand it more clearly, participate, hold others accountable, and be a resource for staff members.

For some schools, finding additional AAC leaders might be more appropriate to help with assessment, case management, and consulting with team members. K-5 SLPs had access to this leader and believed it was an important factor in the success of AAC.

Family involvement. Ely (1978) did not mention the importance of family. This could have been because the author was describing the adoption of technology, such as computers, into day-to-day activities. In context of using AAC for a child, data from this study supported family involvement as an important factor in the implementation of AAC. Current literature also supported this (Baxter et al., 2012; Calculator & Black, 2009; Iacono & Cameron, 2009; Marshall & Goldbart; 2008). Although most participants did not believe it was the most important factor in the success of AAC, they did believe that children who had more family involvement utilized AAC more independently. However, they did not believe that the lack of family participation was the sole cause of AAC failure. Most SLPs involved the family after the evaluation was complete although one stated it was important to involve the family from the very beginning.

Interpretation of Research Question 3

The third research question explored factors that helped AAC implementation or suggestions that the SLPs had for future AAC implementation. Six conditions were identified as important factors associated with this question. These included sufficient time, sufficient knowledge, sufficient resources, leadership support, team commitment, and team participation. One SLP described family involvement as important factor but

because no other participant discussed this factor, it was not interpreted as a critical

component. Each of these are discussed.

Team participation and commitment. Team commitment and participation, in

terms of AAC, were very closely related. SLPs explained that as participation increased,

commitment also increased. The participants also stated that if all team members were

not participating they were not committed to using AAC. Factors that were associated

with these two themes were also similar. Ely (1990) also explained that commitment was

linked with participation and that time was associated with both conditions. For the

purpose of interpreting Research Question 3, these two themes are addressed together.

Participation and commitment are critical components to using AAC and was

addressed repeatedly throughout the literature as well (Alquraini & Gut, 2012; Baxter et

al., 2012; Bruce et al., 2011; Iacono & Cameron, 2009; Kessel & Sickman, 2010;

Kramlich, 2012; McNaughton et al., 2008; Ogletree, 2012; Shepherd et al., 2009; Stoner

et al., 2009; Williams et al., 2008). All SLPs stated that team members needed to increase

participation and commitment. It was found that participation was needed from all

members including special education teacher, regular education teachers, instructional

assistants, therapists, administrators, and families. Often they felt that the most critical

team members were instructional assistants; this was also identified in a study by Stoner

et al. (2010). Upon review of the data, it was determined that the factor most impacting

participation and commitment was knowledge.

Sufficient knowledge. It was very evident that all SLPs needed more knowledge.

SLP 1 stated that she assumed she knew what she needed, but would benefit from

someone who was immersed in the field that could update her on current changes in AAC. This is possibly one of the most common trends in literature. Many researchers have identified the need for more training as a major area of concern (Alquraini & Gut, 2012; Baxter et al., 2012; Bruce et al., 2011; Costigan & Light, 2010; Crema & Morgan, 2012; Fishman, 2011; Iacono & Cameron, 2009; Kessel & Sickman, 2010; Kramlich, 2012; Gonzales et al., 2009; McNaughton et al., 2008; Mukhopadhyay & Nwaogu, 2009; Ratcliff et al., 2008; Stoner et al., 2009; Stuart & Ritthaler, 2008; Zangari, 2012).

The lack of knowledge greatly impacted several other areas of AAC implementation. Most SLPs thought that they needed additional support to complete AAC evaluations, which is a critical component in beginning AAC implementation. They felt that lack of team participation and commitment were due to a lack of knowledge and that an increase in knowledge would increase the success of AAC implementation. This increase of knowledge and training for the team and the individual SLP was suggested by most SLPs. Some SLPs did specifically state that they suggested contacting an ATS who could them help train, educate, and assist in AAC implementation. This suggestion was supported by research (Crema & Morgan, 2012). I asked the SLPs why they did not gain this knowledge independently or train team members themselves; the overwhelming response was that the SLPs did not have enough time to do so.

Sufficient time. Several SLPs expressed the need for more time. Harding et al. (2011) also suggested providing enough quality time with students with significant needs. Some SLPs described the successful results of spending more time with teachers training,

modeling, and assuring the teacher they were using AAC correctly. SLPs also explained

that they needed more time to make materials and program devices.

Time was complex factor in this study. As mentioned, several discussed the lack

of time in terms of working with the student, planning and training their team members,

making materials, programing AAC devices. However, overall the greatest need

expressed by the SLPs was an increase in knowledge for both themselves and the entire

team.

It was interpreted that if SLPs were given more time to learn themselves to train

team members, other factors such as decreased participation, commitment, and lack of

team understanding could be resolved. Some researchers have clearly stated that time

should be provided for SLPs to complete these duties (Bruce et al., 2011; Calculator &

Black, 2009; Kramlich, 2012; Stoner et al., 2009). The final step in interpretation of

Research Question 3, led me to ask, "How do you get more time?"

Leadership support. Leadership played a big role in the implementation of

AAC. Several SLPs suggested an increase in participation and commitment from

administration. They also expressed the desire for administrators to hold an expectation

for all staff to participate and commit to using AAC as well. This idea was identified in

research (Calculator & Black, 2009). It was also suggested that leaders gain this

knowledge and become a resource for SLPs to go to if they needed help with AAC, or to

use an AAC specialists for this role.

Leaders would also be responsible for recognizing the need for and granting

appropriate time to implement AAC. This includes providing SLPs with enough time to

train and model for the team, as well as providing enough SLPs to appropriately cover the caseload. As SLPs spend more time on all aspects of AAC implementation, they jeopardize serving all students on their caseload. Team members are not able to address the barriers of AAC implementation unless they are given the time to do so. Researchers have suggested providing appropriate time to staff to address these concerns (Bruce et al., 2011; Calculator & Black, 2009; Kramlich, 2012; Stoner et al., 2009).

Implications for Social Change

Communication is a vital part to life. It contributes to developing relationships with others, expressing one's knowledge, thoughts, and opinions. Through communication individuals can make a social impact on those around them. It has been discovered that outside support of family and friends, AAC and communication technology were the leading factors to decreased loneliness for those with profound expressive communication disorders (Cooper et al., 2009).

Stoner et al. (2010) identified social relationships between the student and their peers as an important component to successful AAC implementation. Calculator and Black (2009) found that through learning AAC, a student could foster membership in the community and develop friendships. This is a goal for all students. I discovered similar results in this study. As professionals, SLPs should consider this component and acknowledge that without AAC, these individuals solely rely on others to communicate for them, stripping them of their independence. DeRuyter et al. (2007) explained that these individuals have the same human rights as those without disabilities. Therefore, it is

suggested that SLPs learn how to effectively implement AAC. All people can communicate; however for some, that means they need access to effective AAC to do so.

Leaders in education and speech pathology could use the results of this study to resolve some of the barriers of AAC implementation. Leaders could evaluate how school SLPs spend their time implementing AAC. I found that SLPs needed more time to devote to the implementation of AAC to improve areas of knowledge, participation, and commitment towards AAC. As teams become more knowledgeable in the area of AAC and school communities as a whole embrace using AAC consistently, students and staff communicating with students using AAC will be more prepared for the interaction. Those who use AAC will ultimately have positive communicative interactions and increase their social and academic opportunities.

These changes could ultimately increase the use of AAC and create more opportunities for all students to engage in their community. Williams et al. (2008) explained that when AAC services fail, the person needing AAC loses their opportunity to engage in the community, but also, that the community loses the opportunity to engage with that individual. Through successful AAC implementation, society would not miss out on all that each individual has to communicate including those who use AAC.

Recommendations for Action

Although many themes emerged, four significant areas of concern were revealed through this study. Those areas include leadership, time, knowledge, and participation. Upon analysis, it was determined that these four elements of AAC implementation greatly impact one another. These recommendations will be presented to stakeholders at

the research site via oral presentation using multimedia projection and handouts. Other districts and leaders in education that have identified similar needs within their school could use this information to improve AAC implementation.

Overall, this study revealed that SLPs needed more participation from their team. In order to gain more participation, more training and knowledge needs to be provided. To allow for this increase in knowledge and training, the SLPs and teams needed more time, which ultimately comes from leadership and administrators. The first recommendation would be for leaders to evaluate how they can better enforce the ongoing support and implementation of AAC. Several SLPs in this study explained that they simply needed more time to complete tasks. When asked why they did not gain the knowledge they needed, lack of time was the most common response. It was revealed they did not have time to train, plan, or model how to use AAC with their team members. This problem has been identified through much research as well (Baxter et al., 2012; Bruce et al., 2011; Calculator & Black, 2009; Kramlich, 2012; McNaughton et al., 2008; Stoner et al., 2009).

The second recommendation is that building administrators evaluate how they are monitoring SLPs caseloads and regularly check-in with the SLPs to determine their needs. AAC demands vary greatly over time. Other SLPs explained how time demands change as the student spends more time in the regular education setting. Teams who are less familiar with AAC would need more time for training when compared to those that have significant experience with AAC. Each SLP's needs are different. The important component is how those needs are acknowledged and addressed by their building leaders.

The third recommendation to address is additional AAC training for the whole team. This could come in a variety of forms and would be based on the needs of the team. Teams beginning AAC need intensive training on language acquisition and why and how to use AAC. For those who have some experience with AAC but are using it with a new student, the team may just need time to plan together, determine their roles, and evaluate how it to implement AAC across settings. Education and time for planning are critical components to the success of AAC (Alquraini, & Gut, 2012; Bruce et al., 2011; Calculator, 2009; Calculator & Black, 2009; Parette & Stoner, 2008).

Although individualized trainings would be critical to meet the ongoing needs of SLPs and their teams, overall training on the evaluation process was described as a need repeatedly throughout this study. SLPs stated that they needed guidance on the initial assessment, but because assessment is ongoing, they needed the information throughout AAC implementation. My final suggestion is that an AAC evaluation workshop be held for SLPs. As a result of this training, SLPs should be provided take-home materials that they can utilize during AAC assessments to guide decision-making. Many of the SLPs did not know where to go for more support and have the tools they needed at hand. An addition to this suggestion is to include a mentor program for using AAC or providing access to an ATS. This could be an option across the district to provide support and increase collaboration among professionals.

Recommendations for Further Study

Several recommendations for further studies emerged after reflection of this study. These recommendations would extend this study and could greatly contribute to

the knowledge base in this area of special education and speech-language pathology. This study focused specifically on the experiences of the SLP. It is recommended that future researchers also consider exploring the experiences of the teachers and instructional assistants working closely with the student and their families using AAC. These two team members are often with the student for a longer time period than the SLP. It is critical that they understand why and how to implement AAC effectively. It would be assumed that they also have experiences, barriers, and suggestions that would contribute the literature of AAC research. It could also be replicated with the viewpoint of administrators.

A final suggestion for research would be to observe an SLP and their team as they complete an initial referral for AAC evaluation, through one-year post AAC implementation. By evaluating this process, researchers could evaluate factors that help and hinder the AAC process first hand, as well as how SLPs and teams are using AAC in the school setting.

Reflection

Rallis, Rossman, Cobb, Reagan, and Kuntz (2008) suggested evaluating a policy, or in this situation a process, under the view of one's intuition, personal values, professional knowledge and wisdom, exploration, and the application of moral principles. I considered these factors and my own feelings about AAC implementation. This was an eye opening experience for me. I am currently a typical working SLP and doing my best to improve the communication of the students I serve. I have struggled and had many ups and downs using AAC in my setting. I have worked on teams with those that have

intensive experiences and were eager to learn about AAC, and I have worked with professionals who knew nothing about AAC and struggled to use it when I walked out of the room. I was enthusiastic and motivated to learn about the experiences of other SLPs in similar settings.

Deep down, I felt this was a process that deserved improvement. As I learned more about current research in AAC, this feeling was confirmed. I was honestly surprised at the initial results of this study. I was startled with the overwhelming need for more education and support to successfully implement AAC. However, in hindsight, I know that my continued intuition was what helped me explore the underlying issues these SLPs were experiencing.

It is said that once people has become aware of a need and takes a stand for what is right, they have decided to become an activist. It might be a small change, or a global transformation, but no matter the scale, advocacy is crucial. This has been at times, an overwhelming experience. Keeping my eye on the ultimate goal, a positive social impact for those requiring AAC, has kept me going. I believe I can now be considered knowledgeable in the area of AAC implementation and an advocate for this unique group of individuals. I am so proud to share this new knowledge with others. I sincerely hope that it positively impacts the lives of individuals with profound communication disorders. Most importantly, I hope it also gives hope to other doctoral students. After reviewing many other dissertations for guidance throughout this process, I hope that this study can help others on their journey to obtaining their doctorate.

Conclusion

This study explored the experiences of SLPs during the implementation of AAC. The results of this study revealed that SLPs are motivated and willing to implement AAC; however, there are several barriers that prevent AAC from being used appropriately. SLPs need the necessary tools, such as more knowledge in AAC and the precious gift of time to do so. It was found that these two components were important for all members of the team to increase participation and commitment to using AAC. It is suggested that leaders acknowledge these needs and provide these elements.

For SLPs, it may simply feel like professional responsibility to implement AAC. However, for the individuals who depend on it, it is their life. These individuals, who cannot speak on their own, rely on this process to be implemented effectively and efficiently by all members of their IEP team. The extent to which they can connect with their peers and contribute to society depends solely on how well they can communicate their thoughts and knowledge. Therefore, it is not simply the responsibility of SLPs to provide AAC options; it is their job to give a voice to the voiceless.

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91.

Appendix A: Request to Conduct Research

Request to Conduct Research
2013-2014

Name of Applicant: _____

Employee of [research site] City Schools?   Yes ___   **No** _ __

If yes, location and position_____

Is the research in fulfillment of graduate program requirements and/or in partnership with an external organization (e.g., university, college, business, industry, agency, etc.)?   Yes ___ **No** ___

If yes, name of external organization and lead contact person:
External organization: _____ _____

Lead Contact Person and Position: _____ _____

Submission Requirements

1. A copy of the complete application submitted for formal approval by a human subjects review board. This application should include, at a minimum:
   a. A brief summary of the purpose and scope of the research including:
      i. The extent to which the research addresses and/or aligns with the goals of the school district
      ii. Potential benefit of the research to positive impact district, building, or classroom practice

   b. A brief summary of the research methods including:
      i. Participants
      ii. Selection process
      iii. Remuneration procedures (if applicable)
      iv. Assurance of confidentiality of participant identification
      v. Consent and assent procedures and documents
      vi. Activities related to the research, including proposed survey, interview, and/or assessment questions/instruments
      vii. Extent of intrusiveness/disruption regarding classroom instruction
      viii. Time/effort requirements of participants

2. Evidence to demonstrate that the proposed research has been formally approved through a human subjects review process.
3. Assurance from the researcher that building principals, teachers, students and/or their parents may opt out of participation without consequence even with approval by the district team.
4. Assurance from the researcher that results will be communicated back to the district upon completion of study. (**Anticipated date of completion**: _____)

Date received by Director of Research, Evaluation & Accountability

_____

Team Review Date: _____   Approved: _____   Not
Approved: _____

Signature of Associate
Superintendent:_____

_____
_____
Signature of Principal(s) of building(s) impacted by research study
Date

Appendix B: Request for Participation E-mail

Hello, I am Ashley Fields, a doctoral student at Walden University and a speech-language pathologist for the [research site]. I am inviting you to take part of my research study evaluating perceived barriers experienced by speech-language pathologists during the implementation of augmentative and alternative communication (AAC). The purpose of this study is to determine what barriers impact the implementation of AAC in our local setting. If you agree to be in this study, you will be asked to:

- Participate in a confidential, individual interview lasting approximately 45 minutes.
- Participate in member checks as necessary to assure accurate interpretation of the interview.
- Participate in one follow-up interview lasting 20 minutes if necessary.

The results of this study will provide the [research site] new knowledge about AAC implementation and help fill the gap in literature. A $15 Visa card will be provided as a thank you for participating in the study.

Please contact me for more information or to volunteer for this study via e-mail at [e-mail] or call me at [phone number]. Thank you for your consideration.

Appendix C: Request for Participation Follow-Up E-mail

Hello, I am Ashley Fields, a doctoral student at Walden University and a speech-language pathologist for the [research site]. You are receiving this e-mail as a follow-up request for participation in my study evaluating perceived barriers experienced by speech-language pathologists during the implementation of augmentative and alternative communication (AAC). The purpose of this study is to determine what barriers impact the implementation of AAC in our local setting. If you agree to be in this study, you will be asked to:

- Participate in a confidential, individual interview lasting approximately 45 minutes.
- Participate in member checks as necessary to assure accurate interpretation of the interview.
- Participate in one follow-up interview lasting 20 minutes if necessary.

I ask for your consideration to participate in this important study. The results of this study will provide the [research site] new knowledge about AAC implementation and help fill the gap in literature. A $15 Visa card will be provided as a thank you for participating in the study.

Please contact me for more information or to volunteer for this study via e-mail via [e-mail address] or call me at [phone number]. Again, thank you for your consideration.

Appendix D: Consent Form

You are invited to take part in a research study evaluating perceived barriers experienced by speech-language pathologists during the implementation of augmentative and alternative communication (AAC). The researcher is inviting [research site] speech-language pathologists who have or are currently serving children requiring AAC to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named [name], who is a doctoral student at Walden University. You may already know the researcher as a speech-language pathologist but this study is separate from that role.

Background Information:
The purpose of this study is to determine what barriers impact the implementation of augmentative and alternative communication.

Procedures:
If you agree to be in this study, you will be asked to:
- Participate in an audio recorded, individual semi-structured interview lasting approximately 45 minutes
- Participate in one follow up interview lasting 20 minutes if necessary
- Participate in member checks to assure accurate interpretation of the interview

Here are some sample questions:
1. What are your experiences using AAC?
2. What barriers have you experienced during the implementation of AAC?
3. What are your suggestions for improving the implementation of AAC?

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at [research site] will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time. Declining or discontinuing will not negatively impact your relationship with the researcher.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as stress, frustration, disappointment, or concern. Being in this study would not pose risk to your safety or wellbeing.

The results of this study will provide the [research site] new knowledge about AAC implementation. These data will also help fill the gap in literature. These changes will hopefully produce more knowledgeable SLPs in the area of AAC.

Payment:
A $15 gift card will be provided as a thank you for participating in the study upon completion.

Privacy:
Any information you provide will be kept confidential to everyone excluding the researcher. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Interviews will be audio recorded for data analysis. Data will be kept secure by password-protected documents. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher [e-mail address] or [phone number]. If you want to talk privately about your rights as a participant, you can call [name]. She is the Walden University representative who can discuss this with you. Her phone number is [phone number]. Walden University's approval number for this study is **IRB will enter approval number here** and it expires on **IRB will enter expiration date.**

The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Printed Name of Participant

Date of consent _____

Participant's Signature

Researcher's Signature _____

_____

Appendix E: Interview Protocol

The purpose of this interview is to further my understanding of your perception of augmentative and alternative communication (AAC) implementation. It will contribute to my study evaluating the barriers SLPs experience during this process. For the purpose of this interview the term AAC indicates either high or low technology used to supplement or replace expressive speech, and the term implementation of AAC will include eight components as described by ASHA:

> "The eight components of AAC begins with the assessment to determine if AAC is appropriate for the child. Other steps include the ongoing assessment and documentation of AAC methods used, components and strategies used. The most common step associated with AAC implementation is the actual development and implementation of AAC plan. This includes the development of goals, monitoring, and knowledge of service delivery models. Additional components include the evaluation of the effectiveness, advocacy for AAC in the community, collaboration, and coordination of AAC."

I want to remind you again that this interview is confidential and your identity will remain confidential. Your honesty will be greatly appreciated, and is taken without judgment. Your experiences are valuable and will contribute to this study and the field of communication disorders. Lastly, your participation is voluntary and you have the right to end this at any time. Do you agree to continue?

1. What is your experience with AAC? Describe how you used it. Tell me everything about this including who was involved, how decisions were made, what made this process easier and/or more difficult.
2. How did you determine the student needed AAC?
3. What does the AAC implementation process look like during the evaluation phase, beginning phase, and maintenance phase?
4. What motivates you to use AAC?
5. What has your training and/or education in AAC involved?
6. Do you feel that you use AAC effectively? Explain your answer.
7. What prevents you from using AAC more effectively?
8. What has helped you to use AAC effectively in the past?
9. What suggestions do you have to other SLPs implementing or considering AAC?

Curriculum Vitae

Ashley Fields

Objective

To obtain an instructor position where I will share my knowledge and passion for speech-language pathology with students, and ultimately produce professionals that excel in the field.

Experience

Speech-Language Pathologist, [school], Early Childhood Special Education, 2008 - Present
- Screen, assess, diagnose, and treat preschool children with communication disorders
- Collaborate on a multidisciplinary team
- Develop and implement Individual Education Plans (IEP)
- Participate in staff trainings for speech and language

Speech-Language Pathologist (PRN), The Rehabilitation Institute, 2010 – Present
- Implement treatment plans for adult and pediatric patients with a variety of communication disorders

Externship, [school], 2008
- Screen, assess, diagnose, and treat elementary students with communication disorders.

Graduate Assistant, University of Central Missouri Department of Communication Disorders, 2007 –2008
- Assisted administration in clinical scheduling and organization clinical paperwork
- Assisted departmental professors with classroom duties such as proctoring tests and grading

Applied Behavior Analysis Implementer, Knob Noster School District, 2006 –2007
- Develop and implement Applied Behavior Analysis.

Education

Doctor of Education, Special Education, Walden University, Currently seeking
Master of Arts, Speech-Language Pathology, University of Central Missouri, August 2008; GPA: 3.88
Bachelor of Science Speech-Language Pathology, University of Central Missouri; December 2006; GPA 3.8

Qualifications

Certificate of Clinical Competence 2009-Present

Missouri Board of Healing Arts Speech-Language Pathology License, 2008-Present

Missouri Department of Elementary and Secondary Education Teaching Certificate,
    2008-Present

Certificates and Awards

Award for Continuing Education (ACE) Award 2013

Camp Courage Board of Directors Chairman, 2012 – Present

Picture Exchange Communication System Basic Training, 2010

Picture Exchange Communication System Advanced Training, 2010

Thompson Center for Autism and Neurodevelopmental Disorders Tier 1-2 Autism
    Training, 2009

Volunteer, Camp Courage (www.campcouragemo.com), 1998 – present