Spring 3-24-2023

The Relationship Between Recent CSD Graduates' Comfort and Training with AAC and Their Knowledge of AAC

Delanie Amend, B.S.

THE RELATIONSHIP BETWEEN RECENT CSD GRADUATES' COMFORT AND TRAINING WITH AAC AND THEIR KNOWLEDGE OF AAC

by

Delanie Amend

Bachelor of Science, James Madison University 2021

Candidate for a Master of Science in Speech-Language Pathology, Longwood University 2023

This Thesis is Presented as a Partial Requirement for the Master of Science Degree in

Speech-Language Pathology

Longwood University in Farmville, VA

Acknowledgments

I've been provided so much support throughout this thesis and throughout graduate school as a whole. First, thank you to my wonderful parents, Michelle and Russ. You've supported me so much throughout this process and continuously remind me that my best on any given day is still my best. I love you so much. Second, thank you to my home team, Tommy and Goose. Tommy, you've been there for me through the ups and downs of this thesis and grad school in general, pushing me every step along the way. Goose, thank you for all the kitty snuggles and daily affirmation dances when grad school just seemed like too much. Next, so much thanks to Paige for the endless Coffee Mill (RIP) study dates and weekly phone calls. I truly don't know how I would have made it through this whole process without you. Finally, thank you to Dr. King. Without your support, constant reassurance, and hour-long office chats, I doubt this thesis would have gotten very far. It's been a wild two years.

Thank you to myself. I know it wasn't easy, but your journey in academia is almost finally over. Just think of how proud preschool Delanie would be right now. We made it. Good job.

Dedication

This thesis is dedicated to my family for supporting me endlessly. Thank you for reminding me that my best on any given day is still my best. You are the reason I'm here today. Thank you so much, I love you all.

Table of Contents

Abstract

THE RELATIONSHIP BETWEEN RECENT CSD GRADUATES' COMFORT AND TRAINING WITH AAC AND THEIR KNOWLEDGE OF AAC.

By: Delanie Amend

The purpose of this research was to investigate the perspectives of recent Communication Sciences and Disorders (CSD) graduate students regarding their comfort and training around Augmentative and Alternative Communication (AAC) and examine the Dunning-Kruger effect between recent CSD graduates' knowledge with AAC versus their perceived expertise of AAC. The researcher distributed an online survey via email, social media, American Speech-Language-Hearing Association (ASHA) Special Interest Groups to individuals who graduated from a CAA-accredited Speech-Language Pathology master's program with a graduation year of 2018-2022 who now currently hold either their Certificate of Clinical Competency (CCC-SLP) or their Clinical Fellowship license (CF-SLP). A total of 42 participants completed the survey to 100% completion or completed the survey up until the knowledge portion (73% complete). Less than half of participants felt prepared by their graduate-level educational experiences. Additionally, while nearly 2/3 of participants feel comfortable providing services, few participants feel comfortable assessing clients with AAC or troubleshooting devices. This research survey found no correlation between knowledge and perceived expertise, likely due to participants feeling unprepared. The results of this study provide pilot data suggesting that graduate programs need to offer more cohesive education and strive for their graduate students to receive high-quality graduate-level clinical experiences.

Keywords: Augmentative and Alternative Communication (AAC), CSD Graduate Students, Comfort, Education, Dunning-Kruger Effect

List of Tables

List of Figures

Commonly Used Terms

AAC - Augmentative and Alternative Communication

- "An area of clinical practice that supplements or compensates for impairments in speech-language production and/or comprehension, including spoken and written modes of communication" (ASHA, n.d.[1])

ALS - Amyotrophic Lateral Sclerosis

- "A progressive neurodegenerative disease that affects the nerve cells in the brain and spinal cord… Motor neurons reach from the brain to the spinal cord and from the spinal cord to the muscles of the body. The progressive degeneration of the motor neurons in ALS eventually leads to their demise. When the motor neurons die, the ability of the brain to initiate and control muscle movement is lost. When voluntary muscle action is progressively affected, people may lose the ability to speak, eat, move and breathe" (ALSA, n.d.)

ASHA - the American Speech-Language-Hearing Association

- "The national professional, scientific, and credentialing association for 223,000 members and affiliates who are audiologists; speech-language pathologists; speech, language, and hearing scientists; audiology and speech-language pathology support personnel; and students" (ASHA, n.d.[1])

ASD - Autism Spectrum Disorder

- "A neurodevelopmental disorder characterized by deficits in social communication and social interaction and the presence of restricted, repetitive behaviors" (ASHA, n.d.[3])

CAA - Council for Academic Accreditation

- “Establishes accreditation standards and accredits graduate programs in audiology and speech-language pathology” (ASHA, n.d.[4])

CCN - Complex Communication Needs

- “Refers to people who cannot cope with everyday communication situations by means of speech alone. It is difficult for them to produce or understand speech.” (Kehitysvammaliitto, n.d.)

CFY – Clinical Fellowship Year

- “The SLP CF if a mentored professional experience that begins after the completion of academic course work and clinical practicum. The goal of the CF is to allow the Clinical Fellow to transition between being a student enrolled in a communication sciences and disorders (CSD) program and being an independent provider of speech-language pathology clinical services.” (ASHA, n.d.[11])

CSD - Communication Sciences and Disorders

- “A program that focuses on the application of biomedical, psychological, and physical principles to the study of the scientific bases, development, and treatment of speech, language, hearing, and cognitive communication problems caused by disease, injury, or disability” (CIP, n.d.)

EBP - Evidence-Based Practice

- “The integration of: clinical expertise/expert opinion, evidence (external and internal), and client/patient/caregiver perspectives'. When all three elements of EBP are considered together, clinicians can make informed, evidence-based decisions and provide high-quality services reflecting the interests, values, needs, and choices of the individual with communication disorders” (ASHA, n.d.[5])

ECHO - Extension of Community Healthcare Outcomes

- "Project ECHO is an innovative telementoring program designed to create virtual communities of learners by bringing together healthcare providers and subject matter experts using videoconference technology, brief lecture presentations, and case-based learning, fostering an "all learn, all teach" approach" (AAP, 2022).

FAPE - Free Appropriate Public Education

- "A free appropriate public education must be available to all children residing in the State between the ages of 3 and 21, inclusive, including children with disabilities who have been suspended or expelled from school" (IDEA, 2017[1])

IDEA - Individuals with Disabilities Education Act

- "The Individuals with Disabilities Education Act (IDEA) is a law that makes available a free appropriate public education to eligible children with disabilities throughout the nation and ensures special education and related services to those children" (IDEA, n.d.)

IEP - Individualized Education Program

- "An individualized education program (IEP) is a written statement designed to meet a student's unique needs and must be in effect: at the beginning of each school year; before special education and related services are provided for a student; and as soon as possible after a parent consents to the IEP" (VDOE, n.d.)

IRB - Institutional Review Board

- "The role of the IRB is to protect the welfare, dignity, and safety of human subjects involved in research associated with Longwood University" (Longwood University, n.d.)

LAMP - Language Acquisition through Motor Planning

- "A therapeutic approach using motor learning principles and a voice output

communication aid to give non-verbal individuals with autism and other developmental disabilities a method to develop independent and spontaneous communication" (LAMP, 2021)

PECS - Picture Exchange Communication System

- "A low-tech intervention program for individuals with ASD and other developmental disabilities that is intended to shape a child's expressive communication abilities using prompting and reinforcement strategies" (ASHA, n.d.[1])

SIG - Special Interest Group

- "The Special Interest Groups (SIGs) program evolved in response to the diverse interests and needs of members of ASHA in narrow subtopics and practices within and across the discipline of communication sciences and disorders (CSD)" (ASHA, n.d.[8])

SGD - Speech Generating Device

- "Provide and individual the ability to meet their 'functional, speaking needs'; are primarily used for the purposes of generating speech; include the capability to generate email, text or phone messages as 'other covered features'" (ASHA, n.d.[6])

SLP - Speech-Language Pathologist

- "SLPs work to prevent, assess, diagnose, and treat speech, language, social communication, cognitive-communication, and swallowing disorders in children and adults" (ASHA, n.d.[7])

SPED – Special Education

- "Special education means specially designed intruction, at no cost to the parents, to meet the unique needs of a child with a disability, including (i) instruction conducted in the classroom, in the home, in hospitals and institutions, and in other settings; and (ii)

instruction in physical education" (IDEA, 2017[2])

TBI – Traumatic Brain Injury

- "Traumatic brain injury, or TBI, causes damage to the brain that can result in speech, language, thinking, and swallowing problems. TBI can happen at any age" (ASHA, n.d.[10])

VSD - Visual Screen Display

- "Technology for the purpose of enhancing social interactions and supporting expressive and receptive language skills. VSDs depict scenes of natural life events with people and/or animals while minimizing language demands and providing more context than traditional grid-based displays" (Hajjar and Mulkerin, 2023)

Chapter One

Introduction

Communication is a basic human right (McLeod, 2018). Humans communicate as soon as they are born, with every cry, grunt, or laugh as an attempt to communicate with caregivers (McLeod, 2018). As people grow, communication typically becomes more refined to utilize multiple forms of communication, including both verbal and nonverbal communication. Communication becomes such an innate part of daily lives that people may not consider all the complex processes that enable them to communicate (McLeod, 2018). However, what would it be like if your ability to communicate suddenly became impaired?

Many individuals are unable to verbally communicate (ASHA, n.d.[1]). The inability to communicate can be extremely frustrating, whether it's a child with severe Childhood Apraxia of Speech (CAS) who has difficulty programing the motor movements required for speech, or an adult with Broca's Aphasia who lost the ability to communicate following a Cerebrovascular Accident (CVA). One option that can allow individuals to gain control of their communication again is Augmentative and Alternative Communication (AAC) (ASHA, n.d.[1]).

AAC consists of various communication modalities to aid in compensating for difficulties with verbal speech and language production (ASHA, n.d.[1]). There are two types of AAC: unaided, which does not require any additional materials and can include body language, and aided, which typically requires the use of an additional tool to aid in communication (ASHA, n.d.[1]). Aided communication further breaks down into high-tech, such as using a Speech Generating Device (SGD), and low-tech, which can consist of Picture Exchange Communication Systems (PECS) or visual schedules (ASHA, n.d.[1]). Multimodal communication is often created

utilizing a mix of aided and unaided communication along with a mix of high-tech and low-tech communication. This multimodal communication is often preferred for individuals who use AAC as a way to increase options for effective communication (ASHA, n.d.[1]).

An area within the Speech-Language Pathologist (SLP) scope of practice includes providing evaluation, diagnosis, and treatment utilizing AAC (ASHA, n.d.[1]). The governing body of speech-language pathologists, the American Speech-Language-Hearing Association (ASHA), and the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) have established guidelines by which graduate schools must educate their students regarding AAC to maintain voluntary national accreditation (CAA, 2020). However, a discrepancy exists between the academic requirements of Communication Sciences and Disorders (CSD) graduate students and implementing their knowledge into clinical practice within various areas of the profession, which may cause clinicians to overestimate their abilities (Riedeman & Turkstra, 2018; Johnson & Prebor, 2019). This overestimation of skills can be observed in other areas of the profession and is a phenomenon known as the Dunning-Kruger Effect (Kruger and Dunning, 1999).

The Dunning-Kruger Effect is the idea that individuals will overestimate their knowledge and skills in an area despite their limited knowledge of the topic and is documented in research in speech-language pathology (Kruger & Dunning, 1999; Riedeman & Turkstra, 2018). Individuals who have limited knowledge of AAC would be expected to overestimate their skills on a self-assessment. This causes problems within the field of speech-language pathology, such as clinicians overestimating their ability to provide quality services to individuals with a Traumatic Brain Injury (TBI) (Riedeman & Turkstra, 2018).

Statement of the Problem

Many recent CSD graduates feel uncomfortable providing AAC treatment to clients on their caseload (Johnson & Prebor, 2019). Despite AAC competency standards required by the CAA, many individuals lack face-to-face AAC client time during their graduate clinical experiences (Johnson & Prebor, 2019). Additionally, the COVID-19 pandemic increased difficulty for graduate programs to provide in-person AAC client contact with many programs shifting for virtual clinical simulations during the COVID-19 pandemic (CAA, 2021). The current research aims to address the gap in the literature between the preparation of CSD graduate students and the knowledge of early career SLPs with regards to AAC interventions.

Chapter Two

Review of Literature

Criteria

The researcher conducted a review of literature related to AAC including peer-reviewed studies and information readily available from AHSA. The researcher conducted literature searches in June of 2022 with the specified inclusionary criteria of (a) requiring the resource to be published within the last 5 years and (b) requiring the resource to be peer-reviewed. Any resources that did not meet this criteria or were not relevant to this study were not considered. The first literature search included the terms “AAC”, “Vocabulary”, and “SLP”, which yielded 124 results. The second search included the key words “AAC”, “Preservice Training”, “CSD”, and “SPED”. After careful review, the researcher describes the relevant literature in the following paragraphs.

ASHA and Augmentative and Alternative Communication

AAC consists of various communication modalities to help compensate for difficulties with verbal speech and language production (ASHA, n.d.[1]). ASHA notes that “augmentative” is used to aid verbal speech production while “alternative” is used in the absence of functional speech. AAC consists of two categories: unaided and aided. Unaided AAC does not require any additional materials and can include body language, gestures, and fingerspelling. Aided AAC requires an additional tool, utilizing either higher levels of technology (high-tech) such as an iPad or tablet with a communication application, or lower levels of technology (low-tech) such as a picture communication board or visual schedule. Individuals who use AAC often utilize a combination of aided and unaided communication, as well as a combination of high-tech and

low-tech AAC. This is known as multimodal communication and allows AAC users to express their needs, wants, feelings, and thoughts. (ASHA, n.d.[1]).

Advances and Challenges in AAC

As with any field, AAC continues to grow and adapt. Despite ongoing advancements, certain challenges remain. Light et. al. (2019) discussed these advancements in the field of AAC and the challenges that persist. They also explored what the future of AAC for families and individuals with Complex Communication Needs (CCNs) look like (Light et. al., 2019). Recent advances in the field documented by the researchers included (a) a rapid increase of technology as communication supports; (b) a greater number of options for communication devices; and (c) an increase in participation and engagement of AAC, among others (Light et. al., 2019). Waller (2019) added that success of AAC technology implementation consists of a combination of various components such as a user-centered design, interdisciplinary research, and an application of what research has discovered. Essentially, as technology evolved, AAC has become more normalized as a means of communication (Light et. al., 2019). Furthermore, the collaboration and focus on user-centered design greatly increased the ease of convenience and practicality for individuals who rely on AAC for communication (Waller, 2019).

Despite these advances in AAC, they are far outweighed by the challenges that have been present historically. Specifically, these challenges have a direct impact on the key stakeholders – the individuals using AAC to communicate (Waller, 2019). These challenges include (a) increasing collaboration for individuals with CCNs who may be underserved; (b) the continuously growing gap between research and practice; and (c) continuing research in order to continue expanding the functionality and accessibility of AAC, among others (Light et. al., 2019). The gap between research and practice is important to note because even if new research

is available, recent CSD graduates are unlikely to implement it immediately upon graduation, perhaps due to supervisors in the field not accessing and implementing current research (Light et. al., 2019). Furthermore, design challenges such as physical access to technology, slow communication rates, and poor literacy skills are some of the reasons why AAC is not accessible or functional for all users (Waller, 2019). Approaching designing AAC from a pragmatic approach, or ways that the device can be used in social communication, may help increase the functionality and accessibility for its users. For example, younger children will feel more included in their social group if they are able to have access to rhyming puns. It is important for the field of speech-language pathology and audiology to understand AAC and discover ways for these systems to become more accessible to all individuals (Waller, 2019).

One of the biggest challenges persisting among AAC is the abandonment of devices. Abandonment of AAC includes when a family and/or client decide to stop using AAC to support communication for any reason (Moorcroft et. al., 2020). Despite current access to advanced technology, abandonment of AAC remains a concerning issue (Waller, 2019). Moorcroft et. al. (2020) found that there are many factors that contribute to the abandonment of AAC devices, many of which involve the professionals working with the families (Moorcroft et. al., 2020). The beliefs and the experiences of SLPs heavily influence the use of the device for everyday communication. For example, SLPs who had less experience and were less familiar with AAC "could not see beyond the child's age of physical presentation, did not appropriately arrange the environment, and were less able to work with families to achieve and set goals" (Moorcroft et. al., 2020). Furthermore, it is documented that parents of children who use AAC do not feel support from their SLP regarding their AAC decisions. Parents perceive that SLPs do not create a clear plan for treatment and do not explain how the AAC device works, essential pieces of the

AAC puzzle. Family coaching and education on the use of an AAC is just as crucial as providing AAC services in a school or clinical setting. If families feel uncomfortable using the device, they are not going to commit to it and encourage their child to use it to communicate (Moorcroft, et. al., 2020). Additionally, parents desire effective communication between professionals regarding their child's AAC device (Moorcroft et. al., 2020). This stresses the importance that preservice clinicians learn about multidisciplinary and interdisciplinary collaboration with AAC (Goldman et. al., 2021). In an educational setting, the team does not consist of solely the SLP and the student. Instead, it consists of multiple people including the teacher, family, administrators, related service providers, instructional assistants, and special education providers among others (Goldman et. al., 2021). SLPs may often not explain the necessity of incorporating the child's AAC device into the classroom to the teachers, resulting in teachers not implementing AAC use properly within the educational environment. SLPs cannot expect parents and/or paraprofessionals to buy-in to the AAC device without clear communication and training (Moorcroft, et. al., 2020; Waller, 2019). Therefore, it is important that SLPs receive appropriate and thorough training to be able to provide effective AAC services to clients, including family coaching and education, in order to diminish the current crisis of AAC abandonment.

Speech-Language Pathologists and AAC

SLPs play an important role in the facilitation of AAC use in various environments (ASHA, n.d.[1]). SLPs are crucial in the assessment, diagnosis, and treatment of an individual with a communication disorder who must rely on a different communication modality (ASHA, n.d.[1]). These services can be provided by SLPs across various settings, including both medical and educational.

CAA: AAC Requirements in Graduate Schools

The CAA is responsible for providing standards that graduate programs in both professions must meet to earn and maintain program voluntary national accreditation status (CAA, 2020). These standards include meeting the basic knowledge and skills necessary to become a competent clinician and adhere to the ASHA scope of practice. Delivering competent AAC services is a skill that the CAA requires all speech-language pathology graduate programs to provide education in. Standard 3.1.2B: Foundations of Speech-Language Pathology Practice, states that students of the graduate program must show knowledge of the foundation of communication and its disorders and show knowledge of the nine areas of clinical scope of practice which includes AAC. Standard 3.1.4B: Evaluation of Speech, Language, and Swallowing Disorders and Differences, indicates that graduate programs must educate their students on how to evaluate for the presence of a communication disorder across the speech-language pathology scope of practice including the need for effective and meaningful use of AAC to communicate. Additionally, standard 3.1.5B: Intervention to Minimize the Effects of Changes in the Speech, Language, and Swallowing Mechanisms ensures that graduate programs educate students regarding intervention and therapy techniques to provide services to clients. The current CAA standards for program accreditation require graduate programs to educate their students on the foundation, evaluation, and the use of AAC for intervention (CAA, 2020).

Preservice Training and Comfort of SLPs

Preservice training includes the graduate-level education of SLPs (ASHA, n.d.$_7$). Johnson and Prebor (2019) examined what preservice training programs provide their students in terms of AAC education and practice for SLP graduate students. The researchers compared changes in program offerings from the past ten years using survey data. The survey, based on previous

research from Ratcliff et. al. (2008), was sent to 279 CAA-accredited SLP graduate programs asking questions regarding their AAC preservice training and education (Johnson & Prebor, 2019). Of the 79 programs that responded, 68 described offering one course dedicated to AAC, indicating a 13% increase from the 2008 survey (Johnson & Prebor, 2019). However, the programs noted that less than half of their CSD students graduate with AAC hours, and only 51% of students feel they are prepared to provide services regarding AAC (Johnson & Prebor, 2019). This perceived lack of knowledge and prior experience impacts the degree to which SLPs provide AAC services to clients. This indicates that the quality of preservice training at the graduate level, as well as continuing education opportunities, needs to be improved (Goldman et. al., 2021; Johnson & Prebor, 2019).

AAC education should focus on creating a "'person-centered' approach to assessment" (Goldman et. al., 2021). Often, a clinician may easily focus on the device and the therapy without stopping to consider if what they are doing is best for the client. However, ASHA currently states that client and caregiver perspectives are an integral element of Evidence-Based Practice (EBP), which SLPs are required to abide by (ASHA, n.d.[5]). Preservice training at the graduate level should also stress the importance of providing AAC services as part of a multidisciplinary and interdisciplinary team (Goldman et. al., 2021). As stated prior, the success of AAC implementation does not fall solely on the SLP but rather on a team of professionals including the family. Furthermore, education in the classroom without clinical experience is often focused on theory, which can make it difficult for students or new professionals to apply what they have learned (Goldman et. al., 2021). Providing AAC services is often more of an "art" than a "science" without a predetermined set of criteria for high-tech or low-tech AAC implementation hence the need for experience and preservice training (Goldman et. al., 2021).

Without quality training and experience at the graduate level, CSD graduates are unlikely to develop this "art" (Goldman et. al., 2021). The improvement of AAC education at the graduate level will likely improve the quality of services that SLPs are able to provide. Furthermore, there are many factors reported by SLPs that predict, moderate, and mediate AAC outcomes, including (a) the SLP's skills with AAC; and (b) the communication partner's AAC skills (Sievers et. al., 2019). For example, if the SLP providing services does not have skills in using the AAC device and cannot provide education to communication partners regarding the use of the AAC device, the client is more likely to abandon the system (Sievers et. al., 2019). Ensuring that CSD graduates have opportunities to practice these essential skills during graduate school is crucial to the success of AAC within a client's life.

Knowledge of a particular topic does not necessarily relate to comfort. Despite the presence of CAA standards addressing AAC, there is little research regarding the preservice training provided by programs and the new graduate students' confidence in providing AAC services (Johnson & Prebor, 2019). As stated in the Johnson and Prebor (2019) survey, only 51% of graduate students felt comfortable providing AAC services. There are various factors that predict the confidence and comfort of an SLP in providing AAC assessment services including (a) self-identification as an AAC specialist; (b) years of experience; (c) percentage of their caseload of students with CCNs; and (d) the length of their longest continuing education program (Sanders et. al., 2021). In general, SLPs feel somewhat- to mostly- confident when working with children with CCNs (Sanders et. al., 2021). However, SLPs only feel somewhat confident with feature matching, or matching students with the various features of AAC devices (Sanders et. al., 2021). Feature matching is an essential element of moving from the diagnostics to treatment of a communication delay or disorder. Furthermore, many SLPs use a wide variety of sources to gain

knowledge about AAC post-graduation, such as recent research or continuing education experiences, due to the fact that they feel unprepared and uncomfortable (Sievers et. al., 2019). It is important that graduate students are provided practical experience regarding assessment and intervention-focused AAC in order to improve the confidence of the professional and to directly increase positive student outcomes with AAC implementation (Goldman et. al., 2021). Throughout all studies, one persistent theme is the need for further education and training to increase confidence and, in turn, increase the quality of services that SLPs are able to provide to clients.

Post-Graduate Education

As seen above, there is a continuing need for post-graduate education in addition to a higher quality of AAC education. Paraprofessionals including speech-language pathologists, occupational therapists, and special educators, among others, all agree for the need in post-graduate education across fields (Goldman et. al., 2021). Sixty-six percent of respondents frequently rely on current AAC research when making clinical decisions (Sievers et. al., 2019). SLPs reported using various sources of knowledge to inform their clinical decisions regarding AAC including prior clinical experience, AAC training and workshops, and other clinicians (Sievers et. al., 2019). Many clinicians have stated the desire for increased support and continuing education regarding AAC, highlighting the importance of continued advocacy for the development of these resources. Clinicians desire these services because many use this information to influence their clinical decisions of AAC (Sievers et. al., 2019). Furthermore, there is a need for easily accessible continuing education (Goldman et. al., 2021). Currently, there are numerous opportunities for clinicians to gain experience with AAC. ASHA has numerous online asynchronous resources, including topics of creating AAC-friendly

environments, effective practice in AAC assessment, and school-based AAC teletherapy (ASHA, n.d.[2]). ASHA also has continuing education regarding AAC at annual conferences. There are other places where SLPs can gain continuing education credit on the topic of AAC, such as directly from AAC companies themselves, such as TobiiDynavox's Learning Hub (TobiiDynavox, n.d.). Additionally, SLPs can gain continuing education for AAC at their state and local conferences such as the Speech-Language-Hearing Association of Virginia (SHAV) (SHAV, n.d.). Finally, if the clinicians just need basic information regarding AAC, the ASHA Practice Portal always contains helpful information about the overview, key issues, and provides helpful resources (ASHA, n.d.[1]).

Continuing education is always able to be improved (Goldman et. al., 2021). Many professionals currently gain their continuing education from (a) mentoring by experienced AAC professionals; (b) continuing education on the job site; (c) recorded online education; (d) live online education; (e) continuing education at state conferences or conventions; and (f) continuing education at national conferences or conventions (Goldman et. al., 2021). The Extension of Community Healthcare Outcomes (ECHO) AAC group has been continuing to develop AAC continuing education under the "all teach, all learn" mentality, meaning that all participants' prior knowledge and experience is admired (Goldman et. al., 2021). Furthermore, ECHO AAC focuses on the collaborative aspects that accompany AAC (Goldman et. al., 2021).

The COVID-19 pandemic, beginning in November of 2019, changed the way that SLPs provide services. Government lockdowns forced many clinicians to quickly adjust to delivering services via teletherapy (Briggs et. al., 2022[1]). Very few clinicians had experience with AAC over teletherapy. Briggs et. al. (2022[1]) constructed a survey for SLPs regarding how they provided teletherapy services for AAC during the COVID-19 pandemic. Most SLPs used

teletherapy to provide both direct services and parent coaching services to families using AAC (Briggs et. al., 2022[1]). While there was a wide variety on the perception of direct services' effectiveness, many clinicians agree that the parent coaching aspect of AAC was more effective with the use of teletherapy (Briggs et. al., 2022[1]). However, most practicing SLPs desired additional training and support regarding teletherapy for AAC, an area of continuing education with limited resources (Briggs et. al., 2022[2]).

Dunning-Kruger Effect

Kruger and Dunning (1999) explained the phenomenon known as the "Dunning-Kruger Effect." The concept is that individuals often overestimate their knowledge and skills in a particular area despite their limited knowledge or competence based on information from their field of study. Individuals with little knowledge and skill in an area will vastly overestimate their competence while individuals who are particularly knowledgeable in the area often rate their competency as lower (Kruger & Dunning, 1999). Kruger and Dunning (1999) documented the imperfect self-assessments of knowledge as well as competence and metacognitive skills to explain the effect (Kruger & Dunning, 1999). While Kruger and Dunning performed the study in 4 different scenarios, the effect can be generalized to many different fields of study, including the field of speech-language pathology (Kruger & Dunning, 1999; Riedeman & Turkstra, 2018). For example, a study by Riedeman and Turkstra (2018) studied the knowledge and confidence of SLPs who work with adults with Traumatic Brain Injury (TBI). The study documented a wide range in confidence versus knowledge and the skills used in SLPs' professional practice (Riedeman & Turkstra, 2018). In this current study, the Dunning-Kreuger effect can be generalized to how recent CSD graduates view their comfort and training of AAC versus their actual knowledge of AAC.

Restatement of the Problem and Research Question(s)

Within the field of speech-language pathology, there are challenges regarding the implementation of successful AAC services. A number of these challenges stem directly from a lack of preparedness and education from recent CSD graduates, including obtaining direct AAC clinical hours within graduate school and the few years beyond (Johnson & Prebor, 2019). Additionally, many graduates lack comfort providing AAC services to clients on their current caseload (Sanders et. al., 2021). Questions also remain about the impact of the COVID-19 pandemic on recent CSD graduates' abilities to provide AAC services. Furthermore, some recent CSD graduates may overestimate their knowledge of AAC and how to implement it. This study aimed to gather information on current CSD graduates' education and training, comfort, and overall knowledge with AAC. The following research questions are addressed in the current study:

(1) Are recent CSD graduates prepared to provide AAC services to clients?

(2) Are early-career SLPs overestimating their abilities to provide AAC services based on their current knowledge?

Statement of Purpose

This study aimed to highlight the perspectives of recent CSD graduates. The purpose of this research study was to determine the relationship between the education, training, and comfort of providing AAC services of recent CSD graduates versus their actual knowledge of AAC, also known as the Dunning-Kruger Effect. This topic is important because the field of speech-language pathology expects CSD graduates to be comfortable providing services to clients across all aspects of the field, which includes AAC. However, many individuals do not

feel comfortable providing AAC services due to lack of training, clinical experience, or knowledge.

Chapter Three

Methods

Study Design

Questions remain regarding the relationship between competency required by CAA regarding AAC use and knowledge and how confident recent CSD graduate students feel regarding providing AAC services to clients. Johnson and Prebor (2019) found that programs reported less than half of their graduates graduated with direct AAC hours, and only 51% of students feel competent providing AAC services. This raises questions about whether graduates are prepared to provide these services across all settings. The aim of this study was to determine the comfort levels of recent CSD graduates regarding AAC services as well as their education and training. Additionally, the current research documented if the Dunning-Kruger effect is a factor in determining whether recent CSD graduates were overconfident in their ability to provide these services. The questions guiding this research included:

(1) What is the relationship between recent CSD graduates' comfort and training with the use of AAC (low and high tech) and their knowledge of AAC?

(2) Are early-career SLPs overestimating their abilities to provide AAC services based on their current knowledge?

The study used a non-experimental design via an online survey designed based on previous literature.

Data Collection, Procedure, and Analysis

The researcher collected data via QualtricsXM, a secure online response system endorsed by Longwood University and managed by the researcher. They distributed the survey using

email, social media, and ASHA Special Interest Groups (SIGs). A SIG is a group that an ASHA member may choose to join for an additional fee to connect with other professionals regarding a topic of interest (ASHA, n.d.[8]). The researcher downloaded the data onto a secure Google Sheet to be analyzed. The researcher then prepared the data for analysis by scoring the knowledge portion of the survey and identifying any outlying data points. The researcher ran the statistics using IBM Statistical Package for the Social Sciences version 23 (SPSS®). SPSS® is a program used for various statistical analysis and data management functions. Within SPSS®, the researcher analyzed the data using a variety of techniques including descriptive and inferential statistical analysis.

Participants

The researcher set strict inclusionary criteria for completing the survey. The target population of this study included individuals who (1) have graduated from a CAA-accredited CSD graduate program within the past 5 years (graduation year of 2018-2022); (2) who are now working as an SLP in a medical, educational, or private practice setting; (3) certified through the American Speech-Language-Hearing Association (ASHA) with either their Certificate of Clinical Competency (CCC-SLP) or their Clinical Fellowship license (CF-SLP); and (4) currently reside within the United States of America. Participants were included regardless of race, socioeconomic status, gender identity, or any other significant cultural identifiers. Exclusionary criteria for participants included (1) individuals who did not attend a CAA-accredited CSD graduate program; (2) individuals who are not certified through ASHA; (3) individuals who graduated more than 5 years ago (graduation year of 2017 or earlier); or (4) international participants.

Sampling and Recruitment

The study utilized convenience and snowball sampling via the online survey. The researcher recruited participants using various methods including email solicitation, social media, and through the ASHA SIGs. The Longwood University CSD graduate program retains the contact information for recent graduates. Given this information, the researcher distributed the survey via email to the graduating classes of 2020 and 2022, as there was no data for the class of 2021. The email solicitation can be seen in Appendix A. Next, the researcher distributed the survey via the social media site Facebook. The researcher distributed it to a number of SLP groups on Facebook including Speech Language Pathologist New Grads & Students (~14.1 thousand members), The SLP Grad Student (~5.1 thousand members), and Updates for Longwood CSDS Alumni (~325 members). The social media solicitation can be found in Appendix A. Finally, the researcher distributed the survey to multiple ASHA Special Interest Groups, or SIGs. There are a variety of different SIGs, ranging from SIG 1: Language Learning and Education to SIG 20: Counseling (ASHA, n.d.$_8$). For this research study, the researcher distributed the survey to SIG 10: Issues in Higher Education (~1 thousand members) and SIG 12: Augmentative and Alternative Communication (~3.8 thousand members). The SIG solicitation can be found in Appendix A. All email, social media, and SIG solicitation contained a recruitment flyer, which can be seen in Appendix B.

Measures

The survey took approximately 15-20 minutes for participants to complete the 43 question survey. The materials used in this research consisted of a survey inquiring participants' demographic information, training and education with AAC, comfort with AAC, and knowledge of AAC. See Appendix C for the full survey. Participants were asked to complete questions of

various formats including on a Likert scale of 1-5, fill-in-the-blank, and multiple-choice questions. Furthermore, the knowledge of AAC portion, consisting of 10 questions and scored out of 36 points, asked participants to answer: true/false, multiple choice, select all that apply, and short-answer case study questions. The case study questions were scored by two judges and given an average of the two scores.

Following the survey, participants were provided with a list consisting of information, resources, and continuing education regarding AAC. The researcher provided this information to accommodate for any participants who found themselves questioning their knowledge following the final portion of the survey. See Appendix D for the full list of resources provided to participants.

The Dunning-Kruger effect, one element targeted throughout this survey, was measured by grading the participants' final score out of 36 and comparing their score to their answer of "I consider myself an expert in AAC".

Reliability and Validity

Litwin (1995) states the importance of measuring reliability and validity during survey data collection. Litwin defines reliability as a measure of how easily the survey's data is able to be reproduced, while validity can be defined as how well a survey measures what it is intended to (Litwin, 1995). The researcher kept both reliability and validity in mind while creating the survey for this research study. Two researchers reviewed each short-answer case study in the knowledge section and gave a score of 0, 1, or 2. The researchers compared answers to ensure inter-rater reliability, or how similar the researchers agreed in their scoring (Litwin, 1995). Additionally, a special education teacher and an SLP with extensive AAC experience aided in the creation of the survey. Furthermore, three seasoned SLPs holding either their masters or

doctoral degree reviewed the survey to aid in construct validity, or how the test is created to measure what it is supposed to (Litwin, 1995).

Ethical Considerations

No deception of the participants occurred throughout the duration of the survey. Additionally, efforts were made to ensure the confidentiality of participants. The researcher did not collect any identifying information from the participants during the study. All individual data points were incorporated into group data with no individual demographic data reported. The researcher made reasonable efforts to protect confidentiality, included data being downloaded and analyzed on a password-protected Google Drive and secure computers. Participation in the survey was completely voluntary.

Furthermore, participants may have realized they are underprepared to provide services for clients using AAC upon completion of the survey. To combat this, the researcher provided a list of information, resources, and continuing education regarding AAC. Participants received access to links from ASHA, various continuing education sites, and webinars from numerous AAC companies including Language Acquisition through Motor Planning (LAMP) and TobiiDynavox. These sources can be found in Appendix D.

IRB

This research study received approval from Longwood University's Institutional Review Board (IRB) on October 12th, 2022, with an approval number of #2022-10-04. The researcher did not collect any data prior to approval from the Longwood University IRB.

Summary of Methodology

The study examined the relationship between recent CSD graduates' training and comfort with AAC and their knowledge of AAC. The researcher targeted the Dunning-Kruger effect by

comparing the participants' score on the knowledge portion to their response to the question "I consider myself an expert in AAC". The study utilized a non-experimental design via an online survey designed based off gaps in previous literature. The researcher distributed the 43-question survey via email, social media, and SIG solicitation with data collected and stored via QualtricsXM.

Chapter Four

Results

Data Management and Reduction

The survey was open on QualtricsXM from October 17th, 2022 to January 10th, 2023. Across those 86 days, 56 participants filled out the survey. Unfortunately, six responses submitted with no information due to an issue with the QualtricsXM software. Of those 50 submitted successfully, 42 completed the survey to its entirety (100% complete) or completed the survey up until the knowledge portion but still submitted (73% complete). The remaining eight data points were not included in the data analysis. Additionally, there were an additional 11 participants who began the survey, reached the knowledge portion (73% complete) and decided to exit the survey without submitting. Since the participants did not submit, the researcher does not have access to their data.

Of the 42 usable data points, 12 participants completed the survey up until the knowledge portion (73% complete). Two participants completed the survey but chose to omit answers to certain answers (98% complete). Finally, 27 participants fully completed the survey (100% complete). While the 12 participants at 73% completion are included for descriptive statistics, only the 29 participants who completed the survey between 98%-100% are used during the inferential statistical analysis to calculate the Dunning-Kruger effect.

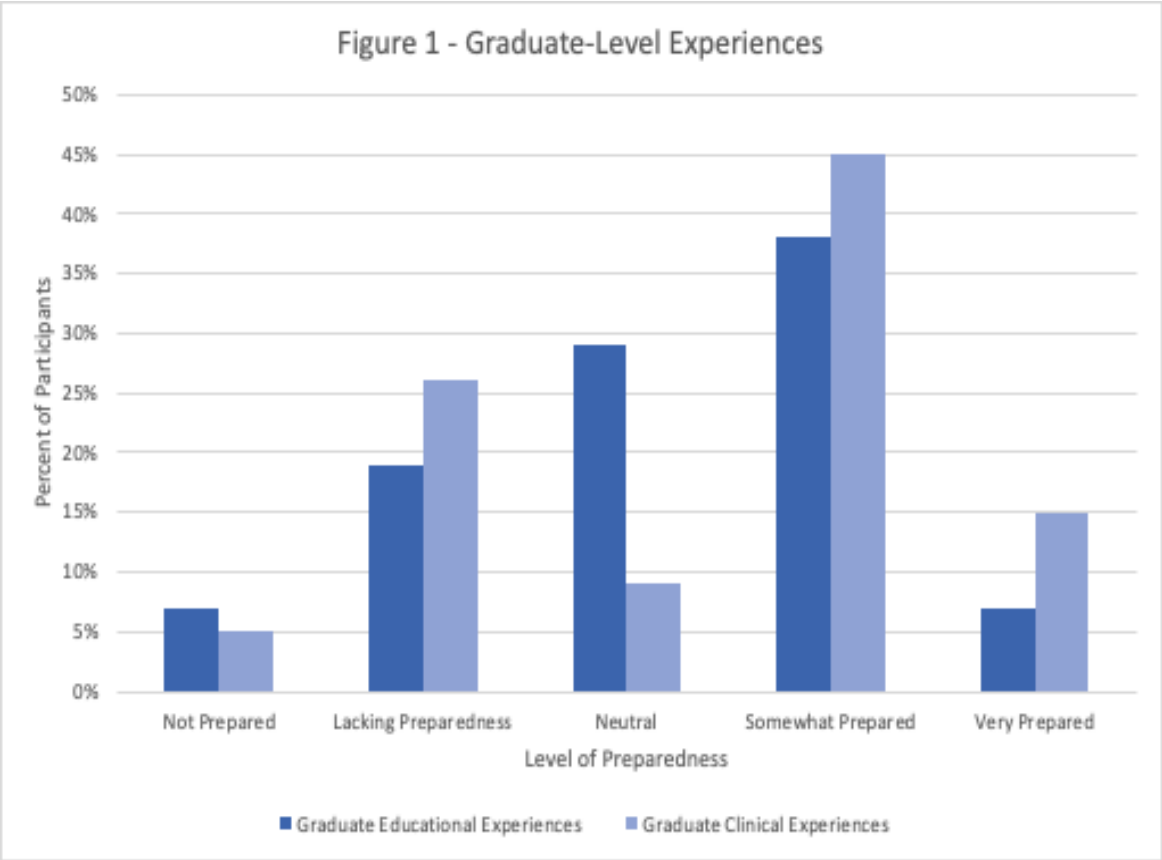
Participant Demographics

Participants currently practice in 17 states and the District of Columbia. One hundred percent of participants identified their gender as female and 83.3 % of participants identified as white/Caucasian. Additionally, excluding the omission of a response, 100% of participants

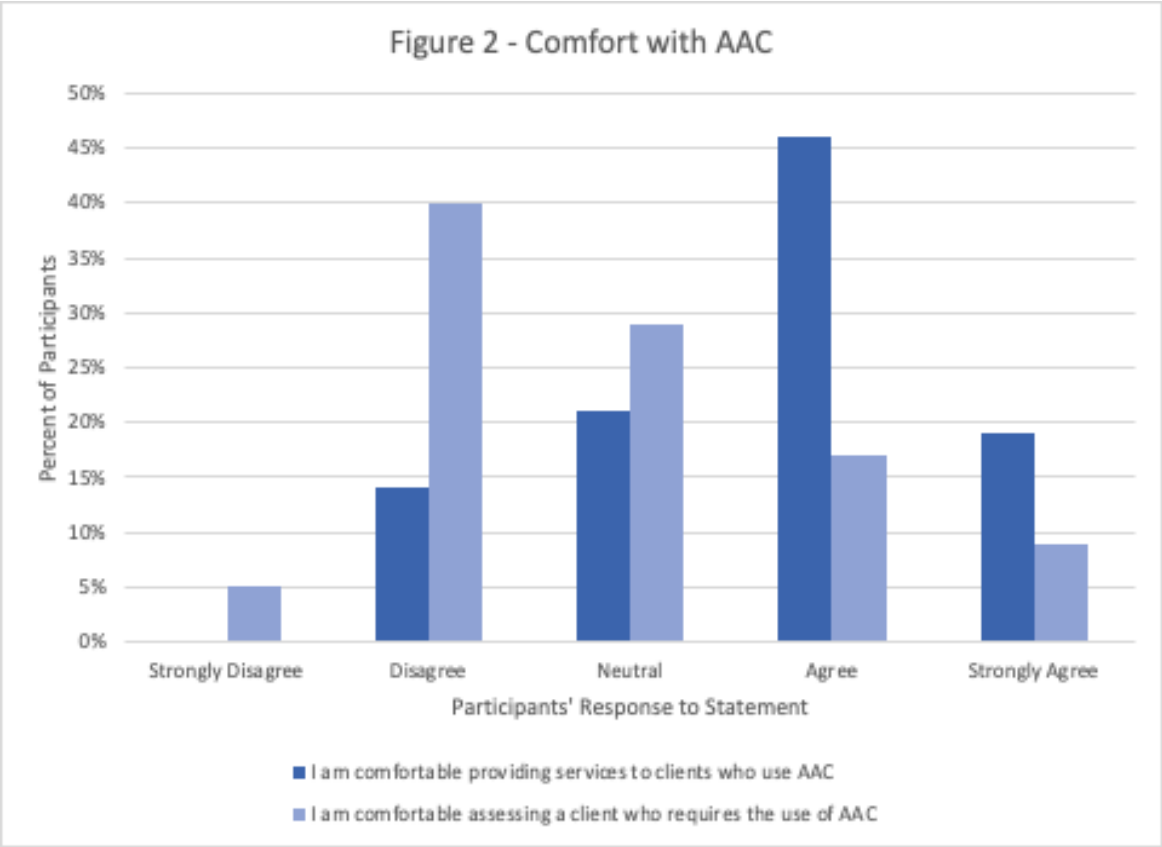
indicated that their primary language was English. Fifty-five of participants graduated in 2022, indicating that they are currently in their Clinical Fellowship Year (CFY). Similarly, 54.8% of participants were aged 21-25, while the oldest participants were between the ages of 41-45. Finally, participants were roughly split between the settings they currently provide services (ex. Medical/Healthcare, Private Practice, School).

Professional Preparation and Comfort of Participants

A majority of survey participants (73.8%) indicated that they received an entire graduate-level course of training on AAC which is 12.3% lower than the 86.1% of programs that reported offering a graduate-level AAC course (Johnson & Prebor, 2019). Participants who did not indicate a graduate-level class dedicated to AAC noted only one or several lectures on the topic. Regarding graduate-level clinical experiences, many participants noted one session, several sessions, practicum, or clinical simulations of AAC experience. Nineteen percent of participants indicated they had no direct AAC clinical experience during their graduate schooling. Figure 1 illustrates how participants felt their graduate-level education versus clinical experience prepared them. Participants responded somewhat similarly to the Johnson and Prebor (2019) study with 45.2% of participants indicating that they were “somewhat prepared” or “very prepared” by their graduate-level educational courses and 59.5% reporting the same of their graduate-level clinical experiences. Despite how unprepared many participants feel regarding AAC, only 52.4% of participants have engaged in continuing education since graduation.



Regarding comfort, 64.3% of participants stated they "agree" or "strongly agree' that they feel comfortable providing services to clients who use AAC. However, 26.3% claim they feel comfortable assessing a client who requires the use of AAC (see Figure 2). Almost 91 percent of participants feel comfortable advocating for the use of clients' AAC. Similarly, 71.4% of participants feel comfortable providing training to family members regarding implementation of AAC. Thirty-eight percent of participants reported agreeing or strongly agreeing with the statement "I am comfortable troubleshooting clients' AAC".



The portion regarding if participants consider themselves an expert in AAC will be discussed further on in the results section when discussing the Dunning-Kruger Effect.

Knowledge Portion Scoring

As stated in the methodology, the "Knowledge" portion of the survey consisted of 10 questions of various formatting, including multiple choice, true/false, select all that apply, classifying various forms of communication, and short-answer style questions. Each question had a weight of 1 with certain questions earning more than others, totaling 36 points that could be earned. Question #1 and #2 were select-all-that-apply questions, asking the individuals to select all forms of low tech and high tech AAC. The correct answers for Question #1 "Which of the following are examples of low-tech AAC? (select all that apply)" were (1) PECS, (2)

communication books, (3) notebooks, and (4) communication dictionaries, while the correct answers for Question #2 “Which of the following are examples of high-tech AAC? (select all that apply)” were (1) one-message switches, (2) Speech Generating Devices (Tobii, LAMP, etc.), (3) iPhone apps, (4) GoTalk20, (5) Static Display Voice Output Communication Aid, and (6) Dynamic Display Voice Output Communication Aid. When scoring these questions, the researcher gave 1 point to every correct answer, 0 points to any correct answers omitted, and -1 point to any incorrect selected answers. This was to eliminate a participant selecting all 10 answers for both questions and being “technically” correct, but not engaging in the question content. The researcher scored Question #3, “AAC is appropriate for… (select all that apply)” in the same manner to questions #1 and #2 with the correct answers being (1) Children with language delays, (2) People with autism or intellectual disabilities, (3) children over the age of 5, and (4) people without physical disabilities.

Question #4 included 9 forms of communication and asked participants to classify them by “Standard” or “Nonstandard” forms of communication. Participants could earn a total of 9 points, earning 1 point for every correct answer and 0 points for every incorrect answer. They were not given a negative point for an incorrect answer similar to above due to the nature of the question. Correct answers for “Standard” communication were (1) speaking, (2) listening, (3) reading, and (4) writing, while the correct answers for “Nonstandard” communication were (1) eye gaze, (2) gestures, (3) vocalizations, (4) body position, and (5) body orientation.

Questions #5, #6, and #7 were multiple choice questions where participants were given A, B, C, and D. Participants were given 1 point for each correct answer and 0 points for each incorrect answer. The correct answers for “What is iconicity?”, “What is a symbol set?”, and “What group of individuals were among the first users of AAC?” were “how likely the symbol is

to be universally understood", "how the symbols on a high-tech device are organized", and "children with Cerebral Palsy", respectively.

Participants were given six statements to respond true/false for question #8. Participants were able to earn up to 6 points, with each correct answer earning 1 point and each incorrect answer earning 0 points. "True" had the answer (1) AAC use can support spoken language development, while "False" had the answers (1) high-tech AAC is better than low-tech AAC, (2) AAC should be used as a last resort for speech-language intervention, (3) the motor plan is not important when programming a speech-generating device, (4) speech-generating devices are only effective for children with average cognitive skills, and (5) there is a hierarchy of skills required to use AAC.

Finally, the knowledge portion concluded with 2 short-answer questions. Question #9 addressed AAC within a school setting, while question #10 focused on AAC in a medical placement. Each case study was scored out of 2, meaning participants were able to earn 4 points total. Additionally, each case study answer was reviewed by two different judges and given an average of the two scores. These judges discussed judging criteria prior to separately scoring each response. Participants were given 2 points for a thorough and correct answer, 1 point if answers were vague or partially correct, and 0 points if participants were incorrect or omitted. The judges had an overall inter-rater reliability of 93.75%, with 95.83% for question #9 and 91.67% for question #10. Question #9 described a child who is successful with a SGD privately, but the school refuses to allow the child to use it to avoid liability. Instead, the school offers the family a choice between a communication book and a two-message switch. Criteria to receive 2 points for this question included discussing some or all of the following: (a) advocacy for the device or hiring an advocate; (b) information included under IDEA (2004) including Free

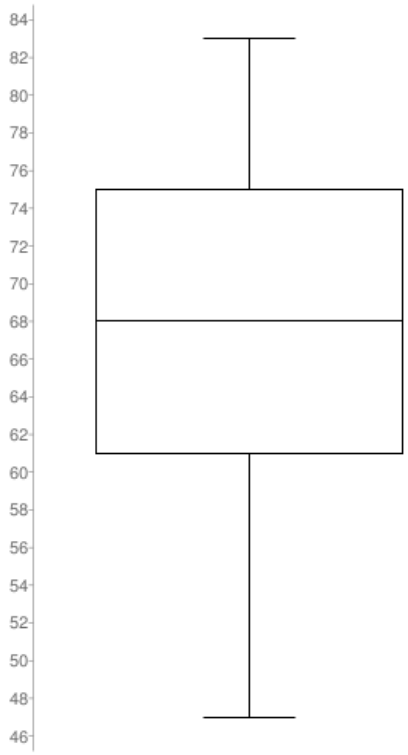
Appropriate Public Education (FAPE), the child's Individualized Education Plan (IEP), rights of the child, etc; and/or (c) requesting documentation and/or refusing to consent to the plan. Criteria to receive 1 point included the participant: (a) discussing the right of the child to have their device but leaving out "advocacy" or "information included under IDEA"; (b) choosing an option provided by the school while bridging the gap towards obtaining a SGD; and/or (c) providing an incomplete or one-word answer. Criteria to receive 0 points included: (a) omission of an answer; or (b) selecting one of the options provided by the school without indicating the need for the SGD. Question #10 describes a patient in a rehabilitation hospital who has been diagnosed with the bulbar form of Amyotrophic Lateral Sclerosis (ALS) and is not familiar with communication options once their condition deteriorates. It is the role of the SLP to recommend a communication option to the family. Criteria to receive 2 points included discussing some or all of the following: (a) options that take into account the deteriorative nature of the disease; (b) voice banking; and/or (c) eye gaze device to account for the eventual loss of motor function. Criteria to receive 1 point included the participant: (a) submitting an incomplete or one-word answer; and/or (b) discussing a form of low-tech AAC (ex. PECS). Criteria to receive 0 points included: (a) omission of an answer.

Knowledge Portion Scores and the Dunning-Kruger Effect

The Dunning-Kruger effect is the idea that individuals in a particular field will overestimate their knowledge or skills despite having limited knowledge or competence on the information (Kruger and Dunning, 1999). The phenomenon, discovered by Kruger and Dunning in 1999, is able to be applied to the field of speech-language pathology as well as to this research (Riedeman & Turkstra, 2018).

Of the 29 participants that completed the survey, the average score on the Knowledge section was 68%, with a high score of 83% and a low score of 47 %.

Figure 3 - Participant Score Breakdown



Next, the researcher examined participants' answers to the question "I am an expert in AAC" (see Figure 4). Overall, 7% of individuals stated they "Strongly Agree" to being an expert in AAC. The remaining 93% felt they could not consider themself an expert in AAC. The individual with the lowest score of 47% stated they "Neither Agree nor Disagree" to the statement while the individual with the highest score of 83% disagrees to considering themself an expert. The two individuals who chose "Strongly Agree" to the statement scored 72% and 75%. Additionally, one of these individuals graduated in 2022 and has 50+ clients with AAC on

their caseload throughout their career while the other graduated in 2019 and has had 45-50 clients with AAC on their caseload throughout their career.

Figure 4: Response to the question "I am an Expert in AAC"

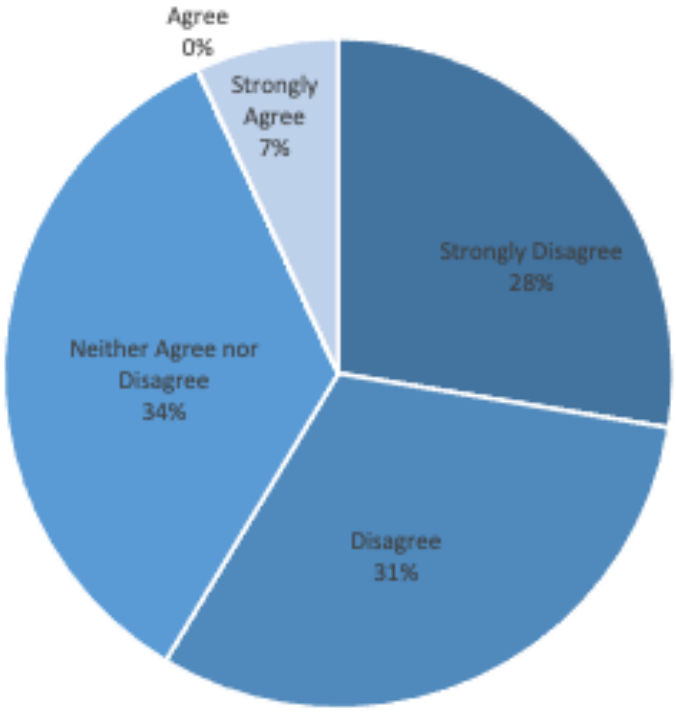
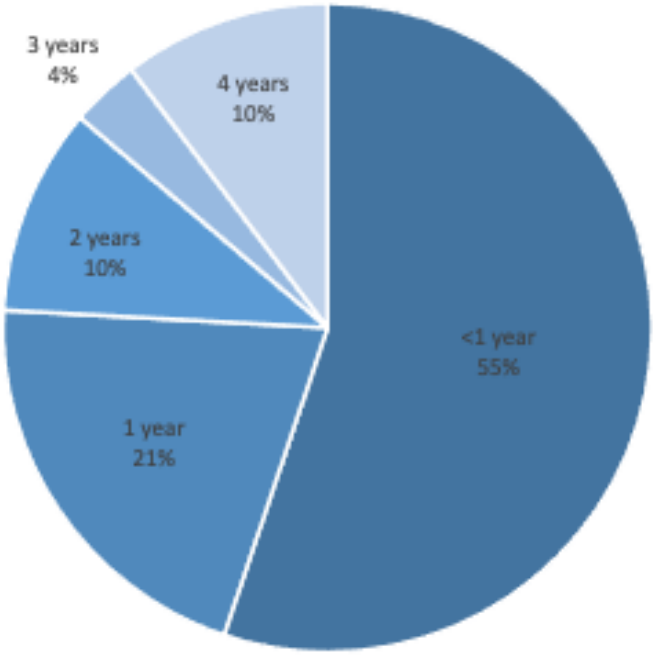


Figure 5 below shows participants' years of experience. Fifty-five percent of participants who completed the knowledge portion indicated that they graduated in 2022, meaning they are currently in their CFY and have less than one full year of experience.

Figure 5: Years of Experience



The researcher then attempted to determine the correlation between participant's score on the knowledge portion and their response to the question "I am an Expert in AAC" to examine the Dunning-Kruger Effect. The researcher ran statistics through IBM Statistical Package for the Social Sciences version 23 (SPSS ®). Due to the limited number of participants, the assumptions necessary to use a Pearson's Correlation could not be met. Therefore, nonparametric statistics were utilized. A Spearman's Rho is the nonparametric equivalent of a Pearson's Correlation. The Spearman's Rho (see Table 1) indicated a weak positive correlation between the two data points of 0.169. Additionally, the p-value of the Spearman's Rho is 0.381, indicating that the results are not statistically significant. This means that the data shows very little significance between how individuals scored on the knowledge portion versus how they view their expertise, negating the Dunning-Kruger effect in this study. The researcher then completed an estimate of statistical

power, with a result of 34.73%. Statistical power was low (1- β =0.35). Generally, an estimate of statistical power above 80% is significant. This means that the estimate of statistical power for this study is probably not significant.

Table 1

Spearman's Rho of Performance and Expertise

		Expertise	Knowledge
Expertise	Correlation Coefficient	1.000	0.169
	Sig.(2-tailed)	-	0.381
	N	29	29
Knowledge	Correlation Coefficient	0.169	1.000
	Sig.(2-tailed)	0.381	-
	N	29	29

Summary of Results

The survey reached participants across 17 states and the District of Colombia, indicating that potential professional preparation issues may not be limited to a singular state. Forty-five percent of participants indicated they felt "somewhat prepared" or "very prepared" by their graduate-level educational experiences, and 59.5% reported the same of their graduate-level clinical experiences. Despite 64.3% of participants stating they feel comfortable providing services to clients who use AAC, only 26.3% feel comfortable assessing clients who require the use of AAC. The average score on the knowledge portion was a 68%, with a low of 47% and a

high of 83%. Of the participants who completed the survey, only 7% claimed expertise in the area of AAC. Additionally, the correlation between how participants scored on the knowledge portion and how they rated their expertise on AAC is probably not statistically significant meaning there are no signs of the Dunning-Kruger effect in this study.

Chapter Five

Discussion

Summary of Results

Results of the survey indicated that 45.2% of participants felt "somewhat prepared" or "very prepared" by their graduate-level educational experiences, and 59.5% of participants reported the same of their graduate-level clinical experiences. However, even though 64.3% of participants feel comfortable providing services to clients who require AAC, only 26.3% feel comfortable assessing clients who require the use of AAC. The average score of the knowledge portion was a 68% with only 7% identifying themselves as being an expert in AAC. The Dunning-Kruger effect, measured by recent CSD graduates and their comfort with AAC versus their knowledge of AAC, is not present throughout this study due to no statistically significant results and a weak estimate of power.

Interpretation of Results

Participants from 17 states and the District of Colombia completed this survey. One hundred percent of participants identified their gender as female. According to the ASHA demographic information from 2021, approximately 96.4% of SLPs identify as female (ASHA, 2022). ASHA states that 91.4% of SLP members identify their race as white/Caucasian compared to the 83.3% of individuals who took this survey (ASHA, 2022).

Overall, participants do not feel as if they have expertise in AAC. This can be attributed to a lack of confidence based on limited graduate-level experiences and comfort related to AAC. A majority of survey participants (73.8%) indicated that they received an entire graduate-level course of training on AAC which is 12.3% lower than the 86.1% of programs that reported

offering a graduate-level AAC course (Johnson & Prebor, 2019). CAA standards require students of a CSD graduate program to demonstrate knowledge and competency regarding the nine areas of the field of speech-language pathology which includes AAC (CAA, 2020). However, CAA does not have a course requirement for AAC (CAA, 2020). This means that graduate programs are allowed to educate their students in whatever format they believe their students will be successful to meet competency. For example, Longwood University dedicates an entire course to AAC during the Fall semester of the 2nd year (Longwood University, 2022). However, some graduate programs may decide to embed AAC education into the context of other courses such as discussing AAC in Autism Spectrum Disorder (ASD) or motor speech disorders class. Only 45.2% and 59.5% of participants feel prepared by their graduate-level educational experiences and graduate-level clinical experiences, respectively. This trickles down into their comfort regarding AAC. For example, even though 64.3% of participants feel comfortable providing services to clients utilizing AAC, only 26.3% of participants feel comfortable assessing clients who utilize AAC. Additionally, only 38.1% of participants indicated feeling comfortable troubleshooting a client's AAC device. These are likely areas of AAC that are either discussed briefly or overall forgotten during a graduate-level AAC course. Without hands-on clinical experience with AAC assessment or troubleshooting, that information is unlikely to be carried over to practical application. Similarly, the absence of the Dunning-Kruger effect may be seen in the lack of comfort providing AAC services, as nearly all participants could not claim expertise. Furthermore, it is important to remember the findings from Moorcroft et. al. (2020) where they stated that SLPs who had less experience and were less familiar with AAC "could not see beyond the child's age of physical presentation, did not appropriately arrange the environment, and were less able to work with families to achieve and set goals" (Moorcroft et. al., 2020). This

can be directly impacted by a lack of graduate education and direct clinical experiences with clients. Graduate programs need to consider their clinical offerings when educating graduate students on AAC.

Almost 91% of participants feel comfortable advocating for their clients' devices. Since advocacy is such an important part of our field, it can be comforting to know that many participants are able to advocate for their clients to have a voice. Similarly, 71.4% of participants feel comfortable providing training to family members regarding the implementation of AAC. This is especially important considering how important family training and parent coaching is within our field.

In addition to all the information gained from the knowledge portion, there is information that can be gained from individuals who did not complete the knowledge portion of the survey. Twelve participants completed and submitted all portions of the survey except the knowledge portion (73% complete). An additional 11 participants completed the survey up until the knowledge portion (73% complete) but did not submit the survey. One possibility for non-completion at this point within the survey is that these 23 participants did not feel comfortable in their knowledge of AAC, further indicating the need for stronger preprofessional training during graduate school.

Implications

This research provided pilot data that has far-reaching implications that imply a need for positive changes in policy, practice, and future research.

Policy

This study provided pilot data that indicates future changes in policy should revolve around the clinical experiences that graduate programs are offering. Graduate programs need to

provide adequate clinical experiences for their current CSD graduate students to ensure that they are creating quality entry-level clinicians. Graduate programs can do this by analyzing the quality of AAC graduate experiences they are providing, both within their first year and externship opportunities. This idea can be extended to other low-incidence populations, such as hearing or voice. Furthermore, CSD graduate programs can focus on improving the quality of their AAC education. This research discovered that clinicians feel uncomfortable providing an assessment for an individual who requires the use of AAC, as well as discomfort troubleshooting AAC devices. These are areas where graduate programs can focus in order to improve their clinical education. Additionally, increasing ease of access to AAC resources and continuing education can aid to improve recent graduates' overall comfort. While each clinician is never going to be an expert in every single form of AAC, providing ease of access to the materials needed to support clinical decisions is essential. This could be resources added to the ASHA Practice Portal for AAC. Overall, assessing quality and providing access to resources post-graduation will aid in the comfort of new clinicians providing AAC services.

Practice

This research provides pilot data that indicates much can be done to support recent graduates with AAC upon graduation. One improvement may be requiring an AAC Continuing Education course with each round of continuing education due. This would supplement the knowledge that recent CSD graduates have from graduate school while continuing to provide new information. Additionally, this would allow currently practicing clinicians to remain up-to-date on the latest research to provide best EBP. Furthermore, companies should focus on providing Continuing Education courses on topics that clinicians feel less comfortable in, such as troubleshooting a device or assessing an individual who uses AAC. As our field continues to

grow, these resources would aid in supplementing material and information that clinicians gained through graduate school.

Research

This study provided pilot data to suggest that graduate programs need to provide higher quality clinical and educational experiences. However, due to the limited number of participants, the researcher is unable to conclude if the Dunning-Kruger Effect is present. Future research should explore this topic further while obtaining a larger number of participants. Furthermore, there is a lack of research regarding preservice training of speech-language pathology graduate students. It would be interesting to see current information regarding AAC experience in graduate schools, similar to the Johnson and Prebor study (2019). Additionally, further research should examine comfort levels of clinicians with both high-tech and low-tech AAC.

Limitations

Limitations include the narrow population to which this study was designed. Participants were required to have graduated from a CAA-accredited program within the past 5 years (graduation year of 2018-2022) who are now working as an SLP with either their CCC-SLP or their CF-SLP. Despite the survey remaining open for 86 days, only 56 responses were collected. Opening the survey for a longer period of time, or to a greater variety of practicing SLPs, could potentially increase the number or responses and yield greater reliability and validity in the results. Additionally, the estimate of statistical power was low, only 34.73%. The non-significant results may be different, but it is unable to be determined due to the low power.

Another limitation of this study involved the creation of the survey questions. Many of the questions regarding comfort involved both high-tech and low-tech AAC grouped together. However, some clinicians may feel more comfortable utilizing low-tech AAC than high-tech

AAC and vice versa. This may have impacted the overall comfort level reported by participants in the survey.

A further limitation of this study involved a technical communication with the online survey response system. Of those 56 responses, six were submitted with no information. Additionally, if participants chose to discontinue the survey, the researcher only had access to the percentage of survey completed but not to their actual responses. Incomplete survey responses were deleted every 14 days, meaning the researcher has no access to these numbers other than screenshots of the information.

A fourth limitation of the study is where the study was advertised. Specifically, the study was advertised in the ASHA SIG for AAC, SIG 12. Since this SIG consists of members with strong interest in AAC, the interest in AAC may have impacted the data.

Conclusion

AAC plays such an important role for individuals who are unable to verbally communicate. SLPs are key individuals in ensuring their success with these devices. However, the field cannot expect SLPs to provide these essential services without proper training and experience. Graduate programs need to focus on stronger training of their graduate students regarding AAC. Specifically, further education is needed on topics such as the assessment of individuals with AAC and how to troubleshoot AAC devices. Much of this knowledge will be difficult to retain without direct clinical experience with various forms of AAC. These graduate-level clinical experiences will increase the comfort that their graduates will feel regarding providing AAC services. Graduate programs should strive to offer these to their future graduate students since this is how our field is going to continue to grow and evolve regarding preservice and pre-professional training of AAC. Although this pilot research study showed a correlation

that was probably not significant between participants' knowledge and perceived expertise of AAC, it should be replicated once graduate programs begin to increase the quality of their AAC courses to further study the Dunning-Kruger effect.

References and Appendices

References

AAC Institute. (n.d.). For CEU Activity Participants. https://aacinstitute.org/ceus/

ALS Association. (n.d.). What is ALS?. https://www.als.org/understanding-als/what-is-als

American Speech-Language-Hearing Association. (2022). 2021 Member & Affiliate Profile.

American Speech-Language-Hearing Association (11). (n.d.). A Guide to the ASHA Clinical Fellowship Experience. https://www.asha.org/certification/clinical-fellowship/

American Speech-Language-Hearing Association (8). (n.d.). About ASHA's Special Interest Groups. https://www.asha.org/sig/about-special-interest-groups/

American Speech-Language-Hearing Association (9). (n.d.). Augmentative and Alternative Communication (AAC). https://www.asha.org/public/speech/disorders/aac/

American Speech-Language-Hearing Association (1). (n.d.). Augmentative and Alternative Communication. ASHA Practice Portal. https://www.asha.org/practice-portal/professional-issues/augmentative-and-alternative-communication/#collapse_1

American Speech-Language-Hearing Association (3). (n.d.). Autism Spectrum Disorder. ASHA Practice Portal. https://www.asha.org/practice-portal/clinical-topics/autism/#:~:text=Autism%20spectrum%20disorder%20(ASD)%20is,presence%20of%20restricted%2C%20repetitive%20behaviors

American Speech-Language-hearing Association (2). (n.d.). CE Courses / Augmentative and Alternative Communication (AAC). https://apps.asha.org/eweb/OLSDynamicPage.aspx?Webcode=olsresults&cat=CE%20Courses&tpc=aac

American Speech-Language-Hearing Association (4). (n.d.). Council on Academic Accreditation. https://caa.asha.org/

American Speech-Language-Hearing Association (5). (n.d.). Evidence-Based Practice (EBP). https://www.asha.org/research/ebp/

American Speech-Language-Hearing Association (6). (n.d.). Medicare Coverage Policy on Speech-Generating Devices. https://www.asha.org/practice/reimbursement/medicare/sgd_policy/

American Speech-Language-Hearing Association (7). (n.d.). Speech-Language Pathologists. https://www.asha.org/students/speech-language-pathologists/

American Speech-Language-Hearing Association (10). (n.d.). Traumatic Brain Injury (TBI).. https://www.asha.org/public/speech/disorders/traumatic-brain-injury/#:~:text=Traumatic%20brain%20injury%2C%20or%20TBI,%2C%20or%20SLPs%2C%20can%20help.

AssistiveWare. (n.d.). AssistiveWare's online learning. https://www.assistiveware.com/on-demand-aac-training-videos

Biggs, E. E., Therrien, M. C. S., Douglas, S. N., & Snodgrass, M. R. (1) (2022). Augmentative and alternative communication telepractice during the COVID-19 pandemic: A national survey of speech-language pathologists. American Journal of Speech-Language Pathology, 31(1), 303–321. https://doi.org/10.1044/2021_AJSLP-21-00036

Biggs, E. E., Rossi, E. B., Douglas, S. N., Therrien, M., & Snodgrass, M. R. (2) (2022). Preparedness, Training, and Support for Augmentative and Alternative Communication Telepractice During the COVID-19 Pandemic. Language, Speech, and Hearing Services in Schools, 53(2), 335–359. https://doi.org/10.1044/2021_LSHSS-21-00159

Classification of Instructional Programs. (n.d.). Detail for CIP Code 51.0201. Institute of Education Services - National Center for Educational Statistics. https://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cipid=88746#:~:text=Definition%3A%20A%20program%20that%20focuses,disease%2C%20injury%2C%20or%20disability

Council on Academic Accreditation. (2021, January 13). Covid-19: Clinical Simulation, Telepractice, and Telesupervision. The American Speech-Language-Hearing Association. https://caa.asha.org/about/coronavirus-covid-19/clinical-simulation-telepractice-and-telesupervision/

Council on Academic Accreditation. (2020). Standards for Accreditation of Graduate Education Programs in Audiology and Speech-Language Pathology. The American Speech-Language-Hearing Association.

Fanourgiakis, V. (2016, March 8). High Tech AAC for Spanish Speakers. The ASHA LeaderLive. https://leader.pubs.asha.org/do/10.1044/high-tech-aac-for-spanish-speakers/full/

Goldman, A., Jackson, D., Kannan, K., Kanter, C., Klein, C., Marshall, S., McNaughton, D., Paul, D., Rackensperger, T., Soto, G., & Zangari, C. (2021). Training Needs in Augmentative and Alternative Communication: A Virtual Roundtable Discussion. Assistive Technology Outcomes and Benefits, 15(1), 1–28.

Hajjar, D. J., & Mulkerin, K. (2023, February 2). Visual Scene Displays for Children and Adults: Using Case Studies to Bridge Research and Clinical Practice. Perspectives of the ASHA Special Interest Groups. https://doi.org/10.1044/2022_PERSP-22-00162

IBM. (n.d.). IBM SPSS Statistics. https://www.ibm.com/products/spss-statistics

Individuals with Disabilities Education Act. (n.d.). About IDEA. https://sites.ed.gov/idea/about-idea/

Individuals with Disabilities Education Act (1). (2017). Sec. 300.101 Free appropriate public education (FAPE). https://sites.ed.gov/idea/regs/b/b/300.101

Individuals with Disabilities Education Act (2). (2017). Sec. 300.39 Special education. https://sites.ed.gov/idea/regs/b/a/300.39

International Society for Augmentative and Alternative Communication. (n.d.). Welcome to ISAAC. https://isaac-online.org/english/home/

Johnson, R.K., & Prebor, J. (2019). Update on Preservice Training in Augmentative and Alternative Communication for Speech-Language Pathologists. American Journal of Speech-Language Pathology, 28(2):536-549. https://doi.org/10.1044/2018_AJSLP-18-0004

Kehitysvammaliitto. (n.d.). Complex Communication Needs. https://www.kehitysvammaliitto.fi/in-english/complex-communication-needs/#:~:text=The%20term%20complex%20communication%20needs,difficulties%20with%20reading%20and%20writing

Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. Journal of Personality and Social Psychology, 77(6), 1121–1134. https://doi.org/10.1037/0022-3514.77.6.1121

LAMP Words For Life. (2021). What Is LAMP?. PRC-Saltillo. https://lampwflapp.com/about

LAMP Words For Life. (n.d.). Education - Webinars. PRC-Saltillo. https://lampwflapp.com/education/webinars

Light, J., McNaughton, D., Fager, S. K., Fried-Oken, M., Jakobs, T., & Jakobs, E. (2019, January 26). Challenges and opportunities in augmentative and alternative communication: Research and technology development to enhance communication and participation for individuals with complex communication needs. Augmentative and Alternative Communication, 35(1), 1-12. https://doi.org/10.1080/07434618.2018.1556732

Litwin, M. S. (1995). How to measure survey reliability and validity. SAGE Publications. https://methods.sagepub.com/book/how-to-measure-survey-reliability-and-validity

Longwood University. (n.d.). Institutional Review Board (IRB). http://www.longwood.edu/studentresearch/institutional-review-board-irb/

Longwood University. (2022). Master of Science in Communication Sciences and Disorders Course of Study 2022-23. http://www.longwood.edu/media/social-work-and-comm-sciences-and-disorders/public-site/Masters_CSDS_Course_of_Study_22-23.pdf

McLeod, S. (2018, February 21). Communication rights: Fundamental human rights for all. International Journal of Speech-Language Pathology, 20(1): 3-11. https://doi.org/10.1080/17549507.2018.1428687

Moorcroft, A., Scarinci, N., & Meyer, C. (2019, September 25). 'We were kind of handed it and then it was smoke bombed by everyone': How do external stakeholders contribute to parent rejection and abandonment of AAC systems? International Journal of Language & Communication Disorders, 55(1):59-69. https://doi.org/10.1111/1460-6984.12502

Project ECHO. (2022, January 27). Project ECHO, Changing the World Fast. American Academy of Pediatrics. https://www.aap.org/projectecho

QualtricsXM. (n.d.). Main page. https://www.qualtrics.com/

Riedeman, S. & Turkstra, L. (2018, February 6). Knowledge, Confidence, and Practice Patterns of Speech-Language Pathologists Working With Adults With Traumatic Brain Injury. American Journal of Speech-Language Pathology. https://doi.org/10.1044/2017_AJSLP-17-0011

Saltillo. (n.d.). Recorded Webinars. https://saltillo.com/videos/x/webinar/en

Sanders, E.J., Page, T.A., & Lesher, D. (2021, April 20). School-Based Speech-Language Pathologists: Confidence in Augmentative and Alternative Communication Assessment. Language, Speech & Hearing Services in Schools, 52(2):512-528. https://doi.org/10.1044/2020_LSHSS-20-00067

Sievers, S.B., et. al. (2019, October 14). Speech-Language Pathologists' Knowledge and Consideration of Factors That May Predict, Moderate, and Mediate AAC Outcomes. Journal of Autism and Developmental Disorders, 50(1):238-249. https://doi.org/10.1007/s10803-019-04217-4

SLP Grad Student. (2022, October 17). Thesis Survey!!! [Facebook post]. Facebook. https://www.facebook.com/photo/?fbid=5440765556043857&set=gm.1385320478666782&idorvanity=543421156190056

Special Interest Group 10: Issues in Higher Education (2022, November 30). AAC Thesis Survey. [SIG discussion post]. American Speech-Language-Hearing Association Special Interest Groups. https://www.asha.org/sig/

Special Interest Group 12: Augmentative and Alternative Communication. (2022, November 30). AAC Thesis Survey. [SIG discussion post]. American Speech-Language-Hearing Association Special Interest Groups. https://www.asha.org/sig/

Speech-Language-Hearing Association of Virginia. (n.d.). Conference. https://shav.org/shav-conference/

Speech Language Pathologist New Grads & Students. (2022, November 29). Thesis Survey!!! [Facebook post]. Facebook. https://www.facebook.com/groups/804485687077470/user/100003314001587

SpeechPathology.com. (n.d.). AAC Technology CEU Courses for SLPs. https://www.speechpathology.com/slp-ceus/aac-technology/

Talk To Me Technologies. (n.d.). AAC Lesson Plans for Speech Language Pathologists, Parents, and Caregivers. https://www.talktometechnologies.com/pages/educational-materials

Tobii Dynavox. (n.d.). Tobii Dynavox Learning Hub. https://learn.tobiidynavox.com/

United States Society for Augmentative and Alternative Communication. (n.d.). Main Page. https://ussaac.org/

Updates for Longwood CSDS Alumni. (2022. October 17). Thesis Survey!!! [Facebook post]. Facebook. https://www.facebook.com/groups/147148732020624

Virginia Department of Education. (n.d.). IEP & Instruction. https://www.doe.virginia.gov/programs-services/special-education/iep-instruction#:~:text=An%20individualized%20education%20program%20

Waller. (2019). Telling tales: unlocking the potential of AAC technologies. International Journal of Language & Communication Disorders, 54(2), 159–169. https://doi.org/10.1111/1460-6984.12449

Appendix A: Email, Social Media, and SIG Solicitation

EMAIL: Good morning! My name is Delanie Amend and I am a second-year speech-language pathology graduate student at Longwood University in Farmville, VA! I am currently completing my thesis titled The Relationship Between Recent CSD Graduates' Comfort and Training with AAC and their Knowledge of AAC. I am reaching out because I'm hopeful that you will consider taking my survey! I'm looking for participants who graduated from a CAA-accredited CSD graduate program within the past 5 years (2018-2022). Participants must be certified through ASHA, holding either their CCC-SLP or their CF-SLP. Participants must also reside within the US. Please consider taking 15-20 minutes to complete my survey at the link below. The survey consists of an education, comfort, and knowledge section regarding your experiences with AAC. If you have any questions, please contact myself or Dr. King at kingar2@longwood.edu. Thank you so much! Link to the survey:
https://businesslongwood.az1.qualtrics.com/jfe/form/SV_6L4CqLMJMsGTGHY
Best,
Delanie Amend

SOCIAL MEDIA: Hello all! My name is Delanie Amend and I am a second-year speech-language pathology graduate stumy thesis titled The Relationship Between Recent CSD Graduates' Comfort and Training with AAC and their Knowledge of AAC. I am looking for participants who graduated from a CAA-accredited CSD graduate program within the past 5 years (2018-2022). Participants must be certified through Adent at Longwood University in Farmville, VA! I am currently completing SHA, holding either their CCC-SLP or their CF-SLP. Participants must also reside within the United States. Please consider taking 15-20 minutes to complete the survey at the link below consisting of an education, comfort, and knowledge section regarding your experiences with AAC. If you have any questions, please contact myself at amenddmsw@longwood.edu or my supervisor Dr. Alison King at kingar2@longwood.edu. Thank you for your time and consideration! LINK TO THE SURVEY:
https://businesslongwood.az1.qualtrics.com/jfe/form/SV_6L4CqLMJMsGTGHY

SIG: Good morning! My name is Delanie Amend and I am a second-year speech-language pathology graduate student at Longwood University in Farmville, VA. I am currently completing my thesis research study titled The Relationship Between Recent CSD Graduates' Comfort and Training with AAC and their Knowledge of AAC. I am looking for participants who graduated from a CAA-accredited CSD program within the past 5 years (2018-2022). Participants must be certified through ASHA, holding either their CCC-SLP or their CF-SLP. Participants must also reside within the United States. Please consider taking my survey if you meet the criteria or passing it along to a recent SLP graduate. It should take 15-20 minutes to complete the survey at the link below. My survey consists of an education, comfort, and knowledge section regarding your experiences with AAC. If you have any questions, please contact myself at amenddmsw@longwood.edu or my supervisor Dr. Alison King at kingar2@longwood.edu. Thank you for your time and consideration! LINK TO THE SURVEY:
https://businesslongwood.az1.qualtrics.com/jfe/form/SV_6L4CqLMJMsGTGHY

Appendix B: Recruitment Flyer

LONGWOOD UNIVERSITY

RECENT SLP GRADUATES' KNOWLEDGE, COMFORT, AND TRAINING WITH AAC: RESEARCH STUDY

Longwood University CSD graduate student Delanie Amend is conducting her thesis research study on recent SLP graduates' knowledge, comfort, and training with AAC. This survey was approved by Longwood University's IRB on October 12th, 2022. Along with her supervisor Dr. Alison King, she is looking for the following participants...

PARTICIPANTS WHO...

- Graduated from a CAA accredited CSD program
- Graduated within the past 5 years (2018-2022)
- Are certified through ASHA with their CCC-SLP or CF-SLP
- Currently reside within the United States of America

WHAT THIS STUDY INVOLVES

After completing an informed consent waiver, participants will complete a brief survey consisting of an education, comfort, and knowledge section regarding their experiences with AAC.

For more information, please contact Dr. Alison King at kingar2@longwood.edu or Longwood University's Institutional Review Board at IRB@longwood.edu

Appendix C: Survey

PAGE 1: Informed Consent

Title: The Relationship Between Recent CSD Graduates' Comfort and Training with AAC and their Knowledge of AAC.

Purpose: The purpose of this research study is to learn more about the knowledge, training, and comfort of recent CSD graduate students in providing Augmentative and Alternative Communication (AAC) services to their clients. You are being asked to participate in this study because you are a recent graduate from a CAA-accredited speech-language pathology program in the United States with your Certificate of Clinical Competency (CCC-SLP) or their Clinical Fellowship certification (CF-SLP). If you agree to participate, you will be asked to complete an internet-based survey via google forms. The survey should take approximately 20 minutes to complete. There are four sections including demographic information, education/training, comfort with AAC, and knowledge of AAC. This study was approved by Longwood University's IRB on October 12th, 2022 (#2022-10-04)

Risks: By taking this survey, you may want more information or training on AAC. At the end of the survey, you will be able to link to a google doc with more information on AAC continuing education provided by professional organizations and companies producing AAC equipment.

Benefits: The results from this survey will be used to inform speech-language pathology graduate programs on the effectiveness of their education regarding Augmentative and Alternative Communication (AAC).

Confidentiality: All data collected from this internet-based survey will be confidential. Names and any identifying information will not be placed on surveys or results. Your responses will not be identifiable to you personally. All data will be incorporated into group data and no individual demographic data will be shared. Reasonable efforts are made to protect the confidentiality of your transmissions with the understanding that no computer transmission is completely secure. It is recommended that you close your computer browser after completion of the survey.

Participation: Completing this survey is completely voluntary. You may skip items or exit the survey at any time. There are no costs to you for participating in this research. If you have any questions, concerns, or complaints about the research study, please contact Dr. Alison King at kingar2@longwood.edu or Longwood's Institutional Review Board at IRB@longwood.edu.

CONSENT TO VOLUNTARY PARTICIPATION – I understand that my participation in this research is voluntary, and that I am free to withdraw my consent at any time and to discontinue participation in this project without penalty. I acknowledge the general purpose of this study and the procedures to be followed. I acknowledge that I have the opportunity to obtain information regarding this research project, and that any questions I may have concerning the study will be answered promptly via email by Dr. Alison King at kingar2@longwood.edu. I understand that no information will be presented which will identify me as the subject of this study. I acknowledge that I have read and fully understand this consent form. I agree to it fully and voluntarily.

- Yes, I consent.

- No, I do not consent

PAGE 2: Inclusionary Criteria

- Do you currently reside within the United States of America?
  - Yes
  - No
- Did you graduate from a CAA-accredited speech-language pathology graduate program within the past 5 years (graduation year of 2018-2022)?
  - Yes
  - No
- Which of the following do you currently hold?
  - ASHA Clinical of Clinical Competency (CCC-SLP)
  - ASHA Clinical Fellowship Certification (CF-SLP)
  - Neither

PAGE 3: Exclusionary Criteria

Thank you for your interest in this research study. However, you must reside within the United States, have graduated from a CAA-accredited speech-language pathology graduate program, have graduated within the past 5 years, and currently hold your ASHA CCC-SLP or your ASHA CF-SLP. If you have any further questions, please contact Dr. Alison King at kingar2@longwood.edu. Thank you!

PAGE 4: Education and Training

- What amount of **undergraduate classroom instruction** did you receive regarding AAC? (select all that apply).
  - None
  - One Lecture
  - Several Lectures
  - Entire Course
  - Workshop
  - Other: _____
- What amount of **graduate classroom instruction** did you receive regarding AAC? (select all that apply)
  - None
  - One Lecture
  - Several Lectures
  - Entire Course
  - Workshop
  - Other: _____
- What **graduate-level clinical experience** with AAC did you receive in your program? (select all that apply)
  - None
  - One session
  - Several sessions
  - Practicum
  - Clinical simulations
  - Other: -----_____
- How do you feel your **graduate educational experiences** prepared you to work with clients using AAC?

    - Not prepared
    - Lacking preparedness
    - Neutral
    - Somewhat prepared
    - Very Prepared
- How do you feel you **graduate clinical experiences** prepared you to work with clients using AAC?
    - Not prepared
    - Lacking preparedness
    - Neutral
    - Somewhat prepared
    - Very Prepared
- Were you provided training in your graduate program on adult learning models in order to train caregivers, educators, or other professionals regarding AAC?
    - Yes
    - No
    - Other: _____
- Have you participated in continuing education regarding AAC since graduation?
    - Yes
    - No
- If YES to the above question, what forms of continuing education have you taken? (select all that apply)
    - Conferences
    - Workshops
    - College courses
    - Online courses
    - Other: _____

PAGE 5: Comfort with AAC

- Estimate the number of clients on your caseload currently receiving AAC (high and low tech) services.
    - _____
- Estimate the number of clients you have seen over the course of your career that have received AAC (high and low tech) services.
    - _____
- Respond to the following statements:
    -

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N/A
I am comfortable providing services to clients who use AAC.						

I am comfortable assessing a client who requires the use of AAC.						
I am comfortable advocating for the use of the clients' AAC.						
I am comfortable making decisions regarding AAC for clients.						

- Respond to the following statements:
  -

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N/A
I am comfortable troubleshooting clients' AAC.						
I can program a dynamic display AAC.						
I can create or add symbols to an AAC.						
I can code an action into an AAC.						

- Respond to the following statements:
  -

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N/A

I can train medical caregivers to implement AAC.						
I can train teachers to implement AAC.						
I can train educational aides to implement AAC.						
I can train family members to implement AAC.						

- Respond to the following statements
  -

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N/A
I am an expert in AAC.						

PAGE 6: Demographics

- Age21-25
  - 26-30
  - 31-35
  - 36-40
  - 41-45
  - 46-50
  - 51+
- Gender Identity
  - Male
  - Female
  - Nonbinary
  - Other: _____
  - Prefer not to share
- Race/Ethnicity
  - African-American
  - Asian
  - Caucasian/White

    - Hispanic
    - Native American
    - Native Hawaiian or Pacific Islander
    - Other: _____
    - Prefer not to share
- What is your primary language?
    - _____
- What year did you graduate?
    - 2018
    - 2019
    - 2020
    - 2021
    - 2022
    - Other: _____
- In what state/territory did you attend graduate school?
    - _____
- In what state/territory do you currently practice?
    - _____
- In which setting(s) do you currently provide services? (select all that apply)
    - Medical/Healthcare
    - School
    - Private Practice
    - Other: _____
- What percentage of your students live in primarily English-speaking homes?
    - ___
- In which areas of the field of speech-language pathology do you currently practice? (select all that apply)
    - Speech Sound Disorders
    - Expressive and Receptive Language
    - Fluency
    - Voice and Resonance
    - Hearing
    - Feeding and Swallowing
    - Cognitive Aspects of Communication
    - Social Aspects of Communication
    - Communication Modalities/Augmentative and Alternative Communication
    - Other: _____

PAGE 7: Knowledge

- Which of the following are examples of low-tech AAC? (select all that apply)
    - PECS
    - One-message switches
    - Communication books
    - Speech Generating Devices (Tobii, LAMP, etc.)
    - Notebooks
    - iPhone apps
    - Communication dictionaries

    - GoTalk 20
    - Static Display Voice Output Communication Aid
    - Dynamic Display Voice Output Communication Aid
- Which of the following are examples of high-tech AAC? (select all that apply)
    - PECS
    - One-message switches
    - Communication books
    - Speech Generating Devices (Tobii, LAMP, etc.)
    - Notebooks
    - iPhone apps
    - Communication dictionaries
    - GoTalk 20
    - Static Display Voice Output Communication Aid
    - Dynamic Display Voice Output Communication Aid
- AAC is appropriate for... (select all that apply)
    - Only children who are nonverbal
    - Children with language delays
    - People with autism or intellectual disabilities
    - Children over the age of 5
    - People without physical disabilities.
- Classify the following communication
    -

	Standard	Nonstandard
Speaking		
Eye Gaze		
Gestures		
Listening		
Vocalization		
Reading		
Bod Position		
Body Orientation		
Writing		

- What is iconicity?
    - How likely the symbol is to be universally understood
    - How the symbols are organized on an AAC device
    - The inability of an AAC user to acknowledge that a symbol is meant to represent an item

    - How likely a gesture is to be understood by peers
- What is a symbol set?
    - A type of Picture Exchange Communication System (PECS)
    - A handful of similar symbols grouped together
    - An AAC system consistently using the same style of symbol
    - How the symbols on a high-tech device are organized
- What group of individuals were among the first users of AAC?
    - Children with Autism Spectrum Disorder
    - Children with Cerebral Palsy
    - Children with Developmental Disorders
    - Children with Speech Sound Disorders
- Answer the following statements by responding TRUE or FALSE
    -

	True	False
High-tech AAC is better than low-tech AAC.		
AAC use can support spoken language development.		
AAC should be used as a last resort for speech-language intervention.		
The motor plan is not important when programming a speech-generating device.		
Speech-generating devices are only effective for children with average cognitive skills.		
There is a hierarchy of skills required to use AAC.		

- CASE STUDY #1: You are an SLP in a private practice and provide services for a kindergarten student that currently uses ProLoQuo2Go successfully. The family is moving to a nearby town and will be transferred off your caseload since they will be receiving services through the school. The school refuses to allow the child to continue to use the device, despite the child's success, because they don't want to be held liable if it breaks. They offer the family the choice between a communication book and a two-message switch. What would you advise the family to do?
    - _____
- CASE STUDY #2: You are an SLP working in a rehabilitation hospital. One of your patients was recently diagnosed with the bulbar form of Amyotrophic Lateral Sclerosis (ALS). This patient isn't familiar with communication options once her condition

deteriorates. What communication option would you recommend for the patient and why?

- _____

PAGE 8: End of Study

Thank you so much for completing my thesis survey. If you have any further questions, please contact Dr. Alison King at kingar2@longwood.edu or Longwood University's IRB at IRB@longwood.edu.. More information, resources, and continuing education can be found here: https://docs.google.com/document/d/1Vh2vOM7xQ2W4uJHjzOvEDB4Q7UToF3p8_CjiVWayTa0/edit?usp=sharing.

Thank you for your time! Best, Delanie Amend

Appendix D: Provided Materials

Thank you so much for completing my thesis survey! Below is information, resources, and continuing education related to AAC. If you have any further questions or concerns, please contact Dr. Alison King at kingar2@longwood.edu. Thank you!

ASHA Practice Portals: Augmentative and Alternative Communication
https://www.asha.org/practice-portal/professional-issues/augmentative-and-alternative-communication/#collapse_1

ASHA AAC Information for the Public
https://www.asha.org/public/speech/disorders/aac/

ASHA High-Tech AAC for Spanish Speakers
https://leader.pubs.asha.org/do/10.1044/high-tech-aac-for-spanish-speakers/full/

Speechpathology.com AAC Continuing Education
https://www.speechpathology.com/slp-ceus/aac-technology/

AAC Institute Continuing Education
https://aacinstitute.org/ceus/

United States Society for Augmentative and Alternative Communication
https://ussaac.org/

International Society for Augmentative and Alternative Communication
https://isaac-online.org/english/home/

Saltillo Recorded Webinars
https://saltillo.com/videos/x/webinar/en

Tobii Dynavox Learning Hub
https://learn.tobiidynavox.com/

TalkToMe Technologies Resources
https://www.talktometechnologies.com/pages/educational-materials

LAMP Webinars
https://lampwflapp.com/education/webinars

AssistiveWare Online Learning
https://www.assistiveware.com/on-demand-aac-training-videos