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Michelle Hasenkampf

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CAREGIVER AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (AAC) EDUCATION AND TRAINING:
A SURVEY OF CAREGIVER AND SLP PERSPECTIVES

by

Michelle Hasenkampf

A Thesis
Submitted to the Graduate School,
the College of Nursing and Health Professions,
and the School of Speech and Hearing Sciences
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Master of Science.

Approved by:

Dr. L. Amanda Mathews, EdD, CCC-SLP
Dr. Sangam Ankmnal Veeranna, PhD
Mrs. Mary Schaub, M.S., CCC-SLP
Mrs. Sarah Myers, M.S., CCC-SLP

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ABSTRACT

Speech-language pathologists (SLPs) must address caregiver education and training throughout early intervention, including when implementing augmentative and alternative communication (AAC). Previous research has made recommendations describing practices for SLPs in this area, such as incorporating direct instruction and caregiver participation, as well as addressed how recommendations compare to implementation of these strategies in actual practice. Two parallel surveys were created to examine SLP and caregiver experiences and opinions of various topics and methods utilized in AAC caregiver education and training. 19 SLPs and 5 caregivers completed the surveys. SLPs notably exhibited differences in practice and opinions related to the methods examined, especially regarding caregiver participation. Various characteristics of SLPs may be associated with differences in perceptions, practices, and opinions related to AAC education and training, such as self-identification as a specialist, perceived proficiency, years of experience, and graduate school education. Potential barriers to implementation of highly rated methods include restraints on caregiver participation and time, lack of information/misinformation, lack of funding/accessing a device, lack of agreeance on roles, lack of buy-in, and setting-dependent factors. Further research is needed to explore these areas and feasible solutions.

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LIST OF ABBREVIATIONS

AAC	Augmentative and Alternative Communication
ASHA	American Speech-Language Hearing Association
LAMP	Language Acquisition through Motor Planning
SGD	Speech-Generating Device
SLP	Speech-Language Pathologist
PODD	Pragmatic Organization Dynamic Display
USM	The University of Southern Mississippi

CHAPTER I – LITERATURE REVIEW

According to the American Speech-Language Hearing Association (American Speech-Language Hearing Association [ASHA], n.d-c), the speech-language pathologist (SLP) is a professional who addresses “speech, language, social communication, cognitive-communication, and swallowing disorders” in individuals of all ages (para. 1). As experts in the area of speech and language development, SLPs are heavily involved in early intervention to facilitate speech and/or language development in young children to improve their overall functional communication. Early intervention involves services given to children from birth to three (but can also continue to age five in some states) and the children’s families and may incorporate targeting several areas of development, including communication, depending on the child’s needs (ASHA, n.d.-b). As a result, SLPs may collaborate with many members of the early intervention team in this process, including teachers, occupational therapists, and physical therapists, to provide the best care for the child. Amongst the team members involved in early intervention, one stands out as the team member SLPs must focus on and collaborate with most often: the caregiver. Effective intervention should incorporate the caregiver every step of the way.

The child’s caregiver(s), whether they be parent(s), grandparent(s), or other individual(s), are central to the child’s life. Caregivers are essential to the early intervention process because the behavior of the caregiver affects the behavior of the child, and vice versa (Sameroff & Chandler, 1975, as cited in Roberts et al., 2016). Early intervention is also designed to be family-centered (ASHA, n.d.-b). In other words, early intervention providers must consider the needs of the entire family, not just focus on the child alone, as the family provides the support and environment for their child's development.

Furthermore, even beyond the age of early intervention, involving caregivers is essential because children only spend a small percentage of their time in direct therapy. Although the terms "therapy" and "intervention" are synonymous in most settings, one early interventionist SLP's conception of therapy versus intervention highlights the distinction between what SLPs and caregivers provide: Ebert (2010) described therapy as "time the child spends in direct contact with the therapist each week" where the therapist educates and trains caregivers to implement strategies the therapist teaches, whereas intervention is "what occurs the rest of the time between therapy sessions" and is controlled by the caregivers and family (para. 3-4). In other words, the caregiver is the one who likely spends the most time with the child, and as a result, the actions of the caregiver in carrying out the strategies learned in therapy are vital to successful intervention. The therapy provided by SLPs is only a small piece of the puzzle as it does not compare to the amount of time each day the child will spend with family, learning and developing in this context. Therefore, part of the role of the SLP in early intervention is to establish the long-lasting "intervention:" to educate and train caregivers on how to implement the strategies and tools the SLP utilizes in therapy into their daily routines.

Augmentative and Alternative Communication (AAC)

Within early intervention, SLPs utilize a variety of tools to promote speech and language development and, most importantly, overall functional communication. One such intervention that SLPs may introduce in therapy is the use of augmentative and alternative communication (AAC). As suggested by the name, in its most basic definition, AAC describes communication tools that individuals use to support (“augmentative”) or substitute as needed (“alternative”) for speech as a form of communication. AAC is a general term that encompasses many communication means, including those such as gestures and facial expressions that most people use as well as more specialized tools such as picture communication boards and speech-generating devices (SGDs) (ASHA, n.d.-a).

Beyond that basic definition, various organizations use many interrelated statements of meaning to describe the appearance and use of AAC that highlight different components and goals of AAC implementation. The International Society for Augmentative and Alternative Communication ([ISAAC], n.d.) defined AAC as “a set of tools and strategies that an individual uses to solve everyday communicative challenges” so that “the intent and meaning of one individual is understood by another person” regardless of the form used to communicate the message: AAC aims to encourage functional communication that individuals can use in daily life in whatever form best fits the individual, be that speech or a form of AAC (para. 1). The AAC Institute (2022), a non-profit organization that advocates for those who communicate via AAC, added that the goals of AAC implementation for individuals with communication disorders are “saying exactly what they want to say” and “saying it as fast as they can” for “optimal communication and maximum potential,” emphasizing AAC as a tool to increase effective and efficient communication (para. 1-4).

Furthermore, ASHA (n.d.-a) defined AAC as “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” (para. 1). AAC is a clinical tool used both for immediate communication and for supporting different areas of communication development depending on the needs of the client, and it is also an area of study within speech-language pathology. In this way, AAC as a whole represents a diverse field and group of communication tools that may support several components of communication related to speech and/or language expression and/or reception with the overall goal to allow for accurate and efficient communication that benefits clients in their daily lives.

Types of AAC

The various means of communication that comprise AAC can be divided into several categories. According to ASHA (n.d.-a), the first division is between unaided and aided AAC. Unaided AAC involves AAC that does not require any support outside of the person using AAC. Some examples of unaided AAC are gestures, facial expressions, manual signs, and body language, all of which require no outside tools to utilize (ASHA, n.d.-a; Assistive Ware, 2019). In contrast, aided AAC does require outside support, such as from a communication device or book. Some examples of aided AAC may be a communication board with different symbols that an individual can select to communicate, a SGD such as a tablet, or writing on paper.

ASHA (n.d.-a) also described how types of AAC can also be divided based on what types of technology they require. “No-tech” means that the AAC used requires no technology; this would encompass unaided AAC where no technology is necessary. Aided AAC can be classified based on whether it is “low-tech” or “high-tech.” Low-tech means that the supports that a person is given do not involve complex technologies or electronics. Low-tech AAC options include writing or drawing on paper to communicate, selecting letters from a communication board by pointing to spell out words, or pointing to symbols (ASHA, n.d.-a). Another example of low-tech AAC is a printed Pragmatic Organization Dynamic Display (PODD) book, which is a communication book with pages that have grids of visual symbols with words that individuals can select from by pointing or looking; each PODD book can be customized for the individual (NovitaTech, n.d.). High-tech AAC involves more complex technologies like computers or tablets with AAC apps (ASHA, n.d.-a). An example of high-tech AAC is using an app such as TD Snap that contains customizable pages with grids of communication symbols paired with words that, when selected, will "say" the word (Tobii Dynavox, n.d.-b). One form of AAC is not necessarily better or more advanced than another because selection of a form of AAC is dependent on finding the best fit for an individual and their communication needs and preferences.

Children Ages Birth to Five Who Use AAC

Within the population of children ages birth to five, AAC may be implemented as an intervention tool for many reasons. As previously stated, AAC can serve to support speech and language production and reception by augmenting or by acting as an alternative for speech as the main mode of communication as needed with varying frequencies. In this way, AAC may be suitable for children whose speech or language is impaired in some way such that they require a temporary or permanent alternative to speech, and/or additional modeling of speech and language to facilitate development. ISAAC (n.d.) listed the following as conditions as examples of those that may affect speech or language in this way: cerebral palsy, autism, apraxia, developmental language delay, traumatic brain injuries, and multiple specific genetic disorders.

Evidence exists that AAC can be an effective intervention for facilitating speech and/or language development in these populations. Although describing all of the evidence for AAC use is beyond the scope of this paper, the following examples demonstrate how AAC can be effective for immediate communication and development of speech, language, or both. Parent coaching in AAC interventions, including AAC modeling, increases speech production for toddlers with developmental delays, and parents of toddlers with developmental delays who completed an augmented communication intervention with an SGD perceived their child's language development more favorably (Romski et al., 2010; Romski et al., 2011). For children with severe childhood apraxia of speech that greatly lowers production of intelligible speech, research has suggested that aided AAC modeling with a communication board or voice output device increased overall effective communication as well as increased combinations of words/symbols in communication (Murray et al., 2014). Additionally, a systematic review of 13 articles described 12 forms of AAC that resulted in gains in language development and social communication for children with Down syndrome (Barbosa, 2018).

Although evidence exists for the effectiveness of AAC for these purposes, according to ASHA (n.d.-a), little research exists that states specific demographic information about who currently uses AAC in the ages of birth to five. Binger and Light (2006) conducted a survey of 144 SLPs in Pennsylvania who served preschoolers from 3 years to 5 years, 11 months of age to determine characteristics and prevalence of those who used AAC. Data from the survey showed that approximately 12% (1009 out of 8742 preschoolers) of the preschoolers served by these SLPs utilized AAC. Seventy-one percent of this group were male. Additionally, 65% were white, 22% were Black/African American, and 10% were Hispanic/Latino. The primary diagnoses of these children in order of frequency were developmental delay, autism/pervasive developmental disorder, speech/language disability, and multiple disabilities. The children also used several different forms of AAC, with the majority using picture boards and gestures and smaller numbers using signs, objects, and voice output systems. Another study from Hidecker (2010) surveyed caregivers of 55 children ages 15-75 months who used AAC. The children came from different locations: “15% in rural areas, 22% in towns smaller than 50,000 people, and 63% in larger metro areas” (Hidecker, 2010, p. 6). Similarly, the majority of the children were male, and all were Caucasian. The children also had similar primary diagnoses as described in Binger and Light (2006).

Based on these studies, although there were some trends in the populations of children using AAC studied, children who use AAC may differ widely in terms of demographic characteristics and also have different communication needs. Thus, the adoption of the use of one or more AAC systems, AAC implementation, must be adapted to best fit these children and families.

AAC Implementation: Requiring Caregiver Support from Assessment to Intervention

AAC implementation typically begins with assessment. As stated above, certain forms of AAC *may* be appropriate to implement with children who require speech and/or language intervention. In order to determine whether a specific form of AAC is a good fit for a child and the child’s family as well as for their communication goals, “a comprehensive, transdisciplinary, culturally, and linguistically relevant AAC assessment” is required (ASHA, n.d.-a, para. 6).

According to Mercurio-Standridge (2014) in an article describing a sample framework for AAC assessment, the process typically involves the following general steps:

> "(a) exploring and defining the concerns of the client, caregivers, and staff;
>
> (b) gathering assessment data which may include establishing cognitive abilities, determining receptive, and expressive language levels, identifying communication opportunities in the client's environment, and ascertaining preferred and optimal modalities and methods of engagement
>
> (c) matching the features needed in a range of low- to high- tech AAC tools to the communication needs of the client;
>
> (d) conducting trials with those potential AAC tools; and
>
> (e) making recommendations for initial implementation plans" (p. 75).

Additionally, in developing the plan for implementation, the team may need to find insurance or outside funding in order to obtain the form of AAC decided upon. Assessment may also be ongoing as a child continues to develop and communication needs change.

This assessment process as well as later implementation steps involves numerous stakeholders. According to Binger et al. (2012), some of the individuals who would typically be involved in the assessment process are as follows: AAC specialists, who are frequently SLPs, will coordinate and lead the assessment team. Other professionals, such as occupational therapists, physical therapists, vision specialists, and audiologists may provide input on which forms of AAC may best fit the client's needs; for example, a vision specialist may indicate whether a child has adequate vision to distinguish among different symbols on an AAC device and suggest modifications to make a device accessible. Outside sources, such as AAC device vendors and organizations that provide funding, may be contacted to secure a specific form of AAC. Finally, the "AAC facilitators" advocate for the child, assist in implementing AAC, and are typically also communication partners for the child; this may usually be a caregiver or family member for the birth to 5 population (p. 180). These team members may all be involved in observing the child's communication needs and abilities; determining the best fit for the child through professional expertise, knowledge of the child, and trials; and developing a plan for successfully implementing the device in the child's life. As previously stated, for children from birth to five, the caregiver, or AAC facilitator, is integral for this process of implementation.

Following the completion of the initial assessment for AAC, SLPs must guide the caregiver/AAC facilitator and other relevant stakeholders so that the child can begin to and continue to use the device as needed. Depending on the type of AAC used, this may involve several steps. The SLP, with the other team members, must select the initial vocabulary that the child will utilize and how the vocabulary will be displayed (Dodd & Gorey, 2014). For example, on TD Snap, a speech-generating application from Tobii Dynavox (n.d.-b) that can be used on a tablet, SLPs can select the specific symbols and amount of symbols available on the page. For most types of AAC, the child also needs to learn how to use the form of AAC, which requires communication partners to model how the device is used and provide ample opportunities for practice (Dodd & Gorey, 2014). Thus, communication partners also need to be trained on the function of the form of AAC used and how to use it. Additionally, the team must work toward developing a plan to meet relevant intervention goals (Mercurio-Standridge, 2014). For example, the SLP might develop lesson plans to increase opportunities to select the symbol for “help” on a device for the child to request “help” as needed. As the child’s usage of AAC continues, the team may troubleshoot problems that arise and cycle back to steps completed in the assessment and intervention process. Thus, AAC implementation requires constant input from relevant stakeholders, redevelopment of plans, and re-education and training on the agreed-upon plan.

Caregivers, as AAC facilitators, may face many challenges in this process. They likely will not have the same experience or professional expertise as the other team members. Anecdotally, while caregivers may have extensive knowledge of and experience with the child they care for, they may not have heard of AAC or understand its potential role in speech and language intervention. They may have even encountered AAC myths, such as “AAC hinders or stops further speech development” or “children must have a certain set of skills to be able to benefit from AAC,” that make them more reluctant to support adoption of AAC (Romski & Sevcik, 2005, p. 179). Some caregivers may have already read information on AAC online and, facing a long and possibly expensive assessment process, purchased a more affordable tablet and application that may or may not meet their child’s AAC needs and of which the caregivers may or may not have background knowledge to successfully implement (Ogletree et al., 2018). Overall, it appears as if the AAC implementation process can involve placing many demands on caregivers to integrate new information, confront potential misinformation they may have heard, and apply their new knowledge to their child’s routines to facilitate communication.

Notably, the support of caregivers and family has been identified as a factor essential to preventing failure of AAC implementation. Baxter et al. (2012) identified family support, impacted by family attitudes toward the AAC used and ability to take on responsibilities related to AAC, as a factor discussed in several studies on barriers and facilitators to successful AAC implementation. Additionally, Baxter et al. (2012) included "ease of use," or how easy the form of AAC is to learn and utilize regularly, and the availability of "technical support" for high-tech AAC devices, or some sort of on-call technology assistance, as other regularly identified factors (p. 118, 121). In this way, the effectiveness of the education and training provided to caregivers to assist with the learning and application of all of the new information they are exposed to about AAC may affect their ease of implementing AAC at home as well as their attitudes toward AAC, which then affect whether AAC implementation is successful. Providing caregivers with education and training can greatly affect the "intervention" component of early intervention and eventual communication outcomes for the children in question.

AAC Education and Training for Caregivers

Several studies, directly and indirectly, highlight methods that have been utilized for providing AAC education and training as well as what content may be covered. The following methods were described in various studies pertaining to AAC assessment and implementation as well as some relating to SLP practice in early intervention in general that referenced educating and training caregivers. This list of topics and methods is not exhaustive but serves as an example of some of the ways that caregivers are educated and trained on AAC and what they might learn.

During Assessment

Mitchell & Alvares (2015) recommended calling the family prior to the official assessment to provide background information about assessment and discuss topics relevant to the assessment process in order to obtain family support. This may be one of the first times that the caregiver is learning about AAC and what AAC assessment and implementation may involve.

Lund et al. (2017) presented eight SLPs with a case history form and video clip of a potential AAC client and the client's family and conducted semi-structured interviews asking the SLPs what they would incorporate into the assessment plan. Among other topics, the SLPs generally identified counseling (explaining the procedure for assessment and characteristics of the device), discussion of expectations (what the family wanted or was looking to do as well managing expectations), discussion of follow-up procedures (expectations of multiple sessions), and questioning about family goals (later treatment, recommendations, plans for the future) as subjects to incorporate when talking to families. As in Mitchell and Alvares (2015), this may be a caregiver's initial introduction to AAC and primarily involve an explanation from the SLP, questions and input from the caregiver, and conversation about future plans.

During Therapy Sessions

As discussed above, SLPs may provide caregivers with education and training via the therapy sessions they have during early intervention as well as in explanations following the therapy session; anecdotally, this is likely when most caregiver education and training occurs. Wright and Quinn (2016) recommended that SLPs and caregivers discuss preexisting knowledge and decide on future topics for training, with the materials and content dependent on individual preferences and involving modes such as “written directions, models, time for the parent to practice while you observe, and problem solving together” (p. 171). Thus, according to Wright and Quinn (2016), the caregivers play a collaborative role in learning about AAC and applying their knowledge with direct instruction and feedback from the SLP. The SLP uses a variety of strategies to facilitate caregiver learning.

Similarly, Kent-Walsh and McNaughton (2009) described “an eight-step strategic model for use in communication partner instruction programs” that can be utilized to teach communication partners to interact with those who use AAC (p. 195). These steps included the following: (1) “pretest and commitment to instructional program,” which involves assessing how or how much the communication partners are already utilizing the strategy to be taught as well as outlining the steps that will be involved in teaching the strategy; (2) “strategy description,” which involves some sort of description of how to implement the strategy; (3) “strategy demonstration,” where the strategy is modeled for the communication partners and each step is explained alongside the modeling, (4) “verbal practice of strategy steps,” where the communication partners must explain or “teach” the steps that they have learned to demonstrate understanding; (5) “controlled practice and feedback,” where the communication partners demonstrate use of the strategy while being given feedback on their performance; (6) “advanced practice and feedback,” where the communication partners do the same as in step 5, except in the context in which they would typically be interacting with the person using AAC; (7) “posttest and commitment to long-term strategy use,” which paralleled step one; and (8) “generalization of targeted strategy use,” which involved continued practice across a variety of contexts (Kent-Walsh & McNaughton, 2005, p. 198). The description of each of these steps included a citation of a relevant study that employed a similar approach. Furthermore, the Improving Partner Applications of Augmentative Communication Techniques (ImPAACT) Program includes these steps, with evidence that it has effectively taught caregivers relevant strategies (Kent-Walsh et al., 2010). In summary, existing research makes a number of recommendations about what to incorporate in AAC education and training as well as early intervention in general. These include the usage of some sort of instruction (written, verbal, or otherwise), modeling of the desired behavior, and hands-on practice where the caregiver can practice the skill with feedback.

However, these practices may not always be implemented. Lee et al. (2022) also described caregiver education occurring within the therapy session in early intervention, although they did not focus on AAC. In this study, the researchers recorded therapy sessions of 25 autistic toddlers (all less than 36 months of age, with a median age of 31.6) to examine the coaching strategies that SLPs utilized with the caregivers involved; the SLPs and caregivers also completed surveys which involved questions about this process. The majority sessions were attended by mothers. The researchers analyzed the recorded therapy sessions using a modified version of the Routines and Instructional Strategies Coding Protocol, which outlines 10 strategies that SLP may use in working with caregivers: these included “coaching strategies supporting family-centered practice (caregiver practice with feedback, demonstration, reflection, information sharing, EI conversation, joint problem solving/planning, direct teaching, observation, joint interaction)” and “non-family-centered practice (commentary, directive planning, child focused, and other)” (Lee et al., 2022, p. 1760). Lee et. al (2022) reported that most of the

SLPs utilized non-family-centered practice strategies, especially the “child focused” strategy, which is when the “SLP works directly with the child without involving [the] caregiver” (p. 1760). When the SLPs did use strategies that supported family-centered practice, they most often involved joint interaction (“SLP and caregiver both interact with the child without SLP instruction”) and information sharing (“SLP and caregiver discuss information related to child and family outcomes”) (Lee et al., 2022, p. 1760-61). One of the least utilized strategies was the “caregiver practice with feedback” strategy (p. 1761). In this way, while Wright and Quinn (2016) as well and Kent-Walsh and McNaughton (2009) recommended the usage of many of these family-centered strategies, SLPs may not always be including these in their practice. Despite this, caregivers generally rated their “working alliance” with the SLPs highly (Lee et al., 2022, p. 1764).

The SLPs in this study also indicated their ideal strategies and identified barriers to instruction of caregivers. A majority of the SLPs (61.9%) in the study indicated that “demonstration and coaching” utilized together are ideal, with smaller numbers preferring either demonstration or coaching and one SLP selecting instruction at the end of the session (Lee et al., 2022, p. 1762). The top three barriers that the SLPs identified were that (1) caregivers believe that the SLP needs to be working directly with the child instead of with the caregiver, (2) that the caregiver “is not comfortable being coached,” and (3) that the caregiver “is not available during sessions” (Lee et al., 2022, p. 1763). Perhaps, although SLPs believe that many of the recommendations for caregivers to be involved in the therapy session through activities such as caregiver practice are best, the existence of or even just the perception of these barriers impacts whether these strategies are utilized.

Telepractice

Mitchell and Alvares (2015) also discussed telepractice as a way to reach families outside of traditional scheduled meetings as well as a way to obtain recordings of interactions in different environments for further assessment. Additionally, Douglas et al. (2021) conducted a study involving a four-year-old girl diagnosed with Phelan-McDermid syndrome and autism spectrum disorder who began using a SGD (an iPad with the app Cough-Drop) four months before the study. The researchers trained the child's mother, father, brother, and sister using two phases of intervention. Each received individual tele-based training on aided language modeling using the aid "Prepare, Show, Wait, and Respond" to develop an activity to complete with the child while practicing modeling on the device (p. 1161). The materials used to provide this training were "oral explanation, slides provided via screen share, video examples, and discussion" (p. 1161). In this way, the family members were presented with information through several modalities and then actively participated in discussing the instruction. Next, the therapist watched the family members complete their planned activity and provided feedback during tele-based coaching. The researchers concluded that this intervention increased modeling from family members as well as the child's rate of AAC use.

Group Training and Support Groups

Stadskleiv (2017) described the case of a parent support group, which the researcher described as an informal approach to supporting parents. The support group occurred at Oslo University Hospital in Norway for less than five years and was originally designed for parents of five children who were in preschool at the time of joining the group, had "congenital and early acquired neurological impairments," had typical language comprehension skills, and used either a communication book or SGD via eye gaze or finger pointing (Stadskleiv, 2017, p. 4-5). The parents participated in the group alongside a special educator, occupational therapist, and psychologist to allow for a “sharing of experiences,” where caregivers taught each other while educating and learning from the professionals (p. 4). At the time of writing, Stadskleiv (2017) claimed that the parents reported increased “competence in and knowledge of aided communication, devices, and language development” (p. 10). Despite the small sample size and involvement of researchers in the support group, this study suggested that support groups may be a viable method of continuing caregiver education and training while also providing peer support. Mitchell and Alvares (2015) also recommended utilizing group training and/or creation of family peer support groups.

AAC Company Trainings

Another method of caregiver education and training that is also utilized for SLP education is AAC trainings offered by AAC companies (McBride, 2011). Many companies that distribute AAC, typically SGDs, offer trainings about not only how to use their specific system but also about topics related to AAC and language development in general. For example, Tobii Dynavox offers numerous free weekly online meetings covering AAC topics such as AAC funding, TD Snap, editing of TD Snap, and modeling that may be accessed by caregivers (Tobii Dynavox, n.d.-a). Likewise, the Center for AAC and Autism has paid (with a 50% discount for parents) online and in-person trainings as well as webinars for caregivers on topics such as Language Acquisition through Motor Planning (LAMP) (one AAC program and approach that is utilized on SGDs), how to continue AAC implementation beyond therapy, and how to use AAC in the school setting (The Center for AAC & Autism, n.d.). SLPs can direct caregivers to these trainings or even attend these trainings with caregivers as an additional source of information on AAC.

Summary

In summary, caregiver education and training on AAC has been accomplished through many modalities and may address numerous topics. For example, some of the methods listed above include verbal explanations, videos, online interactive trainings, caregiver practice with direct feedback, support groups, presentations via telepractice, observation, and discussion. Some topics addressed include funding, editing devices, modeling, carryover, personal experiences, other specific strategies, and caregiver learning styles and ideal method of education and training. Recommendations exist on steps to incorporate during the process of AAC implementation for caregiver education and training, but these may not always be used due to the existence of multiple barriers.

Barriers to AAC Education and Training for Caregivers

As described in the above sections, several barriers for caregivers may exist in AAC education and training. These include a lack of knowledge about AAC that may make AAC instruction seem overwhelming as well as misinformation about AAC (Romski & Sevcik, 2005; Ogletree et al., 2018). They may also include misconceptions about involvement in therapy, discomfort with actively participating in therapy, and low availability to be present during therapy (Lee et al., 2022). McNaughton et al. (2009) also described some barriers to learning about AAC identified by seven caregivers. These barriers included a “lack of trained professionals” who know about AAC and are able to teach information about it; “challenges to supporting ongoing use of the device,” such as not being able to use their child’s device in other environments due to the device needing to be used in a specific position or in a wheelchair; “challenges in promoting communication opportunities in the community,” such as creating opportunities for the children who used AAC to interact with their peers; and the “cost of learning,” which was not described in detail (McNaughton et al., 2009, p. 49-50).

Barriers to AAC Education and Training for SLPs

Barriers to effectively utilizing caregiver education and training may also exist on the professional side. According to Smith et al. (2016), professionals may likewise believe myths about involving caregivers and other family members in AAC implementation, including that AAC is too difficult to incorporate at home and that caregivers do not need to utilize AAC with their children. Thistle and McNaughton (2015) also suggested that SLP students could benefit from additional training on tools like active listening skills to engage caregivers and learn more about their concerns. Caregivers can also educate and train SLPs on what works best for the child and the family as a whole, so SLPs must be able to effectively use their interpersonal skills to both gain this knowledge, inform caregivers about AAC, and adapt the information provided to families about AAC and therapy in general based on the family’s needs.

Likewise, SLPs may lack knowledge of information relevant to AAC that caregivers should be given. In a survey of 85 representatives from graduate programs on pre-service AAC education, 96% of graduate programs surveyed required a course focusing on AAC, but respondents identified barriers to adequate AAC education in “access to AAC systems/devices, students’ coursework schedules, faculty members with limited expertise in AAC, [and] funding” (DeJarnette &Wegner, 2020, p.1246). This also corresponds to the caregiver perception that some SLPs are not adequately trained. Finally, a lack of evidence-based, centralized information on AAC education and training for caregivers may contribute to difficulty for SLPs.

Effective Methods for Caregiver AAC Education and Training: Research Questions

Research can still be strengthened on the current practices of SLPs educating and training caregivers of children ages birth to five on AAC as well as what educational strategies have been most or least effective for caregivers. Beyond many of the effective strategies described in the research, additional data can be collected on what methods are utilized for AAC education and training, such as how descriptions and instruction on strategies are offered, whether solely through verbal instruction or utilizing more tangible resources like handouts or videos. Besides specific instruction on strategies and how to operate the device that has been offered, other topics may possibly be addressed, such as the commonly described myths about AAC that many caregivers are reportedly misinformed about. Additionally, these topics and methods may be perceived differently by SLPs and caregivers. Furthermore, perceptions on topics and methods to incorporate may be influenced by a variety of other factors, such as SLP education and experience, that can reportedly vary widely among clinicians. The remainder of this paper aims to address some of these research questions.

CHAPTER II - METHODOLOGY

To answer these research questions, two parallel Qualtrics surveys were created, one targeted toward SLPs and one targeted toward caregivers of children ages 0-5 currently utilizing AAC. These surveys were designed to be sent to SLPs and caregivers in Mississippi, Louisiana, and Alabama, as the researcher was based in Mississippi and wished to specifically collect data about AAC education and training within this region. The survey was designed to be accessed via anonymous link and included the informed consent form as the first question. Respondents were required to answer every question except the free response questions in order to progress through the survey but could cease survey completion at any time. The study was approved by the University of Southern Mississippi Institutional Review Board (IRB); the approval letter is contained in Appendix D.

Survey Contents

Appendix B contains the exact survey questions for the SLP and caregiver surveys, respectively. The surveys were designed to closely correspond to each other, with minor changes in wording for some questions, and few sections that differed largely from the other survey.

SLP and Caregiver Backgrounds

Each survey began with a demographics section to collect background information about the SLPs and caregivers. Both groups were asked to select their gender and race (and to further describe these if selecting “Other;” categories were taken from the U.S. Census Bureau (n.d.)) as well as to input their age. Additionally, the SLP survey included questions addressing the SLPs’ years of practice (collected in intervals of five years), setting of practice, and status as a specialist in a specific area of the field; these were included to determine if any relationship exists between SLPs' later responses and these professional characteristics or differences in experience levels. In a similar way, the caregiver survey required caregivers to select the descriptions that best represented their level of education, family unit, and number of children cared for; these questions were adapted from Roberts (2022). The caregivers also submitted demographic data related to their child who uses AAC, such as what type of AAC the child uses, how old the child is, and when the child began using AAC. The caregivers answered if they had other children who currently or had previously used AAC and had the option to fill out the same questions on additional children.

AAC Background

The survey then addressed the SLPs and caregivers' prior experiences with AAC. Within the SLP survey, questions addressed sources of education about AAC (multi-select question), perceived proficiency in AAC implementation, and perceived proficiency in educating and training caregivers on AAC (with options of not proficient at all, slightly proficient, moderately proficient, very proficient, and extremely proficient). As with previously included demographic questions, these questions were intended to both determine these characteristics of the SLPs to describe the group completing the surveys as well as to determine if there was any association with responses to later questions surrounding current AAC practice and opinions. For example, is there an association between perceived level of proficiency in educating and training caregivers on AAC and use of any specific methods of education? The questions pertaining to sources of SLP education on AAC and perceived proficiency were also meant to investigate access to graduate coursework in AAC, which has grown in recent years according to DeJarnette and Wegner (2020), as well as feelings expressed by SLPs and caregivers that many SLPs are not adequately prepared to implement AAC.

Within the caregiver survey, questions addressed prior knowledge and sources of knowledge about AAC that the caregivers had before their child began therapy in order to determine their prior level of knowledge, potential sources of other information about AAC, and how much of their knowledge about AAC was acquired from their child's therapy sessions. These questions were also intended to probe for whether and how caregivers may have learned myths about AAC, as discussed by Romski and Sevcik (2005), in order to gain more information about how this may present as a barrier to AAC education and training.

AAC Practice and Experience

The questions in this section aimed to collect information on what topics and methods SLPs utilize and caregivers have experienced in AAC education and training as well as how frequently caregivers are provided with education on AAC in their child's therapy session.

The question about what topics were used was a multi-select question that asked SLPs to select from the following topics: definition of AAC, myths about AAC, how to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.), how to model language using AAC, and how to encourage AAC use outside of therapy. These topics were selected from the cited research articles that mention either addressing similar topics or stating that the topics should be addressed, as described in the literature review; the following are examples of research articles that directly mentioned each topic. The definition of AAC and myths about AAC, specifically when caregivers believe misinformation about these topics, were referenced as potential barriers that should be addressed in Romski and Sevcik (2005) and Ogletree et al. (2018). How to physically operate the type of AAC was mentioned in trainings from AAC companies and McNaughton et al. (2009). Modeling was addressed in Wright and Quinn (2016), Kent-Walsh and McNaughton (2005), Lee et al. (2022), and Douglas et al. (2021). Encouraging AAC use outside of therapy was addressed in Kent-Walsh and McNaughton (2005), Douglas et al. (2021), and trainings from AAC companies.

The question about what methods were used was a multi-select questions that asked SLPs to select from the following methods: verbal explanations given during therapy when you are working with the child alone, caregiver participation in using AAC during therapy with feedback, printed handouts about AAC, videos sent to the caregivers about AAC, trainings from AAC distributors, and other (write in answer). These methods were selected from the cited research articles mentioning similar methods that are described in the literature review; the following are the research articles that appeared to directly mention each method. The verbal explanations option relates to Mitchell and Alvares (2015), Lund et al. (2017), Wright and Quinn (2016), Kent-Walsh and McNaughton (2005), Lee et al. (2022), and Douglas et al. (2021), which all included a reference to a similar procedure. The caregiver participation was drawn from Kent-Walsh and McNaughton (2005), Lee et al. (2022), Douglas et al. (2021), and Wright and Quinn (2016). Printed handouts about AAC were mentioned by Wright and Quinn (2016). Videos sent to caregivers about AAC were present in the study by Mitchell and Alvares

(2015). Trainings from AAC distributors were mentioned in and displayed on AAC company websites.

The question about frequency asked SLPs to select all that applied out of regular, designated times for educating and training the caregiver each session; as-needed sessions for educating and training the caregiver; one session focused on educating and training the caregiver on AAC; and other (write in answer).

It should be noted that the wording of the questions as described here differed in the caregiver survey. For example, “caregiver participation in using AAC during therapy with feedback” became “participating in using AAC during therapy while getting feedback from the therapist.” In this way, each of the questions aimed to address the same topic or method but with wording changes to reflect the role of the caregiver. The tables displayed in the following section include both versions of the question, but in this text, the selections will be written how they were presented in the SLP survey for ease of comparison.

AAC Opinions – Topics, AAC Opinions – Methods

Similar to the above section, these sections asked respondents about their opinions on the same topics and methods. Respondents entered whether each topic was not at all important, slightly important, or very important and entered whether each method was not helpful at all, slightly helpful, or very helpful. The rating scale for these items was reduced to three points in order to reduce respondent fatigue despite the risk of rounding error (Lehmann & Hulbert, 1972).

AAC Feedback Questions

The final three questions on each survey were free response questions designed to allow the respondents space to make any other comments they wanted to about their responses and the survey topics without being limited by more structured questions with limited choices. The questions were also designed to probe for other topics that the respondents thought were relevant to facilitating AAC education and training and how the process may have changed over the past few years. The SLP survey included the questions, “What barriers do you believe exist to AAC education and training?” “Has COVID-19 changed how you provide AAC education and training?” and “Any other comments about your current practices with educating and training caregivers?” The caregiver survey included the questions, “What, if anything, did you find most useful in learning about AAC for your child?” “What, if anything, do you wish had been different about how you learned about AAC for your child?” and “Any other comments about your experiences with learning about AAC for your child?”

Survey Distribution

In order to recruit participants to complete these surveys, professional organizations, AAC distributors, social media groups, and therapy centers (including community and university clinics) in Louisiana, Mississippi, and Alabama were contacted via private message, email, or phone to inquire about their willingness to distribute the recruitment message and recruitment flyers (displayed in Appendix A) to their stakeholder contacts. Professional organizations included the state SLP associations for each state and one local association. AAC distributors included local AAC distributors known by the thesis advisor. Facebook groups to contact were found by searching relevant terms that may describe groups for caregivers of children who use AAC (e.g., state name + AAC, state name + autism, state name + Down Syndrome) and relevant terms to describe SLP groups (e.g., state name + SLP, state name + speech) in the Facebook group section. The researcher contacted private groups via Facebook Messenger for permission to join and/or post the recruitment message and flyers. Therapy centers were found by googling search terms such as "early intervention + state name" and calling, emailing, or messaging via website the first five pages of therapy centers with accessible contact information for permission to send out the recruitment message and flyers; the list of centers providing speech therapy for Mississippi First Steps was also used, and centers with available contact information were messaged.

In total, from October 10, 2022 to December 15, 2022, a combined total of 60 therapy centers, 4 professional organizations, 2 AAC distributors, and 33 social media groups were directly contacted by the researcher about distributing the survey. From these, 3 community-based therapy centers, 2 university-affiliated clinics, 1 AAC distributor, and 1 SLP Facebook group were provided with both surveys and flyers to distribute to their contacts; 3 SLP Facebook groups were provided with the SLP survey, and 15 caregiver Facebook groups were provided with the caregiver survey. Additionally, SLP contacts of the researcher and research advisor were informally provided with the surveys to send to their own contacts.

Data Collection

Twenty-four SLPs and 14 caregivers started the surveys. By the end of data collection, 20 SLPs and 4 caregivers had completed the surveys; this data was saved and analyzed. Upon examining the SLP survey data, it was noted that one submission appeared to be from a caregiver who had accidentally initiated the SLP survey instead of the caregiver survey, potentially from being sent the wrong survey from a therapy center. The responses from this survey were not included in the analysis of the SLP surveys. However, since many questions on the SLP and caregiver surveys were designed to mirror each other, the data from this response was added to the caregiver numbers for these questions. Thus, the number of completed SLP surveys is 19, and some of the reported data includes 5 caregiver responses.

Data Analysis

Data analysis was completed utilizing Qualtrics as well as SPSS. Descriptive statistics as presented in Qualtrics are reported in the data and results section. This data for the caregiver survey is presented, but the majority of the analysis focuses on the SLP survey results due to the larger number of respondents. Though analysis utilizing inferential statistics was attempted via SPSS for the SLP responses, the small sample size prevented this analysis from being completed. The researcher also categorized responses submitted for the free response questions for ease of discussion.

CHAPTER III - DATA AND RESULTS

The following sections describe the SLP and caregiver responses. Appendix C also includes reproductions of the following tables and other response information for ease of viewing collected data.

SLP and Caregiver Backgrounds

The majority of the SLPs (18 of 19, 94.74%) reported that they were female, with 1 of the 19 being male; the majority of the caregivers responding (4, 80%) were also female, with 1 male respondent. Similarly, 18 of the 19 SLPs and 3 of the 5 caregivers identified their race as White, and 1 SLP and 2 caregivers reported that they are Black or African American. The SLP respondents ranged in age from 25 to 71 years old, with a median age of 36. The caregiver respondents ranged in age from 29 to 50, with a median age of 32.

SLP Experience

As shown in Table 1, the SLPs varied in terms of how many years they had been practicing, with roughly an even distribution across the listed options. 10 of the 19 had been practicing for 15 years or less, and 9 of the 19 had been practicing for 15 years or more.

Table 1 *SLP Years of Experience*

Years	**SLPs** (n=19)
5 or fewer	21.05% (4)
5-10	21.05% (4)
10-15	10.53% (2)
15-20	15.79% (3)
20-25	15.79% (3)
25+	15.79% (3)
Other/Comments:	One respondent said “40”; added to total tally in 25+.

The SLP respondents also varied in the setting in which they worked; the largest number of respondents worked in the schools. As noted in Table 2, smaller groups described working in private practice, university clinics, or various early intervention and preschool centers, and one respondent reported working in two settings.

Table 2 *SLP Work Setting*

Setting	**SLPs** (n=19)
Private Practice	21.05% (4)
Hospital	0%
Home health	0%
School (1 also working in skilled nursing facility)	42.11% (8)
Other/Comments: university clinic	21.05% (4)
Other/Comments: early intervention/preschool center (early intervention center for special needs preschool, birth-5 early intervention)	10.53% (2)
Other/Comments: nonprofit	5.26% (1)

In responding to the question, “Do you consider yourself to be a specialist in a specific area of speech-language pathology (such as voice, AAC, etc.)?” 57.89% (11) of the SLPs responded “yes.” Four of the SLPs identified their area of specialty as “AAC” only. Other identified specialty areas included “AAC in pediatrics,” “AAC and feeding,” “assistive technology,” “preschool age with artic and language,” “autism and child language,” “AAC and AT,” and “early intervention.” Further analysis of the responses of the group who self-identified as “specialists” will be detailed following descriptions of responses to each set of questions.

Caregiver Background

Two (50%) of the caregiver respondents indicated that their highest level of education was a high school diploma or equivalent, while the other two (50%) respondents indicated that their highest level of education was a post-graduate degree. When asked what statement best described their family unit, one selected “caregiver with one child,” two selected “two parents with multiple children,” and one selected “single parent one child.” Two (50%) of the respondents indicated that they care for one child, while the other two (50%) of the respondents marked that they care for two children. One of the four respondents noted that they had two children using AAC while the other respondents had one child using AAC.

Child Demographics

Two (50%) of the caregiver respondents selected that their child uses an SGD, a “tablet/iPad with AAC program such as LAMP Words for Life, Proloquo2Go, etc.” One of the respondents selected that their child uses “sign language.” The final respondent wrote that their child “has a total communication plan that includes signs, gestures, and using TD snap [sic] on her iPad." Three of the four respondents wrote that their child is 4 years old, having started to use AAC at 2, 2, and 3, respectively, while the last respondent wrote that their child is 18 months and began "teaching at birth and then started mimicking at 6 months." One of the respondents also noted that they have a 2-year-old who also utilizes a SGD.

AAC Background

SLPs

The SLP respondents reported that they learned about AAC in varying ways and had differing opinions on their proficiency in AAC implementation and educating and training caregivers on AAC. In a multi-select question, SLPs were asked to indicate all selections that described how they learned about AAC. Results of this question are shown in Table 3. Graduate school AAC courses and experiences were less common among the respondents. 9 of the SLPs (47.47%) had a course dedicated to AAC in graduate school, while 3 (15.79%) learned about AAC as part of graduate school but not as a separate course: only 12 (63.16%) learned about AAC as a component of graduate school coursework. Furthermore, only 6 of the 19 (31.59%) reported that they learned about AAC during their clinical experiences in graduate school; most of their hands-on experience with AAC came during clinical practice following graduation. The most selected choices for this question were "learned about AAC through clinical experiences after graduate school" (16, 84.21%) and "completed CEUs on AAC" (14, 73.68%), suggesting that most of the respondents received the majority of their education on AAC outside of the graduate school curriculum. The responses given by those who also selected “Other/Comments” solidified this, as they described attending outside conferences and trainings.

Table 3 *SLP AAC Education*

Experience	**SLPs** **(n=19; multiselect question)**
Learned about AAC in graduate school but not through a course specifically on AAC	15.79% (3)
Completed course on AAC in graduate school	47.37% (9)
Completed CEUs on AAC	73.68% (14)
Learned about AAC through clinical experiences in graduate school	31.57% (6)
Learned about AAC clinical experiences after graduate school	84.2% (16)
Other/Comments: All of the above, Attended many conferences on AAC and Assistive Technology, Attended Camp JabberJaw 3 times as a student, Training with Kim Heine	21.05% (4)

The responses to this question were also compared with the years of experience of the SLPs. The SLPs who indicated that they completed a course on AAC in graduate school spanned many years of experience. Two of these had 5 or fewer years of experience, three had 5 to 10 years of experience, two had 10 to 15 years of experience, two had 15 to 20 years of experience, and one had over 25 years of experience; in this way, 50% of SLPs who marked that they had 5 or fewer years of experience had a class in graduate school on AAC, along with 75% of SLPs with 5 to 10 years of experience, 100% of SLPs with 10 to 15 years of experience, and 33.33% of the SLPs with 15 to 20 or over 25 years of experience. Overall, it appears that rates of AAC education in graduate school increased for SLPs with 15 or fewer years of experience, but many SLPs with fewer years of experience who presumably graduated more recently still lacked graduate school coursework on AAC.

The SLPs then rated their proficiency levels on implementing interventions involving AAC and educating and training caregivers on AAC. Tables 4 and 5 display the responses on these questions. SLPs appeared to rank themselves slightly lower on educating and training caregivers on AAC as opposed to implementing interventions involving AAC, with most of the difference occurring between the “moderately proficient” and “very proficient” ratings. While 47.37% (9/19) described themselves as “very proficient” in implementing interventions involving AAC, only 10.53% described themselves as “very proficient” with educating and training caregivers on AAC. Most respondents (11, 57.90%) described themselves as moderately proficient in educating and training caregivers on AAC.

Table 4 *Implementing AAC Interventions Proficiency*

Level	**SLPs (n=19)**
Not proficient at all	5.26% (1)
Slightly proficient	15.79% (3)
Moderately proficient	26.32% (5)
Very proficient	47.37% (9)
Extremely proficient	5.26% (1)

Table 5 *Educating and Training Caregivers on AAC Proficiency*

Level	SLPs (n=19)
Not proficient at all	5.26% (1)
Slightly proficient	21.05% (4)
Moderately proficient	57.90% (11)
Very proficient	10.53% (2)
Extremely proficient	5.26% (1)

Caregivers

The caregivers had diverse backgrounds in how much they knew about AAC before their child began using AAC. As shown in Table 6, two (50%) of the caregivers reported no or minimal knowledge of AAC prior to their child beginning therapy. The other two (50%) caregivers had knowledge of AAC from others, one from hearing from other caregivers/parents and the other from Internet communities such as Facebook groups. Thus, the caregivers went into their child's therapy sessions with different expectations about AAC.

Table 6 *Caregiver Prior AAC Knowledge*

Experience	**Caregivers (n=4)**
Had no knowledge of AAC	25% (1)
Had minimal knowledge of AAC	25% (1)
Had knowledge of AAC from hearing from other caregivers/parents	25% (1)
Had knowledge of AAC from having another child who used AAC	
Had knowledge of AAC from Internet communities such as Facebook groups	25% (1)
Had knowledge of AAC from previous professional experiences	0%
Other	0%

AAC Practice and Experience

The first question, displayed in Table 7, related to topics addressed during caregiver education and training on AAC. The majority of SLPs reported addressing each of these topics. The two most frequently addressed topics were “how to physically operate the type of AAC” and “how to model language using AAC,” closely followed by “how to encourage AAC use outside of therapy” and “myths about AAC.” The definition of AAC was addressed by 12 (64.16%) of the SLPs, significantly lower than the other topics.

In contrast, all of the caregivers reported hearing about the definition of AAC. The majority of the caregivers also reported learning about “myths about AAC,” “how to model language using AAC,” and “how to encourage AAC use outside of therapy” (3, 75%). “How to physically operate the type of AAC,” one of the most frequently addressed topics for SLPs, was the lowest addressed topic for caregivers (2, 50%).

Table 7 *Topics Addressed in AAC Education and Training*

Topics	**SLPs (n=19)**	**Caregivers (n=4)**
Definition of AAC	63.16% (12)	100% (4)
Myths about AAC	84.21% (16)	75% (3)
How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)	94.74% (18)	50% (2)
How to model language using AAC/How to use AAC as a caregiver to demonstrate how to use it to your child	94.74% (18)	75% (3)
How to encourage AAC use outside of therapy/How to encourage the child’s AAC use outside of therapy	89.47% (17)	75% (3)
Other	0%	0%

The second question, displayed in Table 8, related to methods the SLPs used to educate caregivers on these topics. SLPs selected “printed handouts about AAC” (18, 94.74%) and “verbal explanations given during therapy when you are working with the child alone” (16, 84.21%) as the most frequently used ways to educate and train caregivers. “Videos sent to the caregivers about AAC,” “trainings from AAC distributors,” and “caregiver participation in using AAC during therapy with feedback” were less frequently selected, with approximately 50% of the respondents selecting these options. The caregiver participation option was the least frequently utilized. Some SLPs also wrote that they gave homework assignments/activities for caregivers, videos of therapy sessions, and one-on-one training in the school as other methods. The caregiver respondents also selected “verbal explanations given during therapy when you are working with the child alone” as the most frequently used method (4, 100%), which was followed by videos (3, 75%).

Despite these two questions being present in both surveys, the responses of the caregiver who took the SLP survey were not able to be added to the caregiver section; the respondent indicated “Other/Comments,” saying, “I teach my child with the help of the professionals he sees daily” and, “I get most of my training through therapy sessions.” Although this response does appear to indicate either “verbal explanations” or “caregiver participation in using AAC during therapy,” it is unclear which best represents the caregiver’s experiences.

Table 8 *Methods Used in AAC Educating and Training*

Methods	**SLPs (n=19)**	**Caregivers (n=4)**
Verbal explanations given during therapy when you are working with the child alone/Hearing verbal explanations when the therapist is working with your child	84.21% (16)	100% (4)
Caregiver participation in using AAC during therapy with feedback/Participating in using AAC during therapy while getting feedback from the therapist	47.37% (9)	50% (2)
Printed handouts about AAC/Getting printed handouts about AAC	94.74% (18)	50% (2)
Videos sent to the caregivers about AAC/Watching videos about AAC	57.89% (11)	75% (3)
Trainings from AAC distributors/Attending trainings from AAC companies	52.63% (10)	25% (1)
Other: Homework assignments for caregivers to follow up on maintenance, videos of therapy session and home activities, one-on-one trainings at school	15.79% (3)	0%

The final question in this section addressed the frequency of times for educating and training caregivers on AAC. The results of this question are shown in Table 9. In both surveys, the majority of respondents indicated that they participated in “as-needed sessions” for AAC education and training (78.95% or 15/19 SLPs and 80% or 4/5 caregivers). Smaller numbers of respondents indicated higher (“regular, designated times”) and lower (“one session”) frequencies for AAC education and training.

Table 9 *Frequency of AAC Education and Training*

Frequency	**SLPs (n=19)**	**Caregivers (n=5)**
Regular, designated times for educating and training the caregiver each session/Regular, designated times for learning about AAC each session	21.05% (4)	20% (1)
As-needed sessions for educating and training the caregiver/As-needed sessions for learning about AAC	78.95% (15)	80% (4)
One session focused on educating and training the caregiver on AAC/One session focused on learning about AAC	15.79% (3)	40% (2)
Other	0%	0%

AAC Opinions – Topics

Ratings of potential topics covered in AAC education and training by the SLPs and caregivers are displayed in Table 10. All of the SLPs and caregivers marked “how to physically operate the type of AAC,” “how to model language using AAC,” and “how to encourage AAC use outside of therapy” as “very important.” These were also the top three most selected topics that SLPs stated they addressed during AAC education and training. Agreement was less on “myths about AAC” and “definition of AAC.” A majority of both groups, with a smaller percentage of SLPs (12, 63.16%) described addressing the “definition of AAC” as “very important.” This corresponds to the number of SLPs who stated that they incorporated discussion of the definition of AAC in their practice. Meanwhile, while most of the SLPs (17, 89.47%) agreed that addressing "myths about AAC" was "very important," the caregivers were much more divided in their answers, with two (40%) stating that it was "not at all important," one (20%) stating that is was "slightly important," and two (40%) stating that it was "very important." The number of SLPs who stated that this topic was "very important" roughly corresponds to the number who actually implemented it in practice.

Table 10 *Importance of Topics in AAC Education and Training*

Topics	**SLPs (n=19)**	**Caregivers (n=5)**	**SLPs (n=19)**	**Caregivers (n=5)**	**SLPs (n=19)**	**Caregivers (n=5)**
	Not at all important	Not at all important	Slightly important	Slightly important	Very important	Very important
Definition of AAC	0% (0)	0% (0)	36.84% (7)	20% (1)	63.16% (12)	80% (4)
Myths about AAC	0% (0)	40% (2)	10.53% (2)	20% (1)	89.47% (17)	40% (2)
How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)	0% (0)	0% (0)	0% (0)	0% (0)	100% (19)	100% (5)

Table 10 (continued)

How to model language using AAC/How to use AAC as a caregiver to demonstrate how to use it to the child	**0% (0)**	**0% (0)**	**0% (0)**	**0% (0)**	**100% (19)**	**100% (5)**
How to encourage AAC use outside of therapy/How to encourage the child's AAC use outside of therapy	0% (0)	0% (0)	0% (0)	0% (0)	100% (19)	100% (5)

AAC Opinions – Methods

SLP and caregiver ratings of the methods are included in Table 11. Out of all of the methods, SLPs rated "caregiver participation in using AAC during therapy with feedback" as the most helpful at (18, 94.74%), far more than any other method. Despite this, caregiver participation in actual practice was much lower (9, 47.37%). The other methods had similar numbers of SLPs ranking them as very helpful, differing by only one to four SLPs at most. The second most supported method by SLPs was trainings from AAC distributors (13, 68.42%), which roughly corresponded to the actual implementation of trainings from AAC distributors (10, 52.63%). Large discrepancies existed between the top two methods actually utilized by SLPs and how helpful they rated these methods. "Printed handouts about AAC" was the most utilized method in actual practice (18, 94.74%), but it was rated as “very helpful” by only 57.89% (11). Similarly, “verbal explanations given during therapy” was described as “very helpful” by 52.63% (10), but it was the second most utilized method at 84.21% (16). The caregivers all rated “verbal explanations given during therapy,” “caregiver participation in using AAC during therapy,” and “printed handouts about AAC” as “very helpful”; similarly, only one respondent said that “videos sent to the caregivers about AAC” was only “slightly helpful.” The caregivers appeared to disagree more on the “trainings from AAC distributors,” which three marked as “slightly helpful.”

Table 11 *Helpfulness of Methods Used in AAC Education and Training*

Methods	**SLPs (n=19)**	**Caregivers (n=5)**	**SLPs (n=19)**	**Caregivers (n=5)**	**SLPs (n=19)**	**Caregivers (N=5)**
	Not at all helpful	Not at all helpful	Slightly helpful	Slightly helpful	Very helpful	Very helpful
Verbal explanations given during therapy when you are working with the child alone/Hearing verbal explanations when the therapist is working with your child	0% (0)	0% (0)	47.37% (9)	0% (0)	52.63% (10)	100% (5)
Caregiver participation in using AAC during therapy with feedback/Participating in using AAC during therapy while getting feedback from the therapist	0% (0)	0% (0)	5.26% (1)	0% (0)	94.74% (18)	100% (5)
Printed handouts about AAC	0% (0)	0% (0)	42.11% (8)	0% (0)	57.89% (11)	100% (5)
Videos sent to the caregivers about AAC/Watching videos about AAC	0% (0)	0% (0)	52.63% (10)	20% (1)	47.37% (9)	80% (4)
Trainings from AAC distributors/Trainings from AAC companies	0% (0)	0% (0)	31.57% (6)	60% (3)	68.42% (13)	40% (2)

AAC Feedback Questions

SLPs

In answering the free response questions, the SLPs and caregivers provided a number of varied responses that were then categorized by the researcher for ease of understanding. The first free response question presented to SLPs inquired about perceived barriers to AAC education and training. The responses are summarized in Table 12 and categorized according to perceived theme. Some respondents included multiple topics separated by punctuation in their response; these were separated in the table but are marked with a number in parentheses to indicate that they are from the same response. Additionally, some of the responses were perceived to fit into multiple categories; these are displayed in the table multiple times but are followed by "(included in multiple categories)" to indicate this. The categories and responses are organized in the table based on which categories appeared to be referenced most frequently.

Table 12 *SLP Reported Barriers to AAC Education and Training*

Topic	**Response**
Restraints on Caregiver Participation and Time	Time and understanding how adults learn and what motivates each person
	Time
	Full participation from either teachers and/or the caregivers
	In schools, we have very little access to the parents. In our area, it seem that the outpatient clinics should take the lead in training, but they do not because they aren't comfortable with it and often don't do their own evaluations. They contract someone to come in and do the eval and one-time training (included in multiple categories)
	Caregivers taking time to learn vocabulary (1)

Table 12 (continued)

Lack of information/misinformation	**Thoughts that child will not learn to talk (1)**
	Unfamiliar technology
	Parents don’t view themselves as the one to model/perform therapy
	Misinformation (3)
	Lack of awareness (3)
	Child not being successful immediately (2)
Lack of Funding/Accessing Device	Funding for all AAC topics
	Lack off [sic] access to device
	Accessibility/ease/quickness of obtaining a device for families…I can show it to them in therapy, but it takes a long time for most families to obtain the funding to get one to have at home
	Limited access (3)
Agreeance on Roles	Parents don’t view themselves as the one to model/perform therapy (included in multiple categories)
	Full participation from either teachers and/or the caregivers (included in multiple categories)
	In schools, we have very little access to the parents. In our area, it seem that the outpatient clinics should take the lead in training, but they do not because they aren’t comfortable with it and often don’t do their own evaluations. They contract someone to come in and do the eval and one-time training (included in multiple categories)
Buy-in	Buy in from parents
	Buy in from teachers and families
Carryover	Lack of carryover (2)
	Implementing an AAC into daily life
Unsure	I am not sure
	I am not sure if any barriers exist
Progress	Child not being successful immediately (2)

Table 12 (continued)

Setting-Dependent Factors	**In schools, we have very little access to the parents. In our area, it seem that the outpatient clinics should take the lead in training, but they do not because they aren't comfortable with it and often don't do their own evaluations. They contract someone to come in and do the eval and one-time training (included in multiple categories)**
Other Comments	Importance of giving non-speaking children a way to express themselves

The three categories that responses fit into most frequently appeared to be restraints on caregiver participation and time, lack of information or misinformation, and lack of funding or access to the device.

The second free response question for SLPs addressed whether they felt that COVID-19 had impacted how they educated and trained caregivers on AAC. 11 SLPs responded with "No." Two SLPs responded with "Somewhat," "Somewhat but not extensively," and "Not much." One SLP said, "I began practicing during the pandemic, so it never changed." Four responses differed from the majority response that little changed. One SLP commented that "I have completed more virtual trainings than before Covid-19, but have started doing more in person trainings," indicating that their practice changed temporarily. Two SLPs indicated that they completed more online versus in-person trainings with caregivers, with one noting that "parent coaching in natural environment [sic] are beneficial when sessions were held via zoom." Finally, one SLP described a "decreased amount of training due to lack of parent presence in the school building." Overall, the majority indicated that nothing had changed, or if their practice had briefly changed, it had since returned to previous practices.

The final SLP free response question asked for any additional comments. The following Table 13 provides a list of these responses:

Table 13 *Additional Comments on AAC Educating and Training*

Topic	**Response**
Barriers/Need for Future Changes	There is always a need for more time with parents.
	Graduate schools need to implement more education in this area and all others regarding AAC.
	Always a challenge and always looking for new and better ways.
Current practices	I try not to use terms parents might not know and if I do, I will explain it
	Building rapport/having a good relationship with families and consistency are essential
Anecdotes/Other Comments	Last year I had a parent tell me that she would not use AAC with her child "because people use those (devices) with dogs to teach them to talk." I provided education, and she eventually came around after he received a medical diagnoses [sic] of Autism
	This has encouraged me to get families more involved in the actual therapy sessions to have hands on training with their child! Thank you!

Three comments appeared to focus on barriers and future changes, suggesting that gaining time for AAC education and training with parents is difficult and that SLPs need more education in graduate school in AAC. Two comments described and advised on current practice, including modifying language to fit the context of educating parents and developing rapport with families.

Caregivers

The first two caregiver questions addressed what caregivers felt was most useful in learning about AAC and what they wished had been different during this process. For the first topic, two respondents indicated that they simply found it most useful that AAC could be used for communication: “just giving her a method of communication” and “that’s [sic] it’s great therapy to helps [sic] communication.” One respondent described how learning about how to customize the form of AAC for their child was the most useful: “The most useful thing was learning how to customize the app with phrases specifically for my daughter.” Another respondent identified watching therapy sessions where the device was used as the most useful: “I’m a visual learner so seeing them use the device with my child and how she uses it is the most helpful.”

When asked whether they wished anything had been different, one respondent said that they did not. Another expressed that “learning about it sooner” would have been helpful. One respondent answered “that as a parent I could be trained,” potentially expressing that they wished that they had been trained more on using AAC or that they wished this had occurred sooner. The final respondent replied “there shouldn’t be myths about it delaying speech. It enables communication, speech comes too”; this may have indicated that the parent was exposed to myths about AAC or witnessed others exposed to these myths before learning more about it. Although the caregiver who responded to the SLP survey was not shown these questions, that respondent did answer the SLP question about barriers to AAC education and training by saying, “The main barrier as a parent is my lack of knowledge about how to teach my child.” The final caregiver question asked for any other comments. Most of the caregivers responded “no,” but one wrote “AAC has opened up the lines of communication and has even helped with my daughter making vocalizations.”

Patterns in Practice and Opinions Related to SLP Characteristics

Characteristics of an SLP Specialist

As described in the subsection pertaining to this survey question, 11 of the 19 (57.89%) SLP respondents indicated that they believed that they were a specialist in some area of the field, with the majority of these speciality areas encompassing AAC. The remaining specialized in “autism and child language,” “preschool age with artic and language,” and “early intervention,” respectively. When the responses of the groups that identified as specialists were compared against the responses of all the SLP respondents, some differences in responses to and percentages noted for individual questions were observed, but only two of these are discussed because few of these appeared to be significant differences that would indicate a relationship. Identifying as a specialist did not appear to be associated with age or years of experience, with a roughly even distribution across these. Previous experiences with AAC education were also approximately the same. Additionally, no major differences were found in the topics addressed and methods utilized in AAC education and training as well as the ratings of topics and methods.

The main differences noted between the two groups involved setting and perceived proficiency with AAC implementation and AAC education and training.

Respondents who identified as specialists worked in university clinics (4/11 or 36.36% of specialists compared to 0% of nonspecialists) and an early intervention/preschool center (2/11 or 18.18% compared to 0% of nonspecialists), with a decrease in those who worked in schools (3/11 or 27.27% of specialists compared to 5/8 or 62.5% of nonspecialists) and private practice (1/11 or 9.09% of specialists compared to 3/11 or 27.27% of nonspecialists).

Almost all of the respondents who marked themselves as very proficient and all of the respondents who marked themselves as extremely proficient in AAC implementation identified as specialists (9/11, 81.18% of specialists compared to 1/8, 12.5% of nonspecialists); only two specialists indicated that they were moderately proficient in AAC implementation. In this way, 52.63% of the SLP respondents were very or extremely proficient in AAC implementation, while 81.81% of the specialist SLPs were very or extremely proficient. Likewise, in rated proficiency in AAC education and training, all of the three respondents who identified as very or extremely proficient were specialists. However, a majority of the specialists (8/11, or 72.72%) still identified as only moderately proficient in this area. While the specialists rated themselves higher overall in both AAC implementation and AAC education and training, their perceived proficiency in AAC education and training was still lower than in AAC implementation as a whole.

SLPs Proficient in AAC Implementation and Education and Training

The responses of the SLPs who indicated that they believed they were very or extremely proficient in AAC implementation as well as in AAC education and training were also examined. As described above, the majority of SLPs who selected that they were very or extremely proficient in implementing interventions involving AAC also described themselves as specialists, with the exception of one respondent. As a result, this group had no noticeable differences from the data described pertaining to the specialist group.

Three SLPs indicated that they were very or extremely proficient in AAC education and training. These SLPs also rated themselves as very proficient or extremely proficient in implementing interventions involving AAC. In the questions about current practices, these SLPs responded that they addressed all of the topics (definition of AAC, myths about AAC, how to physically operate the type of AAC, how to model language using AAC, and how to encourage AAC use outside of therapy). All three noted that they use caregiver participation in using AAC during therapy with feedback as well as printed handouts about AAC. Verbal explanations given during therapy, videos sent to the caregivers about AAC, and trainings from AAC distributors were selected by two SLPs each. One SLP wrote that they also assign homework “for caregivers to follow up on maintenance. In their opinions about the topics, these SLPs rated all of the topics as “very important.” In their opinions about the methods, these SLPs all rated verbal explanations and caregiver participation as “very helpful.” Printed handouts and trainings from AAC distributors were rated as “very helpful” by two of these three SLPs. Videos were rated as “very helpful” by one of these SLPs.

Responses of SLPs with Varying Years of Experience

The SLPs were divided into two groups, one of SLPs with up to 15 years of experience (10, 52.63%) and one of SLPs with 15 or greater years of experience (9, 47.37%), and were also examined by individual group of reported years of experience to determine any noticeable differences in practice or opinions potentially associated with years of experience. Like with examination of data on SLP specialists, slight variations were found between groups, but few noticeable patterns to discuss were identified based on examination of the Qualtrics data. SLP with greater than 15 years of experience marked themselves as very or extremely proficient in implementing AAC interventions at a higher number (7/9, 87.5% versus 3/10, 30%) but only differed by 10 percentage points in perceived AAC education and training proficiency, with the majority from both groups indicating that they were moderately proficient. Nine (90%) of the 15 and fewer years of experience group addressed definition of AAC in practice compared to 4 (44.44%) of the 15 and more years of experience group.

Responses of SLPs with Different Forms of SLP AAC Education

There did not appear to be a significant difference in the responses of SLPs who selected that they had completed a class on AAC in graduate school (9, 47.37%), compared to those who had not related to specialist status, proficiency in implementing interventions with AAC, and proficiency in AAC education and training. Five of these SLPs had also learned about AAC through clinical experiences in graduate school. Eight SLPs in this group noted that they typically address definition of AAC, myths about AAC, and how to encourage AAC use outside of therapy, while all said that they address how to physically operate the type of AAC and how to model language using AAC; this is in an increase in the percentage who selected definition of AAC from the SLP respondents as a whole. However, there were no major differences in the percentages from this group compared to all respondents in usage of methods in practice and opinions on AAC topics and methods.

CHAPTER IV – DISCUSSION

SLP and Caregiver Respondents

Although a higher number of SLPs than caregivers completed the survey, it is unlikely that their responses would be entirely representative of all SLPs working with this population in this geographic area due to the small sample size. However, it should be noted that the sample of SLPs surveyed shares some similarities with the population of ASHA-certified SLPs, which, since characteristics of SLPs working with children ages birth to five who use AAC in this geographic area are not known, is the closest comparison for this group. According to demographic information on certified speech-language pathologists published by ASHA (2021), 96.4% of SLPs identified themselves as female; 94.74% of the SLP respondents for this survey were female. 91.3% of the ASHA-certified SLPs reported that they were White, and 3.1% reported that they were Black or African American, with other races also represented in the group. 94.73% of SLP respondents in this survey indicated that they were white, while 5.26% indicated that they were Black or African American, with no other groups represented. ASHA (2021) stated that 28.1% of SLPs in 2021 were 34 and younger, 28.7% were 35 to 44 years old, 22.4% were 45 to 54 years old, 12.8% were 55 to 64 years old, and 8.0% were 65 and older. The respondents for this survey skewed younger, with, 42.11% of the SLP respondents under 34, 21.10% from 35 to 44 years old, 15.79% from 45 to 54 years old, 15.79% from 55 to 64 years old, and 5.26% 65 and older. In this way, gender of the respondents was closest to the population of ASHA-certified SLPs. Race was also similar, but lacked representation from other racial groups outside of White and African

American. Age differed the most, with the SLPs completing this survey being generally younger.

ASHA (2021) also detailed the setting that these SLPs worked in: 59.1% worked in educational facilities and 32.9% worked in health care facilities. 22.3% and 12.2% were employed full time and part time, respectively, in private practice. Of the respondents for this survey, 42.11% worked in schools (educational facilities), 10.53% worked in early intervention/preschool centers (educational facilities), 21.05% worked in university clinics (not represented as separate in ASHA survey), and 5.26% worked at a nonprofit organization (unclear if in one of previous categories). Likewise, 21.05% worked in private practice. The responses for this survey lacked input from SLPs working in various health care facilities and home health, whose setting may encourage different practice patterns.

As previously mentioned, a very small number of caregivers actually completed the survey, so it is highly unlikely that their opinions are representative of caregivers of children ages birth to five who use AAC as a whole. However, it is worth mentioning that their responses are once again indicative that the families SLPs serve come from a variety of background. For example, caregivers with a high school diploma as well as caregivers with a post-graduate degree were represented. Caregivers whose family unit was best described as a caregiver with one child, two parents with multiple children, and a single parent with one child completed the survey. In this way, although not much is known about the exact demographic information about children who utilize AAC and their families, it is clear that SLPs must recognize that these caregivers may differ greatly in terms of their previous experiences.

SLP AAC Education

Compared to previous research on the graduate school education on AAC that SLPs receive, it appears that the SLP respondents for this survey may have had different experiences with coursework on AAC. As described in the literature review, DeJarnette and Wegner (2020) collected 85 survey responses from faculty at SLP graduate programs about their program's coursework and clinical experiences on AAC. 96% of the faculty said that their program's coursework covered AAC, whether through an individual class or through incorporation in other coursework; 86% of these faculty indicated that their program required a separate class on AAC. However, the SLP respondents for this survey had different educational experiences that indicated by this data, as only 9 or 47.37% had a course on AAC in graduate school and an additional 3 or 15.79% had coursework in graduate school that covered AAC, for a total of 12 or 63.16% of respondents who had some sort of graduate school coursework on AAC. This data may differ for several reasons. It is likely that the faculty who completed the surveys for DeJarnette and Wegner (2020) and the SLP respondents for this survey represented different graduate school programs. It is also possible that the data for this survey is not an accurate representation of the AAC education of SLPs in this area due to the small sample size. However, these results could be indicative that AAC education for SLPs in graduate school is still lacking and may be an important factor in SLPs' practice related to AAC education and training of caregivers.

SLPs' Current Practices vs. Opinions on Topics and Methods

SLPs occasionally differed in their reported use of specific topics and methods compared to what they rated as the most important and helpful to address. With topics addressed, the most commonly addressed topics appeared to be those related to day-to-day operation of the device and use with the child (how to physically operate the type of AAC, how to model language using AAC, how to encourage AAC use outside of therapy), versus those related to more conceptual information about the definition of AAC, although the number of SLPs who addressed myths about AAC only differs from those that addressed AAC carryover by one. It is possible that the definition of AAC was not addressed as frequently due to time constraints and attempts to consolidate information to only what is directly relevant to the caregiver and child in question, as it might only be necessary for SLPs to inform the caregiver about the use of AAC or partial definitions. Opinions of SLPs expressed through rating these topics were consistent with the number of SLPs who indicated that they utilized each of these topics, with slightly increased numbers for myths about AAC, how to physically operate the type of AAC, how to model language using AAC, and how to encourage AAC use in those that rated these as very important versus incorporated them into practice. Thus, it seems as if SLP opinions on what topics were important were mostly consistent with what they actually discussed with caregivers; the SLP respondents are typically addressing the topics that they view as important when educating and training caregivers.

In contrast, there were much larger differences between the methods utilized in practice and opinions on these methods, which is consistent which previous related research. Caregiver participation was rated as the most helpful but was the least frequently used method in actual practice. Similarly, printed handouts and verbal explanations were the two most frequently used methods in practice but were within the three lowest rated methods. Trainings from AAC distributors were slightly higher rated than they were implemented, and videos sent to the caregivers were higher utilized than they were rated. Notably, many of the most frequently used methods in practice are those that require more passive learning at the surface level. Additionally, all of these methods were in some way described or recommended in the research; it is possible that for some of these, the method in question was not suitable for the caregiver, such as if a caregiver said that they do not effectively learn from videos or cannot attend trainings, thus affecting actual implementation of these methods.

The discrepancy between caregiver participation, a highly recommended method in both research and in the ratings of SLPs, and actual practice fits with preexisting research. Lee et al. (2022) also noted that caregiver participation was reportedly the least used by SLPs. One potential reason for this difference is barriers to AAC education and training. As will be discussed more in-depth, restraints on caregiver participation and time was the most reported barrier to AAC education and training by respondents. Perhaps this barrier is the reason that many SLPs are not implementing caregiver participation with feedback into their practice, even though they believe that it is very effective. Future research may address additional reasons for this difference as well as ways to overcome this barrier and increase caregiver participation in line with recommended best practices.

Characteristics of SLPs Associated with Current Practices and Opinions

Interestingly, some characteristics of the SLP respondents appeared to potentially be or not be associated with these current practices and opinions. Those who identified as specialists in an area of AAC also perceived themselves as more proficient than respondents as a whole in AAC implementation and AAC education and training, although their rated proficiency in AAC education and training was still lower than that in AAC implementation. However, it is notable that this change in perception did not noticeably impact actual practice and opinions on the topics and methods utilized. Perhaps, identifying as a specialist, or the factors that led these SLPs to identify as specialists, does not significantly impact actual practice. Additionally, there was a slightly increase in the number of SLPs who identified as specialists who worked in university clinics or early intervention/preschool centers compared to other settings; maybe specialist status related more to perceived level of education or focused experience in one area than actual practice patterns.

Years of experience also did not appear to be noticeably associated with many major practice patterns or opinions. The most noticeable difference between these groups appeared to be in perceived proficiency in implementing AAC interventions, which was higher for SLPs with increased years of experience. Interestingly, this was less true for perceived AAC education and training proficiency. Logically, it would be reasonable to say that SLPs with more experience might perceive themselves as more proficient with AAC education and training because they have likely had more direct experience with caregivers. Perhaps there was less difference between these two groups because SLPs with less experience ranked themselves much lower on AAC implementation but viewed themselves as more proficient with education and training because they might have experience with this from working with other children who may not use AAC. Another consideration is the variability that SLPs might encounter when working with caregivers. It is difficult to predict how a previously unknown caregiver will respond to information and AAC as well as how they might learn best. Perhaps SLPs feel more comfortable with

AAC implementation as a whole because it encompasses many different topics areas that are directly taught, whereas working with caregivers can vary more.

The main category that appeared to more greatly impact actual practice and opinions was ratings of very or extremely proficient in AAC education and training. It should be noted that only three SLPs indicated that they were very or extremely proficient in this skill, so it is difficult to make conclusions based on this small number. These three SLPs addressed all topics. Most importantly, these SLPs all utilized caregiver participation, which was notably lower in the group as a whole. Direct interactions with caregivers through verbal explanations and caregiver participation, two of the most recommended practices in the research, were the most highly rated by this group. Due to the small number of this group, it was difficult to determine if any other factors were related to this perceived proficiency and change in practice, but the notable change in practice patterns with this small group suggests a potential area for further research in order to identify what characteristics of SLPs are associated with increased caregiver participation in therapy.

SLPs who reported taking a class on AAC in graduate school appeared to differ only slightly from the larger group in topics addressed, with all of them addressing the topics related to physically operating the type of AAC and modeling language using AAC and all but one addressing the definition of AAC, myths about AAC, and AAC carryover. Perhaps exposure to formal coursework on AAC increased respondents' awareness of these topics, which related to slightly increased addressing of these topics. Additionally, it is also possible that caregiver AAC education and training was not thoroughly addressed in graduate school coursework, accounting for the lack of significant difference between the two groups. The SLPs trained during a graduate school course on AAC may have more direct information about AAC but may not have studied how this information can best be shared with caregivers.

SLP Reported Barriers to AAC Education and Training

SLP respondents for this survey reported a variety of barriers to caregiver AAC education and training that indicate that many barriers described by the research still need to be addressed and that SLPs must be aware of new variations on these barriers. Many SLPs emphasized the difficulty in finding time for caregiver participation in therapy due to restraints on caregivers’ time, which logically may include work demands, caring for other family members like other children or relatives, and other tasks. This recurring difficulty may further indicate the need for evolving practices such as the usage of telepractice to enable caregiver participation and SLP feedback (Douglas et al., 2021). Evolving methods such as telepractice may also assist SLPs in combating another identified barrier, issues with carryover.

Another major barrier identified was a lack of funding or access to a device that may prevent caregivers from being able to become familiar with the form of AAC quickly or from practicing its implementation at home with their child. This problem may have many different causes, such as issues with insurance funding and processing. Thus, SLPs must be familiar with avenues for funding of devices and the process that this will require and perhaps account for potential difficulties as a result of this barrier when educating and training caregivers. Additionally, this barrier may be one that requires increasing SLP education via coursework in graduate school in order to reduce some of the difficulties in attaining funding for a device.

Likewise, lack of information or misinformation about AAC is still an issue, as is buy-in on AAC and agreeance on roles in therapy, all of which further necessitate education from SLPs to combat misconceptions. SLPs may consider addressing these issues early, such as when telling caregivers what to expect with AAC assessment and implementation before or during assessment (Mitchell & Alvares, 2015; Lund et al., 2017). Another comment that an SLP left on the survey indicated a surprising source of misconceptions about AAC: one respondent wrote that a parent said that “she would not use AAC with her child ‘because people use those (devices) with dogs to teach them to talk.” This parent may have been referring to social media channels such as one operated by Christina Hunger, an SLP who taught her dog, Stella, to utilize a “communication device…using 50+ words and creating phrases up to 5 words long” and who sells a “Talking Pet Essential Words” kit for teaching dogs to talk (Hunger for Words, 2022, para. 2). Caregivers who see other channels like this on social media may perhaps come to similar assumptions about forms of AAC if they are not aware of the applications of AAC. This may also be true for other popular representations of AAC, so SLPs may consider remaining informed on how AAC is represented to the public in order to understand where caregivers’ assumptions about AAC may originate from.

Finally, one SLP referenced difficulties relating to continuity of services and interaction between SLPs in different settings. According to one respondent, “In schools, we have very little access to the parents. In our area, it seems that the outpatient clinic is should take the lead in training, but they do not because they aren’t comfortable with it and often don’t do their own evaluation. They contract someone to come in and do the eval and one-time training.” This response appears to emphasize the barriers that can arise based on setting of practice, as the school environment is not as conducive to caregiver education and training. Furthermore, it suggests the need for thorough communication between SLPs serving the same child, as one SLP might have better access to the caregivers as a result of time constraints for both parties and be better suited to provide most of the education and training on AAC.

Caregiver Input on AAC Education and Training

Despite the small number of caregiver respondents, discussion can be made about how some of the caregivers' responses correspond to prior conclusions about AAC education and training. A main takeaway from the caregiver responses appears to be the importance of individualizing AAC education and training for caregivers. Each of the caregivers who completed the survey had varying preexisting knowledge on AAC, ranging across no knowledge, minimal knowledge, knowledge from other caregivers, and knowledge from Internet communities; each of these backgrounds may have given these caregivers certain perceptions of and knowledge about AAC that would necessitate different approaches for AAC education and training. For example, if one of the caregivers with prior knowledge of AAC was told misinformation, it may be essential to probe for what the caregiver already knows about this topic, similar to the pretest from Kent-Walsh and McNaughton (2005), and address misinformation, as suggested by Romski and Sevcik (2005). Likewise, SLPs should not assume that the caregiver will immediately understand any AAC intervention employed as some caregivers may not have any knowledge, so SLPs must be prepared to offer understandable explanations of the AAC that may be employed with the child. Additionally, in the free response questions, one of the caregivers stated "I'm a visual learner so seeing them use the device with my child and how she uses it is the most helpful”; this alludes to personal learning style differences that may impact AAC education and training that should be addressed, as recommended by Wright and Quinn (2016). While one modality may be effective for one caregiver, a different modality may be employed for another.

Overall, SLPs may also wish to keep in focus the benefit to the child when educating and training caregivers on AAC, as many of the free response questions answered by caregivers included some statement about the benefits of AAC for their child, such as “that’s [sic] it’s great therapy to helps [sic] communication.” Additionally, when teaching concepts such as how to use the device, it may be useful to keep the focus on how this is useful for the child, as one respondent indicated that “the most useful thing was learning how to customize the app with phrases specifically for my daughter.” SLPs must assist caregivers in meeting their child’s communication goals, and it appears that caregivers responded positively when the role of AAC in meeting these goals was emphasized.

Conclusions and Directions for Further Research

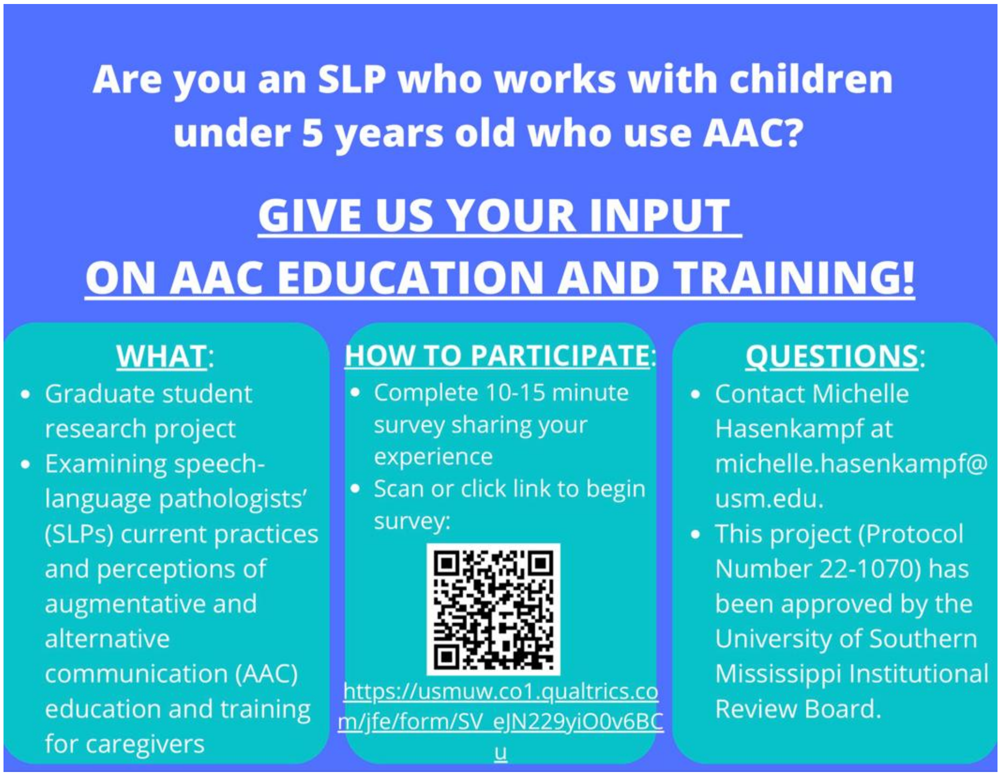
As discussed, these results do support prior research and indicate several potential areas for future research that may illuminate reasons behind SLP practice in this area and how barriers to recommend practice can be reduced, although it is difficult to draw conclusions and make generalizations from this data due to the limited number of respondents. One future area of research might be what factors related to both SLPs and caregivers increase usage of caregiver participation in therapy with feedback. The majority of the SLP characteristics examined did not appear to have an impact on this practice, although different results may be viewed with a larger number of respondents.

However, SLPs who viewed themselves as highly proficient in AAC education and training incorporated many supported methods. What determines the rate that SLPs incorporate caregiver participation? It is evident that barriers may play a role in reducing the number of SLPs who do this; do the SLPs who utilize caregiver participation work with caregivers who do not face as many of these barriers, or do these SLPs and caregivers have a way of overcoming these barriers that is not accomplished by other SLPs? Future research may also examine SLP AAC education in graduate school and beyond. In what ways is this education lacking? What educational methods do SLPs believe are the most or least helpful? Additionally, what determines how proficient SLPs believe they are in AAC education and training? No one factor clearly accounted for this, although characteristics like years of experience increased this perceived proficiency. Do the SLPs who believe they are highly proficient have knowledge of the research and rate their proficiency based on how they are incorporating recommended methods? Or, are there other factors that influence both perceived proficiency and caregiver participation?

Another important area to address in future research is what additional methods can be utilized to overcome barriers to recommended SLP practice. Aside from telepractice, are there other ways to gain caregiver participation in therapy strategies with SLP feedback that account for the participation and time constraints on therapy? Are there other combinations of methods that may be highly effective when caregiver participation is extremely difficult or impossible, as in school settings? Overall, what changes can be made to help shift SLP practice to techniques that have been preferred by SLPs and supported by research?

In conclusion, it is clear that research on caregiver AAC education and training has the potential to positively impact children who rely on SLP therapy and caregiver intervention to meet their communication goals. Though differences exist between typical practice and preferred methods, potentially due to barriers such as restraints on caregiver participation and time, further research may identify factors supporting SLP competence in this area as well as ways to reduce this impact of these barriers so that the children involved can have the full benefit from the expertise of both their caregivers and SLPs. When caregivers are fully involved in interventions for their child via SLP assistance on learning how to implement AAC, early intervention can have its ideal effect.

APPENDIX A – Flyers



Are you an SLP who works with children under 5 years old who use AAC?

GIVE US YOUR INPUT
ON AAC EDUCATION AND TRAINING!

WHAT:

- Graduate student research project
- Examining speech-language pathologists' (SLPs) current practices and perceptions of augmentative and alternative communication (AAC) education and training for caregivers

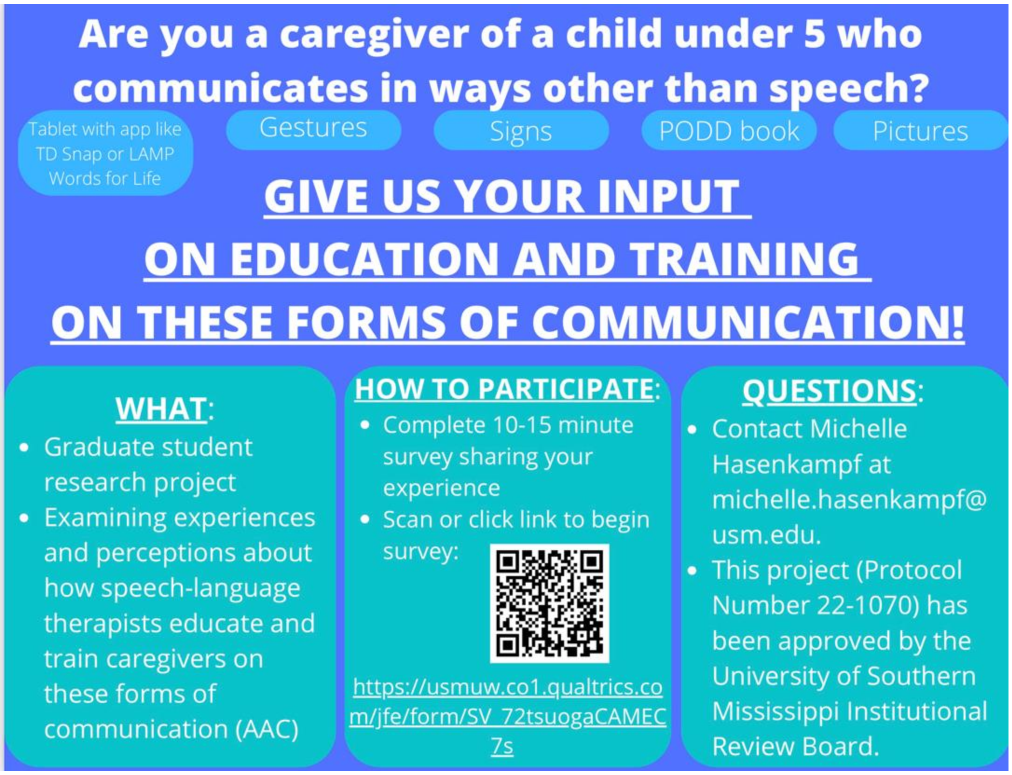
HOW TO PARTICIPATE:

- Complete 10-15 minute survey sharing your experience
- Scan or click link to begin survey:

https://usmuw.co1.qualtrics.com/jfe/form/SV_eJN229yiO0v6BCu

QUESTIONS:

- Contact Michelle Hasenkampf at michelle.hasenkampf@usm.edu.
- This project (Protocol Number 22-1070) has been approved by the University of Southern Mississippi Institutional Review Board.



Are you a caregiver of a child under 5 who communicates in ways other than speech?

GIVE US YOUR INPUT
ON EDUCATION AND TRAINING
ON THESE FORMS OF COMMUNICATION!

WHAT:

- Graduate student research project
- Examining experiences and perceptions about how speech-language therapists educate and train caregivers on these forms of communication (AAC)

HOW TO PARTICIPATE:

- Complete 10-15 minute survey sharing your experience
- Scan or click link to begin survey:

https://usmuw.co1.qualtrics.com/jfe/form/SV_72tsuogaCAMEC7s

QUESTIONS:

- Contact Michelle Hasenkampf at michelle.hasenkampf@usm.edu.
- This project (Protocol Number 22-1070) has been approved by the University of Southern Mississippi Institutional Review Board.

APPENDIX B – Surveys

Informed Consent

PROJECT INFORMATION

Project Title: Caregiver Augmentative and Alternative Communication (AAC) Education and Training: A Survey of Caregiver and Speech-Language Pathologist Perspectives
Protocol Number: 22-1070
Principal Investigator: Michelle Hasenkampf
Email: michelle.hasenkampf@usm.edu
College: The University of Southern Mississippi
School and Program: School of Speech and Hearing Sciences, Speech-Language Pathology Graduate Program

RESEARCH DESCRIPTION

1. **Purpose**: The purpose of this study is to gather information about trends in how speech-language pathologists (SLPs) educate and train caregivers of children who use augmentative and alternative communication (AAC) on AAC. SLPs may utilize a variety of tools to encourage speech and/or language development. One tool is the use of AAC, which describes any communication tool used to support or be an alternative for speech as a form of communication. This can be gestures, signs, a tablet with an app like TD Snap, a PODD book, or another form. This study aims to examine the current practices of SLPs educating and training caregivers of children ages 0-5 on AAC as well as what strategies have been most or least effective for caregivers.
2. **Description of the Study**: You will answer questions about your experiences with AAC and beliefs about AAC education and training. This survey will take approximately 10-15 minutes to complete.
3. **Benefits**: There are no direct benefits for participating in this research study.

4. **Risks**: There are no major risks associated with participating in this study. You may stop taking the survey at any time.
5. **Confidentiality**: The answers you give to the following questions will be collected. Your name or other information that could be used to identify you will not be collected or linked to the data.

This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5125, Hattiesburg, MS 39406-0001, 601-266-5997. Any questions about this research project should be directed to the Principal Investigator using the contact information provided above.

Consent to Participate in Research

I understand that participation in this project is completely voluntary, and I may withdraw at any time without penalty, prejudice, or loss of benefits. Unless described above, all personal information will be kept strictly confidential, including my name and other identifying information. All procedures to be followed and their purposes were explained to me. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected. Any new information that develops during the project will be provided to me if that information may affect my willingness to continue participation in the project.

By clicking the box below, I give my consent to participate in this research.

- Check this box if you consent to this study, and then click “Continue.” (Clicking “Continue” will not allow you to advance to the study, unless you have checked the box indicating your consent.)
- No, I do not consent to participate in this study.

Speech-Language Pathologist Survey

Demographics

1. What is your gender?
    - ○ Male
    - ○ Female
    - ○ Non-binary/third gender
    - ○ Other: _____

2. What is your race/ethnicity?
    - ○ White
    - ○ Black or African American
    - ○ American Indian or Alaska Native
    - ○ Asian
    - ○ Native Hawaiian or Pacific Islander
    - ○ Other: _____

3. How old are you?

4. For how many years have you been practicing as a speech-language pathologist?
    - ○ 5 or fewer
    - ○ 5-10
    - ○ 10-15
    - ○ 15-20
    - ○ 20-25
    - ○ 25+
    - ○ Other/Comments: _____

5. In what setting do you work?
    - ○ Private practice
    - ○ Hospital
    - ○ Home health
    - ○ School
    - ○ Other/comments: _____

6. Do you consider yourself to be a specialist in a specific area of speech-language pathology (such as voice, AAC, etc.)?
    - ○ Yes
    - ○ No

7. (If 6 answered yes) In which area are you a specialist?

AAC Background

8. Which of the following describes your education on AAC? Select all that apply.
   - ○ Learned about AAC in graduate school but not through a course specifically on AAC
   - ○ Completed course on AAC in graduate school
   - ○ Completed CEUs on AAC
   - ○ Learned about AACs through clinical experiences in graduate school
   - ○ Learned about AACs through clinical experiences after graduate school
   - ○ Other: _____

9. How proficient do you believe you are with implementing interventions involving AAC?
   - ○ Not proficient at all
   - ○ Slightly proficient
   - ○ Moderately proficient
   - ○ Very proficient
   - ○ Extremely proficient

10. How proficient do you believe you are with educating and training caregivers on AAC?
    - Not proficient at all
    - Slightly proficient
    - Moderately proficient
    - Very proficient
    - Extremely proficient

AAC Practice

11. Which of the following topics do you typically address when educating and training caregivers on AAC? Select all that apply.
    - Definition of AAC
    - Myths about AAC
    - How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)
    - How to model language using AAC
    - How to encourage AAC use outside of therapy

12. What ways do you use to educate and train caregivers on these topics? Select all that apply.
    - Verbal explanations given during therapy when you are working with the child alone
    - Caregiver participation in using AAC during therapy with feedback
    - Printed handouts about AAC
    - Videos sent to the caregivers about AAC
    - Trainings from AAC distributors
    - Other: _____

13. Which of the following describe the frequency and duration of how you educate and train caregivers on AAC? Select all that apply.
    - Regular, designated times for educating and training the caregiver each session
    - As-needed sessions for educating and training the caregiver
    - One session focused on educating and training the caregiver on AAC
    - Other: _____

AAC Opinions - Topics

This section addresses your thoughts regarding the importance of several topics in educating and training caregivers on AAC. How important do you believe addressing each of these topics is to educating and training caregivers on AAC in your practice?

14. How important is addressing the definition of AAC?

  - ○ Not at all important
  - ○ Slightly important
  - ○ Very important

15. How important is addressing myths about AAC?

  - ○ Not at all important
  - ○ Slightly important
  - ○ Very important

16. How important is addressing how to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)?

  - ○ Not at all important
  - ○ Slightly important
  - ○ Very important

17. How important is addressing how to model language using AAC?

  - ○ Not at all important
  - ○ Slightly important
  - ○ Very important

18. How important is addressing how to encourage AAC use outside of therapy?
    - Not at all important
    - Slightly important
    - Very important

AAC Opinions – Methods

This section addresses your thoughts regarding the helpfulness of several ways of educating and training caregivers on AAC. How helpful do you believe each of these methods is to educating and training caregivers on AAC in your practice?

19. How helpful are verbal explanations given during therapy when you are working with the child alone?
    - Not helpful at all
    - Slightly helpful
    - Very helpful

20. How helpful is caregiver participation in using AAC during therapy with feedback?
    - Not helpful at all
    - Slightly helpful
    - Very helpful

21. How helpful are printed handouts about AAC?
    - ○ Not helpful at all
    - ○ Slightly helpful
    - ○ Very helpful

22. How helpful are videos sent to the caregivers about AAC?
    - ○ Not helpful at all
    - ○ Slightly helpful
    - ○ Very helpful

23. How helpful are trainings from AAC distributors?
    - ○ Not helpful at all
    - ○ Slightly helpful
    - ○ Very helpful

AAC Feedback Questions

24. What barriers do you believe exist to AAC education and training?
25. Has COVID-19 changed how you provide AAC education and training?
26. Any other comments about your current practices with educating and training caregivers?

Caregiver Survey

Caregiver Demographics

1. What is your gender?
    - Male
    - Female
    - Non-binary/third gender
    - Other

2. How old are you?

3. What is your race/ethnicity?
    - White
    - Black or African American
    - American Indian or Alaska Native
    - Asian
    - Native Hawaiian or Pacific Islander
    - Other

4. What is your highest level of education?
    - Less than high school education
    - High school diploma or equivalent
    - Some college, no degree
    - Associate’s degree
    - Bachelor’s degree
    - Post-graduate degree

5. Which of the following best describes your family unit?
    - Caregiver with one child
    - Two parents with multiple children
    - Single parent with one child
    - Single parent with multiple children
    - Two parents with one child
    - Other

6. How many children do you care for?

Child Demographics

Augmentative and alternative communication (AAC) describes communication tools that your child might use to support or be an alternative to speech to communicate.

Some examples of AAC are:

- Computers or tablets with AAC apps like TD Snap, LAMP Words for Life, or Proloquo2Go


TD Snap Core First

- Pragmatic Organization Dynamic Display (PODD) book

- Gestures

- Sign language

- Writing or drawing to communicate

References

Novita Tech. (n.d.). PODD Communication Books. Retrieved from https://novitatech.com.au/podd-communication-books/.

The Center for AAC and Autism. (n.d.). LAMP. Retrieved from https://www.aacandautism.com/lamp/resources-and-support.

Tobii Dynavox. (n.d.). TD Snap. Retrieved from https://us.tobiidynavox.com/pages/td-snap-core-first.

7. How many children in your care currently or have previously used AAC?

   ○ 1

   ○ 2

   ○ 3

   ○ 4 or more

   ○ Other/Comments

8. What type of AAC does your child utilize?
    - Tablet/iPad with AAC program such as LAMP Words for Life, Proloquo2Go, etc.
    - PODD book
    - Sign language
    - Gestures
    - Other

9. How old is your child who uses AAC?

10. At what age did your child begin using AAC?

11. Would you like to fill out information on a second/third/fourth child in your care who currently uses AAC? (repeats Child Demographic section for up to four children)

AAC Background

12. Which of the following describes your knowledge of AAC BEFORE your child began using AAC? Select all that apply.
    - Had no knowledge of AAC
    - Had minimal knowledge of AAC
    - Had knowledge of AAC from hearing from other caregivers/parents
    - Had knowledge of AAC from having another child who used AAC
    - Had knowledge of AAC from Internet communities such as Facebook groups
    - Had knowledge of AAC from previous professional experiences
    - Other

13. Which of the following topics were you familiar with BEFORE your child was introduced to AAC? Select all that apply.
    - Definition of AAC
    - Myths about AAC
    - How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)
    - How to use AAC as a caregiver to demonstrate how to use it to your child
    - How to encourage the child’s AAC use outside of therapy
    - None of the above

AAC Experiences

14. Which of the following AAC topics have you learned about as part of your child’s therapy? Select all that apply.
    - Definition of AAC
    - Myths about AAC
    - How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)
    - How to use AAC as a caregiver to demonstrate how to use it to your child
    - How to encourage the child’s AAC use outside of therapy
    - None of the above

15. What ways have you learned about these topics as part of your child’s therapy? Select all that apply.
    - Hearing verbal explanations when the therapist is working with your child
    - Participating in using AAC during therapy while getting feedback from the therapist
    - Getting printed handouts about AAC
    - Watching videos about AAC
    - Attending trainings from AAC companies
    - Other

16. Which of the following describes the frequency and duration of how you learned about AAC from your child's therapy? Select all that apply.

    - ○ Regular, designated times for learning about AAC each session
    - ○ As-needed sessions for learning about AAC
    - ○ One session focused on learning about AAC
    - ○ Other

AAC Opinions - Topics

This section addresses your thoughts regarding the importance of several topics in learning about AAC and how to use it with your child. How important do you believe addressing each of these topics is to learning about AAC and how to implement it?

17. How important is addressing the definition of AAC?

    - ○ Not at all important
    - ○ Slightly important
    - ○ Very important

18. How important is addressing myths about AAC?

    - ○ Not at all important
    - ○ Slightly important
    - ○ Very important

19. How important is addressing how to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)?
    - Not at all important
    - Slightly important
    - Very important

20. How important is addressing how to use AAC as a caregiver to demonstrate how to use it to the child?
    - Not at all important
    - Slightly important
    - Very important

21. How important is addressing how to encourage the child's AAC use outside of therapy?
    - Not at all important
    - Slightly important
    - Very important

AAC Opinions - Methods

This section addresses your thoughts regarding the helpfulness of several ways of learning about AAC and how to use it with your child. How helpful do you believe each of these methods is to learning about AAC and how to implement it?

22. How helpful is hearing verbal explanations when the therapist is working with your child?
    - Not helpful at all
    - Slightly helpful
    - Very helpful

23. How helpful is participating in using AAC during therapy while getting feedback from the therapist?
    - Not helpful at all
    - Slightly helpful
    - Very helpful

24. How helpful is getting printed handouts about AAC?
    - Not helpful at all
    - Slightly helpful
    - Very helpful

25. How helpful is watching videos about AAC?
    - Not helpful at all
    - Slightly helpful
    - Very helpful

26. How helpful is attending trainings from AAC companies?
    - ○ Not helpful at all
    - ○ Slightly helpful
    - ○ Very helpful

AAC Feedback Questions

27. What, if anything, did you find most useful in learning about AAC for your child?

28. What, if anything, do you wish had been different about how you learned about AAC for your child?

29. Any other comments about your experiences with learning about AAC for your child?

APPENDIX C – DATA

Table A1. *SLP Gender*

Gender	**SLPs (n=19)**
Male	5.26% (1)
Female	94.74% (18)

Table A2. *SLP Race/Ethnicity*

Race/Ethnicity	**SLPs (n=19)**
White	94.74% (18)
Black or African American	5.26% (1)
American Indian or Alaska Native	0%
Asian	0%
Native Hawaiian or Pacific Islander	0%
Other	0%

Table A3. *SLP Age*

Age Listed by SLPs
25, 26, 28, 29, 29, 30, 30, 33, 35, 36, 37, 40, 45, 46, 50, 56, 50+, 63, 71

Table A4. *SLP Years of Experience*

Years	**SLPs** **(n=19)**
5 or fewer	**21.05% (4)**
5-10	**21.05% (4)**
10-15	**10.53% (2)**
15-20	**15.79% (3)**
20-25	**15.79% (3)**
25+	**15.79% (3)**
Other/Comments:	**One respondent said “40”; added to total tally in 25+.**

Table A5. *SLP Work Setting*

Setting	**SLPs** **(n=19)**
Private Practice	21.05% (4)
Hospital	0%
Home health	0%
School (1 also working in skilled nursing facility)	42.11% (8)
Other/Comments: university clinic	21.05% (4)
Other/Comments: early intervention/preschool center (early intervention center for special needs preschool, birth-5 early intervention)	10.53% (2)
Other/Comments: nonprofit	5.26% (1)

Table A6. *SLP Specialist Status*

Specialist	**SLPs (n=19)**
Yes	57.89% (11)
No	42.11% (8)

Table A7. *SLP Area of Specialty*

Specialties Listed
AAC (4), AAC in pediatrics, AAC and feeding, assistive technology, preschool age with artic and language, autism and child language, AAC and AT, early intervention

Table A8. *SLP AAC Education*

Experience	**SLPs (n=19; multiselect question)**
Learned about AAC in graduate school but not through a course specifically on AAC	15.79% (3)
Completed course on AAC in graduate school	47.37% (9)
Completed CEUs on AAC	73.68% (14)
Learned about AAC through clinical experiences in graduate school	31.57% (6)
Learned about AAC clinical experiences after graduate school	84.2% (16)
Other/Comments: All of the above, Attended many conferences on AAC and Assistive Technology, Attended Camp JabberJaw 3 times as a student, Training with Kim Heine	21.05% (4)

Table A9. *Implementing AAC Interventions Proficiency*

Level	**SLPs (n=19)**
Not proficient at all	5.26% (1)
Slightly proficient	15.79% (3)
Moderately proficient	26.32% (5)
Very proficient	47.37% (9)
Extremely proficient	5.26% (1)

Table A10. *Educating and Training Caregivers on AAC Proficiency*

Level	**SLPs (n=19)**
Not proficient at all	5.26% (1)
Slightly proficient	21.05% (4)
Moderately proficient	57.90% (11)
Very proficient	10.53% (2)
Extremely proficient	5.26% (1)

Table A11. *SLPs: Topics Addressed in AAC Education and Training*

Topics	**SLPs (n=19)**
Definition of AAC	63.16% (12)
Myths about AAC	84.21% (16)
How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)	94.74% (18)
How to model language using AAC	94.74% (18)
How to encourage AAC use outside of therapy	89.47% (17)
Other	0%

Table A12. *SLPs: Methods Used in AAC Educating and Training*

Methods	**SLPs (n=19)**
Verbal explanations given during therapy when you are working with the child alone	84.21% (16)
Caregiver participation in using AAC during therapy with feedback	47.37% (9)
Printed handouts about AAC	94.74% (18)
Videos sent to the caregivers about AAC	57.89% (11)
Trainings from AAC distributors	52.63% (10)
Other: Homework assignments for caregivers to follow up on maintenance, videos of therapy session and home activities, one-on-one trainings at school	15.79% (3)

Table A13. *SLPs: Frequency of AAC Education and Training*

Frequency	**SLPs (n=19)**
Regular, designated times for educating and training the caregiver each session/Regular, designated times for learning about AAC each session	21.05% (4)
As-needed sessions for educating and training the caregiver/As-needed sessions for learning about AAC	78.95% (15)
One session focused on educating and training the caregiver on AAC/One session focused on learning about AAC	15.79% (3)
Other	0%

Table A14. *SLPs: Importance of Topics in AAC Education and Training*

Topics	**SLPs (n=19)**	**SLPs (n=19)**	**SLPs (n=19)**
	Not at all important	Slightly important	Very important
Definition of AAC	0% (0)	36.84% (7)	63.16% (12)
Myths about AAC	0% (0)	10.53% (2)	89.47% (17)
How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)	0% (0)	0% (0)	100% (19)
How to model language using AAC	0% (0)	0% (0)	100% (19)
How to encourage AAC use outside of therapy	0% (0)	0% (0)	100% (19)

Table A15. *Helpfulness of Methods Used in AAC Education and Training*

Methods	**SLPs (n=19)**	**SLPs (n=19)**	**SLPs (n=19)**
	Not at all helpful	Slightly helpful	Very helpful
Verbal explanations given during therapy when you are working with the child alone	0% (0)	47.37% (9)	52.63% (10)
Caregiver participation in using AAC during therapy with feedback	0% (0)	5.26% (1)	94.74% (18)
Printed handouts about AAC	0% (0)	42.11% (8)	57.89% (11)
Videos sent to the caregivers about AAC	0% (0)	52.63% (10)	47.37% (9)
Trainings from AAC distributors	0% (0)	31.57% (6)	68.42% (13)

Table A16. *Barriers to AAC Education and Training*

Barriers
Time and understanding how adults learn and what motivates each person
Time
Full participation from either teachers and/or the caregivers
In schools, we have very little access to the parents. In our area, it seem that the outpatient clinics should take the lead in training, but they do not because they aren't comfortable with it and often don't do their own evaluations. They contract someone to come in and do the eval and one-time training
Thoughts that child will not learn to talk, caregivers taking time to learn the vocabulary
Unfamiliar technology
Parents don't view themselves as the one to model/perform therapy
Misinformation, lack of awareness, limited access
Lack of carryover, child not being successful immediately
Funding for all AAC topics
Lack off [sic] access to devices
Accessibility/ease/quickness of obtaining a device for families…I can show it to them in therapy, but it takes a long time for most families to obtain the funding to get one to have at home
Buy in from parents
Buy in from teachers and families
Implementing AAC into daily life
I am not sure
I am not sure if any barriers exist
Importance of giving non-speaking children a way to express themselves

Table A17. *Impact of COVID-19*

Has COVID-19 changed how you provide AAC education and training?
No
I began practicing during the pandemic, so it never changed
Somewhat but not extensively
No
Not really!
No thankfully
No
I have completed more virtual trainings than before Covid-19, but have started doing more in person trainings
Somewhat
No, it has not.
No
More on-line vs in-person
Not much
Decreased amount of training due to lack of parent presence in the school building
No
No
No
No
Parent coaching in natural environment are beneficial when sessions were held via zoom

Table A18. *Additional Comments on AAC Educating and Training*

Response
There is always a need for more time with parents.
Graduate schools need to implement more education in this area and all others regarding AAC.
Always a challenge and always looking for new and better ways.
I try not to use terms parents might not know and if I do, I will explain it
Building rapport/having a good relationship with families and consistency are essential
Last year I had a parent tell me that she would not use AAC with her child “because people use those (devices) with dogs to teach them to talk.” I provided education, and she eventually came around after he received a medical diagnoses [sic] of Autism
This has encouraged me to get families more involved in the actual therapy sessions to have hands on training with their child! Thank you!

Table A19. *Caregiver Gender*

Gender	**Caregivers (n=5)**
Male	20% (1)
Female	80% (4)

Table A20. *SLP Race/Ethnicity*

Race/Ethnicity	**Caregivers (n=5)**
White	60% (3)
Black or African American	40% (2)
American Indian or Alaska Native	0%
Asian	0%
Native Hawaiian or Pacific Islander	0%
Other	0%

Table A21. *Caregiver Age*

Age Listed by Caregivers
29, 29, 32, 35, 50

Table A22. *Caregiver Highest Level of Education*

Level of Education	**Caregivers (n=4)**
Less than high school education	0%
High school diploma or equivalent	50% (2)
Some college, no degree	0%
Associate’s degree	0%
Bachelor’s degree	0%
Post-graduate degree	50% (2)

Table A23. *Caregiver Family Unit*

Family Unit	**Caregivers (n=4)**
Caregiver with one child	25% (1)
Two parents with multiple children	50% (2)
Single parent with one child	25% (1)
Single parent with multiple children	0%
Two parents with one child	0%
Other	0%

Table A24. *Caregiver Number of Children Cared for*

Number of Children
1, 1, 2, 2

Table A25. *Caregiver Number of Children Currently or Previously Used AAC*

Number of Children
1, 1, 1, 2

Table A26. *Type of AAC Child Utilizes*

Type of AAC	**Caregivers (n=4)**
Tablet/iPad with AAC program such as LAMP Words for Life, Proloquo2Go, etc.	50% (2)
PODD book	0%
Sign language	25% (1)
Gestures	0%
Other: “She has a total communication plan that includes signs gestures and using td snap on her ipad”	25% (1)

Table A27. *Age of Child Using AAC*

Age of Child
18 months, 4, 4, 4

Table A28. *Age of Child When Beginning to Use AAC*

Age of Child
Started teaching at birth and then started mimicking at 6 months, 2, 2, 3

Table A29. *Second Child in Household Using AAC*

Data on Second Child	**Caregivers (n=1)**
Type of AAC	Speech-generating tablet/iPad with AAC program such as LAMP Words for Life, Proloquo2Go, etc.
Age	2
Age When Beginning to Use AAC	2

Table A30. *Knowledge of AAC Before Child Began Using AAC*

Knowledge Level	**Caregivers (n=4)**
Had no knowledge of AAC	25% (1)
Had minimal knowledge of AAC	25% (1)
Had knowledge of AAC from hearing from other caregivers/parents	25% (1)
Had knowledge of AAC from having another child who used AAC	0%
Had knowledge of AAC from Internet communities such as Facebook groups	25% (1)
Had knowledge of AAC from previous professional experiences	
Other	

Table A31. *Caregivers: Topics Familiar with Before Child was Introduced to AAC*

Topics	**Caregivers (n=4)**
Definition of AAC	25% (1)
Myths about AAC	25% (1)
How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)	0% (1)
How to use AAC as a caregiver to demonstrate how to use it to your child	25% (1)
How to encourage the child's AAC use outside of therapy	25% (1)

Table A32. *Caregivers: Topics Addressed in AAC Education and Training*

Topics	**Caregivers (n=4)**
Definition of AAC	100% (4)
Myths about AAC	75% (3)
How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)	50% (2)
How to use AAC as a caregiver to demonstrate how to use it to your child	75% (3)
How to encourage the child's AAC use outside of therapy	75% (3)
Other	0%

Table A33. *Caregivers: Methods Used in AAC Educating and Training*

Methods	**Caregivers (n=4)**
Hearing verbal explanations when the therapist is working with your child	100% (4)
Participating in using AAC during therapy while getting feedback from the therapist	50% (2)
Getting printed handouts about AAC	50% (2)
Watching videos about AAC	75% (3)
Attending trainings from AAC companies	25% (1)
Other	0%

Table A34. *Caregivers: Frequency of AAC Education and Training*

Frequency	**Caregivers (n=5)**
Regular, designated times for learning about AAC each session	20% (1)
As-needed sessions for learning about AAC	80% (4)
One session focused on educating and training the caregiver on AAC/One session focused on learning about AAC	40% (2)
Other	0%

Table A35. *Caregivers: Importance of Topics in AAC Education and Training*

Topics	**Caregivers (n=5)**	**Caregivers (n=5)**	**Caregivers (n=5)**
	Not at all important	Slightly important	Very important
Definition of AAC	0% (0)	20% (1)	80% (4)
Myths about AAC	40% (2)	20% (1)	40% (2)
How to physically operate the type of AAC (such as how to move to different pages in PODD, operate a tablet/iPad, etc.)	0% (0)	0% (0)	100% (5)
How to use AAC as a caregiver to demonstrate how to use it to the child	0% (0)	0% (0)	100% (5)
How to encourage the child's AAC use outside of therapy	0% (0)	0% (0)	100% (5)

Table A36. *Helpfulness of Methods Used in AAC Education and Training*

Methods	**Caregivers (n=5)**	**Caregivers (n=5)**	**Caregivers (N=5)**
	Not at all helpful	Slightly helpful	Very helpful
Hearing verbal explanations when the therapist is working with your child	0% (0)	0% (0)	100% (5)
Participating in using AAC during therapy while getting feedback from the therapist	0% (0)	0% (0)	100% (5)
Printed handouts about AAC	0% (0)	0% (0)	100% (5)
Watching videos about AAC	0% (0)	20% (1)	80% (4)
Trainings from AAC companies	0% (0)	60% (3)	40% (2)

Table A37. *Most Useful for Caregiver AAC Education and Training*

Response
The most useful thing was learning how to customize the app withr phrases specifically for my daughter
Just giving her a method of communication
Thats it’s great therapy to helps communication
I’m a visual learner so seeing them use the device with my child and how she uses it is the most helpful

Table A38. *Changes for Caregiver AAC Education and Training*

Response
Learning about it sooner
There shouldn’t be myths about it delaying speech. It enables communication, speech comes too.
That as a parent I could be trained
Nothing everyone was very helpful

Table A39. *Additional Caregiver Comments*

Response
AAC has opened up the lines of communication and has even helped with my daughter making vocalizations.
Nothing
No

APPENDIX D - IRB Approval Letter

**Office *of*
Research Integrity**

THE UNIVERSITY OF SOUTHERN MISSISSIPPI.

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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident submission on InfoEd IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER:	22-1070
PROJECT TITLE:	Caregiver Augmentative and Alternative Communication (AAC) Education and Training: A Survey of Caregiver and Speech-Language Pathologist Perspectives
SCHOOL/PROGRAM	Speech & Hearing Sciences
RESEARCHERS:	PI: Michelle Hasenkampf Investigators: Hasenkampf, Michelle~Mathews, Laura~
IRB COMMITTEE ACTION:	Approved
CATEGORY:	Expedited Category
PERIOD OF APPROVAL:	22-Sep-2022 to 21-Sep-2023

Michael Madson, Ph.D.
Institutional Review Board Vice Chairperson"

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