

TUTORIAL AND SYNTHESIS ARTICLE

Personnel Roles in the AAC Assessment Process

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Abstract

Completing an augmentative and alternative communication (AAC) assessment is a complex process that involves many stakeholders and professionals. To help clarify professional roles and provide assessment guidelines, an AAC Assessment Personnel Framework was developed. This framework was adapted from the work of Beukelman, Ball, and Fager in 2008, which focused on general AAC needs (not just assessment) and concentrated specifically on adults. In contrast, the present model examines the assessment process for all individuals who require AAC. The following AAC assessment personnel are discussed: AAC finders, general practice SLPs, AAC clinical specialists, facilitators and communication partners, collaborating professionals, AAC research and policy specialists, manufacturers and vendors, funding agencies and personnel, and AAC/assistive technology agencies and personnel. Current barriers for successful assessment outcomes are discussed, and suggestions for addressing personnel-related barriers are explored.

Keywords: *Assessment, Augmentative and alternative communication (AAC), Evaluation, Funding*

Introduction

Augmentative and alternative communication (AAC) is a relatively new area of clinical practice that has undergone explosive changes in the past three decades. Clinicians and researchers have witnessed dramatic changes in clientele, technologies, stakeholder roles, funding, and service-delivery procedures. Professionals involved in assessments can attest to the complexity of conducting an AAC evaluation. These assessments typically involve many different individuals with varying levels of expertise whose roles in the assessment process may be unclear. In addition, issues such as those related to equipment and funding can add layers of complexity to the process.

This article originated with the authors' personal frustrations associated with the lack of role clarity. We have witnessed first-hand how failures to clearly define assessment roles often can result in compromised AAC outcomes such as device abandonment, which often occurs because a device is too difficult to use or because of a lack of motivation to use it (Johnson, Inglebret, Jones, & Ray, 2006). In both cases, the problem often can be traced back to a failure to include in the assessment process AAC clinical experts who are able to

incorporate critical feedback from clients, facilitators, and communication partners.

The purpose of this manuscript, then, is to present an AAC Assessment Personnel Framework to help clarify professional roles and provide initial guidelines and suggestions for resolving complex assessment issues. A foundational framework may provide structure to the intervention and research processes within a rapidly changing landscape. A framework that is grounded in well-defined roles can assist clinicians with many aspects of AAC assessment by identifying key AAC assessment personnel, assigning AAC assessment personnel roles, identifying evidence-based practices (EBP), and establishing theoretical foundations for conducting AAC assessments.

Identifying Key AAC Assessment Personnel

A range of individuals may be involved in an AAC assessment, and key contributors may be overlooked. Furthermore, service delivery models may differ across sites (e.g., schools vs. hospitals), adding potential complications. Nonetheless, key personnel involved in the assessment process remain relatively constant. Identifying

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who needs to be involved and precisely what each person's role is during the assessment process is an essential first step toward achieving a successful AAC assessment outcome; a deliberate approach will help avoid inadvertent omissions of key contributors who can inform and facilitate the AAC assessment process at various stages.

Assigning AAC Assessment Personnel Roles

Determining the roles of each team member can have an impact on the success of any AAC assessment, the success of which depends on collaborations that necessitate interdependence across team members. Having clearly defined roles helps team members understand that responsibilities do not, and cannot, fall to a single person, and provides a basis for establishing appropriate expectations of each individual involved. Furthermore, ensuring that team members assume roles for which they are best suited, based on individual skills, interests, and expertise, can maximize effectiveness. Determining roles also will help the AAC team identify gaps that may exist, so that the team may build necessary capacity to meet the client's complex communication needs.

In addition, knowing who the appropriate people are to fulfill each role can assist with questions regarding "role release" that may occur within professional settings. In their position statement on multiskilled personnel, the American Speech-Language-Hearing Association stated:

... multiskilling is not a unidimensional concept and... cannot be evenly applied across the diverse clinical workforce. Specifically, cross-training of clinical skills is not appropriate at the professional level of practice (i.e., audiologists or speech-language pathologists) (American Speech-Language-Hearing Association, 1997).

In an example of the application of this policy, the Oregon Early Intervention and Early Childhood Special Education Program stated that, "Role release of clinical skills requires a great deal of professional judgment. The responsibility for evaluation, treatment recommendation and supervision of interventions may not be released to another person" (Bowser & Roberts, 2003, p. 1). Accordingly, possessing documentation of who precisely is responsible for various aspects of AAC assessment should assist stakeholders such as school districts in making specific role release decisions.

Identifying Evidence-Based Practices (EBP)

An effective AAC assessment personnel framework also will guide EBP for clinicians, instructors, and researchers. For clinicians directly involved in assessment, practical application of EBP involves identifying appropriate clients and assisting them to obtain the most relevant, effective, and efficient services to meet their needs (e.g., Schlosser & Raghavendra, 2004). An AAC assessment framework provides a means for AAC teams to engage in frank examinations of how

EBP is being implemented. Clarifying personnel roles is particularly timely, given recent changes in the AAC landscape due to the widespread availability of relatively inexpensive AAC technologies. For example, many families and school districts are purchasing iDevices (manufactured by Apple Inc.¹) and other similar devices, with the expectation that they can be used by individuals who need AAC before (or even without) the completion of a thorough AAC assessment – an approach that is in direct opposition to evidence-based practices (AAC-RERC, 2011). It is our hope that clarifying the roles of various AAC stakeholders will assist with efforts to promote clearly defined EBP when finding appropriate communication solutions for our clients.

Furthermore, for those involved in pre-professional and in-service training, an assessment framework provides a means to focus instruction. Instructors may tailor materials and training to individuals assuming specific roles in the assessment process, for example, teaching general practice clinicians about AAC assessment will likely involve different methods and content than those used by AAC clinical specialists. Finally, an AAC assessment framework will assist researchers with identifying trends that are strongly supported by evidence as well as areas in need of future research.

Establishing Theoretical Foundations for Conducting AAC Assessments

Expanding on contributions to EBP, an AAC assessment framework can assist in providing theoretical foundations for AAC assessment research. Although the proposed framework is primarily clinically driven, it also is relevant to any AAC assessment theoretical construct. We view this framework as an initial step toward breaking down the AAC assessment process so we may begin to use it to systematically research individual components. For example, a project recently completed by Dietz and colleagues (Dietz, Quach, Lund, & McKelvey, 2012) is a systematic effort to explore one aspect of the AAC assessment process – namely, how varying levels of clinical expertise impact the planning and implementation of an assessment. Additional research investigating the contributions of other personnel outlined in the sections to follow, including those with direct and indirect contributions, may provide insights and assistance in streamlining the AAC assessment process.

Throughout the remainder of this manuscript, a range of issues relating to the proposed AAC Assessment Personnel Framework is discussed. First, we review the personnel framework developed by Beukelman et al. (2008) and discuss the adaptations to this original work. Then we discuss stages of AAC assessment and describe a range of AAC assessment personnel roles and delineate common barriers that may negatively impact the AAC assessment process within each role. Finally, we offer guidelines for potential solutions.

Adapting the AAC Personnel Framework

Beukelman et al. (2008) originally proposed an AAC Personnel Framework that was developed specifically for adults with acquired medical conditions who needed AAC. This framework has direct relevance to general AAC issues and therefore served as a foundation for the proposed AAC Assessment Personnel Framework. Our own framework differs from Beukelman et al.'s in two main respects: First, the intent is to examine personnel roles encompassing the broader AAC spectrum instead of maintaining a narrow focus on adults with acquired disorders. Second, the current framework focuses exclusively on personnel issues as they relate to the complexities of the AAC assessment process; in contrast, the original model applied to the entire service delivery process. Where possible, we attempted to maintain consistency with the terminology proposed in Beukelman et al.'s original work. However, we found it necessary to change several terms in order to clarify particular personnel roles (e.g., *AAC experts* has been renamed *AAC research/policy specialists*). In addition, we also have added to the original list of personnel to better encompass the breadth of the AAC assessment process (e.g., *AAC manufacturers*, *AAC funding agencies*).

AAC Assessment Steps

The AAC assessment process typically involves multiple stages, and different people may be involved at different points in the process (see Table I). Despite the diverse and complex nature of AAC assessment, these steps are fairly predictable, regardless of the age or disability

of the person being evaluated. It should be noted that some steps might overlap in time.

- Step 1: Referral. The person is identified as someone who might benefit from AAC.
- Step 2: Case history. Relevant case information is gathered to prepare for the assessment, identify current communication status, and identify communication needs.
- Step 3: Diagnostic questions. The goals of AAC assessment are determined (e.g., might this person benefit from AAC? Which AAC options may be feasible/ruled out?)
- Step 4: Evaluation procedures. Based on information provided and observed, initial evaluation procedures are developed (e.g., determine AAC options to explore, devise testing procedures, prepare administration guidelines). The potential to benefit from a range of AAC options is explored using various clinical methods.
- Step 5: Identify and recommend AAC interventions. Individualized AAC strategies, techniques, devices and interventions are identified and recommended.
- Step 6: Secure funding. Clinical reports and additional paperwork are submitted as required by funding agencies to secure funding for equipment and interventions.
- Step 7: Repeat Steps 2–6 as needed. As needs arise, abilities change, preferences and circumstances indicate, AAC assessment may be repeated in whole or part.

Table I. AAC Assessment Personnel: Stages of Involvement and Primary Roles.

Personnel role	Stages	Primary roles
AAC finder	Referral, case history	Identify potential AAC beneficiaries, refer for AAC assessment
General practice SLP	Referral, case history, diagnostic questions, evaluation, identify and recommend AAC options, funding	Case management, speech-language evaluation, facilitate AAC decision-making, support funding documentation, AAC clinical implementation, AAC troubleshooting
AAC clinical specialist	Case history, diagnostic questions, evaluation, Identify and recommend AAC options, funding	AAC evaluation, AAC device/strategy selection, Complete funding reports, AAC technical support, AAC clinical implementation, AAC troubleshooting
AAC facilitator, communication partner	Referral, case history, diagnostic questions, evaluation	Advocate for beneficiary, facilitate AAC evaluation and decision making, facilitate funding, service coordination, AAC support across transitions, Primary communication partner, AAC technical support and trouble shooting
Collaborating professional	Referral, case history, diagnostic questions, evaluation	OT/PT/vision/hearing evaluation, facilitate AAC decision-making, support funding documentation, AAC clinical/educational implementation, AAC troubleshooting
AAC research/policy specialist	External to evaluation process	Develop evidence base to support AAC assessment and interventions
AAC manufacturer/ vendor	Identify AAC options, funding	Facilitate evaluation process, Provide equipment loan, rentals for AAC evaluation trials, Acquire funding from documentation provided, interact with funding agencies, provide AAC equipment, accessories
AAC funding agency/funding personnel	Funding	Benefits qualification determination, provide benefits based on beneficiary individual policy, provide benefits based on agency policy
AAC technology training agency personnel	Evaluation, identify & recommend AAC options	Provide equipment loans for AAC evaluations and trials, facilitate AAC evaluations, support AAC evaluations, provide AAC training, technical support

AAC Assessment Personnel Roles

In an effort to incorporate all potential stakeholders involved in the assessment stages, the AAC Assessment Personnel Framework incorporates nine roles: (a) AAC finder, (b) general practice SLP, (c) AAC clinical specialist, (d) AAC facilitator and communication partner, (e) AAC research/policy specialist, (f) collaborating professional, (g) AAC manufacturer/vendor, (h) AAC funding agency/personnel, and (i) AAC/assistive technology agency and personnel. In addition to defining each role, we discuss associated knowledge and skill requirements for effective performance for each role. Figure 1 depicts a model of the AAC Assessment Personnel Framework, indicating how various personnel may contribute to the assessment process.

AAC Finder

The primary and essential roles of the AAC finder are to identify individuals who might benefit from AAC and make referrals to professionals with AAC assessment expertise. AAC finders may include an array of individuals, including the person with complex communication needs, family members, friends or peers, medical personnel, and educational personnel. Finders, particularly medical and educational staff, may benefit from instruction in locating appropriate AAC assessment professionals and completing referral procedures (Beukelman et al., 2008). In addition, these individuals may benefit from instruction regarding the specific nature of AAC and how AAC intervention may improve an individual's communication and participation patterns. Such instruction frequently is not part of typical AAC finder's pre- or post-professional training (e.g., MDs, nurses, educators), so that potential finders may be aware of an individual's communication disability but may not know if he or she might benefit from AAC either currently or at some time in the future (e.g., degenerative disorders).

Beukelman and colleagues (2008) noted that, "the importance of well-prepared finders cannot be underestimated..." (p. 256). In one study (Nordness, Ball, Fager, Beukelman, & Pattee, 2010), late referrals by AAC finders was cited as a problem in 93% of cases of adults with amyotrophic lateral sclerosis who were eventually referred for AAC assessment. Hustad, Keppner, Schanz, and Berg (2008) noted similar difficulties in a review of clinical records of children with cerebral palsy. There is a pressing need for methods that will provide effective and efficient instruction to potential AAC finders and to explore effective dissemination of such training. An AAC screening instrument may increase finder awareness and facilitate referrals of persons with complex communication needs for assessment (e.g., a medical personnel AAC screener, classroom teacher checklist).

General Practice Speech-Language Pathologists (SLPs)

General practice SLPs (termed *clinicians in general practice* in Beukelman et al., 2008) provide a range of clinical services but do not specialize in AAC service provision. These professionals provide direct speech-language services and include SLPs who, working in schools, hospitals, private practices, and long-term care facilities, often serve as primary SLPs for individuals who use AAC. Currently, it is common for general practice SLPs to serve as AAC finders, referring persons with complex communication needs to AAC clinical specialists for assessments. Unfortunately, another clinical practice that the authors have personally witnessed is general practice SLPs asking AAC vendors to complete these comprehensive assessments, rather than enlisting AAC clinical specialists or conducting the assessment themselves. In our experience, this tends to occur more frequently in rural areas, where AAC clinical specialists are scarce. This issue is discussed further in the upcoming section on AAC manufacturer/vendors section. However, recent data



Figure 1. AAC Assessment Personnel Funnel.

indicate that, in many cases, general practice SLPs may assist with or independently conduct components of the AAC assessment and may be involved in securing funding for SGDs, depending on available assistance (Dietz et al., 2012).

Although general practice SLPs frequently refer people with complex communication needs to AAC clinical specialists for assessment when available, ideally, more general practice SLPs would be able to conduct AAC assessments without assistance. In many regions, AAC clinical specialists are not readily accessible, if at all. Furthermore, general practice SLPs typically are responsible for providing and supervising AAC interventions; being highly invested in the assessment process assists in the understanding of a client's AAC capabilities and communication needs. Thus, building capacity for general practice SLPs to conduct AAC assessments is an important goal for improving the AAC assessment process.

In order for general practice SLPs to meet this goal, they must have appropriate knowledge and skills. Research suggests some progress in this regard. For example, recent data indicate that approximately three-quarters of graduating SLP students receive one full course in AAC as part of their master's degree programs (Ratcliff, Koul, & Lloyd, 2008). However, some reports indicate that some general practice SLPs are not confident in their ability to conduct AAC assessments, even if they have completed a course in AAC (e.g., Kent-Walsh, Stark, & Binger, 2008; Marvin, Montano, Fusco, & Gould, 2003). Nonetheless, a significant number of AAC team members – including general practice SLPs as well as physical therapists, occupational therapists, and special educators – have relatively high levels of AAC self-efficacy; that is, they have at least some confidence in their ability to develop the AAC competencies they need to work with their clients (Beukelman, Hanson, Hiatt, Fager, & Bilyeu, 2005), although it should be noted that AAC self-efficacy ratings are somewhat lower for these generalists compared with AAC specialists (Burke, Beukelman, Ball, & Horn, 2002). Given that self-efficacy is considered a strong predictor of learning and achievement (Bandura, 1986), perhaps part of the solution is to ensure that students completing pre-professional AAC coursework receive the training they need to feel confident about their ability to acquire and utilize AAC knowledge and skills as the need arises throughout their professional careers.

Another way to build the capacity for general practice SLPs to conduct AAC assessments is to ensure that user-friendly AAC screening and assessment protocols are available. Although certain components of a given AAC assessment will be necessarily individualized and will require skills and equipment not readily available to the general practice SLP, many tasks are general and require few technological tools. One example, the Test of Aided-Communication Symbol Performance (Bruno, 2003), is a paper-based tool designed to assist with AAC symbol assessment that addresses issues related to size, number, and abstractness of various graphic symbols. Similarly, certain speech-generating devices (SGDs) are

pre-programmed with assessment software designed to help general practice SLPs examine aspects of a person's ability to learn and navigate a dynamic display. The Multimodal Communication Screening Task for People with Aphasia (Lasker & Garrett, 2006) is a screening tool that uses a series of real-life communication tasks to help general practice SLPs evaluate the ability of clients with aphasia to learn and utilize AAC strategies. Although these examples illustrate a positive shift in the tools available for AAC assessment, there remains a great need for more tools that have undergone rigorous validity and reliability testing (Lasker, Garrett, & Cave, 2010).

The development of clinical-decision support systems (CDSS), which are now widely used in the medical community (e.g., Kawamoto, Houlihan, Balas, & Lobach, 2005), is another avenue that holds promise for empowering general practice SLPs. CDSS utilizes computerized software programs to guide diagnoses and to analyze individual client data. Developing valid, reliable CDSS tools to assist with AAC assessment might make the process more manageable for general practice SLPs. For example, CDSS tools of the future might ask a series of questions that ultimately result in AAC recommendations for individual clients. One resource that employs this type of approach is the AAC Device Assistant (AAC TechConnect, 2012), a software program that asks a series of feature-matching questions and ultimately yields AAC technology recommendations. As with the development of standardized testing, the creation of valid and reliable CDSS tools will require significant funding and an inter-disciplinary approach that includes both researchers and clinicians. However, given issues inherent in pre-professional training of SLPs (i.e., limited time to focus on specialty areas such as AAC), the limited availability of AAC clinical specialists in many areas, the clinical realities of high caseloads (American Speech-Language-Hearing Association, 2002), and the diverse nature of AAC populations, the development of tools that will help general practice SLPs complete assessments should be a high priority for the AAC community. Such tools could have a profound positive influence on the development of AAC assessment methodology, potentially enabling far more general practice SLPs to conduct their own assessments with confidence.

AAC Clinical Specialist

The primary responsibility of the AAC clinical specialist in the assessment process is to lead the AAC team in conducting AAC assessments. These professionals typically are SLPs who have particular expertise in AAC, are skilled at conducting AAC assessments, and take a leading role in securing funding for SGDs. Referred to as *AAC Intervention Specialists* by Beukelman et al. (2008), they typically spend at least 50% of their working day on AAC-related activities. Compared with general practice SLPs, specialists obtain more ongoing AAC professional training and rely on AAC research

and policy for information on new developments. In addition, they frequently provide assessment follow-up services to support AAC intervention and often conduct assessments for individuals who are not included in their daily caseloads. In such situations, they consult with the general practice SLPs to gather pertinent information, plan, and complete the assessment.

AAC clinical specialists must have both general practice-SLP and AAC-specific skills. These specialists support general practice SLPs and other personnel involved in the AAC assessment process. In conducting assessments, they employ various assessment strategies such as feature matching (Glennen & DeCoste, 1997) and the participation model (Beukelman & Mirenda, 2005). Knowledge about available unaided and aided (i.e., no-, low-, high-tech) AAC options is essential (Binger & Kent-Walsh, 2009).

A recent qualitative study revealed key differences in how general practice SLPs and AAC clinical specialists (as well as AAC research/policy specialists) make AAC assessment decisions (Dietz et al., 2012). The general practice SLPs tended to use a relatively simplistic, linear, two-step process by completing formal or standardized procedures and symbol matching or identification procedures. Although the AAC clinical specialists also conducted formal/standardized assessments, they typically collected this information prior to the actual AAC assessment. In addition, the clinical specialists (as well as research/policy specialists) used a highly personalized assessment process that was holistic in nature, with the entry point for assessment varying depending on the needs of each client. The data that emerged revealed an assessment process that included the following components: incorporation of multiple modalities, evaluation of a variety of symbol systems, consideration of alternative access, completion of a formal AAC assessment using scenarios (e.g., simulations of real life situations), completion of device trials, and provision of AAC instruction. These findings may assist with the development of assessment decision-making protocols that help refine the AAC assessment process and ultimately lead to the development of assessment tools (such as CDSS tools) that can be used by more general practice SLPs and other AAC team members and may also assist in preparing more SLPs to becoming specialists.

In the USA, the structure of AAC teams that include specialists differs depending on both work setting and geographical location. For example, in public schools, AAC service delivery can vary dramatically not only from state to state but also across and even within individual school districts. In some cases, statewide efforts have been made to use consistent processes for assessing students for AAC and other assistive technology (AT) needs (e.g., Georgia Project for Assistive Technology, 2012; Wisconsin Assistive Technology Initiative, 2012). On the other end of the spectrum, in some areas there have been no centralized efforts to establish AT/AAC teams, whose development depends solely on the efforts of individual AAC clinical specialists and other

motivated educators. In some western states in the U.S., for example, some school districts have well established AT teams and others have none at all (C. Binger, personal communication, June 2, 2012). The authors' clinical experience suggests that rural areas tend to be the least likely to have high quality AT/AAC teams in place. Ongoing efforts to ensure high quality AAC services across work settings and geographical areas are essential to improving AAC services in the USA, and highly trained AAC clinical specialists are an essential part of these efforts.

AAC Facilitator and Communication Partner

AAC facilitators and communication partners also contribute significantly to the AAC assessment process. Although the nature of these two roles differs somewhat, facilitators and communication partners often serve dual and overlapping roles; therefore, we discuss them together.

Broadly speaking, the role of the facilitator is to assist with the client's day-to-day AAC needs, which may include AAC device maintenance (e.g., charging and programming), interacting with manufacturers, and providing instruction for communication partners (Beukelman, Yorkston, & Garrett, 2007). AAC facilitators may include family members, friends, general practice SLPs, AAC clinical specialists, agency personnel (e.g., social workers), and others. Communication partners typically have relationships with clients using AAC that are either social (e.g., family members, friends) or educational or caring in nature (e.g., teachers, personal care attendants; Kent-Walsh & McNaughton, 2005). These individuals "assist in the communication exchange at a level that is typically not expected of a less involved listener...work[ing] together to co-construct messages and resolve communication breakdowns" (Beukelman et al., 2007, p. 2). It is common for family members to serve as both facilitators and communication partners, and they should be highly involved in the assessment process. When possible, the client also may serve as his or her own facilitator. At a minimum, the assessment process should systematically assess the client's preferences (van der Meer, Sigafos, O'Reilly, & Lancioni, 2011).

During the assessment process, the facilitator's primary roles are to advocate for the person who communicates with AAC and assist in AAC service coordination; these roles require a broad knowledge of professional services and their local availability as well as an understanding of various referral processes. In addition, both facilitators and communication partners typically provide case history information, including information about the person's daily communication needs and personal preferences, and also are involved in ongoing AAC interventions. Frequently, facilitators and communication partners assume these roles because of the nature of their relationship with the person using AAC, not because they possess a particular educational background or area of expertise (Beukelman et al., 2008).

Given the nature of their involvement, it is not surprising that these individuals play a key role in the

attainment of successful AAC outcomes. Research has shown that consistent, ongoing facilitator and communication partner support is critical to AAC success: When these supports are in place (and are combined with supports from professionals and appropriate AAC solutions), positive AAC outcomes are possible, and when they are not, high rates of AAC rejection have been documented (e.g., Fager, Hux, Beukelman, & Karantounis, 2006; Johnson et al., 2006; Lund & Light, 2007). Ensuring that facilitators have a significant role in the selection of AAC solutions during the assessment process is one strategy to help increase AAC acceptance. Essentially, such an approach requires that AAC clinical specialists and other professionals use a collaborative decision-making process when selecting AAC solutions (Ball, Beukelman, & Pattee, 2004).

Collaborating Professional

A wide range of professionals, including clinical, educational, and medical personnel, may contribute key information to the assessment process (Beukelman & Mirenda, 2005). Occupational therapists (OTs) and physical therapists (PTs) are two of the most common collaborators, assisting with seating, positioning, and device access issues. Vision specialists and audiologists provide critical sensory information. In medical settings, various medical personnel, including physicians, nurses, nursing assistants, and respiratory therapists, provide client information that impacts AAC decision-making, just as various educational professionals (general education teachers, special education teachers, teaching assistants, etc.) do within educational settings. Although the extent of these collaborations varies dramatically across clients, virtually every AAC assessment is enhanced by input from at least one collaborating professional.

AAC-specific knowledge and skills vary widely across these professionals. In some cases, OTs and PTs may serve on assistive technology teams and possess significant AAC expertise, particularly regarding device access issues. In other cases, collaborators may have little to no AAC experience, and the AAC clinical expert and general practice SLP must work closely with and even guide collaborators to maximize assessment effectiveness. For example, the SLP may need to consult with the vision specialist to ensure adequate assessment of the client's perceptions of color contrasts and to determine ideal distance between the client and an AAC device. Similarly, SLPs must work closely with educators to adequately assess the communication demands faced throughout a student's school day.

AAC Research/ Policy Specialist

AAC researchers and policy specialists (referred to as "AAC experts" in Beukelman et al., 2008) play multiple – although frequently indirect – roles in any given AAC assessment. These individuals include university professors, consultants, researchers, technology developers, policy makers (e.g., special education directors),

and administrators in specialized service programs (e.g., directors of local assistive technology libraries; Beukelman et al., 2008). Sometimes, AAC clinical specialists also fill the role of policy specialists, lobbying for changes in AAC services at local, state, and national levels. Researchers and policy specialists engage in a variety of roles that impact the AAC assessment process, including (a) preparing general practice SLPs and AAC clinical specialists to conduct AAC assessments (including pre- and post-professional training), (b) providing continuing education for all AAC assessment personnel, (c) contributing to the AAC assessment knowledge base by conducting and disseminating research, (d) contributing to AAC assessment clinical practice by creating AAC assessment materials, (e) providing consulting services during AAC assessments, (f) developing AAC assessment policies and procedures at the local, state, and national levels, and (g) providing expert legal testimony. These individuals may prepare themselves for their roles as AAC research and policy specialists through both formal instruction (e.g., obtaining a PhD) and informal on-the-job experiences (e.g., learning how to lobby for state funding).

Part of the job of the AAC research/policy specialist is to find ways to help streamline the AAC assessment process. Although assessments developed by AAC research specialists that are widely used by clinicians – for example, the Participation Model (Beukelman & Mirenda, 2005) and Feature Matching model (Glennen & DeCoste, 1997) – the assessment process itself continues to be cumbersome and non-intuitive for the majority of general practice SLPs and other AAC assessment personnel. Continuing to develop frameworks and models (such as that presented in the current article) that reflect constraints on current practices while still striving to improve research and practice is essential for moving the AAC assessment process forward.

As in any clinical profession, the job of the AAC policy specialist is complex and impacted by factors that may not be under the control of assessment personnel. For example, AAC professionals do have control over the AAC evidence base: When AAC researchers build a strong evidence-base, AAC policy specialists are armed with empirical evidence that supports their cause. However, AAC policy makers may, at times, lack significant influence over local, state, federal, and global political and economic factors. Depending on the current political and economic tides, these factors may have a positive or negative impact on AAC policies. The World Health Organization's International Classification of Function, Disability, and Health (ICF) made a critical contribution to researchers and policy specialists in 2001 by declaring that the experience of disability is a universal human experience and takes into account all aspects of disability, including social aspects (World Health Organization, 2001). This classification system, which was endorsed by all 191 World Health Organization Member States, is now commonly accepted as a guideline in developing research and policy addressing

disability. The application of the ICF with AAC populations was the topic of a recent issue of the *AAC* journal (Fried-Oken & Granlund, 2012).

AAC Manufacturer/Vendor

AAC manufacturers and vendors provide assessment support for the primary clinicians who are in charge of the assessment – namely, general practice SLPs and AAC clinical specialists. Once the primary AAC personnel decide that SGD options may be appropriate for a given client, these clinicians should, ideally, create a list of SGDs that may be appropriate choices. AAC vendors can then provide an important service by loaning SGDs for assessments. Additionally, SGD representatives may be present for part of an AAC assessment to assist with proprietary SGD trials or software components; their expertise with the SGDs that they sell can be an invaluable contribution to the assessment process. In many cases, then, the AAC assessment process is enhanced by AAC manufacturer/vendors who understand and clearly convey the key features of their proprietary SGDs and why these may be suitable – or, equally importantly, *not* suitable – for a given client.

It is not uncommon for vendors to serve as the first point of contact for AAC finders or to serve as finders themselves. In these cases, AAC vendors are responsible for contacting a local AAC clinical specialist or the person's general practice SLP so that an AAC assessment can be scheduled. When a completed assessment generates a recommendation for an SGD, it may be appropriate for the vendor to support the person using AAC and other AAC team members during AAC assessment follow-up and intervention.

At times, AAC vendors may be asked to take on inappropriate AAC assessment roles – a pressing concern that many vendors have shared with the authors (multiple anonymous personal communications). These situations primarily arise when AAC clinical specialists or general practice SLPs with the knowledge and skills needed to conduct AAC assessments are unavailable. Although it is appropriate and helpful for AAC vendors to assist general practice SLPs and AAC clinical specialists with building technical expertise, it is not appropriate for them to take on primary assessment roles; in all cases, it is the responsibility of the AAC clinical specialist or general practice SLP to lead the assessment process. For example, it is inappropriate for AAC vendors to be asked to take the primary role in conducting AAC assessments or to write assessment reports that result in securing funds for their own manufacturer's SGDs; such practices present a clear conflict of interest and endanger the SGD funding. When such circumstances arise, it is critical for the AAC vendor to assist the AAC finder in locating appropriate personnel to complete the assessment, even if it means the assessment cannot take place locally. We do recognize (and have personally experienced) that in many geographical areas, this can be a significant challenge. One long-term solution

to this problem is to build capacity for far more general practice SLPs to conduct AAC assessments. In the meantime, there is an urgent need to provide information to all AAC personnel regarding the AAC assessment process and to work at arriving at a consensus for AAC assessment procedures.

AAC manufacturers and vendors also provide less direct but equally important supports to the assessment process through their work with AAC research specialists. These supports include (a) donating or loaning SGDs to AAC research and policy specialists to assist with the completion of research projects, (b) gathering AAC researchers to discuss aspects of assessment-related technologies, such as research and development, funding policy development, and revising/updating SGD assessment features, and (c) providing instruction for pre-professional AAC students with AAC technologies. AAC manufacturers and vendors, then, have multiple critical roles to play in ensuring positive outcomes for clients who use AAC.

AAC Funding Agency/Personnel

Funding for SGDs comes from a variety of sources, including private insurance agencies, Medicare, Medicaid (in the USA), vocational rehabilitation agencies, and private non-profit associations (e.g., ALS association grants). The role of these funding agencies in the AAC assessment process is relatively straightforward: to provide relevant funding for SGDs and follow-up services based on recommendations from the AAC assessment team. To fulfill this role, personnel making funding decisions must have an understanding of (a) SGDs in general, (b) how SGDs contribute to an individual's quality of life, and (c) how to interpret appropriate AAC assessment methodologies and recommendations.

Navigating funding systems can be confusing for both general practice SLPs who are new to AAC assessments as well as seasoned AAC clinical specialists. Fortunately, in recent years efforts have been made to streamline the process. For example, in the USA, both the AAC Rehabilitation Engineering Research Center (AAC-RERC, 2012) and the Assistive Technology Law Center (2012) provide funding information on their websites. In addition, many AAC manufacturers provide significant funding assistance. These efforts have done much to help secure funding, and it is important that the AAC community continues to support them.

Thanks to the concerted advocacy efforts of many AAC research and policy specialists, many funding agencies in the USA (e.g., Medicare, Medicaid, Tricare, telecommunications equipment distribution programs) now support AAC technology funding for their beneficiaries (Assistive Technology Law Center, 2012). Once the Medicare system began covering the purchase of SGDs, many private health insurance companies followed suit; however, numerous funding agencies still fail to provide this coverage (Assistive Technology Law Center). In some cases, agencies require that their beneficiaries go

to extraordinary efforts to document their AAC need, refusing to accept the recommendations of the AAC assessment team. Although the strong advocacy of AAC policy specialists has resulted in decreasing numbers of these cases, funding issues in the USA – as well as in other countries – can still be problematic. There is a critical need for additional efficacy research to support individual communication needs and claims for AAC technology.

Another funding issue deals with the specific types of AAC technologies that insurance will cover. AAC funding agencies typically provide coverage for devices that solely generate speech and exclude devices that allow access to other computer functions, such as Internet access and commonly used communication software programs (e.g., word processing, presentation programs, email; AAC-RERC, 2012). Individuals who use AAC have the right to communicate in all of the same venues as their peers, which may include using software programs that allow a person to complete coursework, gather information on the internet, and connect to others via email, texting, video-calls (e.g., Skype^{TM2}), social networking websites (e.g., FacebookTM), and other venues. After all, in today's world, these functions are an everyday part of connecting and communicating with others. There is a need, then, for current funding practices to change in order to better reflect communication in today's technology-focused world.

AAC/Assistive Technology Agencies and Personnel

In the USA, many AAC technology and training agencies are supported by Public Law 108–364, which provides “financial assistance that supports programs designed to maximize the ability of individuals with disabilities... to obtain assistive technology [AT] devices and assistive technology services” (Assistive Technology Act of 2004, p. 1). These “tech act” agencies provide various types of AT services for individuals with disabilities, including aided AAC options, mobility devices, and environmental controls. Three common functions of these agencies relevant to the AAC assessment process are (a) to serve as AAC finders, as these agencies can be an initial point of contact for individuals with disabilities and their facilitators, (b) to provide AT demonstrations for individuals with disabilities and other individuals involved in the AAC assessment process, and (c) to provide free AT loans for device trials. With regard to demonstrations and loans, the availability and currency of SGDs varies across agencies; some agencies place a primary focus on AAC and use a significant amount of funding to invest in SGDs while others do not. When devices are available and agencies are geographically accessible, interested individuals can examine a range of AAC technologies and obtain technical assistance by attending device demonstrations. Also, SLPs can supplement AAC assessments with SGDs borrowed from these agencies. In some cases, agencies hire their own AAC clinical specialists and other AT staff members who can

conduct AAC assessments that are led by AAC clinical specialists. Finally, AAC technology personnel may assist individuals and facilitators with securing funding for devices and services.

To fulfill their AAC assessment roles, these agencies require funding for staffing and for purchasing AAC technologies. In recent years, funds at both the federal and state levels in the USA have been scarce; many agencies have sustained budget cuts that have had negatively impacted the services provided. Some agencies possess relatively few AAC technologies available for loans, and the technologies they do possess may be outdated. Agency personnel funds also have an impact on services. For example, the authors know of at least one state in the USA that has a single AT agency to provide services for the entire state, and despite concerted efforts, attempts to staff this agency with a single AAC clinical specialist were unsuccessful for many years. Securing such funding could have a broad impact on AAC services, as the specialist could help train general practice SLPs throughout the state in becoming clinical specialists. The lack of AT funding, which is all too common, obviously has a negative impact on AAC service delivery.

As with AAC policy specialists, then, some factors affecting AAC assessments are under the control of agency personnel while others are not. To achieve their goals and successfully contribute to the AAC assessment process, these agencies must consistently advocate and apply for funds, be staffed with professionals who possess grant-writing skills, adequately train staff to ensure they are providing the public with accurate information, and make appropriate referrals to AAC clinical specialists for full AAC assessments. Agencies that strive to meet these goals can make valuable contributions to the successful completion of AAC assessments.

Suggestions for Addressing Personnel-Related Barriers

Barriers occur at each level of the assessment process. One goal of the proposed AAC Assessment Personnel Framework is to clearly identify and begin to break down these existing barriers. Previously, we have made suggestions for addressing barriers as they applied to individual personnel roles. We will now summarize some of these suggestions and discuss barriers and possible solutions that cross personnel boundaries.

At present, knowledge and skill barriers exist for many, if not all, of the AAC personnel discussed above and depicted in Figure 1; many stakeholders are unprepared to fulfill their roles in the AAC assessment process. Little has been published to guide AAC finders and facilitators interested in improving skills. To overcome such barriers, continued efforts to improve service delivery for individuals across various geographical areas are needed. One starting point would be to devise a set of core guidelines and goals for training finders and facilitators. These guidelines should provide clear direction in essential finder activities, including identifying

individuals who might benefit from AAC and providing appropriate referrals. Such guidelines could be used by clinical specialists, AT agency staff, and other personnel to improve identification of individuals who use AAC and provide subsequent supports for facilitators. Along similar lines, it would be helpful to develop AAC screening tools that finders can use to assist with this role. We can foresee, for example, the development of a simple questionnaire for use by medical doctors and staff who are likely to serve as finders (such as neurologists) and another for use by educational staff.

The proposed framework also provides structure to develop evidence-based practice guidelines with streamlined, standardized assessment procedures. Three promising avenues to improve AAC knowledge and skills are distance education, telemedicine, and clinical decision support systems. Distance education has become much more accessible and can take different forms. For example, courses and workshops may be synchronous or asynchronous, universities and manufacturers may offer information via online formats or electronic modules, and AAC information webcasts are offered through organizations such as the American Speech-Language-Hearing Association (ASHA, www.asha.org) or the AAC-Rehabilitation Engineering Research Centre (AAC-RERC, aac-lerc.psu.edu). A growing number of universities offer distance graduate AAC courses for SLP students (Ratcliff et al., 2008). Telemedicine and videoconferencing are now used to provide many medical services (e.g., VA Polytrauma Centers; Jinks, Cornis-Pop, Caudill & Schein, 2010), and early studies show promise for use in AAC assessment and interventions (Styles, 2008). By implementing video teleconferencing, a general practice SLP and other AAC personnel may conduct a face-to-face assessment while the AAC clinical specialist simultaneously provides guidance from a distance. Finally, clinical decision support systems, as discussed in the general practice SLP section, can be developed to provide various assessment supports for clinicians, such as suggesting a range of SGDs that might be appropriate for a given client. In this manner, all related personnel might realize improved time management of AAC services. Indeed, implementing the AAC Assessment Personnel Framework may increase coordination by providing a means by which AAC personnel can clearly accept their roles with full knowledge of the implied requirements.

In contrast, poor coordination across the AAC personnel depicted in Figure 1 can lead to delays in the assessment process or to undesirable outcomes. An appropriately applied AAC Assessment Personnel Framework may assist SLPs (including clinical specialists and general practice SLPs) in distributing management responsibilities across key stakeholders, which may increase their interest and willingness to independently conduct AAC assessments or make appropriate referrals to AAC clinical specialists. The nature of collaborative teaming will, by necessity, vary across sites. For example, Calculator and Black (2009)

developed a set of evidence-based practices for providing AAC services in general education classrooms, including suggestions for the collaborative teaming requisite to providing such services. Beukelman et al. (2007) proposed the use of various AAC teaming models for adult populations that differ markedly from school-based models and which vary depending on the nature of the client's disorder, geographical considerations, and available medical practice options. Specifically, these authors indicate that AAC teams may be integrated within (a) regular practices, (b) specialty medical clinics/programs, (c) independent specialty centers, or (d) AAC service delivery networks. All approaches, regardless of the specific setting or teaming approach, share at least one common core feature: the inclusion of a range of individuals who have clearly defined roles within the assessment process.

In summary, completing AAC assessments is a complex process that involves many stakeholders and professionals. Our hope is that by clearly delineating the roles of various personnel and suggesting directions for growth and improvement in the assessment process, we are better able to move purposefully toward the ultimate goal, namely: providing individuals who have complex communication needs with AAC solutions that meet all of their communication needs.

Notes

1. iDefices are registered trademarks of Apple Inc., 1 Infinite Loop, Cupertino, CA 95014, 408.996.1010.
2. The Skype name, associated trademarks and logos, and the "S" logo are trademarks of Skype Communications SARL, 23–29 Rives de Clausen, L-2165 Luxembourg.

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