An Applied Model of Interprofessional Collaboration—Assessment (AMIC–A): A Process-Based Approach to Augmentative and Alternative Communication

Lilith M. Reuter-Yuill, Ph.D., CCC-SLP, BCBA-D, LBA,[1]
Lina M. Slim, Ph.D., CCC-SLP, BCBA-D,[2]
Tamara S. Kasper, M.S., CCC-SLP, BCBA, LBA,[3]
Leslie Castaño, M.A., CCC-SLP, BCBA,[4]
Nikia R. Dower, M.S., CCC-SLP, BCBA, LBA,[5] and
Cindy B. Gevarter, Ph.D., BCBA-D[6]

ABSTRACT

Speech-language pathologists and board-certified behavior analysts both provide important support services to children who are candidates for augmentative and alternative communication. Current assessment practices neglect critical socioecological factors that are necessary to inform communication-based interventions. By leveraging the unique knowledge, research, and expertise of both disciplines, an interprofessional approach to assessment may help realize individualized or precision interventions and personalized supports that address the unique communication needs of each person. The purpose of this article is to introduce a process-based approach to assessment called the "Applied Model of Interprofessional Collaboration—Assessment (AMIC–A)." The AMIC–A will be defined and detailed including the rationale for development, a description of the approach, and recommendations for implementation. A case study example is provided to illustrate implementation of the AMIC–A.

[1]Comprehensive Speech and Therapy Center, Jackson, Michigan; [2]Lina Slim Consulting, Miami, Florida; [3]Kasper Enterprises, LLC., Cedarburg, Wisconsin; [4]University of Nebraska Medical School, Munroe-Meyer Institute, Omaha, Nebraska; [5]Dower and Associates, Inc., Manassas, Virginia; [6]Department of Speech and Hearing Sciences, University of New Mexico, Albuquerque, New Mexico.

Address for correspondence: Lilith M. Reuter-Yuill, Ph.D., CCC-SLP, BCBA-D, LBA, Research Coordinator and Consultant, Comprehensive Speech and Therapy Center, Jackson, MI 49202 (e-mail: lilith@therapyjackson.com).

Interprofessional Collaboration: A Guide for What's Working to Support Coordination of Care; Guest Editor, Teresa Cardon, Ph.D., CCC-SLP, BCBA-D

Semin Speech Lang 2024;45:194–212.
DOI: https://doi.org/10.1055/s-0044-1787651.
ISSN 0734-0478.

KEYWORDS: augmentative and alternative communication, interprofessional collaboration, AAC assessment

Learning Outcomes: As a result of this activity, the reader will be able to:

- Describe two limitations of traditional assessment practices for clinicians who support individuals with communication needs.
- Explain the four steps of an Applied Model of Interprofessional Collaboration—Assessment (AMIC–A) and how it applies to identifying strengths at the level of the person, communication partner(s), communicative context (s), and ecological system.
- Discuss how the AMIC–A may help identify important socioecological factors to inform individualized intervention.

Clinicians serving individuals with communication support needs are well-acquainted with the practical challenges of achieving comprehensive assessment, crucial for tailoring personalized communication-based supports including augmentative and alternative communication (AAC). Communication assessment must, however, address the interrelationship between an individual and their environment. To illustrate, we can envision communication as a tapestry—a weave of complex, bidirectional interactions shaped over time by diverse factors inherent in the communication process. Much like a tapestry, communication intertwines a variety of personal, situational, and contextual factors into a cohesive image. To comprehend that image, clinicians must build an understanding of the evolving interconnectedness of these various elements which necessitates an assessment approach to capture these dynamic person–environment interactions and more fully inform intervention design.

The current state of assessment falls short in this regard, tending to emphasize diagnostic approaches that are often deficit-centered, focusing on a limited set of factors and neglecting nuanced bidirectional relationships and critical socioecological variables that drive the effective implementation of communication-based interventions (Light & McNaughton, 2015). For example, assessments that result in categorical medical diagnoses (e.g., F80.2 Mixed Expressive-Receptive Language Disorder, F84.0 Autistic Disorder) or educational classifications (e.g., speech or language impairment, specific learning disability, autism) provide broad descriptions of static characteristics or behavioral patterns commonly associated with a condition. While these labels may facilitate access to critical support services, they overlook essential details regarding a person's communication (i.e., skill strengths, abilities, and current repertoires) and typically fail to include relevant environmental information. Traditional assessment approaches overlook the full complexity of individual communication needs which can only be understood in the context and risk adopting an unnecessary overmedicalized and pathologized perspective for intervention.

Speech-language pathologists (SLPs) report dissatisfaction with the current inventory of available assessment instruments when working with nonspeaking early communicators[1] and experience barriers to implementing best practice recommendations such as assessment in naturalistic settings and in meaningful contexts (i.e., routine communications with familiar communication partners; Muller et al, 2020). Despite compelling evidence that environmental systems have a profound impact on an individual's communication (Olkin, 2022; Vidal et al., 2023), there remains a concerning lack of attention to variables beyond

[1]*For the purposes of this article, "early communicator" is intended to refer to the spectrum of individuals who are learning to communicate for the first time and considered candidates for AAC. Authors acknowledge other labels that are used in the extant literature including, but not limited to, individuals with complex communication needs, emergent communicators, and pre-symbolic communicators.*

the level of the individual. Clinicians that serve these individuals are in search of guidance to address the unique constellation of personal and contextual factors that influence individual communication. This article offers a path forward by introducing the Applied Model of Interprofessional Collaboration—Assessment (AMIC–A).

CORE CONCEPTS OF THE AMIC–A

AMIC–A is a process-based assessment approach designed to address the limitations of traditional assessment practices through a combination of broader assessment and interprofessional collaboration. The framework employs a strength-based strategy to identify key factors impacting an individual's communication, ranging from ecological or system influences to unique individual characteristics. The process is described across four iterative steps with recommendations for intervention. The AMIC–A draws from the following core concepts.

Participation Model

The Participation Model was developed by Drs. David Beukelman and Pat Mirenda (1998; 2013). The publication of this model was significant because it provided the first alternative to medicalized and deficit-focused assessment approaches for AAC. The Participation Model describes a dynamic assessment (DA) process that seeks to identify and ameliorate barriers to participation through an assessment of both access and opportunity barriers. Access barriers include an assessment of cognitive, linguistic, literacy, motor, sensory/perceptual abilities that are organized into constraints and capabilities profiles. Information about the individual's current communication is used in coordination with valuable information about the system or environment called opportunity barriers. Opportunity barriers encompass factors such as the knowledge and skills of communication partners, policies and practices, or shared beliefs and attitudes of a culture. This integration of opportunity and access barriers into the design of communication-based interventions is supported by Brofenbrenner's ecological systems that posits that human development is shaped by the interaction of the individual and their environment (Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998). Communication, like other behavior, cannot be understood out of context. Intervention must harness the strengths of the individual and the system within which they exist.

The Participation Model views the assessment process as a team-based activity that includes the individual's communication support system as a critical component of the team and a key lever in driving intervention goals and impact. It specifically advocates for an individualized approach to AAC intervention and support services (Light & McNaughton et al., 2015).

Personalized and Precision Medicine

In a similar vein, the practice of medicine appears to be evolving to more of a precision medicine model whereby an individual's unique characteristics (e.g., environment, social relationships, lifestyle) contribute to tailoring a more efficacious intervention (Beukelman et al., 2016; Light et al., 2021; Peter et al., 2023). Precision AAC represents a natural extension of this model, whereby individual characteristics and variables beyond the symptoms or condition guide intervention decisions. Despite compelling evidence that contextual factors create barriers to AAC implementation (Moorcroft et al., 2019), there is alarmingly little attention given to assessment practices that account for these factors (Light et al., 2015). As Hahn notes, functional deficits should be viewed as "the product of interactions between individuals and the environment" (Hahn, 1986, p. 121). The assessment-informed intervention process necessitates high precision, matching both the individual and their environment.

Dynamic Assessment

DA is an evaluation method that has gained popularity in the field of speech-language pathology. The approach follows a test–teach–retest sequence with cited advantages to

traditional or static assessment practices (Gutié Rrez-Clellen & Peña, 2001; Peña et al., 2006). Specifically, in traditional assessment, the clinician assumes the role of the examinee using a combination of indirect and direct norm-referenced or criterion-referenced assessment tools to provide a summary of deficits and a diagnosis. Contrastingly, using DA, clinicians assume the role of a teacher to identify current skills as well as learning potential (Peña, n.d.). The results of the assessment identify the level of supports (i.e., type and degree of prompts) required and this information is used to inform the design of intervention. The iterative nature of the DA process allows for ongoing progress monitoring and assessment-informed modifications to intervention. DA may be more sensitive to needs, strengths, and response to intervention than inflexible standardized protocols. Advantages found for culturally and linguistically diverse populations (Orellana et al., 2019; Petersen et al., 2017) may extend to early communicators.

Although only 2% of SLPs reported using direct nonstandardized assessments such as DA, there is notable emerging work in this area. For example, Gevarter and colleagues (2020) used DA with six children with autism to guide the assessment-informed selection of their speech-generating device grid display. The assessment utilized an alternating treatment design, a type of single-case experimental design, to systematically assess the effects of the grid display on the child's communication. Additionally, results indicate the level of supports required including model, gesture, partial physical, and full physical assistance. This study models how DA practices may be used to directly inform intervention decisions and positions single-case experimental designs as a useful methodology for DA.

Interprofessional Collaboration

As discussed earlier, the Participation Model, precision medicine, and DA promote assessment of a broader universe of factors than a more traditional, medically oriented framework. While this broader assessment process may provide significant clinical advantages, it is also the case that a single professional specialty is unlikely to have the training to adequately assess and create interventions to cover all emerging needs (Slim & Reuter-Yuill, 2021; Spencer et al., 2020). Therefore, this more ecological approach necessitates the inclusion of other professionals and stakeholders who have the expertise and training to address this broader set of factors.

The Interprofessional Education Collaborative (IPEC) presents a framework that is very well suited to the assessment and intervention approach presented here (World Health Organization [WHO], 2010; IPEC, 2016; IPEC version 3, 2023). Specifically, IPEC prescribes engaging in two processes: interprofessional education (IPE), where people learn about, from, and with each other and develop strong teamwork and collaboration skills, and interprofessional collaborative practice (IPCP; IPEC version 3, 2023) where practitioners from different disciplines jointly assess and create intervention protocols to best reach the highest quality outcomes.

In support of the broad framework laid out by IPEC, Sheridan and Kratochwill (2007), proposed the Conjoint Behavioral Consultation (CBC) model. This model provides an evidence-based collaborative, strength-based model for clinical practice that provides robust methods for problem identification and solutioning. CBC follows four steps in the collaborative problem-solving process. These consist of needs identification, needs analysis, plan implementation, and plan evaluation. Application of the CBC model has been shown to be effective in (1) promoting behavioral competence, reducing problem behaviors, improving adaptive behaviors and social skills in kindergarten and third grade students, and establishing stronger connections in teacher–parent relationships (Sheridan et al., 2008, 2012); (2) assisting middle school students dealing with social, emotional, and behavioral issues leading to greater improvements compared to the school-as-usual condition in student interpersonal skills, parent–teacher relationships, and parent-reported competence in problem-solving (Garbacz et al., 2022); (3) demonstrating positive effects (i.e., improved positive social–behavioral skills and externalizing problems) with middle-school students experiencing

behavioral challenges, increasing self-efficacy of teachers, enhancing and establishing meaningful partnerships between parents and teachers (Sheridan & Kratochwill, 2007; Sheridan et al., 2006; Sharidan et al., 2013); and (4) improving family school connections and relationships, and transfer of intervention outcome from school to the home environment (Sheridan & Kratochwill, 2007). While other decision-making models that support interprofessional collaboration have been proposed (e.g., Brodhead, 2015; Newhouse-Oisten et al., 2017), none have undergone repeated empirical investigation to assess effectiveness like the CBC framework.

INTRODUCTION TO THE AMIC–A

It is nearly impossible for any single professional specialty to provide the training, time, and funding to adequately assess, create, and monitor interventions to address this broader universe of factors. Together, SLPs and board-certified behavior analysts (BCBAs) can meet their shared ethical responsibility (American-Speech-Language-Hearing Association [ASHA], 2023; Behavior Analysis Certification Board [BACB], 2020) to collaborate with caregivers and other professionals, leveraging expertise, evidence-based knowledge, training, and availability to meet complex communication needs.

The AMIC–A provides a framework that combines a more integrated, comprehensive, and modern view of assessment and intervention within the evidence-based framework of interprofessional collaboration. The aim of the AMIC–A is to provide the breadth of professional expertise and bandwidth to address the unique needs of a unique person that exists within unique contexts, "… to deliver the right intervention to the right person at the right time" (The International Classification of Functioning, Disability and Health: Children & Youth Version (ICF-CY); WHO, 2007).

While there is growing evidence regarding the predictors of AAC intervention outcomes for specific populations such as children with autism, more research is needed to understand specific mechanisms of change (Sievers et al., 2018). To address the research–practice gap, clinicians are encouraged to engage in evidence-informed decision-making processes by integrating available high-quality and relevant empirically supported guidance (external evidence) and practice-based evidence (internal evidence) to guide the design of AAC interventions (Slim & Strömberg, in press). The AMIC–A provides a well-defined process that uses a collaborative approach to meet the pressing need for structured guidance in clinical practice and to advance empirical research methods. Additionally, the AMIC–A promotes a systematic and iterative process for ongoing assessment and monitoring. By operationalizing these processes, the model enables empirical validation of outcomes at every step, assesses the overall impact on the individual, and evaluates the experiences of team members involved (Kasper et al., 2024). The potential benefits of implementing this model include the following:

- Improving the efficiency of service delivery and support.
- Maximizing opportunities for direct observation of communication across communicative partners in socially relevant contexts.
- Establishing a shared approach to assessment and intervention among team members and stakeholders while maintaining discipline-specific theoretical orientations.
- Collaboratively setting unified goals and measurement strategies to maximize the individual's communication across various contexts.
- Ensuring the comprehensive, systematic, and consistent implementation of interventions with fidelity across all team members.
- Enhancing and expanding areas of expertise and practices.

In sum, these advantages contribute toward the client benefits of improved efficiency; improved detection of problems and solution development; improved building strong, trusting, and healthy relationships between the person, their communication partners, caregivers, and practitioners; increased personal and professional learning and development; increased caregiver and team member satisfaction; and most importantly enhanced intervention outcomes (Gerenser & Koenig, 2019; Kasper et al., 2024).

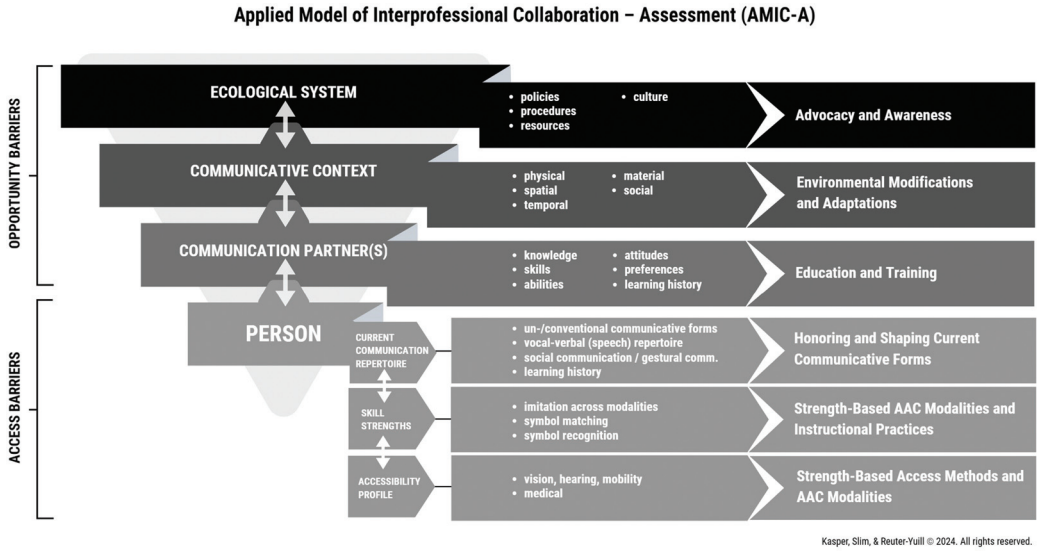

Figure 1 The Applied Model of Interprofessional Collaboration—Assessment (AMIC–A) diagram illustrates the interdependent relationships among the system (opportunity barriers) and person-level factors (access barriers) of assessment. The nested levels create a funnel shape and provide a recommended order for consideration. From top to bottom are the levels of assessment beginning with the ecological system and ending with the person. From left to right is the label of the level of the assessment, related factors, and ending with intervention recommendation.

Figure 1 is a diagram of the AMIC–A designed with the intention to visually depict the interdependent relationships between and among the levels of the systems and the person. The nested levels create a funnel shape and provide a systematic progression for consideration of related factors. This illustration of the AMIC–A diagram represents an adaptation to the original Participation Model (Beukelman & Mirenda, 1998, 2013) by vertically positioning opportunity barriers above access barriers. This top-to-bottom visualization emphasizes the criticality of evaluating factors related to opportunity barriers as a necessary precursor to an assessment of access barriers. The right-to-left organization of the AMIC–A also underscores for clinicians the range of socio-ecological variables and the related intervention area. The seven levels of intervention emphasize the importance of indirect service provision with six levels directed to variables external to the individual. The arrangement employs a communication ecology approach, highlighting that communication is inherently a dyadic process (i.e., involves a minimum of two people) that occurs in context. Rather than addressing communication needs by pathologizing a person and seeking to change them, the AMIC–A advocates for a shift toward interventions that adequately address the person–environment interactions that shape and maintain communication. Figure 2 provides a detailed flowchart of the AMIC–A, highlighting four interactive steps: no. 1—Discover, no. 2—Analyze, no. 3—Act, no. 4—Evaluate. The reader is encouraged to reference these figures as the AMIC–A process is described.

STEP 1: DISCOVER—IDENTIFY STRENGTHS AND UNMET NEEDS

Strength-Based Assessment—System (Opportunity Barriers)

The **Discover** step corresponds to the first column in the AMIC–A diagram (Fig. 1) and flowchart (Fig. 2). The Discover step has two primary objectives. First, the team must identify relevant variables that affect communication by navigating the interdependent levels of the system. This piece of the strength-based assessment corresponds to the opportunity barriers

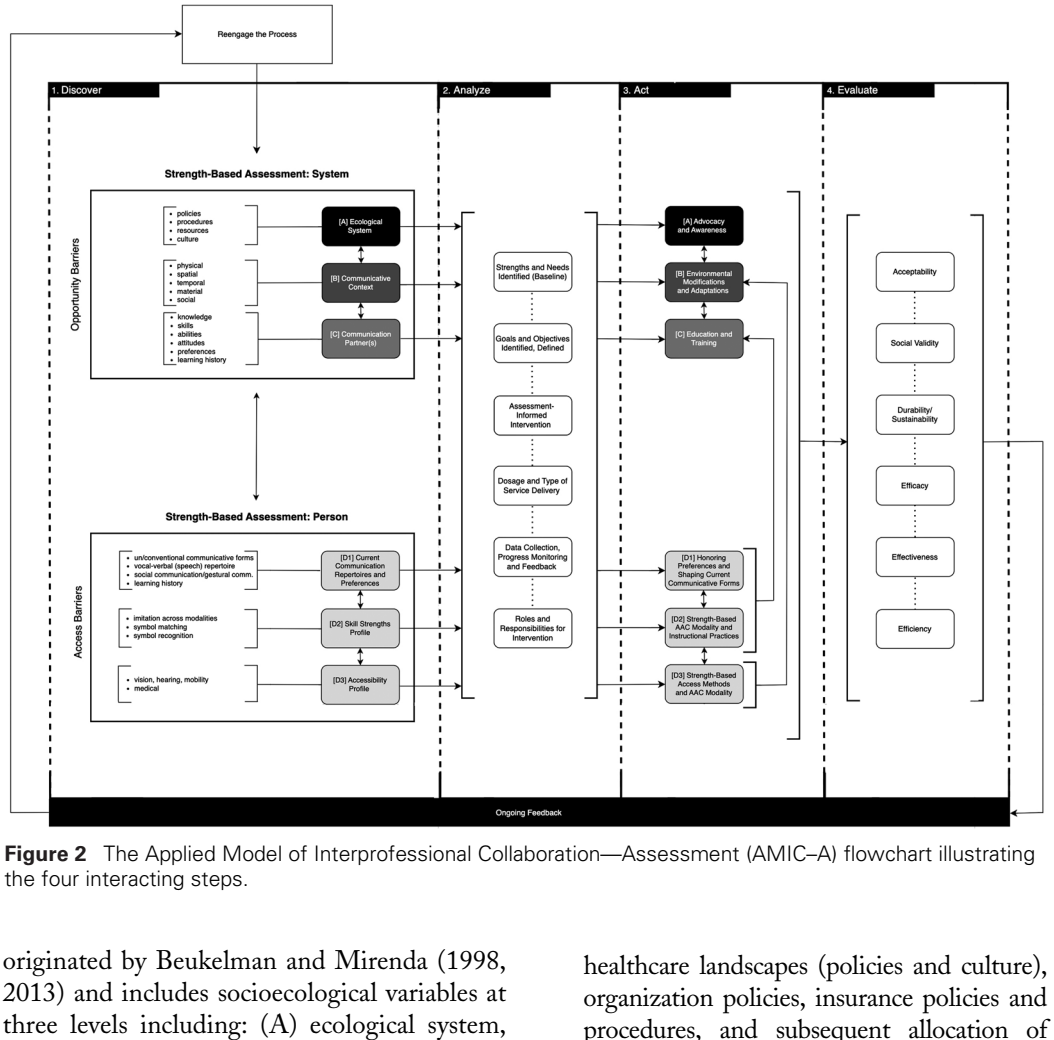

Figure 2 The Applied Model of Interprofessional Collaboration—Assessment (AMIC–A) flowchart illustrating the four interacting steps.

originated by Beukelman and Mirenda (1998, 2013) and includes socioecological variables at three levels including: (A) ecological system, (B) communicative context, and (C) communication partners. Second, in addition to system strengths, the team seeks to identify strengths of the person that contribute to communication access including: (D1) current communication repertoires and preferences, (D2) skill strengths profile, and (D3) and accessibility profile. The Discover step aims to gather a comprehensive understanding of strengths across these six levels (A, B, C, D1, D2, D3; described in detail later). This information is used by the team in subsequent steps to leverage these strengths by incorporating them into the design of intervention.

(A) Ecological system. Assessment of the ecological system aims to evaluate political and healthcare landscapes (policies and culture), organization policies, insurance policies and procedures, and subsequent allocation of resources. These ecological variables either facilitate or hinder intervention, training, AAC device procurement, and social communication.

(B) Communication contexts. Assessment at the communicative contexts level details physical, spatial, temporal, material, and social opportunities to identify strengths and/or potential for modification.

(C) Communication partner. At the communication partner level, the assessment focuses on the knowledge, skills, abilities, attitudes, and learning history of each communication partner. The strengths, abilities, and attitudes of the communication partners impact the AAC modalit(ies) and intervention(s) selected to increase the

probability of AAC system(s) adoption across environments and people. SLPs and BCBAs should be aware of their own and others' knowledge, perspectives, and biases in identifying possible AAC modalities/interventions. The rapid growth of AAC technology provides a broad range of options where there is no single "right" modality, but rather "better fit" modalit(ies) based on the emerging communicator and their surrounding systems. It is critical that the team members conduct a thorough review of options for both technology and training rather than defaulting to previously used options.

Strength-Based Assessment—Person (Access Barriers)

In the Discover step at the person level, an individualized DA focuses on current skills and learning potential by carefully implementing and assessing the person's response to previous and current interventions. All team members are encouraged to contribute results of their observations and data collected across contexts.

(D1) Current communication repertoires and preferences. Team members document unconventional communication forms such as idiosyncratic indicating responses, signs, gestures, and phonetically consistent forms that serve communicative functions. Conventional social and gestural communication methods and vocal productions which are recognizable to less familiar individuals are noted. Parent and caregiver observations and insights provide key information to understanding communication development over time. The SLP conducts an inventory and analysis of the person's vocal-verbal speech repertoire (vocalizations which potentially serve communicative functions). Parents and team members share the methods and procedures that have effectively contributed to the person's current skill set and learning history.

(D2) Skill strengths profile. Team members provide formal and informal assessment data relative to AAC modality and intervention selection. Formal assessment methods include direct and indirect methods such as criterion-referenced assessments (e.g., Communication Matrix, Verbal Behavior Milestones Assessment and Placement Program), norm-referenced assessments (e.g., Communication and Symbolic Behavior Scales, Preschool Language Scales 5th Edition), and nonstandardized approaches such as DA and functional behavior assessment methods. These tools should be used to analyze current imitative repertoires across modalities (e.g., object-cued imitation, gross and fine motor imitation), symbol matching and symbol recognition skills (e.g., identical and nonidentical matching, picture/icon to object matching), and the rate of acquisition of these skills provides potential indicators of the ease of acquisition for various AAC modalities. For example, strong motor imitation might indicate greater facility in the development of sign language. Strengths in object-cued imitation or generalized imitation repertoires may suggest benefit from instructional practices that contain modeling components. Strong picture to object matching suggests that the individual might build competence with selection-based systems such as the Picture Exchange Communication System (PECS®) with relative ease.

(D3) Accessibility profile. Importantly, the assessment must take into account the individual's vision, hearing, mobility, and medical differences, as these factors strongly influence a person's ability to access various AAC modalities. Understanding the intricate interplay of cross-system factors during the assessment process is necessary for designing individualized, meaningful, and sustainable AAC interventions. Although beyond the scope of this article, it is critical that interprofessional teams consult relevant processionals including primary care physicians (medical status), occupational therapists (mobility status), audiologists (hearing status), and optometrists (vision status). These concerns are often

underreported for children with significant disabilities despite consistent evidence of an increased incidence of sensory differences and co-occurring conditions. Addressing these low rates of identification and diagnostic overshadowing are well-suited for models of interprofessional practice (Erickson & Quick, 2017).

STEP 2: ANALYZE—LEVERAGE STRENGTHS TO MEET NEEDS

The second step, **Analyze**, is reflected in the second column of the AMIC–A diagram (Fig. 1) and flowchart (Fig. 2). In the Analyze step, the SLP, BCBA, client, caregivers, and other team members analyze system-level factors along with formal and information assessment results to summarize strengths and needs. This information is synthesized to guide intervention goals and objectives. The team then collaborates on intervention practices that are guided by the best available evidence and individual strengths. For example, a learner that has strong imitation may benefit from an aided language modeling approach where a learner without these strengths may require additional support. As ecological variables allow, optimal dosage and type of service delivery are selected. Next, metrics for shared data collection, progress monitoring, procedural fidelity checklists, and opportunities for feedback are identified. All team members agree on a threshold for evidence that would indicate sufficient progress to continue with a modality and instructional practices. If the threshold of progress is not met, modification of the intervention or another iteration of the AMIC–A process is triggered. The team candidly discusses the strengths, availability, and ecological limitations for various team members. Roles and responsibilities are assigned to the team members who possess the expertise, availability, and willingness to fulfill the role, as agreed upon during the collaborative process. This analysis process should yield potential interventions at system levels and the identification of one or more AAC modalities and evidence-based instructional interventions that provide a strong overall fit for the person and the socioecological environment.

STEP 3: ACT—IMPLEMENT INSTRUCTIONAL PRACTICES

Strength-Based Intervention—System (Opportunity Barriers)

The **Act** step is reflected in the third column in AMIC–A diagram (Fig. 1) and flowchart (Fig. 2).

(A) Ecological system → Advocacy and awareness. At the ecologic system level, SLPs and BCBAs have the ethical responsibility to uphold the best interest of their clients through advocacy and awareness. By way of practical examples, a clinician may encounter situations where an insurance policy denies reimbursement for AAC services or be employed at organizations that lack established processes for cross-discipline collaboration. Insurance and government policy reform is often not quickly accomplished. As professionals, we endeavor to implement the best intervention possible, modifying and enhancing the systems we *can* change through collaborative efforts and adapting to those that we cannot immediately influence.

(B) Communicative context → Environmental modifications and adaptations. Intervention at the communicative context level entails modification of the environment by arranging the physical space, materials, and schedule to maximize communication interactions for optimal growth. Additionally, the physical arrangement of the classroom furniture may increase proximity to aided AAC modalities such as a dedicated speech-generating device.

(C) Communication partners → Education and training. At the communication partner level, collaboration, education, and training are provided to meet the unmet needs of team members so that learning opportunities can be maximized across settings. In this way, SLPs can extend and increase their impact through the hands of other team members. Indirect service provision such as caregiver education and training are necessary to address each individual's unique communication ecology through the inclusion of relevant communication

partner(s) such as peers, caregivers, and other stakeholders into the intervention process. Tonge et al. (2014) compared the effectiveness of parent education, skills training, and coaching to a parent education and counseling group and a control group who received "business as usual" intervention for 105 children with autism. These researchers found that parent education, skills training, and coaching provided greater improvement in communication for children with autism compared to the parent education and counseling group and the control group. In addition, the benefits of parent education, skills training, and coaching were most significant for emerging communicators. Tabatabaei et al. (2022) conducted a systematic review of 53 articles comparing the characteristics and results of parent training interventions in children with autism spectrum disorders. Results revealed direct favorable outcomes for parents in improved implementation of intervention and indirect favorable outcomes of reduced parental stress and improved parent satisfaction as well as increased social interaction and positive effect on restrictive and repetitive behavior for the child with autism. Furthermore, the researchers noted that as each individual with autism has unique characteristics and lives in a unique environment in which the family and the parents have the highest levels of interaction, the need for effective and individualized parent training is evident. In the studies in which training was individualized, 90% intervention effectiveness was noted. Therefore, indirect service provision of collaboration, education, and training appear essential to maximizing outcomes. Insurance policies have reimbursed BCBAs for indirect service provision for several years, but these services were only recently approved for SLPs in 2024.

Strength-Based Intervention—Person (Access Barriers)

At the **Act** step, when addressing the person variables, the team acts to implement agreed upon instructional practices. SLPs and BCBAs work together to implement interventions in accordance with codes of ethics for their respective disciplines. These procedures should honor the preferences of the individual and their caregiver(s). The team implements the agreed upon AAC modality(ies) and instructional practices selected during the Analysis step. The team also begins collection of previously agreed upon metrics for shared data collection, utilizes the agreed upon timeline for progress monitoring, and implements procedural fidelity checks to ensure essential data are collected without unnecessary effort. According to Tabatabaei et al. (2022), protocols that demonstrated greater efficacy were those operationalized with clearly defined variables pertaining to the intervention objective(s). Members record the threshold for evidence of sufficient progress to ensure that all team members understand when and why a change will be made in the modality selected or instructional practice. At this critical step, team cohesion and treatment fidelity are necessary to promote a quality outcome for the individual.

(D1) Current communicative repertoire → Honoring and shaping current communication forms. Team members should honor and respond to current conventional and unconventional communicative forms and whenever feasible shape idiosyncratic or subtle indicating responses (e.g., home signs, gestures, phonetically consistent forms) toward communicative gestures and vocalizations that are understood across environments. This information should be used in coordination with the skill strengths profile to educate and train communication partners on individualized methods to support communication.

(D2) Skill strengths profile → Strength-based AAC modality and instructional practices. An assessment-informed approach to AAC interventions includes individualized decisions of the AAC modality and AAC instructional practice. These team decisions should be guided by the individual's current communication repertoire, skill strengths, and symbol recognition and matching. Notably, these decisions depart from evidence-based practice when

made in advance of learner-specific information or when universal one-size-fits-all approaches are adopted.

(D3) Accessibility profile → Strength-based access methods and AAC modalities. AAC modalities are personalized to maximize strengths and address any physical sensory-perceptual differences in vision, hearing, or mobility status. For example, individuals with specific types of vision needs may benefit from high-contrast symbols and/or auditory-tactile input. Children with motor access needs may benefit from alternative access methods such as an adaptive switch. A complete analysis at this level requires a high degree of coordination and communication across members of the interprofessional team. Advocacy may be required to ensure access to appropriate screening and assessment practices.

STEP 4: EVALUATE—ASSESS IMPACT AND ADDRESS

The **Evaluate** step is reflected in the fourth column of the AMIC–A flowchart (Fig. 2) and the iterative, process-based nature of the diagram (Fig. 1). The following is a description of critical elements that comprise the Evaluate step—acceptability, social validity, durability, sustainability, efficacy, effectiveness, and efficiency.

- *Acceptability:* Acceptability refers to the degree to which the intervention is accepted by the family, caregiver(s), and the client, assessing its alignment with their preferences, values, as well as the broader ecological system, communication context, and communication partners.
- *Social validity*: Social validity refers to the perceived significance or and appropriateness of the intervention procedure. It is obtained by drawing feedback from all team members and stakeholders to inform on and guide intervention program planning and decisions (Huntington et al., 2022; Wolf, 1978).
- *Durability and sustainability:* Durability refers to the ability of an intervention to maintain its effectiveness and positive outcomes over a short-term period of time, immediately after the intervention has ended. Sustainability is a measure of how effectively an evidence-based intervention maintains its desired outcomes over a long-term period of time when no additional support is provided (Hailemariam et al., 2019).
- *Efficacy and effectiveness*: Efficacy refers to whether the intervention effects are observed for the unique individual, unique strengths and needs, and under "ideal" and "control" specific conditions. Effectiveness refers to the level and degree of the impact and meaningful benefit the selected intervention has on the individual's behaviors within relevant ecological, social, and communicative contexts. Efficacy and effectiveness measures fall along a continuum, whereby outcome data in response to an intervention are measured and assessed relative to the intended outcome by the client, family, caregivers, and practitioners.
- *Efficiency*: Efficiency involves evaluating cost–benefit and resource–time allocation parameters for intervention strategies, dosage and role designations, and making necessary adjustments and modifications to align with the client's current strengths, needs, and supports (Burches & Burches, 2020).

Throughout the AMIC–A process, the team consistently evaluates the intervention's acceptability, social validity, durability and sustainability, efficacy, effectiveness, and efficiency utilizing an ongoing analytic data-informed process approach. These data guide team members in making timely, ecologically, and contextually relevant modifications. For example, designated team members analyze data collected via inspection of visual displays of data, engaging in data trend decision analysis (Greer, 2002; Greer & Ross, 2007), use of procedural fidelity checklists, and observation of person/communication partner interactions to employ quality metrics. As team members have previously agreed upon a shared minimum amount of progress that would dictate continuation with the current modalities and instructional practices, this analysis becomes streamlined, and data based. If the data indicate

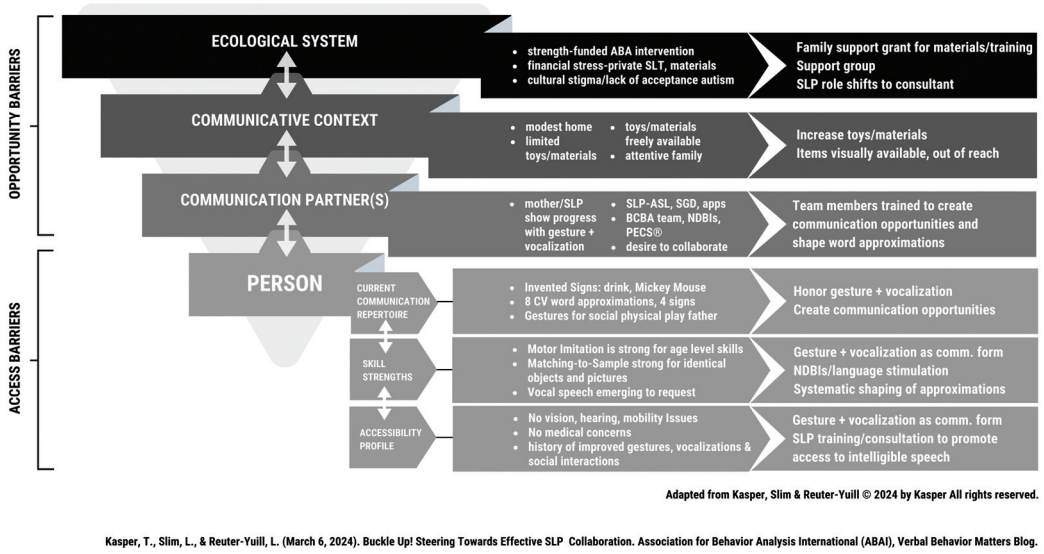

Figure 3 River's case conceptualization using the Applied Model of Interprofessional Collaboration—Assessment (AMIC–A).

sufficient, sustainable, and durable progress across settings, conditions, and over time, the team identifies no other changes needed at the system or person levels, the intervention proceeds. The team may modify or add targets when objectives are achieved so that greater progress is realized. Should the data fail to reflect sufficient progress (i.e., with no interfering changes such as illness or missed therapy), or if a change in the communication needs is demonstrated (e.g., a new daycare, classroom, social group), the team returns to the AMIC–A process at Step 1. A new "better fit" modality and instructional practice—one that is acceptable and has social validity—is selected.

IMPLEMENTATION OF THE AMIC–A

Case Conceptualization: River

To assist with the transition from a theoretical framework to practical application, a case conceptualization is provided to guide the reader through the steps of AMIC–A flowchart (Fig. 2). The reader is encouraged to refer to Fig. 3 for an individualized diagram summarizing relevant case details. A blank AMIC–A diagram is provided as a supplementary resource (see Supplementary Appendix A, available in the online version only).

River is a 26-month-old child who lives with married parents and a 20-year-old brother. As River had not begun to speak by 22 months, their parents enrolled them in privately funded, clinic-based, speech-language services at a frequency of 60 minutes once per week. River's mother was actively involved in intervention. The SLP referred River for further diagnostic evaluation due to suspected autism. Family members were initially resistant to further testing, but at the age of 26 months, River received a diagnosis of autism and began home-based behavior analytic services (commonly called "applied behavior analysis" or "ABA" services). River's family members modified and reduced their work schedules to accommodate the 20 hours of therapy that were recommended.

STEP 1: DISCOVER—IDENTIFY STRENGTHS AND UNMET NEEDS

Strength-Based Assessment—System (Opportunity Barriers)

(A) Ecological system. During an interprofessional collaboration meeting with family members, the SLP and BCBA engage in Step 1 of the AMIC–A by using

motivational interviewing to explore strengths and unmet needs at the ecological system level. They discuss insurance policies and procedures, financial resources, and cultural factors. As they discuss insurance policies and funding in terms of strengths and unmet needs, the family expresses that they are experiencing some financial stress. The family is thrilled that River's home-based behavior analytic services will be covered by insurance and recognizes this strength. Family members have reduced their work hours to accommodate these services and there is an added expense of toys and materials recommended for optimal programming. In addition, they are conflicted as they highly value the skills and expertise of their SLP but must consider the expense of private speech therapy given the change in River's intervention plan. Culturally, the family reports experiencing stigmatizing remarks and lack of acceptance of River's autism diagnosis in their community.

(B) Communicative context. The team explores the physical, spatial, temporal, material, and social aspects of River's modest home, the primary communicative context. The home is small and arranged so that toys and snacks are readily available in the family room and kitchen. The family's willingness to arrange the environment to create greater communication opportunities for River is a strength. The relatively small number of toys and activities constitutes an unmet need.

(C) Communication partners. The team explores skills and unmet needs of the communication partners. River's mother creates many daily opportunities for River to communicate with simultaneous signs/gestures and vocalizations. River's father and brother frequently anticipate River's needs and provide access to items based on reaching or whining. The SLP is skilled in contriving and teaching signs and reinforcing indicating responses. The SLP has knowledge of sign language and available speech-generating device manufacturers and applications. The BCBA and their team of four registered behavior technicians have training and experience in implementation of naturalistic developmental behavioral interventions (NDBIs) which includes building play routines or play chains and implementation of the Picture Exchange Communication System (PECS®) protocol. All team members have a growth-oriented mind set and are willing to collaborate and learn.

Strength-Based Assessment—Person (Access Barriers)

(D1) Current communicative repertoire. River had very few communicative initiations and no documented phonetically consistent forms or word approximations prior to the initiation of speech-language therapy. In 16 hours of speech therapy, River learned to request from their mother and the SLP, using invented signs for drink and Mickey Mouse, and ASL signs for up, ball, open, and cracker. River also uses a specific gesture with their father to request the physical play action of being flipped "upside down." River has developed eight consonant–vowel word approximations which are used simultaneously with signs and gestures to request items and actions, primarily in contrived situations with their mother and SLP. River also demonstrates an increase in initiations of sensory social play activities with their mother and SLP.

(D2) Skill strengths profile. SLP, family observations, and formal test results of the BCBA's administration of the Verbal Behavior Milestones Assessment and Placement Program (VB-MAPP) (Sundberg, 2008) all indicate that River demonstrates weak but improving verbal imitation skills, age-appropriate motor imitation, and generalized matching skills (symbol recognition) for identical objects and pictures.

(D3) Accessibility profile. The team consulted with River's primary care physician who noted that River's medical history is unremarkable with no noteworthy issues regarding vision, hearing, or mobility. Although River's recent improvement in social

engagement and increases in gestures combined with vocalizations suggest probable access to vocal-verbal language (speech) as a response form, the SLP advocated for a full audiological evaluation. Since River was not yet stimulable for a behavioral hearing screening, the audiologists ruled out hearing loss using nonbehavioral assessments called an otoacoustic emission test and tympanogram.

STEP 2: ANALYZE—LEVERAGE STRENGTHS TO MEET NEEDS

At the Analyze step, the SLP, BCBA, client, caregivers, and other team members analyze system variables, data, and observations, in combination with results of formal and informal evaluations to clearly identify strengths and needs. They develop goals, objectives, and interventions at all levels.

In the case of River, the team prioritizes the identified ecological system strengths and needs including effective speech-language therapy and fully funded behavior analytic interventions while also acknowledging the unmet financial support needs of the family to cover speech therapy and intervention materials and the lack of community support. The team recognizes that restricted economic resources or insufficient social support could make intervention recommendations inappropriate unless strategies to address these barriers are implemented (Allen & Warzak, 2000). The team brainstorms methods to advocate for River's family and locates a "family support" scholarship that could assist with purchasing toys and materials. The team also identifies an autism support group that might provide a community of acceptance and understanding as the family adjusts to River's diagnosis and intervention. At the communicative context level, the team makes plans to create an environment in which toys and snacks are visually available but out of reach. Team members also outline ways to use daily routines to create additional communication opportunities.

To identify goals, objectives, and AAC modalities and interventions, the team considers the interdependent relationship between the skills, knowledge, and abilities of team members and goal selection and implementation. Team members share their areas of expertise, for example, the SLP's knowledge of speech-generating devices and sign language, and the BCBA's experience in implementation of NDBIs and the Picture Exchange Communication System (PECS®). Furthermore, the SLP is impressed with the BCBA's enthusiasm in learning about River's communication success during speech therapy. Based on this information, the SLP reflects back to the ecological system concern of finances and proposes alternatives in speech therapy service delivery to financially assist the family. The SLP notes that River could be referred to a different SLP through a funded early intervention program and/or the current SLP could provide monthly speech-language consultation to the family and behavior analytic team rather than weekly individual therapy. The parents agree to modify the intervention model with the current SLP consulting monthly as the SLP's knowledge of and relationship with River and River's family is invaluable.

The team returns to discussion of strengths and unmet needs and notes the small number of individuals with whom River currently communicates. All team members are eager to collaborate and learn. The team discusses River's skill set and how these skills might indicate potential for success with different AAC systems and interventions. In analyzing the ecological variables influencing River's intervention, the team acknowledges the SLP as the leader in River's communication design as short-term intervention along with the parents' active home implementation has resulted in progress. Analysis of River's learning history reveals a rapid increase in the use of invented signs, gestures, and vocalizations within 16 hours of intervention. River's use of these forms only with the SLP and mother elucidates the importance of team training and consistent intervention across environments with the selected modality and strategies. The team notes that as River's engagement with others surrounding new toys and activities has increased, social gestural responding is more robust and differentiated. The SLP and family note that their words and actions are now attention-worthy for River and their social attention and ongoing interaction are more valuable than ever before. This development of greater

joint attention is a strong prognostic indicator for future language growth (Bruinsma, et al., 2004; Harms, 2020).

The team recognizes the progress in number and quality of signs/gestures accompanied by vocalizations with speech-language therapy and speculates that River's progress may be enhanced with more hours of behavior analytic services, especially given River's progress in areas of gestures, vocalizations, and joint attention. River's family strongly feels that with training they can learn to encourage River's gestures and vocalizations. All team members understand that a more formal AAC system will have no long-term inhibiting effect on vocalizations with some evidence that it could increase natural speech (Millar et al., 2006). They feel that there is also an opportunity to focus on gestures and vocalizations before River enters daycare or school where a more formal system may be necessary.

As AAC assessment and intervention is a dynamic, iterative process and River interacts with a small group of dedicated individuals, a decision is made to spend 3 months targeting gestures combined with vocalizations as a communication response form. The team, including family members, will ensure that River will receive preferred items contingent on gesture and vocalization rather than readily available or obtained by whining. All team members will jointly increase the quantity and variety of play activities and social routines that River enjoys. All team members will learn to recognize and differentially reinforce signs, invented signs, and target word approximations as identified and monitored by SLP. Team members will communicate this information via a shared HIPAA-compliant medical record management system and agree to gather data on the number and quality of vocalizations per hour, while differentially reinforcing better approximations.

STEP 3: ACT—IMPLEMENT INSTRUCTIONAL PRACTICES

Strength-Based Intervention—System (Opportunity Barriers)

(A) Ecological system → Advocacy and awareness. In the case of River, the family begins attending the autism support group and receives a "family support" grant to purchase needed materials and resources.

(B) Communicative context → Environmental modifications and adaptations. The team creates an environment within which toys and snacks are visually available but out of reach allowing for embedded communication opportunities throughout daily routines. This environmental setup aligns with the strategies of NDBIs, where communicative opportunities are deliberately created by managing access to engaging materials and providing targeted responses based on identified learning objectives. This encourages initiations, facilitates the establishment of play routines, or enables playful interruptions and modifications to promote interaction (Schreibman et al., 2015).

(C) Communication partners → Education and training. The "family support" grant also funds a group training conducted by the SLP. The SLP uses instruction, modeling, rehearsal, and feedback (commonly referred to as behavioral skills training), an evidence-based training procedure to teach the team methods for creating communicative temptations, recognizing and honoring River's signs and gestures, and reinforcing best word approximations (Hsieh et al., 2011; Ouyang et al., 2024).

Pictures of River's signs and gestures and simply transcribed best word approximations are posted in the home environment to aid in consistency of intervention (Shapiro & Kazemi, 2017). The SLP's role evolves to focus on consultation to the team and monitoring River's progress toward improved vocalizations via review of data on frequency and accuracy of River's vocalizations. In addition, a video conference observation/feedback session is conducted monthly with the BCBA and family.

Strength-Based Intervention—Person (Access Barriers)

(D1) Current communicative repertoire → Honoring and shaping current communication forms. For our fictional case, the SLP and BCBA work to create signage

detailing the best approximations for River's current word attempts, signs, and idiosyncratic gestures. River's HIPAA-compliant Google drive and signage are updated weekly to reflect additions or changes to current communication repertoire. The team documents the number of gestures with accompanying vocalizations per hour and the number of vocalizations that meet or exceed River's target approximation. The team works together to create dynamic lists of the toys, activities, daily routines, and social routines or play chains within which communication temptations are embedded to keep the intervention varied and motivating to allow many opportunities to honor and shape River's current communicative forms.

(D2) Skill strengths profile → Strength-based AAC modality and instructional practices. The team identifies gesture with simultaneous vocalization as a response form and implements instructional practices to systematically shape these vocalizations.

(D3) Accessibility profile → Strength-based access methods and AAC modalities. Based on River's stable medical status and recently emerging strengths in joint attention, gestures, and vocalizations, as well as the enthusiasm and skills of River's family and team, gesture and vocalization is a "good fit" access option for River within their current systems.

STEP 4: EVALUATE—ASSESS IMPACT AND ADDRESS

For our case conceptualization, River, caregivers, the SLP, and BCBA convene each month to assess progress and review guidelines, graphs, and quality measures to determine if communication progress is sufficient to meet River's growing communication needs and continue the current intervention. If a change in communicative contexts (e.g., beginning daycare) occurs, the team may select a different modality that would be trained and utilized in that environment until River's vocalizations were sufficient to support their communication needs. If data reveal lack of progress, and the procedural fidelity checklist indicates that protocol implementation has been reasonably accurate, the process-based guidelines of the AMIC–A will be reimplemented to determine adjustments to the communication modality and intervention practices.

In the case of River, analysis of the data reveals rapid progress. The team agrees that the procedures are acceptable and socially valid. A reevaluation of River's skills after 3 months of intervention reveals a growing vocal-verbal repertoire (i.e., volitional speech production repertoire) and improved intelligibility. So, an analysis of River's progress reveals an intervention system approach that was observed to be efficient and effective. Moreover, the team feels more confident in their ability to address new goals using the interventions selected as they have been observed to yield sustainable positive outcomes over a long period of time within the current support system. The AMIC–A process has provided guidance to a successful team approach, with subsequent parent and team satisfaction, improved skill sets for the professionals involved, and, most importantly, improved communication for River.

CONCLUSION

The landscape of service delivery is evolving, marked by growing attention to the constraints of the traditional medical model and a heightened emphasis on personalized, socially and culturally responsive interprofessional collaborative care. This transition offers a significant opportunity for the emergence of innovative approaches with the potential to reshape healthcare policies and practices. There is great promise in interprofessional collaboration, DA, and assessment-informed individualized AAC intervention.

The Applied Model of Interprofessional Collaboration–Assessment (AMIC–A) presents a bridge between the rising ideological interest in interprofessional collaboration and DA and practical implementation. AMIC–A offers a process-based approach and provides a tool for clinicians to unravel the complex weave of systems (i.e., communication partner(s), communicative context, and ecological system) and person-related factors (i.e., current communication repertoire, skill strengths,

accessibility profile) that influence communication. AMIC–A enables a thorough and comprehensive understanding of the necessary modifications and supports within the systems to develop and implement interventions that are relevant, achievable, and sustainable. The strength of AMIC–A lies in leveraging interprofessional collaboration throughout a DA process operationalized into four actionable steps: Discover, Analyze, Act, and Evaluate. The time is right for these theoretical ideals to become practical realities. AMIC–A offers a process-based approach to achieve this.

CONFLICT OF INTEREST

As a part of their job role, several authors engage in frequent lectures, presentations, and consultations relating to AAC and collaboration.

CONFLICT OF INTEREST

None declared.

REFERENCES

Allen, K. D., & Warzak, W. J. (2000). The problem of parental nonadherence in clinical behavior analysis: effective treatment is not enough. *Journal of Applied Behavior Analysis, 33*(3), 373–391

American Speech-Language-Hearing Association. (2023). *Code of ethics*. Accessed May 20, 2024 at: https://www.asha.org/policy/

Behavior Analyst Certification Board. (2020). *Ethics code for behavior analysts*. Accessed May 20, 2024 at: https://bacb.com/wp-content/ethics-code-for-behavior-analysts/

Beukelman, D., Bornman, J., & Light, J. (2016). Reflections from fellows of ISAAC. *Augmentative and Alternative Communication, 32*(4), 233–240

Beukelman, D. R., & Light, J. C. (2020). *Augmentative & alternative communication: Supporting children and adults with complex communication needs*. Brookes Publishing Company

Beukelman, D. R., & Mirenda, P. (1998). *Augmentative & alternative communication: Management of severe communication disorders in children and adults*. Brookes Publishing Company

Beukelman, D. R., & Mirenda, P. (2013). *Augmentative & alternative communication: Supporting children and adults with complex communication needs*. Brookes Publishing Company

Brodhead, M. T. (2015). Maintaining professional relationships in an interdisciplinary setting: strategies for navigating nonbehavioral treatment recommendations for individuals with autism. *Behavior Analysis in Practice, 8*(1), 70–78

Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective: a bioecological model. *Psychological Review, 101* (4), 568–586

Bronfenbrenner, U., & Morris, P. (1998). The ecology of developmental processes. In: W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Theoretical models of human development* (pp. 993–1028). Wiley

Bruinsma, Y., Koegel, R. L., & Koegel, L. K. (2004). Joint attention and children with autism: a review of the literature. *Mental Retardation and Developmental Disabilities Research Reviews, 10,* 169–175

Burches, E., & Burches, M. (2020). Efficacy, effectiveness and efficiency in the health care: the need for an agreement to clarify its meaning. *International Archives of Public Health and Community Medicine, 4*, 035

Erickson, K., & Quick, N. (2017). The profiles of students with significant cognitive disabilities and known hearing loss. *Journal of Deaf Studies and Deaf Education, 22*(1), 35–48

Garbacz, S. A., Kaul, M., Zahn, M., Godfrey, E., & Flack, C. (2022). Examining conjoint behavioral consultation to support students in middle school with social, emotional, and behavior concerns. *New Directions for Child and Adolescent Development, 2022* (183-184), 71–90

Gevarter, C., O'Reilly, M. F., Kuhn, M., Mills, K., Ferguson, R., Watkins, L., Sigafoos, J., Lang, R., Rojeski, L., & Lancioni, G. E. (2016). Increasing the vocalizations of individuals with autism during intervention with a speech-generating device. *Journal of Applied Behavior Analysis,* 49(1), 17–33. https://doi.org/10.1002/jaba.270

Gerenser, J. E., & Koenig, M. A. (2019). *ABA for SLPs: Interprofessional collaboration for autism support teams*. [eTextbook]. Accessed May 20, 2024 at: https://www.etextbooksforstudents.org/item/133

Greer, R. D., & Ross, D. E. (2007). *Verbal Behavior Analysis: Inducing and Expanding New Verbal Capabilities in Children with Language Delays*. Pearson

Greer, R. D. (2002). *Designing Teaching Strategies: An Applied Behavior Analysis Systems Approach*. Academic Press

Gutié Rrez-Clellen, V. F., & Peña, E. (2001). Dynamic assessment of diverse children. *Language, Speech, and Hearing Services in Schools, 32*(4), 212–224

Hahn, H. (1986). Public support for rehabilitation programs: the analysis of U.S. disability policy. *Disability, Handicap & Society, 1*(2), 121–137

Harms, G. (2020). *The role of joint attention in the verbal behavior development trajectory.* [Unpublished doctoral dissertation]. Columbia University

Hailemariam, M., Bustos, T., Montgomery, B., Barajas, R., Evans, L. B., & Drahota, A. (2019). Evidence-based intervention sustainability strategies: a systematic review. *Implementation Science, 14*(1), 57

Hsieh, H. H., Wilder, D. A., & Abellon, O. E. (2011). The effects of training on caregiver implementation of incidental teaching. *Journal of Applied Behavior Analysis, 44*(1), 199–203

Huntington, R. N., Badgett, N. M., Rosenberg, N. E., Greeny, K., Bravo, A., Bristol, R. M., Byun, Y. H., & Park, M. S. (2022). Social validity in behavioral research: a selective review. *Perspectives on Behavior Science, 46*(1), 201–215

Interprofessional Education Collaborative. (2016). *Core competencies for interprofessional collaborative practice: 2016 update*. Accessed May 20, 2024 at: https://hsc.unm.edu/ipe/resources/ipec-2016-core-competencies.pdf

Interprofessional Education Collaborative. (2023). *IPEC core competencies for interprofessional collaborative practice: Version 3*. Accessed May 20, 2024 at: https://who.int/standards/classifications/international-classification-of-functioning-disability-and-health

Kasper, T., Slim, L., & Reuter-Yuill, L. (2024). Buckle up! Steering towards effective SLP collaboration. *Association for Behavior Analysis International (ABAI), Verbal Behavior Matters Blog*; March 6, 2024

Light, J., Barwise, A., Gardner, A. M., & Flynn, M. (2021). Personalized early AAC intervention to build language and literacy skills: A case study of a 3-year-old with complex communication needs. Topics in Language Disorders, 41, 209–231

Light, J., & McNaughton, D. (2015). Designing AAC research and intervention to improve outcomes for individuals with complex communication needs. *Augmentative and Alternative Communication, 31*, 85–96

Millar, D. C., Light, J. C., & Schlosser, R. W. (2006). The impact of augmentative and alternative communication intervention on the speech production of individuals with developmental disabilities: a research review. *Journal of Speech, Language, and Hearing Research: JSLHR, 49*(2), 248–264

Moorcroft, A., Scarinci, N., & Meyer, C. (2019). A systematic review of the barriers and facilitators to the provision and use of low-tech and unaided AAC systems for people with complex communication needs and their families. *Disability and Rehabilitation. Assistive Technology, 14*(7), 710–731

Muller, K., Brady, N. C., Fleming, K. K., & Matthews, K. (2020). Communication assessment for individuals with minimal verbal skills: a survey of current practices and satisfaction. *American Journal of Speech-Language Pathology, 29*(4), 1997–2011

Newhouse-Oisten, M. K., Peck, K. M., Conway, A. A., & Frieder, J. E. (2017). Ethical considerations for interdisciplinary collaboration with prescribing professionals. *Behavior Analysis in Practice, 10*(2), 145–153

Olkin, R. (2022). *Conceptualizing disability: Three models of disability*. American Psychological Association. Accessed May 20, 2024 at: https://apa.org

Orellana, C. I., Wada, R., & Gillam, R. B. (2019). The use of dynamic assessment for the diagnosis of language disorders in bilingual children: a meta-analysis. *American Journal of Speech-Language Pathology, 28*(3), 1298–1317

Ouyang, Y., Feng, J., Wang, T., Xue, Y., Mohamed, Z. A., & Jia, F. (2024). Comparison of the efficacy of parent-mediated NDBIs on developmental skills in children with ASD and fidelity in parents: a systematic review and network meta-analysis. *BMC Pediatrics, 24*(1), 270

Peña, E. (n.d.-a). *Module 1: What is dynamic Assessment?* Accessed May 20, 2024 at: https://asha.org/practice/multicultural/dynamic-assessment/module-1/

Peña, E. D., Gillam, R. B., Malek, M., Ruiz-Felter, R., Resendiz, M., Fiestas, C., & Sabel, T. (2006). Dynamic assessment of school-age children's narrative ability: An experimental investigation of classification accuracy. *Journal of Speech, Language, and Hearing Research: JSLHR, 49*(5), 1037–1057

Peters, Betts; Wiedrick, Jack; Baylor, Carolyn (2023). AAC and communicative participation for PALS (Peters et al., 2023). ASHA journals. Online resource. https://doi.org/10.23641/asha.22782986.v1

Petersen, D. B., Chanthongthip, H., Ukrainetz, T. A., Spencer, T. D., & Steeve, R. W. (2017). Dynamic assessment of narratives: efficient, accurate identification of language impairment in bilingual students. *Journal of Speech, Language, and Hearing Research: JSLHR, 60*(4), 983–998

Schreibman, L., Dawson, G., Stahmer, A. C., Landa, R., Rogers, S. J., McGee, G. G., Kasari, C., Ingersoll, B., Kaiser, A. P., Bruinsma, Y., McNerney, E., Wetherby, A., & Halladay, A. (2015). Naturalistic developmental behavioral interventions: empirically validated treatments for autism spectrum disorder. *Journal of Autism and Developmental Disorders, 45*(8), 2411–2428

Shapiro, M., & Kazemi, E. (2017). A review of training strategies to teach individuals implementation of behavioral interventions. *Journal of Organizational Behavior Management, 37*(1), 32–62

Sheridan, S. M., Eagle, J. W., & Doll, B. (2006). An examination of the efficacy of conjoint behavioral consultation with diverse clients. *School Psychology Quarterly, 21*, 396–417

Sheridan, S. M., Holmes, S. R., Coutts, M. J., Smith, T. E., Kunz, G. M., & Witte, A. L. (2013). CBC in rural schools: Preliminary results of a randomized trial (CYFS Working Paper No. 2013-1). Retrieved from the Nebraska Center for Research on Children, Youth, Families and Schools website: cyfs.unl.edu

Sheridan, S. M., & Kratochwill, T. R. (2007). *Conjoint behavioral consultation: Promoting family-school connections and interventions* (2nd ed.). Springer

Sheridan, S. M., Clarke, B. L., & Burt, J. D. (2008). Conjoint behavioral consultation: What do we know and what do we need to know? In W. P. Erchul & S. M. Sheridan (Eds.), *Handbook of Research in School Consultation: Empirical Foundations for The Field*. Mahwah, NJ: Erlbaum

Sheridan, S. M., Holmes, S. R., Coutts, M. J., & Smith, T. E. (2012). Preliminary effects of conjoint behavioral consultation in rural communities (CYFS Working Paper No. 2012–8). Retrieved from the Nebraska Center for Research on Children, Youth, Families and Schools website. Accessed May 20, 2024 at: https://cyfs.unl.edu

Sievers, S. B., Trembath, D., & Westerveld, M. (2018). A systematic review of predictors, moderators, and mediators of augmentative and alternative communication (AAC) outcomes for children with autism spectrum disorder. *Augmentative and Alternative Communication, 34*(3), 219–229

Slim, L., & Reuter-Yuill, L. M. (2021). A behavior-analytic perspective on interprofessional collaboration. *Behavior Analysis in Practice, 14*(4), 1238–1248.

Slim, L., & Strömberg, D. (in press, 2025). Considerations for enhancing SLP and ABA practices. In: S. Halder, H-T. Wang, & K. Dillenburger (Eds.), *Handbook of Applied Behaviour Analysis-Based Interventions for Autism Spectrum Disorder: Bridging Theory and Practice*. Routledge Publishing

Spencer, T., Slim, L., Cardon, T., & Morgan L. (2020). ABAI interprofessional collaborative practice between behavior analysts and speech-language pathology. Workgroup of ABAI Practice Board. https://www.abainternational.org/constituents/practitioners/interprofessional-collaborative-practice.aspx

Sundberg, M. L. (2008). Verbal behavior milestones assessment and placement program: The VB-MAPP. Concord, CA: AVB Press

Tabatabaei, S. H., Shahrokhi, H., Gholipour, K., Iezadi, S., Rezapour, R., Naghibi, D., & Azami-Aghdash, S. (2022). The characteristics and results of parent training interventions in children with autism spectrum disorder: a systematic review. *Iranian Journal of Public Health, 51*(3), 518–530

Tonge, B., Brereton, A., Kiomall, M., Mackinnon, A., & Rinehart, N. J. (2014). A randomised group comparison controlled trial of 'preschoolers with autism': a parent education and skills training intervention for young children with autistic disorder. *Autism, 18*(2), 166–177

Vidal, V. G., Wachholtz, D. P., Mattie, L. J., & DeThorne, L. S. (2023). It takes a community: How environmental systems construct (in) competence in autistic peer interactions. Language, Speech, and Hearing Services in Schools, 54(1), 63–81

Wolf, M. M. (1978). Social validity: the case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11*, 203–214

World Health Organization. (2007). International Classification of Functioning, Disability and Health. (2007). Accessed May 20, 2024 at: https://who.int/standards/classifications/international-classification-of-functioning-disability-and-health

World Health Organization. (2010). Framework for action on interprofessional education and collaborative practice. Accessed May 20, 2024 at: https://apps.who.int/iris/bitstream/handle/10665/70185/?sequence=1