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# Integrating AAC Instruction into Regular Education Settings: Expounding on Best Practices

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**This article begins with a brief review of the special communication needs of children with severe disabilities. Next, practices that have been found to optimize these children's interaction skills in their natural settings are elucidated. Implications for the content and delivery of AAC services are discussed relative to our present understanding of best practices for promoting communication skills in typical as well as severely disabled children. The article concludes with a discussion of future research needs.**

**KEY WORDS:** best practices, education, functional communication, integration, related services, service delivery, severe disabilities

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Children with severe disabilities comprise the greatest proportion of nonspeaking individuals among the school-aged population (Bryen & Joyce, 1985; Matas, Mathy-Laikko, Beukelman, & Legresley, 1985). These children often rely on idiosyncratic, nonconventional, and highly ambiguous modes of communication in order to convey their most basic wants and needs (Donnellan, Mirenda, Mesaros, & Fassbender, 1984). Where listeners are unable to recognize the meaning of such messages, communication breakdowns often result (Calculator & Dollaghan, 1982; Calculator, Nadeau, Brown-Herman, & Reinhardt, 1988). Vicker (1985) has addressed this problem by suggesting that listeners need to be taught how to recognize and respond to these otherwise unintelligible communicative attempts. However, there is evidence that increased intelligibility of messages may not, in and of itself, engender more favorable consequences for these children. Caregivers, teachers, and others have often been found to ignore or redirect children's messages, including indications of choice and preference, despite such messages being conveyed clearly (Houghton, Bronicki, & Guess, 1987).

Similarly, when these children's limited communication repertoires are bolstered through the provision of augmentative and alternative communication (AAC) systems, interaction difficulties may persist. Children with severe disabilities continue to be described as passive conversational partners who continue to use highly ambiguous modes of communication, and rely heavily on their listeners to direct interactions, despite having access to AAC systems (Calculator, 1988a; Light, Collier, & Parnes, 1985; Mirenda & Iacono, 1990; Romski, Sevcik, Reumann, & Pale, 1989). Munson,

Nordquist, and Thuma-Rew (1987) attributed these outcomes, in part, to listeners' low expectations combined with children's reactions to their repeated failures to communicate successfully.

As indicated by Calculator (1988a; 1988b) and Glenen and Calculator (1985) children's uses of their AAC systems often reflect how (if at all) they have been taught to *use* such systems. Children whose AAC instruction is limited to the rote training of symbols, increasing syntactic complexity, and vocabulary size should not be expected to subsequently generalize such learning to natural situations requiring communication. Gaylord-Ross and Holvoet (1985) noted that such instructional content and techniques may be extremely useful and efficient in teaching children *how* to communicate, but are not well suited to teaching the *whys* of communication. Still, upon being confronted with so many needs and relatively few skills, teachers may lose sight of the primary purpose of communication intervention: to increase their students' functional communication. Instead, as Kaiser, Alpert and Warren (1987) indicate, instruction may target language at the expense of communication.

## Functional Communication

The term functional communication, as used throughout this article, emphasizes the actual use of language to achieve predetermined purposes. In order to be functional, language must influence others' behaviors and bring about effects that are appropriate and natural in a given social context (Halle, 1988; Norris & Hoffman, 1990). The child with functional communication is better able to meet everyday communication demands, regarded by Cipani

(1989) as the "bottom line criterion" for evaluating the effectiveness of any communication program.

### Interactionist Model

The normally developing child acquires an increasing knowledge of the various interactions between language form (e.g., syntax and morphology), content (e.g., semantics), and use (e.g., pragmatics), and how these parameters vary depending on social contexts, purposes of communication, the listeners' background knowledge, and the child's social role relative to that of the listener (Bloom & Lahey, 1978; Fey, 1986). According to Fey, this learning occurs through repeated experiences in the social, physical, and linguistic environment. Over time, children induce the regularities and consistencies of language and develop a repertoire of communication skills, which enhances their subsequent interactions with the environment.

The interactionist model of language acquisition, as described above, gives rise to a variety of instructional principles. There is a substantial research base on the subject of incidental teaching and related naturalistic techniques and their effectiveness (Halle, 1988; Hart, 1985; Hart & Risely, 1975; Hart & Rogers-Warren, 1978; Rogers-Warren & Warren, 1980). In addition, Reichle, Piche-Cragoe, Sigafos, and Doss (1988) have conducted an extensive review of pragmatically-based interventions for individuals with severe disabilities. These techniques have proven successful in establishing initial repertoires of communicative behavior.

The practitioner's role in these various naturalistic techniques is primarily one of facilitator (Bloom & Lahey, 1978), manipulating the child's environment in ways that increase opportunities for communication while promoting language learning. This theme has typified investigations in which AAC users have been taught specific communicative functions, such as requests for objects (Glennen & Calculator, 1985; Reichle & Yoder, 1985).

A second characteristic of these approaches is their use of repeated practice (i.e., multiple opportunities for the child to observe and/or perform the desired skill) as a means of facilitating induction of the aforementioned rules and regularities. These opportunities occur in the natural environment, where the child is exposed to a variety of cues, prompts, and responses. As indicated by Duchan and Weitzner-Lin (1987), the practitioner uses naturally occurring events, working to the child's interests and activities, rather than attempting to control the interaction.

### IMPLICATIONS FOR SCHOOL-BASED AAC SYSTEMS

Thus, children with severe disabilities continue to challenge the creativity of practitioners whose goal is to maximize the former's development of functional communication skills. With the continuing emphasis in the USA on integrating such children within regular educa-

tion (and/or least restrictive environments), to the greatest extent possible, the authors can only conjecture as to what "functional" AAC outcomes might look like. Like most children, those with severe disabilities spend the majority of their day and week in school and school-related activities. The extent to which AAC instruction is effective must therefore be evaluated relative to improvements in students' abilities to meet the academic and social demands of school. Nelson (1989), drawing from literature on curriculum-based language assessment and intervention refers to the use of curriculum contexts and content for measuring children's language intervention needs and progress. Intervention focuses on functional changes that are relevant to the child's communicative needs in the academic setting.

Curricular content, teaching, and learning of information all use language as a primary medium (Cazden, 1973). In constructing and implementing a curriculum, it is often assumed that the learner (in this case the AAC user) knows or can learn the corresponding communication skills necessary to participate effectively in this process (Bashir, 1989). Where this assumption is incorrect, a situation is presented in which the child is unable to fully access the academic setting. For example, the child may lack the language or communication skills that are prerequisite to following a set of teacher instructions; have no effective way of conveying particular content being requested by the teacher, despite knowing the correct answer; or lack effective and efficient means of exchanging information with peers, thus resulting in exclusion from group activities.

As a related service, AAC interventions for students with severe disabilities should draw from students' educational curricula and experiences, be implemented in classroom and other natural settings, support educational priorities as determined by the team, and result in functional outcomes. The probability of achieving such outcomes is enhanced when AAC and other related services are carried out in an integrated fashion (Giangreco, York, & Rainforth, 1989). AAC objectives are embedded within and carried out in conjunction with the broader activities in which the targeted skills are necessitated. Data on best practices in educating children with severe disabilities (Brown et al., 1988; Meyer, 1987; Meyer, Eichinger, & Park-Lee, 1987; York & Rainforth, 1989) consistently cite integrated therapies as a critical means of optimizing children's acquisition and generalization of skills while enhancing children's inclusion in regular education settings.

Table 1 depicts examples of AAC objectives that are and are not consistent with an integrated therapy model. These objectives are addressed through the pragmatically-based procedures, which were alluded to earlier. Integrated objectives reflect the following features:

1. **Functional outcomes are specified.** In other words, there is a clearly stated relationship between the AAC objective and the child's increased proficiency within a corresponding, valued activity.
2. **Natural settings are used.** The AAC skill is targeted in the setting in which it will be of use to the child.

Attempts are made to identify a variety of settings in which AAC use can be taught and practiced.

3. **Outcomes are clearly specified.**

4. **Outcomes are measurable.**

5. **AAC skills are taught as part of larger skill clusters.** For example, rather than identifying choice making as a goal in and of itself, this skill is addressed in the context of activities affording such opportunities to the child, and which are valued by the child (such as recess/free play, lunch, physical education, art, and music). The AAC objectives should support the broader activity (e.g., enhance the child's ability to enjoy a meal, play outside, etc.), rather than taking on lives of their own.

6. **The person implementing the objective is the same person with whom the child would be expected to use the skill.** In order for an AAC outcome to be functional, it must be available to and directed at those individuals who are in a position to provide the desired consequences. Readers are referred to Lyon and Lyon (1980) for a comprehensive discussion of role release and the role of the speech-language pathologist relative to other team members in carrying out communication objectives.

Through AAC instruction, the child is better prepared to meet daily communication demands currently presenting obstacles. Program content is often elucidated through administering various types of discrepancy analyses, in which the child's communication competencies are assessed relative to skills necessary to fully participate in a particular activity or event. The child whose newly acquired skills have contributed to increased participation in and out of class (e.g., is called upon more often by the teacher; is able to complete modified classroom assignments; interacts with a greater number of classmates; initiates conversations that are contextually relevant and include an increasing diversity of topics) has demonstrated the functional value of AAC instruction. The reader is referred to Beukelman and Garrett, 1988; Brown et al, 1979; Calculator, 1988b; and Cipani, 1989, for examples of these instruments and corresponding protocol for administration.

### **Functional Analysis of Opportunities to Participate in Regular School Activities**

Another option for determining functional AAC content involves a combination of on-line recording and team analysis of findings (Appendix). The Functional Analysis of Opportunities to Participate in Regular School Activities assists staff in determining a child's level of involvement in classroom activities. In addition, it provides a means by which preliminary observations can be shared with other team members who, in turn, collaborate with the classroom teacher in making suggestions as to how to enhance the child's level of participation, if desired.

"George" has been integrated into regular preschool and kindergarten classes. His team continues to search for additional opportunities to involve him in class activ-

ities, rather than providing instruction in a resource room. George has no intelligible words and communicates basic wants and needs through nonsymbolic means.

The first two columns of this form ("What is class doing?" and "What is student doing?", respectively) permit the observer to determine quickly the nature and extent to which George is involved in class activities. Observations about the physical lay-out of the room, materials, and activities available to George and his classmates are noted. In the third column, "Who facilitates and how?", notes regarding the types of assistance or facilitation that are provided by teachers, peers, aides, and others are recorded.

The above observations are shared with all or some of the team members, who discuss the results and then suggest ways of getting George more involved with the activities (Columns 4 to 6). Finally, short-term objectives, to be implemented in these same activities, are determined (Column 7).

In linking this example to AAC, we would begin by identifying pertinent communicative behaviors demonstrated by George's classmates (i.e., requesting objects from peers, seeking information by asking questions, waiting their turn, providing information to peers, following typical school routines, greeting peers and teachers, etc.). The discrepancy analysis (drawn from a comparison of Columns 1 and 2) reveals that George ignores peers' requests for objects, doesn't request objects from peers, is impatient when activities are not immediately rewarding, doesn't know how to offer novel information to peers and teachers, etc. Next, the team discusses how to get George more involved in class by integrating various communication objectives (e.g., having him indicate "more" to request that a pleasant activity be resumed; accept and release objects as a means of indicating and responding to requests for objects) into classroom and related instruction. Once again, skills are taught with the purpose of enhancing George's participation in school and school-related activities. Progress is evaluated relative to these same outcomes.

### **BEST PRACTICE GUIDELINES**

The preceding parameters of integrated therapy (and associated examples from Table 1 and the Appendix) represent an important ingredient of generally accepted best practices in the education of children with severe disabilities. By embedding AAC instruction within the context of children's overall educational programs, practitioners may avoid the pitfalls associated with teaching communication in isolation, foremost among which are nonfunctional outcomes.

The checklist depicted in Table 2 has been developed by the authors to assist educational teams throughout the state of New Hampshire in assessing the extent to which AAC services are being provided according to best practices. Items comprising the checklist were drawn from previously cited and validated best practices

TABLE 1: **Examples of AAC Objectives, Which Are and Are Not Consistent with an Integrated Therapy Model****INTEGRATED OBJECTIVES**

1. In response to being positioned near a swing at recess, John will request his Aide's help in getting him into the swing on at least 4 of 5 consecutive days.
2. Given it is time to change for gym, John will point to his pants to indicate his desire to have his Aide assist him in removing his pants, 80% or more of the time over 5 consecutive classes.
3. Given a coloring activity in which John has been given two of the three crayons he needs, he will use his communication board to request the missing crayon from his art teacher at least 4 of 5 times over a period of 3 consecutive days.
4. Upon finishing his lunch, John will vocalize to attract the attention of his classroom aide, on 4 of 5 consecutive days. The aide will then assist John in going out to recess.
5. In response to classmates' indicating that they do not understand John's speech during show and tell, John will attempt to clarify his message by supplementing his speech with other modes of communication (e.g., a gesture and/or his communication book), at least 80% of the time.
6. Given 5 familiar objects in his possession, each of which is successively requested by a classmate to complete a science experiment, John will comply with his classmate's requests with 80% or greater accuracy in 2 out of 3 consecutive classes.
7. Over 3 consecutive days, John will indicate that he no longer wants to participate in an art activity by pushing the corresponding materials away, displaying an 80% or greater reduction in his present means (biting his hands) of conveying this same message.
8. Given a leisure activity, which John is enjoying, is abruptly terminated during gym class, John will successfully indicate his desire to resume the activity, using any communication mode available to him, on 4 out of 5 consecutive occasions.
9. Given an object is being passed around a circle during Show and Tell, John will give an object in his possession to a classmate in response to latter's verbally and gesturally (reaching in the direction of the object) requesting it from him, 80% or more of the time over 3 consecutive classes.
10. Given the opportunity to sit next to any one of three classmates during music, and positioned in proximity to all three, John will discriminately point to the child next to whom he wishes assistance in being seated, 4 out of 5 consecutive classes.

**NON-INTEGRATED OBJECTIVES (Possible alternatives for non-integrated objectives appear in parentheses.)**

1. *When seated at a table in the cafeteria, upon which is a spoon, a knife, and a fork, John will correctly place photographs of each of these three utensils on the corresponding object (e.g., the photograph of the spoon on the spoon), with 80% or greater accuracy in 3 out of 4 consecutive sessions. (Given John is seated at a table in the cafeteria and is missing an eating utensil that he needs [e.g., a spoon for soup], he will request the utensil [e.g., the spoon] by pointing to the corresponding photograph on his communication board, on three consecutive days.)*
2. *While seated at a table across from a classmate, and instructed by the latter to "hit the switch," John will do so at a rate at least 50% faster than his present average performance. (When engaged in an Interaction game on the Apple IIGS computer with a classmate, John will take his turn [e.g., activate his switch] within 5 seconds following his partner's turn, 80% or more of the time in 2 out of 3 consecutive sessions.)*
3. *Given photographs of three students who are seated with him in a circle, John will correctly hand each child their respective photograph 80% or more of the time in 2 out of 3 consecutive sessions, demonstrating his ability to match people and photographs. (As each of five classmates of John's are assigned a classroom job [e.g., cleaning up after snack], John will place a photograph of the student next to the photograph depicting the job to which each has been assigned, with 80% or greater accuracy on 2 out of 3 consecutive days.)*
4. *While getting dressed following gym class, John will correctly point to his shoes, socks, shirt, and pants upon his Aide's request, 80% or more of the time on 2 out of 3 consecutive days. (Given John is dressing himself for school and requires assistance, he will request his mother's attention and then point to the article of clothing with which he needs help, on 5 consecutive days.)*
5. *In response to his music teacher's holding up two instruments, and asking John which one he would like to play, John will respond by indicating his choice in his communication book, rather than pointing at the preferred instrument. The communication board will replace this former pointing gesture in 80% or more of these situations over 5 consecutive days. (In response to his teacher's offering him a choice of two instruments to play during music, John will reach for the preferred instrument in 4 out of 5 consecutive classes.)*
6. *John will accurately indicate yes and no in his communication book 80% or more of the time, on 2 out of 3 consecutive days, in response to his mother's asking him a series of questions soliciting personal information (e.g., Is your name John?; Are you at school?; Are you a girl?). (Given John is not feeling well, he will issue unambiguous yes/no responses 80% or more of the time to an adult who is attempting to identify what is wrong with him.)*

in the delivery of related services to children with severe disabilities (Meyer, 1987; Meyer et al, 1987; York & Rainforth, 1989). Rationale and examples of each practice follow.

**1. Educational priorities should be established collaboratively with parents, advocates, and other team members (as opposed to discipline-referenced priorities).** Giangreco, Cloninger, and Iverson (1990) classified communication as a cross-environmental activity, suggesting it is a skill typically used across multiple environments. As such, these authors contend that instructional objectives should be discipline-free and directed toward helping children achieve a unified set of educational goals.

**Elizabeth.** A review of Elizabeth's individualized educational plan (I.E.P.), revealed specific goals in the areas of academics, communication, socialization, and self-help skills. The regular and special education teachers had collaborated in writing the academic goals, the speech-language pathologist took care of the communication and social goals, and the occupational therapist authored the self-help goals.

At Elizabeth's annual review, her classroom teacher expressed a great deal of frustration regarding Elizabeth. Elizabeth's speech was highly unintelligible. The teacher was coping with this by avoiding calling on Elizabeth, with the exception of situations in which a yes, no or other clear means of responding was available to Elizabeth. She also reported that classmates had little to do with Elizabeth. This was attributed largely to their not knowing what to talk about with her, being unaware of her likes and interests, etc. In addition, she was often disruptive in class. When Elizabeth needed help (e.g., at snack, after using the toilet) she screamed until the necessary attention was provided.

TABLE 2: Checklist for Determining the Extent to Which AAC Services Are Being Provided According to Best Practices

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- |    |                                                                                                                                                                    |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Educational priorities should be established collaboratively with parents, advocates, and other team members (as opposed to discipline-referenced priorities).     |
| 2. | Observation, assessment, and intervention should occur in the natural settings in which individuals spend their time.                                              |
| 3. | Functional skills should be taught systematically throughout the day, rather than at designated times.                                                             |
| 4. | Anyone coming in contact with the augmented communicator is a potential instructor of communication skills.                                                        |
| 5. | The effectiveness of intervention procedures should be evaluated relative to individuals' performances in their natural settings.                                  |
| 6. | Educational plans specify desired communication behaviors relative to clusters of skills associated with the effective performance of a broader skill or activity. |
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The speech-language pathologist and occupational therapist agreed to work more collaboratively with the classroom teacher. Specific activities and times of the day were identified in which each of the following goals and activities could be addressed:

- Increase Elizabeth's participation in class discussions. The team examined augmentative communication as a means of increasing the quantity and quality of Elizabeth's contributions to class discussion.
- The speech-language pathologist agreed to observe Elizabeth in class and to offer suggestions to her teacher regarding means of simplifying the communication environment to promote Elizabeth's inclusion in class activities.
- Introduce Elizabeth to more appropriate methods of soliciting attention and requesting assistance from others.

**2. Observation, assessment, and intervention should occur in the natural settings in which individuals spend their time.** Based on their review of the literature, Snell and Browder (1986) concluded that children's difficulties in generalizing trained skills across environments appears to increase with the severity of the impairment. Similarly, the likelihood that skills will transfer is often predicted by the degree of similarity between the instructional setting and others to which the skills are to be transferred. Investigators have indicated that students with severe disabilities are more likely to acquire skills that are taught directly in the environments in which they will be used (Calculator, 1988b; Falvey, 1986). This strategy is based on the notion that training in the natural setting ensures that naturally occurring stimuli will come to control responding (White et al., 1988). Haring (1988) suggested that before targeting a skill for instruction, it should first be determined that the skill is not one the student has already acquired. Haring found that 21% of the skills selected for acquisition training by experienced teachers had already been acquired and were being performed in other settings by the students. Haring, Beebe, and White, 1983 (cited in Liberty, White, Billingsley, Haring, Lynch, & Paeth, 1988) reported that a high proportion of students with severe disabilities may be noncompliant and fail to follow instructional cues or commands for previously mastered skills. Such students who refuse to perform may be indistinguishable from those who can not perform.

If our goal is to facilitate the use of AAC skills to enhance functioning in natural settings, one might propose that program success is achieved when these behaviors are demonstrated in these same settings.

**Carl.** Carl had been working on a goal related to switch use for the past 2 years, with inconsistent gains. Each day, Carl was positioned in his wheelchair and two toys were presented. Upon his reaching for one toy or the other, his Aide then attached the preferred toy to a plate switch and prompted him verbally, "Carl, hit the

switch." After five opportunities to activate the toy, the switch was attached to the second toy and the procedure was then repeated.

According to the aide and teacher, the purpose of this activity was to teach Carl cause and effect. In observing this activity, it was found that Carl whined and attempted to push the presented choices away at the beginning of this task, displaying a clear understanding of cause and effect. Similar attempts to control others in his environment, and to act on objects within his reach, were noted sporadically throughout the day.

The team agreed that the switches were, in and of themselves, irrelevant in enhancing any aspect of Carl's life. Questions about Carl's ability to use a switch were answered quickly. The switch was attached to a tape recorder, providing a way of activating a recorded story during silent reading time. Carl's use and nonuse of the switch related to his interest in the story at hand, and had nothing to do with an underlying understanding of causality.

**3. Functional skills should be taught systematically throughout the day, rather than at designated times.** Investigators have reported that communication intervention is more effective when it is carried out throughout the day, in conjunction with activities in which the targeted behavior is relevant, rather than at designated times (Nietupski, Scheutz, & Ockwood, 1980).

**Barbara.** Ms. Smith, a kindergarten teacher, was confronted with a dilemma. Members of the team were determined to integrate their therapies into daily activities, yet lacked a full understanding of how to do so. As a result, members struck a compromise. At snack time, all of the children gathered at their respective tables and sat down. This included Barbara, a child with severe disabilities whose educational program emphasized communication and self-help skills such as eating, dressing, and toileting. Once Barbara was positioned at the table, a choice board was placed in front of her. The board was constructed of plywood, upon which were two large plastic bags. The bags contained empty containers of the same items which Barbara brought for her snack that day. Unfortunately, with the choice board in place, all opportunities to interact with classmates were suspended, as Barbara and her peers could not see over or around the board. For the next 15 minutes, Barbara's *communication* objective was carried out. Choices were presented in each bag and Barbara was required to point to the bag containing the item she desired. The corresponding item was then given to her by her teacher. Attempts to indicate her preference by pointing to or reaching directly for the item were either ignored, or else Barbara was redirected to her choice board as the preferred means of indicating preferences. (Note: Calculator, 1988b, has referred to mode devaluation, where contextually appropriate responses by children are ignored or rejected and alternative responses are differentially reinforced, placing an emphasis upon the acquisition of a particular mode of response while losing sight of its communicative value.)

Fifteen minutes later, the choice board was abruptly removed from the table, enabling Barbara to resurface among her classmates. For the remainder of the snack, Barbara's *occupational therapy* objective, self-feeding, was addressed. Now the teacher placed Barbara's snacks within reach and provided physical assistance while encouraging Barbara to eat as independently as was possible. The teacher remained in close proximity to Barbara, continuously bombarding her with verbal cues and reminders, and physical prompts. Again, there was little opportunity for interaction between Barbara and her classmates.

Upon questioning Ms. Smith about the rationale underlying Barbara's snack program, the investigators were informed that a compromise had been reached. Since both the occupational therapist and speech-language pathologist wanted snack time to be designated to *their* priority objective, it was decided to divide snack time evenly and address each respective goal sequentially.

In a subsequent meeting with the teacher, Ms. Smith was asked to describe the purpose of the snack for Barbara's classmates. Apparently, this was a time for socializing, practicing good manners, sharing, trading, and perhaps of least relevance, eating. The value of these same priorities for Barbara was discussed among the team. It was agreed that the choice board be eliminated, since Barbara was already able to indicate preferences in a more socially conventional manner by simply reaching for what it was that she wanted to eat. Such a response decreased her reliance on others and enabled her to be accessible to classmates. Barbara was only provided with physical assistance when such assistance was required — this depended upon what she was eating. When intervening, the teacher was encouraged to do so as unobtrusively as possible. Finally, the support teacher was encouraged to foster interactions between Barbara and her classmates by encouraging children to include Barbara in their trading of food; providing means by which Barbara could comment on what other children were eating; reflecting on activities that had occurred earlier in the day; etc.

The team continued to maintain that choice making was a valuable goal for Barbara. Team members agreed to identify alternate situations throughout the week where opportunities for choice making arose, or could be introduced, with an end result of enhancing Barbara's performance in the overall activity.

**4. Anyone coming in contact with the augmented communicator is a potential instructor of communication skills.** As already indicated, children with severe disabilities are more likely to acquire and transfer skills learned under natural circumstances. Skills targeted for instruction should be addressed by the person(s) in whose presence these same skills are necessary. When communication instruction is provided by a single individual, skills acquired may remain under the control of the original instructor (Stremel-Campbell & Campbell, 1985) rather than generalizing to use with others.

**Robert.** Robert, who is on his way to high school, has been identified as a student who would greatly benefit from being involved with Mr. Brown's audiovisual program. Mr. Brown has involved students with severe disabilities in his program in the past and has indicated a willingness to work with Robert as well. The team gathered and identified specific goals and objectives that could be addressed meaningfully by Mr. Brown, resulting in functional outcomes for Robert. The speech-language pathologist explained how Robert used his communication book. She and Mr. Brown (with team consensus) agreed that an initial objective for Robert would be encouraging him to indicate when materials necessary to complete a task were unavailable or temporarily misplaced.

**5. The effectiveness of intervention procedures should be evaluated relative to individuals' performances in their natural settings.** In order for a communication skill to be truly useful, it must be maintained by natural consequences and feedback. White (1988) indicated that in preparing students for the "real world," skills should be assessed in situations reflecting that world to the greatest extent possible.

**Polly.** Polly, a preschooler, has been working on following directions involving different locatives, in conjunction with different activities in her classroom. Various activity centers (building blocks; sand/water table; books; kitchen) are arranged around the room. Within each of these areas, a list of sample directions and method of recording data are posted so that the staff person overseeing the activity can be reminded of what it is that they should be focusing on (i.e., priority objectives) with Polly. For example, when lining up during a transition from one activity to the next, Polly may be asked to stand (*in front of, behind, next to*) a classmate. (Note: Kaczmarek, 1985, provides useful data forms for integrating communication objectives throughout the day. Notations are made of where, when, and how often the activity will be carried out, antecedents, the behavior expected, and the teacher's subsequent response.)

**6. Educational plans specify desired communication behaviors relative to clusters of skills associated with the effective performance of a broader skill or activity.** This practice relates to parameter 4, which called for continuity of instruction rather than addressing objectives at discrete times of the day.

**Sally.** Ms. Turner has been Sally's aide for 4 years. In that time she has noted significant progress with respect to Sally's communication skills. She has asked the speech-language pathologist for suggestions as to how to continue encouraging communication throughout the day.

One activity they discuss concerns doing the laundry, a daily task carried out by Sally and her aide in Mrs. Turner's home. It is recommended that items necessary for doing the laundry be placed out of Sally's reach, requiring her to communicate her needs to Ms. Turner (i.e., solicit attention and then point to the desired object).

In subsequent team discussions, the aide and the speech-language pathologist agree that the priority educational goal of this activity is Sally's doing her laundry with as little assistance from others as possible. It is also remarked that doing laundry usually provides little communication opportunities since this activity is generally carried out alone (unless Sally will be using a public facility such as a laundromat).

In her revised program, photographs are taken of all items needed to do the laundry. These photographs are then mounted above the washer, within Sally's reach. Sally is taught to enter the laundry room on her own, use the photographs as a means of checking whether all items needed are available and accessible, and then begin doing the laundry. The detergent and other items are now easily accessible to her. It is agreed that on several occasions each week, the aide will sabotage this setting (e.g., Sally will encounter an empty box of detergent; the measuring cup always found within the detergent box will be "misplaced"; the washer will "accidentally" be unplugged). Sally will be encouraged to go for help and then use whatever means available (the objects themselves, corresponding photographs, etc.) to convey her needs to Ms. Turner.

## FUTURE RESEARCH NEEDS

Unlike paintings, cheese, and fine wines, best practices rarely garner more strength or value over time. Instead, they are continuously challenged, modified, discarded, and then re-invented with new fervor at a later time or in a novel context. Certainly, empirically validated techniques (through quantitative and/or qualitative means) for identifying and providing relevant AAC services to school-aged children are needed. Having identified a set of best practices, procedures for precipitating staff and systems change, be they at a personal, school, district, state, or national level, are needed. Such procedures should be replicable and their effects measurable. Knowledge of best practices is certainly not synonymous with implementation of the same.

The process of systems change must be shouldered not only by practicing professionals, parents, and consumers, but also by universities and other training facilities. The area of AAC demands interdisciplinary collaboration, a content area rarely appearing in a university curriculum. Training programs must foster professional skills and attitudes that are necessary for concepts such as role release and integrated therapy to be actualized.

## SUMMARY

This article has attempted to review best practices for providing related services such as AAC instruction to children with severe disabilities. These practices were discussed from the broader perspective offered by our present knowledge of best practices in educating children with severe disabilities in regular education set-



tings. AAC services that target functional, educationally relevant outcomes will continue to contribute greatly to the successful integration of these children in regular education. Such services result from team collaboration, assessment, and planning. The field of AAC has always been somewhat special in that its lack of a single prominent identity (unlike speech-language pathology, occupational therapy, physical therapy, rehabilitative engineering, or education) has and perhaps will always be among its finest assets. Its continued strength rests in part with the ease with which it assimilates information from various professions, at the same time contributing to the clinical and research bases of these respective fields. As an entity, its survival (and associated benefits) rests heavily on maintaining this focus. Successes in AAC must continue to be measured elsewhere, in terms of academic, social, emotional or other indications of positive changes in people's lives.

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### AAC TERMINOLOGY POLICY AND ISSUES UPDATE

It has been a year since the 1st statement of AAC Terminology Policy and Issues was published (June, 1990, pp. 167–170). Therefore, we plan to publish an update in the June, 1992 issue to facilitate the discussion of terminology during the ISAAC Biennial Conference (August 7–11, 1992, Philadelphia, PA). Readers are also encouraged to send written comments about the policy and related issues (including possible additions to the journal keyword list) to: **Lyle L. Lloyd, Editor, *Augmentative and Alternative Communication*, Special Education, SCC-E, Purdue University, West Lafayette, IN 47907, USA.**

### POSITIONS AVAILABLE

As one of its many membership services, ISAAC publishes a listing of positions available in the February, May, August, and November issues of *The ISAAC Bulletin*. Organizations and individuals desiring to announce positions in augmentative and alternative communication should **send notices to Carl Haynes, Editor, *The ISAAC Bulletin*, c/o Special Education, Purdue University, SCC-E, West Lafayette, IN 47907, USA.**

Position announcements should be double spaced and may be up to 10 typed lines long.

## APPENDIX

## Functional Analysis of Opportunities to Participate in Regular School Activities

Student: George Smith School/Grade: Kindergarten - a.m.  
 Class/Activity: Show and Tell; Greeting; Calendar Observation Date: January 5, 1990  
 Physical/Social Setting: Large open classroom; 18 students; typical activity centers; teacher, aide

## OBSERVATION DATA

Recorder: S. Connors, SLP

<i>What is class doing?</i>	<i>What is student doing?</i>	<i>Who facilitates and how?</i>
8:50 Kids come in. Teacher greets them. They hang up coats, take off boots.	George comes in with his aide. He looks around room and goes directly to teacher. He stands in front of her smiling, fingers her hair when she bends down. She redirects him to the cubby area.	Aide has his backpack and lunch. Takes them to his cubby area, then goes over to teacher. Say's "Come on George, let's go hang your coat up so you won't miss group."
T: We're a little behind this morning, let's go right to the group rug. Kids straggle over. One goes out to the bathroom — flips over token near door to show she's out of the room.	All through song he's getting his coat off, boots off, sneakers on.	Full assistance with outerwear.
8:58 T: Leads them in song about "Funny Little Snowman, Had a Carrot Nose"		
9:05 T: I'd like to hear about all of our Christmas vacations. Does anyone want to share? All hands go up. 2 boys are on edge of circle, kind of goofing around.	George comes to group. Sits at back of group. Aide behind him with arms wrapped around his upper body. George watches 2 boys for a moment, then begins to rock back and forth against aide.	She is holding him firmly. Talks to him, redirecting, correcting.
S: Various students tell what they got for Christmas/Hannukah. Only 2 shares... Barbie doll and some kind of hand-held game?	George takes Barbie doll, flips it around and then aide must take it from him to pass it on.	She takes Barbie from child, gives it to George, takes it from him and passes it on!
9:19 Let's do our calendar. We have a brand new year! Does anyone know what it is? (Discussion of 1989-1990, New Year's, etc.) Kids are getting restless.	George now leans forward and touches kids in front of him.	
T: Let's see, who is first this year to be my helper...Jessica! Jessica puts #5 on calendar—all kids recite "January 5th, 1990"	When children recite, George cocks his head and listens, scans the group.	
9:24 T: O.K. Let's see—we have 2 activity centers today... She disperses kids to centers.	When kids rise, he does also, without assistance!  Goes immediately to art table.	Aide goes to one of the craft activity tables with George.
etc.		

## Functional Analysis of Opportunities to Participate in Regular School Activities

Team Members: Mrs. Smith, Kindergarten Teacher; Mrs. Green, Integration Support Teacher; Mrs. Jones, aide; Ms. Connor, SLP; Ms. Jorgensen, Integration Consultant

Team Process Date: January 8, 1990

TEAM PROCESS

Recorder: Mrs. Green

<i>Expanded participation opportunities</i>	<i>Activity revisions</i>	<i>How to support/facilitate</i>	<i>Learning objectives</i>
He should take belongings to cubby. Could Mom buy velcro sneakers next time? Zipper pull for jacket?	O.K.	Walk in with 2 peers. They could guide him to cubby.	Locating his cubby by location—his picture on it. Walking in with friends. Unzipping his jacket.
Put his picture and name on cubby.	Could teacher ask "Would you like to sing another song?" and George could sign "more."		Putting on shoes—1:1 correspondence 1 shoe, 1 foot Sign "more"
Should be sitting between two children with aide behind.	Could SLP, OT, assistant lead another circle at the same time? One circle could do share, one could do calendar and then they could switch?	Teach peers! Talk to them (SLP) about "how do we all communicate" then "George uses some of those ways, too."	No poking other kids. Looking at a classmate in response to his name being spoken.
Children should get George's attention. Wait till he takes object. Next child could just hold out hand and say "Pass it to me, George."	Teacher could ask children to classify their gifts. Do charts/graphs. George could count entries.	Teach them to prompt him: — tap on shoulder — outreached hand — wait for response	Waiting for his turn to manipulate an object being passed around the circle. Passing objects to the next child in the circle in response to the latter's verbal and gestural request.
Could he be sitting closer to the calendar?	Could George leave the group with two other children? Together, they assemble George's activity calendar for the day and review their own calendar facts. Pictures denote the various classes/activities of the day (e.g., circle, reading, snack, recess, dismissal).	Mrs. Smith will say George's name to get his attention so that he can be alerted to a change in the activity. Like "Alright, children, we are ready to choose our centers. George, which center would you like to go to first?"	Counting stickers on graph. Paying attention. Following speaker.
Could calendar be bigger for all of the children?	George might look at his picture schedule to choose the activity he would like to do first.		As classmates refer to the daily schedule, George selects the corresponding picture from a field of three, and places it on his schedule of the day. Using a picture schedule to cue him to where he should go next. Facilitate transitioning from one activity to the next.

### WORDS+ AWARDS

The ISAAC Executive Committee and WORDS+ Inc. have announced two new awards for AAC users who are members of ISAAC. The **WORDS+ AAC Consumer Scholarship Award** will provide financial assistance to an AAC user to obtain education/training at the post-secondary level, and the **WORDS+ AAC Consumer Lecture Award** will provide recognition to an outstanding AAC user and a platform for that user to address consumers and professionals on a subject of their choice. For details see the August 1991 *ISAAC Bulletin* (page 11) or contact: **ISAAC Secretariat, P.O. Box 1762, Station R, Toronto, Ontario M4G 4A3, Canada.**