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AAC Augmentative and Alternative Communication

FORUM

Toward a Definition of Communicative Competence for Individuals Using Augmentative and Alternative Communication Systems

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This paper proposes a definition of communicative competence for individuals using augmentative and alternative communication (AAC) systems. The proposed definition suggests that communicative competence is a relative and dynamic, interpersonal construct based on functionality of communication, adequacy of communication, and sufficiency of knowledge, judgement, and skill in four interrelated areas: linguistic competence, operational competence, social competence, and strategic competence. Linguistic and operational competencies refer to knowledge and skills in the use of the tools of communication; social and strategic competencies reflect functional knowledge and judgement in interaction. The paper urges future research to validate the proposed definition of communicative competence and suggests some implications for assessment and intervention in the AAC field.

KEY WORDS: augmentative and alternative communication, communicative competence, functional communication, linguistic competence, operational competence, social competence, strategic competence

In recent years, many clinicians and researchers have argued for more constructive approaches to evaluating the communicative competence of individuals using augmentative and alternative communication (AAC) systems, rather than automatically evaluating the performances of these individuals against the benchmarks or standards of normal spoken communication (e.g., Beukelman, 1988; Buzolich & Higginbotham, 1985; Kraat, 1985; Light, 1988). Use of AAC systems poses some unique demands on the communicator (Yoder & Kraat, 1983). Although the definition of communicative competence for individuals using AAC systems may share some common features with the definition of competence in spoken communication, there will no doubt be some fundamental differences as well.

Many assessment-intervention programs in the AAC field identify attainment of communicative competence by their clients as a goal; however, to date, the precept

Editorial Note: The forum section is designed to develop the field of augmentative and alternative communication through the discussion and debate of clinical/educational, technical/manufacturing, and theoretical/empirical issues. The forum is designed for letters to the editor, position papers, and in some cases papers which may be considered provocative by some members of the profession. Readers are encouraged to submit letters to the editor about manuscripts published in *AAC.* Such letters may amplify basic points or issues raised in the original paper or may take exception to procedures, data analysis, interpretation, and discussion in the original papers. Readers are also encouraged to submit original position papers of "think pieces." Papers in this section undergo the same peer review process as other manuscripts with the exception that letters to the editor are given an expedited review. The expedited review process typically involves only three members of the editorial board (including the associate editor of original manuscripts when the letter to the editor is making reference to previously published papers). This procedure for letters is designed to increase the possibility of letters being published in the one or two issues immediately following the original manuscript. Readers are encouraged to submit papers to the journal which are specifically identified for this section of the journal, being designated as either a letter to the editor or a position paper. Readers are strongly encouraged to submit potentially publishable comments on any manuscript in the journal. However, we are particularly interested in receiving comments on items published in this section of the journal.

of communicative competence has not been clearly defined for individuals using AAC systems. Light (1988) has argued that "a new phase of fact-gathering is required to articulate a paradigm of communicative competence, and then to test out this model to ensure its validity in the field" (p. 75). In light of this need, this paper is directed toward an *initial* attempt to define communicative competence for individuals who use AAC systems. In developing the definition of communicative competence, this paper draws on the literature in a number of areas, including AAC, language acquisition and development, and second language learning, as well as (re)habilitation generally.

Competence has been defined as "the quality or state of being functionally adequate or of having sufficient knowledge, judgement or skill" (Webster's Third New International Dictionary of the English Language, 1966, p. 463). With this definition of competence as a base, the following definition of communicative competence can be extrapolated: the quality or state of being *functionally adequate* in daily communication, or of having *sufficient knowledge, judgement, and skill* to communicate. This definition has three central organizing constructs: (a) functionality of communication; (b) adequacy of communication; and (c) sufficiency of knowledge, judgement, and skill to communicate. Each of these three aspects is considered below.

Functionality of Communication

Functionality of communication implies utility within the demands of daily living. Functional skills are skills that are required within the natural environment: these skills must be performed by others when individuals are unable to fulfill the skill requirements themselves (Brown et al., 1979; Brown et al., 1984). In the area of communication, functional skills involve the skills which are required to initiate and maintain daily interactions within the natural environment, be it asking for directions from a stranger, telling a joke to a friend, ordering a pizza for lunch, or explaining the new data base to a fellow employee. As Calculator (1988) has suggested, functional communication skills have consequences which are valued by the client and by significant others in the environment. These skills serve to enhance the client's functioning within the natural environment.

The functionality of an individual's communication should be evaluated based on actual outcomes in response to the demands of the daily environment. This evaluation approach has been proposed by Canale (1983) to determine communicative competence in the area of second language learning. He has argued against evaluation based on student performances in nonfunctional contexts such as classroom tests, and has proposed instead that communication should be judged as successful or not based on actual outcomes in real life situations.

The functionality or utility of communication depends on the demands posed within the individual's environment. The communication demands for an individual employed as a teacher differ considerably from those imposed on an individual employed as a computer programmer. Thus, it seems reasonable to argue, as Hymes (1972a) has, that communicative competence is context dependent. Communicative competence is a relative, not an absolute, concept. In fact, personal characteristics, partner characteristics, and environmental factors all interact to determine an individual's communicative competence. The study of the interactions of AAC users and normal adult communicators by Buzolich (1984) illustrates this point: she found that judgements of the competence of the AAC users, made by naive persons, varied across partners and she concluded that the AAC users' competence in interaction was *not* independent of the partner. Thus, it is apparent that communicative competence must be considered as an interpersonal construct, rather than an intrapersonal trait (Savignon, 1983). If this is the case, then it is critical that AAC intervention extends not only to the client, but also to facilitators, the significant others in the client's life.

The acquisition of communicative competence is fed by social experience (Hymes, 1972a). Because the behavioral resources of an individual may change over time (especially in the case of the child who is acquiring new skills or the individual with a degenerative disorder), and because the implicit and explicit support and demands of the environment may shift over time, so too may the communicative competence of an individual fluctuate and change. Thus, communicative competence is a dynamic, not a static, concept.

Adequacy of Communication

Communicative competence suggests an adequate level of communication skills to function within the environment; it does not imply total mastery of the art of communication. In considering the goals of second language teaching, Naiman, Frohlich, Stern, and Todesco (1978) have argued that total mastery of a language is rarely, if ever, achieved, even by native speakers; they concluded that such a high ideal is an unrealistic, and perhaps undesirable, goal in second language teaching. They argued that a more desirable goal is for the student to develop adequate skills to meet the communicative demands of the environment. Similar arguments might be applied to the AAC field. Complete masteryof the art of communication may be an unrealistic goal for most users of AAC systems, given the tremendous barriers and constraints they face in daily interactions. Rather, it may be more appropriate to help clients to develop adequate skills and knowledge to meet their daily communication needs.

Competence itself seems to be a threshold concept in that, unless individuals achieve a certain level of proficiency, their skills may be inadequate to meet their communication needs. Some individuals may achieve an adequate level of communication to be considered competent in some contexts, while having inadequate skills to be considered competent in others. Such is the

experience of many individuals using AAC systems, who are considered competent in their interactions with familiar partners in routine contexts, but not in interactions with unfamiliar partners or in novel contexts. Within the group of individuals who have achieved an adequate level of communication skills to be considered competent in most situations, the actual communication skills demonstrated may vary along a continuum across individuals, partners, environments, and intents.

Sufficiency of Knowledge, Judgement, and Skill

The adequacy of functioning discussed above is premised on sufficient knowledge, judgement, and skill to perform as required given the partner, the environment, and the intent. Communication is a complex process that rests on various types of knowledge and skills. Within the field of language development, it is generally recognized that effective communication requires both grammatical or linguistic competence, as well as sociolinguistic competence (Hymes, 1972a). Linguistic competence refers to an adequate level of mastery of the linguistic code, including phonological, morphological, syntactic, and semantic aspects. Sociolinguistic competence involves knowledge of the social rules of language use. It seems reasonable to propose that elements of linguistic and social competence are also required by individuals using AAC systems if they are to communicate effectively in their daily interactions.

Recently, educators and researchers in the field of second language learning have proposed a third element of communicative competence—strategic competence (Canale & Swain, 1980; Savignon, 1983). Strategic competence refers to the compensatory strategies used by individuals which allow them to make the best of what they do know, when their mastery of communication via a second language is lacking. It would seem that the concept of strategic competence may be an important one for individuals using AAC systems who face constant barriers and limitations in their attempts to communicate within a speaking world. Buzolich and Higginbotham (1985) have proposed that AAC system users also require operational competence to communicate effectively in interactions, that is, they require technical skills to operate the AAC system proficiently.

Thus, it might be argued that communicative competence for an AAC user is predicated on knowledge, judgement, and skill in four areas: linguistic competence, operational competence, social competence, and strategic competence. The former two competencies (linguistic and operational) reflect knowledge and skills in tool use, while the latter two competencies (social and strategic) reflect functional knowledge and judgement in interaction. These four areas are interrelated and attainment of communicative competence is dependent on the mastery and integration of skills in each of them. The four areas and their interrelationships are discussed in more detail in the following sections.

Linguistic Competence

As noted before, linguistic competence involves an adequate level of mastery of the linguistic code. For individuals using AAC systems, the challenges are twofold: they must master their native language as spoken by the community, and they must master the "linguistic" code required by the AAC system. Individuals using AAC systems must develop the receptive language skills required to function within their community and as many spoken expressive skills as possible. For some individuals, there may be the need to master not only the native tongue of the family unit, but also that of a second language of the broader social community. All of these skills within the native language (and second language if applicable) must be acquired despite the developmental constraints experienced by most system users, especially those who are physically disabled, including limited physical and cognitive experiences (Yoder & Kraat, 1983). Moreover, these skills must be acquired despite limited access to oral channels of communication.

In addition to mastering the native language(s) of the home and community, AAC system users must also master the linguistic code of the AAC system. They must learn the symbols themselves (e.g., pictures, Picsyms, Blissymbols, traditional orthography, signs, etc.) and the referential and syntactic aspects required to communicate meaning. The latter may be especially challenging because many individuals using AAC systems have access to a finite, restricted vocabulary set. As Yoder and Kraat (1983) have noted: "In many cases, this reduced vocabulary does not reflect the user's knowledge of the world, or his representational abilities on a cognitive level" (p. 32). Moreover, in most cases, the AAC system user must master the linguistic code of the system with few models of proficient AAC system use in the wider community (Culp, 1982; Light, Collier, & Parnes, 1985). The achievement of linguistic competence by individuals using AAC systems seems an even greater challenge considering the disparity between the norms of the spoken native language and the linguistic code of the AAC system. Hymes (1972b) highlighted this disparity with reference to the child who signs: "The language of the classroom is not the language of competence for a signing child" (p. xl).

While it is *possible* to communicate without linguistic competence (witness the experience of visiting a foreign country with no knowledge of the language), the negotiation of meaning which may be achieved is extremely limited. Stern (1975) has argued that the second language learner, who completely lacks linguistic competence in the second language, must first come to terms with the shock and continuing stress of such a severe communication handicap. Stern argued further that the psychological stress and cognitive demands are great when the student needs to attend simultaneously to the linguistic forms and code, and to the communicative interaction. Such may be the experience

of some AAC system users who struggle to communicate effectively, but lack the linguistic competence required in their native language and in their AAC system, to ensure that use of the code is largely an automatic process which requires little conscious information processing.

Operational Competence

Mastery of the linguistic code of the AAC system is not sufficient to ensure proficiency of system use. Rather, the user must also develop the technical skills required to operate the system, including skills to use the access method(s) or transmission technique(s), as well as skills to operate specific device features (e.g., the on/off switch, volume control, output mode selection, etc.). Mastery of an access method such as direct selection with a head-mounted lightbeam pointer or automatic row-column scanning operated by a single switch may require the user to develop a range of motor, sensory/perceptual, and cognitive skills in order to achieve proficiency of use. Recent technical developments have resulted in a proliferation of computer-based communication aids which offer the potential to accelerate the rate of communication through a variety of techniques, including message retrieval and linguistic prediction. For some users, operational competence may need to extend to these techniques as well. Light, Lindsay, Siegel, and Parnes (1988) recently conducted a study to evaluate the information processing demands of various message encoding techniques. They concluded that the potential to accelerate communication rate for AAC users will be realized only if the cognitive demands of the techniques are minimized and if the user reaches a sufficient level of proficiency in using the encoding technique that the process is largely automatic and does not require conscious information processing by the user.

To date, the attention in the field to system operation has largely emphasized the motor demands. In teaching individuals to operate AAC systems, it is critical that attention is directed toward the sensory/perceptual and cognitive demands as well if users are to achieve operational competence. This issue may become increasingly important as the technology developed to bypass physical limitations may pose additional cognitive requirements to master its operation. If the cognitive load is too great and the users' operational skills suffer as a result, their overall communicative competence will be impaired.

Buzolich and Higginbotham (1985) and Culp (1987) have suggested that an individual's operational competence may be evaluated best in terms of the accuracy and speed with which messages are formulated. A certain level of accuracy and speed of system use is required to communicate effectively; however, proficiency in system operation does not, in and of itself, ensure functional use (Kraat, 1984).

Social Competence

The user of an AAC system must also possess knowledge, judgement, and skill in the social rules of communication, including both the sociolinguistic aspects and the sociorelational aspects. The former term refers to the pragmatics of communication, that is, as Hymes (1972a) has suggested, "competence as to when to speak, when not, and as to what to talk about, with whom, when, where, in what manner" (p. 277). By comparison to other areas, sociolinguistic skills have received considerable attention in the field in recent years (see Kraat, 1985, or Light, 1988, for a comprehensive discussion). It is beyond the scope of this paper to provide a detailed discussion of these skills. In summary, sociolinguistic skills include an understanding of the following: discourse strategies (e.g., initiating, maintaining, and terminating interactions, turn taking, cohesion and coherence of conversation); interaction functions (e.g., expression of needs and wants, social closeness, information transfer); and specific communicative functions (e.g., requests for information, protest, self expression). All of these skills are context dependent (dependent on partner, setting, and task demands) and are typically evaluated in terms of their appropriateness and effectiveness.

The sociorelational aspects of interaction have largely been neglected in the AAC field, and yet competence in this area is probably critical to an individual's effectiveness in daily interactions. Warrick (1988) has suggested that many individuals using AAC systems are more challenged by social/relational inadequacies than by limitations of physical and/or cognitive functioning. Light (1988) proposed the following relational skills or characteristics which might be important to the sociocommunicative competence of an individual using an AAC system: a positive self image, an interest in others and a desire to communicate, active participation in conversations, responsiveness to partners, and the ability to put partners at ease.

Although this area has largely been neglected in the AAC field, the field of second language learning has given some attention to the sociorelational skills of the "good language learner." Rubin (1975) listed, among others, the following skills: a strong drive to communicate, a willingness to make mistakes in order to learn and in order to communicate, and a lack of inhibition. In a similar vein, Savignon (1983) has argued for the importance of self-assuredness in relation to communicative competence. She stated,

> it may be that *communicative confidence leads to communicative competence.* To use the swimming analogy. . ., communicative confidence in language learning may be like learning how to relax with your face under water, to let the water support you. Having once known the sensation of remaining afloat, it is but a matter of time until you learn the strokes that will take you where you want to go. (p. 45)

Future research is required to delineate the importance of these sociorelational skills and others in the interactions of individuals using AAC systems.

Strategic Competence

Given the limitations to communication imposed by AAC systems, individuals are often in the position where they "cannot say what they want to, when they want, and how they want to" (Yoder & Kraat, 1983, p. 32). In these instances, individuals require strategic competence to make the best of what they do know and can do. They need to develop compensatory strategies to allow them to communicate effectively within restrictions. Holland (1982) has highlighted the importance of compensatory strategies with the population of aphasic adults. In a study of 40 aphasic adults in daily interaction, she found that despite the severe linguistic deficits experienced by these adults, communication failure was a much less frequent occurrence than was success. She posited that communicative competence is preserved in many aphasic adults through the use of functional strategies which compensate for their linguistic deficits. Savignon (1983) also emphasized the importance of strategic competence, this time for the learner of a second language. She claimed that "the effective use of coping strategies is important for communicative competence in all contexts and distinguishes highly competent communicators from those who are less so" (p. 43).

The adaptive strategies required by individuals using AAC systems may be relatively constant over the long term or they may be transitional, pending the further development of linguistic, operational, or social competence. An example of a long term strategy is the use of telegraphic utterances and partner prediction to circumvent the slow rate of communication for clients who have achieved the fastest rate of system use possible given their physical limitations. The strategies of prediction and telegraphic communication are used to compensate for restrictions in operational competence. An example of a transitional strategy is the use of the phrase, "Please guess," by young children who use communication displays of pictures or symbols. The strategy is used to bypass the vocabulary restrictions of the display and to solicit the partner's active participation in coconstructing the meaning. Although some children may require access to this phrase during preschool and early school years, as their literacy skills develop and their spelling skills improve, they may no longer require this strategy to compensate for limitations to their linguistic competence.

Strategic competence may be especially important for individuals using AAC systems in novel situations where the linguistic, operational, and interpersonal demands may be unique and unexpected. Although several authors have highlighted the importance of adaptive strategies for AAC system users (e.g., Dowden & Beukelman, 1988; Kraat, 1986; Vanderheiden & Lloyd, 1986) to date there has not been a systematic attempt to document the range of compensatory strategies used by successful AAC users to circumvent linguistic, operational, and social limitations. Future research is required to ascertain these strategies and to determine their impact and relative importance.

Integration of Linguistic, Operational, Social, and Strategic Competencies

Thus, it seems that communicative competence for persons using AAC systems rests on their linguistic, operational, social, and strategic competencies. Communicative competence is greater than each of these components alone. In order to achieve communicative competence, individuals using AAC systems must *integrate* their knowledge, judgement, and skills in each of these four areas. Developing skills in only one or two of these areas is not functional for any individual. For example, if individuals have developed adequate linguistic skills in the native language of their community and in their AAC systems and have developed skills to operate their AAC systems with sufficient speed and accuracy, but they have not developed the necessary sociolinguistic and sociorelational skills to initiate interactions and develop interpersonal relations, they may find themselves severely restricted in their opportunities for communication and in their access to a range of communication partners. Despite the linguistic and operational skills these individuals have developed, they are restricted in their overall communicative competence due to the limitations in their social skills. On the other hand, if individuals have developed adequate social skills and linguistic skills, but lack the operational skills to utilize their AAC systems accurately and efficiently, they may also find themselves impaired in their communicative competence. Such a situation might result due to a lack of training and practice in system operation or it might result if the demands of system operation are too complex for the client to accommodate. In the latter case, the cognitive energy required to attend to system operation may detract from the client's attention to the linguistic and social demands of the interaction, thus impairing communicative competence.

Although it may be possible to teach skills in some of these four areas in isolation (e.g., it is possible to teach some operational skills outside the context of relational interactions), it is critical to bear in mind that communicative competence is dependent on the *integration* of linguistic, operational, social, and strategic competences. As a result, any intervention program should ensure that clients learn to integrate the skills they acquire and learn to use these skills functionally to communicate effectively within the demands of the daily environment. Consider the analogy of a musical score to illustrate the need to integrate linguistic, operational, social, and strategic skills to achieve communicative competence. Skills in each of these four areas are like the individual notes in a piece of music. Musicians must learn each of the notes, but they must

also learn to play the notes in harmony. If the performer lacks the skills to execute some of the notes, the balance and harmony of the musical score is lost. Similarly, AAC users must learn linguistic, operational, social, and strategic skills, but they must also learn to integrate these skills. In fact, learning to smoothly orchestrate the skills in all these areas may be the most difficult challenge in the development of communicative competence for AAC users.

The contributions of the skills in each of these areas to the development of communicative competence may vary in relative importance, depending on environmental demands and on the life stage and life style of the individual. Determining the interrelationships of these four components and the relative importance of their contributions in determining communicative competence will require future research.

Future Directions

Research Directions

The definition of communicative competence proposed in this paper is tentative at best. Future research is obviously required to test the validity and clinical viability of this conceptualization within the AAC field. As data emerge from such empirically based research, the definition will need to be refined and modified. As the definition is refined, research will be required to operationally define the variables related to communicative competence. The development of valid and psychometrically sound measures will assist the interdisciplinary team in assessing the communicative competence of individuals using AAC systems and in developing appropriate intervention programs. Research will also be required to evaluate the effectiveness of these intervention programs in the development of communicative competence by clients.

Clinical Implications

If the proposed definition of communicative competence is a valid one, there are some obvious clinical implications for the AAC field. First, the definition argues strongly for the importance of an assessment-intervention team which draws on the skills of professionals from a range of disciplines. No single profession or lay individual possesses sufficient knowledge or skills to address the linguistic, operational, social, and strategic skills required by an AAC user and to ensure that these skills are functionally integrated to promote effective communication within the environment. To be ultimately effective, assessment and intervention requires the expertise of a range of disciplines, including occupational therapists, special educators, speech and language pathologists, psychologists, and technical personnel, all with expertise in the AAC field (Yorkston & Karlan, 1986). Furthermore, the team requires the input and commitment of the clients' facilitators and of the clients themselves. While the arguments for an interdisciplinary team with extensive facilitator and client involvement are by no means new ones, unfortunately this approach is not always practiced within the field. The proposed definition of communicative competence offers even more compelling arguments for interdisciplinary involvement.

The breadth of skills (linguistic, operational, social, and strategic skills) required to achieve communicative competence has challenging implications for the development of effective AAC services. Obviously, superficial approaches to assessment-intervention must be discouraged. A one-shot assessment which results simply in the provision of an AAC system for a client is inadequate. Rather, concerted intervention may be required in a variety of domains to ensure effective and functional use of the system to communicate within the natural environment. For many clients, assessment-intervention may be ongoing processes, for as their needs change, new competencies may be required. Furthermore, as new skills are acquired, these must be integrated with existing skills to ensure their functional use. As noted earlier, research is required to explore the interplay of these skill areas over a client's lifetime and to determine their relative importance. Such research will assist the team in setting priorities for intervention.

The proposed definition of communicative competence suggests some gaps within current service delivery programs. While many programs currently address, at least to some extent, the linguistic, operational, and sociolinguistic skills required by AAC users, few programs consider the sociorelational development of clients. As Light (1988) and Warrick (1988) have suggested, sociorelational skills are critical to the development of communicative competence. Research is required to consider ways to facilitate the positive sociorelational development of AAC users.

If communicative competence depends on the development of functional communication, then, intervention must extend to the natural environment. As Calculator (1988) has suggested, intervention will only be meaningful if it is conducted in the settings in which the clients participate (or are projected to participate). If intervention is to be extended into the natural environment, then the clients' facilitators must be integrally involved in the process. Because communicative competence seems to be an interpersonal construct, the focus of assessment-intervention should be the client *and* facilitators within their daily dyadic and group interactions.

Conclusion

This paper has proposed some initial directions toward defining communicative competence for individuals using AAC systems. Any attempt to define communicative competence for this group of individuals runs the risk of falling short of the mark. Definitions, of necessity, constrain a topic. To date, the construct of communicative competence for AAC users is one whose delineation is hazy and whose boundaries are difficult to locate and describe. Nevertheless, it is hoped that this attempt to define communicative competence

will serve to focus attention on some of the critical characteristics of the construct. It has been proposed that communicative competence is the ability to *functionally* communicate within the natural environment and to *adequately* meet daily communication needs. It has been suggested that this ability is premised on the *integration of knowledge, judgement, and skills in four areas: linguistic, operational, social,* and *strategic competence.* Linguistic and operational competencies refer to knowledge and skills in the use of the tools of communication; social and strategic competences reflect functional knowledge and judgement in interaction. Many of the requirements of social competence and linguistic competence, as they relate to the native language, are similar whether for users of AAC systems or for natural speakers. For example, both AAC users and natural speakers must acquire the skills to initiate and maintain interactions and to comprehend the spoken language of others in the community. However, AAC users face considerable barriers in meeting the necessary social and linguistic requirements, due to limitations imposed by the physical disability and the AAC system, and limitations in cognitive and social experiences. As a result, they may require adaptive strategies to bypass their limitations. Thus, they may strive for the same end result, but via a different means. The demands of linguistic competence, as it relates to the AAC system, and of operational competence are unique to the population of AAC system users. The strategic competence required of AAC users to compensate for linguistic, operational, and/or social limitations is also unique. Thus, although certain precepts of communicative competence may be similar across AAC users and natural speakers, there are some fundamental differences as well. This paper has offered a preliminary attempt to define communicative competence for AAC users. Future research is required to refine this initial definition and to test its validity within the field.

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