Variables Influencing Perceptions of the Communicative Competence of an Adult Augmentative and Alternative Communication System User

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The effects of aided message length, partner reauditorization, and observer background on perceptions of the communicative competence of an adult augmentative and alternative communication (AAC) system user were examined. Two groups of subjects participated: naive adults with minimal exposure to nonspeaking persons, and speech-language pathologists currently working with AAC users. Four scripted videotaped conversational conditions involving an AAC user and a normally speaking partner were employed to manipulate aided message length and partner reauditorization. A balanced incomplete block design was used. Following each viewing, subjects completed a questionnaire designed to assess the communicative competence of the AAC user. Results indicated a significant interaction effect involving subject group and aided message length. The speech-language pathologists were affected by aided message length. Furthermore, significant differences between subject groups were found in specific conditions. Future research directions are discussed.

KEY WORDS: augmentative and alternative communication (AAC), perceptions, communicative competence, adult AAC user

The issue of communicative competence is currently receiving a great deal of attention in the field of augmentative and alternative communication (AAC). Several variables that may affect the communicative success particularly of adult AAC users have been proposed. These include (a) the grammatical completeness of the AAC user's messages (Yorkston, Honsinger, Dowden, & Marriner, 1989); (b) message intelligibility (Beukelman & Yorkston, 1982); (c) rate and accuracy of AAC user message delivery (Beukelman & Yorkston, 1982; Culp, 1987); (d) the sociolinguistic or pragmatic skills of the AAC user (Culp, 1987; Light, 1989); (e) psychosocial or sociorelational aspects of communication (Culp, 1987; Light, 1989); and (f) the compensatory strategies employed by both the AAC user and partner for allowing effective communication within the restrictions imposed by the AAC system (Light, 1989). Although these variables appear to be critical for the attainment of communicative competence by adult AAC users, there is a lack of empirical data verifying that this is, in fact, the case. Methodical examination of the effects of these variables on observers' perceptions of the communicative competence of adult AAC users could help determine which communicative behaviors or strategies work best in the real social world.

To date, however, relatively few studies have examined observers' perceptions of the AAC user's communicative competence or the behaviors that influence these perceptions. The methods employed in these studies have been similar. Specifically, various observers have been instructed to respond to questionnaires designed to assess their perceptions of the communicative competence of the AAC user in naturally occurring interactions with a speaking partner (Buzolich, 1983; Kangas, 1990). From these responses, specific variables contributing to the perceived communicative competence of the AAC user have been identified. Because of the descriptive nature of these studies. however, the variables have not been experimentally manipulated nor have the effects of other potentially relevant conversational variables been controlled. Although these studies have been essential in revealing relevant performance factors, the variability inherent in spontaneous interactions may limit the conclusions drawn regarding the specific effects of these factors. The experimental verification of variables already believed to influence perceptions of communicative competence in adult AAC users, therefore, is warranted.

The purpose of this study was to conduct such an investigation. Specifically, three variables previously suggested as pertinent to perceptions of communicative competence in adult AAC users were examined. The first variable involved an AAC user behavior: the length (i.e., production at the word or phrase level) of the AAC user's aided messages. This particular variable was selected for examination because of its emphasis in both the AAC research literature and in clinical practice. In a case study involving vocabulary selection, Yorkston et al. (1989) stressed the importance of grammatical completeness in aided messages produced by the linguistically competent adult AAC user. Likewise, in clinical practice, these nonspeaking adults are often encouraged to "say the whole thing" in an effort to achieve message clarity/accuracy. Unfortunately, there is no empirical support for this particular clinical practice in terms of its contribution to perceptions of communicative competence in adult AAC users. An investigation of the effects of aided message length on perceptions of communicative competence of adult AAC users, therefore, appears warranted.

The second variable examined in the present investigation involved a normally speaking partner behavior. A partner variable as opposed to another AAC user variable was selected because of the importance of the partner in interactions with AAC users. Indeed, as McNaughton and Light (1989) have suggested, "The partner is a major factor in the success or failure of many communicative interactions" (p. 35) with AAC users. Communicative competence of AAC users must be viewed, therefore, as an "interpersonal construct, rather than an intrapersonal trait" (Light, 1989, p. 138). The particular partner variable selected for examination was the use of reauditorization or expanded repetitions by the partner in response to aided AAC user messages. Reauditorization was selected based on its frequent usage by speaking partners in interactions with adult AAC users (Beukelman & Yorkston, 1982; Higginbotham, 1989), as well as its frequent inclusion in AAC intervention programs. Such expanded repetitions are employed by the partner in order to confirm the AAC user's messages. This confirmation, in turn, serves as a check to prevent communicative breakdowns (Beukelman & Yorkston, 1982; Fishman, Timler, & Yoder,

1985). In contrast to the first variable (i.e., aided message length), which can potentially influence perceptions of the AAC user's communicative competence by the partner as well as by a third-party observer, the variable of reauditorization can only influence such perceptions by a third-party observer. The importance of third-party perceptions cannot be overlooked. Indeed, as Light (1988) suggested, if adult AAC users are to function as productive members of society, then communicative competence must be considered from a social perspective, involving the partner and/or a third-party observer. Thus, although reauditorization may be helpful to the partner in confirming the AAC user's messages, it may actually be perceived as interfering with the flow of communication by a third-party observer. An investigation of the effects of partner reauditorization on perceptions of communicative competence of adult AAC users, therefore, appears warranted.

A subject group variable was selected as the third independent variable of this study. It has been suggested that judgments of communicative competence of AAC users may vary as a function of the third-party observer involved (Light, 1988). One possible observer attribute influencing such judgments involves the degree of familiarity with AAC users (Light, 1988). Another potential attribute involves the expectations one brings to the task depending upon his or her professional role. To date, no data regarding the manner in which these observer attributes (i.e., background) influence perceptions of communicative competence of adult AAC users are available. In the present investigation, therefore, two groups of subjects, differing in their degree of familiarity with AAC users and in their roles, were selected for participation. The first group consisted of naive, normally functioning adults with little or no exposure to persons with severe speech impairments, as well as no educational training or professional experiences related to AAC, developmental disabilities, or allied health. The second group was composed of speech-language pathologists who had at least 2 years of paid professional experiences working with AAC users, and who were currently working with this population. Inclusion of the naive adults was of particular interest in that they were representative of the general public-those who could potentially be in positions to evaluate adult AAC users for residential, recreational, or employment considerations. If the targeted communication behaviors selected by speechlanguage pathologists for adult AAC users and their partners have a negative impact on the perceptions of the general public, then these behaviors should be subject to question.

In summary, the purpose of the present investigation was to experimentally examine the effects of aided message length, partner reauditorization, and observer background on perceptions of the communicative competence of an adult AAC user. The following experimental questions were posed:

- 1. What is the effect of aided message length on perceptions of communicative competence?
- 2. What is the effect of partner reauditorization on perceptions of communicative competence?
- 3. What is the effect of observer background on perceptions of communicative competence?

Method

Subjects

Two groups of subjects (residing in either midwestern or eastern states or an Atlantic Canadian province) participated in the study. Criteria for subject selection for the first group were that the individual (a) have no educational training or professional experiences related to AAC, developmental disabilities, or allied health; (b) have no or limited experience seeing or conversing with individuals with severe speech impairments; and (c) possess functional hearing and vision. This group consisted of 24 naive, normally functioning adults: 9 men and 15 women, ranging in age from 22 to 65 years, with a mean age of 38.83 years (SD = 11.58). In terms of maximum educational levels, 7 of these subjects had high school diplomas, 7 had vocational-technical degrees, and 10 had university undergraduate degrees.

Criteria for subject selection for the second group were that the individual (a) have 2 or more years of paid professional experience working with AAC users, (b) be currently working with a minimum of two AAC users, (c) hold at least state or provincial certification in speech and language pathology, and (d) possess functional hearing and vision. This group of subjects consisted of 24 speech-language pathologists: 4 men and 20 women, ranging in age from 24 to 47 years, with a mean age of 34.33 years (SD = 6.06). Six of these speech-language pathologists held certification at the state level, and 18 held certification at the national level. Paid professional experience instructing AAC users ranged from 2 to 11 years, with a mean of 5 years (SD = 2.65) across subjects, while paid professional experience in the field of speech and language pathology ranged from 2 to 19 years, with a mean of 8.17 years (SD = 4.26). Numbers of AAC users on current caseloads ranged from 2 to 35, with a mean of 7.92 users (SD = 8.65) across speech-language pathologists. Subjects in each group were asked to complete an information form in order to determine their eligibility for subject selection.

Experimental Procedure

The experimental procedure required the construction of conversational scripts, the preparation of videotaped recordings, the development of a questionnaire, and the selection of an experimental design to examine the variables of this investigation. These areas are discussed in the sections that follow.

Conversational scripts. Conversational scripts manipulating AAC user aided message length and partner reauditorization were developed. Specifically, message length was defined according to the number of lexical items used per aided message/utterance. Two levels of message length were employed: (a) production at the single word level and (b) production at the phrase level involving two to four lexical items per message. At each level, lexical items consisted of content words (e.g., nouns, verbs, adjectives, adverbs, pronouns). Articles, bound morphemes, and forms of the verb to

be were excluded. Forms of yes and no were produced only via vocalizations/speech as the mode of communication.

In terms of partner reauditorization, two levels were employed: (a) presence of partner reauditorization and (b) absence of partner reauditorization. Specifically, partner reauditorization was defined as utterances involving expanded repetitions of the AAC user's aided messages without rising intonation. Such repetitions could include changes in verb tense. Partner reauditorization was not used in response to gestures or speech involving forms of *yes* or *no* by the AAC user. Following the use of reauditorization, the partner then continued his conversational turn by extending the topic (Fey, 1986). Examples of partner reauditorization in response to single word versus phrase messages produced by the AAC user are underlined as follows:

Single-word message:

AAC user: TV.

Partner: Oh you were watching TV. You musta been watching Late Night Classics.

Phrase message: AAC user: Watch TV.

Partner: Oh you were watching TV. You musta been watching Late Night Classics.

In contrast, partner turns excluding reauditorization consisted only of topic extensions, as illustrated in the nonunderlined portions of these turns in the examples provided above.

Based on these two independent variables, four conversational conditions were employed: Condition I: partner reauditorizes (+ reauditorization), AAC user produces phrase messages (+ phrase); Condition II: partner does not reauditorize (- reauditorization), + phrase; Condition III: + reauditorization, AAC user produces single word messages (- phrase); and Condition IV: - reauditorization, - phrase.

A conversational script was developed for each conversational condition in order to manipulate experimentally the AAC user and partner variables while controlling for possible effects of other conversational variables (Gorenflo & Gorenflo, 1991). The content of each script was identical across conditions. Topics and utterances for these scripts were derived from audiorecorded spontaneous conversations among normally functioning male adult friends.

Each script involved a dyadic interaction between the same two participants: Bob, a cognitively normal nonambulatory adult with cerebral palsy, and his normally functioning adult friend, Steve. Bob interacted via an ALLTALK¹ electronic communication aid. An electronic device producing digitized (such as the ALLTALK) as opposed to synthesized speech was selected because findings from the literature show such a preference among adults (Mirenda, Eicher, & Beukelman, 1989).

Similarly, the investigators used findings from the literature regarding styles of interaction between AAC users and their normally functioning partners in order to construct the scripts in terms of (a) the types and percentages of communication functions used by each participant (Calculator & Luchko, 1983; Dalton & Bedrosian, 1989); (b) the communication

¹ALLTALK manufactured by Adaptive Communication Systems, Inc., Pittsburgh, PA.

modes used to express specific communication functions by the AAC participant (Dalton & Bedrosian, 1989); (c) the frequency of topic initiations by each participant (Calculator & Dollaghan, 1982; Calculator & Luchko, 1983; Dalton & Bedrosian, 1989); (d) the length of topic maintenance (Dalton & Bedrosian, 1989); (e) the rate of communicative success or failure for each participant (Calculator & Dollaghan, 1982; Calculator & Luchko, 1983); (f) the number of utterances/ messages per turn for each participant (Buzolich & Wiemann, 1988); (g) the length of phrase messages by the AAC participant (Yorkston, Beukelman, Smith, & Tice, 1990); (h) the response latency for the AAC participant (Buzolich & Wiemann, 1988); (i) the turn-taking cues used by each participant (Buzolich & Wiemann, 1988); and (j) the vocabulary available to the AAC participant (Yorkston et al., 1989). A script representing all conversational conditions can be found in Appendix A.

Videotaped recordings. Two normally functioning men acted/role-played as confederates in the conversational conditions described. The actor playing the role of Bob, the man with cerebral palsy, received extensive coaching in and modeling of vocalizations and gestures, as well as hand, torso, and head postures characteristic of the population. A normally functioning actor was selected for this part to ensure consistency in motor movements and rate of message delivery across conversational conditions. In order to determine the validity of the actor's performance, two adult AAC users with cerebral palsy, as well as two speech-language pathologists experienced in working with AAC system users, were asked to view the videotaped conversations and were questioned about their thoughts on the diagnosis of the person portrayed by the actor. These viewers agreed that the actor had cerebral palsy. The actor who played the role of Steve, the normally functioning friend, was a former vocational trainer for adults with developmental disabilities, including those using AAC systems, and, therefore, had extensive experience interacting with such individuals.

Each conversational condition was videotaped on the same day in a recording studio. Conditions I, II, III, and IV took 6:32, 5:45, 4:33, and 4:08 min, respectively. The actor playing Steve was seated directly facing the camera, and the actor playing Bob sat in a wheelchair with his back to the camera. The ALLTALK device was placed on the lap tray of the wheelchair and was not directly visible to the camera. Each actor read from a script that was not visible to the camera.

The response latency (i.e., the amount of time it took for the AAC user to begin a conversational turn involving aided messages following the completion of the other participant's turn, as well as time elapsing between selecting each lexical item in aided messages involving phrases) was closely monitored during the videotaping of each conversational condition. Specifically, the actor playing Bob, the AAC user, employed a self-count of 5 sec before beginning conversational turns involving aided messages, as well as between the selection of each lexical item in aided messages involving phrases (i.e., Conditions I and II). The mean response latencies for Conditions I, II, III, and IV were 5.40 (SD = 0.92), 5.21 (SD = 0.92), 6.21 (SD = 0.73), and 6.08 (SD = 0.52) sec, respectively. An analysis of variance, F(3, 99) = 0.52

7.66, p < .001, indicated significant differences between the mean response latencies for Conditions I through IV. Fisher's least significant differences (LSD) multiple comparison method showed that there were no significant differences between the mean response latencies for Conditions I and II, nor for Conditions III and IV (Ott, 1988). However, the mean response latencies for both Conditions I and II were significantly different from those for Conditions III and IV. The conditions with phrases had greater mean response latencies than those without phrases. This finding will be discussed with the results of the investigation.

The ALLTALK device used in the videotaping of each conversational condition was programmed in a soundproof audiological testing booth using a man's voice. Each lexical item was programmed in a different space, with the exception of the frequently used phrase, "See you later," which was programmed in the same space. A list of the programmed vocabulary arranged by grammatical category can be found in Appendix B.

A short introduction involving the same two actors was also videotaped. During the introduction the actors faced each other and were seated at a 90° angle to the camera, thus making the side of the ALLTALK device visible to the camera. The actors were instructed to engage in a conversation during the following voice-over narration:

You are about to view a conversation between two friends, Bob, on the right, and Steve, on the left. Bob, who has cerebral palsy, relies on an electronic communication aid to supplement his speech, gestures, and other means of communication. The aid produces speech, as you will hear. After viewing the conversation, you will be asked to complete a brief questionnaire gathering your impressions of what you observed on the videotape. We thank you for your participation.

Questionnaire. At the time of the investigation, there were no extensive and valid questionnaires available for evaluating communicative competence in AAC users. Therefore, such a questionnaire was designed specifically for this investigation. In the initial phase of developing the questionnaire, terminology from the literature associated with effective AAC use was employed (e.g., Beukelman & Yorkston, 1982; Buzolich, 1983; Calculator, 1988; Culp, 1987; Kraat, 1985; Light, 1988, 1989). In addition, descriptors related to communicative competence of AAC users were solicited from certified speech-language pathologists currently working in the area of AAC, as well as from undergraduate and graduate students in speech and language pathology subsequent to viewing videotaped interactions involving AAC users and their normally functioning partners. The first two authors used all these terms to construct a list of possible statements relating to the communicative competence of AAC users. To assess content validity, the third author, who is an expert in assessing communicative competence in AAC users, examined the scope of each statement and of all of the statements taken together (McCauley & Swisher, 1984). Items viewed as not relevant to measuring communicative competence were then eliminated. Finally, a consultant outside of the field of speech-language pathology who was an expert in questionnaire development edited the list for clarity of wording, redundancy, and the expression of items in positive as well as negative terms. The consultant also determined the relevance of each statement as a measure of communicative competence for purposes of face validity (McCauley & Swisher, 1984).

A preliminary form of the questionnaire, consisting of 32 items using a Likert-type scale (Hulley & Cummings, 1988), was then field-tested with 6 subjects (2 speech-language pathologists, 2 naive adults, and 2 cognitively normal, nonspeaking adults with cerebral palsy). After viewing each conversational condition, presented in random order, subjects completed the questionnaire. At the end of the rating session, the subjects were asked to evaluate each questionnaire item for clarity and answerability. These responses were used to eliminate redundant, unclear, or otherwise inappropriate items.

The final questionnaire consisted of 30 items related to the communicative competence of the AAC user (see Appendix C). The 5-point Likert-type scale was designed so that 1 equalled *definitely false* and 5 equalled *definitely true*. The summation of the observers' responses to these questionnaire items served as the dependent variable.

Experimental design and rating sessions. A balanced incomplete block design (Ott, 1988), also referred to in this case as a two period—four treatment crossover design, was employed in the investigation in order to allow for elimination of between-person variability by using subjects as their own controls. It also minimized variability due to subject fatigue and carryover effects. Specifically, each subject was scheduled for two 30-min sessions held approximately 5 to 7 days apart. Each subject was assigned to view only two of the four conversational conditions and viewed each condition in a separate session. Two subjects from each group were assigned to the same ordering or pair of conditions. In this manner, all 12 possible pairings were viewed.

Sessions were held in quiet, distraction-free rooms. Subjects were seated such that they could easily see and hear the television monitor. Following the viewing of the videotaped introduction and the assigned conversational condition, each subject was given the questionnaire and instructed to complete it. Subjects were instructed to not discuss the videotaped conversation or questionnaire outside of the rating session. These same procedures were followed during the second rating session.

Reliability

The reliability of the questionnaire in terms of its internal consistency was estimated by computing Cronbach alphas (Cronbach, 1951) from within subject group mean squares. Results indicated a Cronbach alpha of .94.

Results

An analysis of variance (ANOVA) (SAS, 1983) was run on the dependent variable, that is, the summation of the subjects' ratings of the AAC user on the 30 questionnaire items. In cases where significant interaction effects were found, Fisher's least significant differences test for comparing two-

TABLE 1. Means (M) and Standard Errors (SE) of the mean for ratings of communicative competence by naive adults (NAs) and speech-language pathologists (SLPs) across conditions according to aided message length.

Conditions	Aided message length	Subjects				
		NA	8	SLPs		
		M	SE	М	SE	
I and II III and IV	Phrase Single word	114.72 109.76	3.38 3.38	107.74 91.02	3.38 3.38	

way means was conducted (Ott, 1988). Results are reported as statistically significant if the two-tailed *p* value was <.05.

With respect to the communicative competence ratings of the AAC user, the ANOVA revealed a significant interaction effect involving subject group and aided message length, F (1,41) = 7.36, p < .01. Because of this interaction, the experimental questions regarding the effects of aided message length and observer background on perceptions of communicative competence must be addressed together. For each group of subjects, the means and standard errors of the mean for ratings of communicative competence across conditions according to aided message length are reported in Table 1. Examination of the naive adults' ratings in pairwise comparisons indicated no significant differences between conditions with phrases (i.e., Conditions I and II) and those without phrases (i.e., Conditions III and IV) (p = .11), although the mean for conditions with phrases (114.72) was higher than that for conditions without phrases (109.76). For the naive adults, then, aided message length had no significant impact on their ratings.

In contrast, ratings by the speech-language pathologists were affected by aided message length. Examination of the speech-language pathologists' ratings in pairwise comparisons revealed significant differences between conditions with phrases (i.e., Conditions I and II) and those without phrases (i.e., Conditions III and IV) (p < .001). The mean rating for conditions with phrases (107.74) was higher than that for conditions without phrases (91.02). Thus, for the speech-language pathologists, the AAC user was perceived as more competent when using phrases than when using single-word messages.

With respect to the effect of observer background, the ratings by the naive adults and the speech-language pathologists were compared across conditions with and without phrases. For conditions with phrases (i.e., Conditions I and II), there were no significant differences between the ratings by the two groups (p=.15), although the mean rating by the naive adults was higher than that by the speech-language pathologists. In contrast, for conditions without phrases (i.e., Conditions III and IV), there were significant differences between the ratings by the two groups (p<.001). When using single-word messages, the AAC user was rated higher in competence by the naive adults than by the speech-language pathologists.

Finally, with respect to the partner variable of reauditorization, no main or interaction effects were found. Thus, this particular variable did not significantly influence perceptions of communicative competence for either group of subjects.

Discussion _

This study examined the effects of aided message length, partner reauditorization, and observer background on perceptions of the communicative competence of an adult AAC user. Findings indicated a significant interaction effect based on subject group and aided message length. Specifically, for the naive adults, aided message length failed to have a significant impact on their ratings. Perhaps, for these subjects, aided message length would have had more of an impact on their ratings if an electronic device producing synthesized speech as opposed to digitized speech had been employed. Results from numerous investigations have indicated that electronic devices producing synthesized speech are less intelligible than those producing digitized speech (e.g., Mirenda & Beukelman, 1990). Thus, it could be hypothesized that under conditions of reduced intelligibility, the use of phrases, as opposed to single word messages with less linguistic information, might actually enhance the communicative competence of the AAC user. It is also possible that the use of reauditorization might enhance communicative competence under conditions of reduced intelligibility. For this reason, an investigation of a device using synthesized speech is currently being conducted.

In contrast, for the speech-language pathologists, the use of phrases had a positive impact on their ratings. Indeed, for these subjects, the AAC user was rated higher in competence in conditions with phrases (i.e., Conditions I and II) than in conditions without phrases (i.e., Conditions III and IV). This finding was particularly interesting given that the mean response latencies for the AAC user's aided messages in conditions with phrases were significantly greater than those for conditions without phrases. Thus, even though the response latencies were longer during the production of phrases as opposed to single words, the AAC user was still perceived more positively by the speech-language pathologists. This is not to say, however, that rate is not an important factor to consider in determining the communicative competence of adult AAC users. The relationship between rate and aided message length cannot be determined from the present investigation. Therefore, a systematic investigation of this relationship is warranted in future studies.

The finding that the naive adults rated the AAC user as more competent in conditions without phrases (i.e., Conditions III and IV) than did the speech-language pathologists was not surprising. None of the naive adults had previous experience interacting with AAC users. During the rating sessions, several of these subjects commented that they were impressed that the AAC user, given his physical limitations, was even able to communicate. It is possible that these naive subjects, with their lack of knowledge about AAC users, were more tolerant or accepting of the AAC user's communicative performance than were the speech-language pathologists. Also, the naive adults' reactions were made as observers rather than as actual participants in such interactions. Although the importance of third-party observers cannot be overlooked, the effect of third-party as opposed to first-party observations on perceptions of communicative competence must be taken into consideration (P. Mirenda, personal communication, August 15, 1990). It has been suggested that an individual's perceptions of another communicator may vary during initial encounters depending upon whether he or she is actually interacting with the person or just observing (Wiemann, 1977). Although the speech-language pathologists were also third-party observers in this case, they had previous experience as participants in interactions with AAC users. Furthermore, their professional role required them to adopt a critical perspective for assessment and intervention purposes. The speech-language pathologists may have been using stringent criteria in terms of what the AAC user "should" have been doing in the interactions. Together, these factors could have resulted in their overall lower ratings of the AAC user in the conditions without phrases (i.e., Conditions III and IV). Indeed, as Prutting (1982) suggested, we will have to decide how to handle these clinical versus societal differences and what they mean in terms of selecting conversational behaviors for intervention purposes. In addition, obtaining nonspeaking adults' perceptions of communicative competence as influenced by these same independent variables is warranted. According to Light (1989) and Calculator (1988), communicative competence must be defined from the perspectives of both AAC users and their partners or potential partners in order to attain viable measures. Such an investigation is currently underway.

Whereas the partner conversational variable examined in this investigation failed to influence perceptions of communicative competence, other partner variables may, nevertheless, deserve careful examination. One such variable might be to have the partner make frequent comments as opposed to frequent requests in the turn-taking exchange. Another variable might be to have the partner initiate an equal number of topics as the AAC user rather than more topics than the user. The findings from such investigations could result in valuable information for providing communicative instruction to the partners of AAC users.

In conclusion, the present investigation provides preliminary information regarding variables that affected perceptions of the communicative competence of an adult AAC user. The method employed in this study allowed for the experimental verification of these variables. This particular method, involving the careful construction and enactment of conversational scripts, is relatively new to AAC research, and, indeed, to most areas of communication disorders. The use of such a method is suggested for future investigations into the verification of variables already believed to influence observers' perceptions of the communicative competence of adult AAC users. The nature of AAC is certainly complex. No longer can we select communicative target behaviors for both the AAC user and the partner without considering the effects of these behaviors on observers' perceptions of the AAC user's communicative competence. Indeed, this will be of utmost importance in developing successful communicative intervention programs with adult AAC users and their partners.

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Appendix A

Script Across Conversational Conditions

Condition I: + Reauditorization, + Phrase Condition II: - Reauditorization, + Phrase Condition III: + Reauditorization. - Phrase Condition IV: - Reauditorization, - Phrase Bob = AAC user

Steve = Normally functioning friend

... = 5-second pause

// = Aided message via ALLTALK

< laugh> = Both participants laugh

() = Gestural message

[] = Use of reauditorization for Conditions I and III

Italics = Single word aided messages for Conditions III and IV

Steve: So what have you been up to? Steve: [How's my baseball team.] Bob: /... I ... tired/ Well things could be better. Steve: [You're tired.] We don't have as many teams to play against this year and How late were you up? we're getting tired of playing against the same people all the Bob: /. . . until . . . one/ Steve: [You were up until one o'clock.] You know you're in trouble when the bad ones start beating What were you doing? the good ones. Bob: /... watch ... TV./ <laugh> Steve: [Oh you were watching TV.] Anyway . . . hey did I tell you that we got a new carpet? You musta been watching Late Night Classics. Bob: Uh-uh + (no) Wait a minute . . . yeah this is Jimmy Stewart week. Steve: Well you know that one in our family room was getting pretty Which one was on last night, "It's a Wonderful Life"? bad. Bob: Yeah. So last month we put in a new one. Steve: Oh shoot I missed it. Bob: /. . . what . . . color/ Bob: /... my ... favorite ... movie/ Steve: What? Steve: What? Bob: /. . . what . . . color/ Bob: /... my ... favorite ... movie/ Steve: [What color is the carpet.] Steve: [That's your favorite movie.] It's one of mine too. Well unfortunately it's beige. Can you believe how young he was in that movie? Anyhow, I get home from work on Friday and find out that And Donna Reed too. Katie's been working on her science fair project and she She was practically still in diapers. dumped a whole bottle of ink on the carpet. <laugh> I mean we've told her a million times to work on this thing Well I went to Comedy Intrusion last night and they had a downstairs. couple of guys who were hilarious. We tried cleaning it and it's just not coming out. They had some of the best sound effects I've ever heard. We told her straight out that she would be losing her They did this thing about takin' a train from Kansas City to St. allowance for a month. Louis and they sounded just like a train. What would you do if your kid did something like this? Bob: /... where ... that ... show/ Bob: /... I ... do ... same/ Steve: [Where's the Comedy Intrusion show.] Steve: [You'd do the same.] Oh it's at the Holiday Inn. Well that's a relief. We oughta go next week. Sometimes it's hard to know what to do. Bob: Yeah. Anyhow, maybe next time we get a black carpet. Steve: The tickets aren't all that bad, only two dollars at the door. Let's see ... ah every Monday, Tuesday, and Wednesday Say I gotta go now. night at nine o'clock. How 'bout you? What night would you want to go; I've got softball practice on Bob: /... I ... go ... bank ... now/ Tuesday. Steve: [You're going to the bank now.] What's Janice's work schedule? Do you need a lift? Bob: /... work ... Monday ... night/ Bob: No. Steve: [Oh Janice works on Monday night.] Steve: How are you getting there? Well then you'd have a problem with babysitting. Bob: /... Janice ... take ... me/ So what do you think about Wednesday? Steve: [Oh Janice is taking you.] Bob: /... Wednesday ... good/ OK, well I'll see you next Wednesday. Steve: [So Wednesday is good for you.] Bob: /... see you later/ I'll call you to set a time to pick you up. Steve: [You'll see me later.] Bob: (yes) /... how ... your ... baseball/ Bye.

Appendix B

ALLTALK Vocabulary Across Conditions by Grammatical Category

Nouns: bank, baseball, color, Janice, movie, night, show, TV

Verbs: do, go, see, take, watch, work Pronouns: I, me, my, that, you, your Adjectives: favorite, good, one, same, tired Adverbs: later

Wh questions: how, what, where Other: Monday, Wednesday

Appendix C

Questionnaire

Instructions: You have just observed a taped conversation between Steve and Bob, the individual who used the electronic communication device. On the basis of your observation, please circle the code letter(s) (explained below) which best correspond to your impression of this conversation and its participants. Please answer every question even though you may feel uncertain about the best response.

Code Letter(s): DF = Definitely False F = More False Than True I = In Between	T = More True Than False DT = Definitely True

1. Bob took an active part in the					
conversation	DF	F	ı	Т	DT
2. Bob was good at keeping his partner's					
attention	DF	F	1	Τ	DT
3. Given Bob's reasons for wanting to talk					
with Steve, Bob's messages seemed to be					
suitable	DF	F	ı	Т	DT
Bob's vocabulary was too limited to					
convey his ideas or feelings	DF	F	ı	Т	DT
5. Bob expressed himself smoothly	DF	F	ı	Т	DT
Bob used messages that were well		_		_	
organized	DF	F	ı	T	DT
7. Bob's grammar seemed fitting for a		_		_	
person of his age and circumstances	DF	F	ı	Т	DT
8. Bob seemed to disregard the feelings his	D E	_		_	ьт
9. Bob seemed to make an effort to	DF	F	ı	ı	וט
understand what his partner was saying	DF	_		т	DT
10. Bob offered a lot of information	DF	F	;	÷	דמ
11. Bob encouraged conversation about	Dr	Г	'	'	יט
topics introduced by his partner	DF	F	ı	т	DT
topico introducca by the partitor		•	•	•	01

12. When his ideas or feelings were not					
understood, Bob was successful in getting		_		_	
help from his partner	DF	F	ı	T	DT
13. Bob had interesting things to					
communicate	DF	F	ı	Т	DT
14. Bob appeared to be at ease in the		_		_	
conversation	DF	F	ı	Т	DT
15. Bob's messages were incomplete					
expressions	DF	F	Ţ	T	DT
16. Bob seemed to want to communicate	DF	F	ı	T	DT
17. It seemed to me that Bob was quite					
dissatisfied with the conversation	DF	F	ı	Т	DT
18. Bob's messages were easy to					
understand	DF	F	ı	Т	DT
19. Bob's rate of communication was just		_			
right (neither too fast nor too slow)	DF	F	ı	T	DT
20. It was not necessary to repeat Bob's		_		_	
messages	DF	F	ı	T	DT
21. Bob seemed to make a real effort to		_		_	
communicate	DF	F	1	Т	DT
22. Bob accomplished what he wanted to in		_		_	
the conversation	DF	F	ı	T	DT
23. Bob and his partner took part equally in		_			
the conversation (neither dominated)	DF	F	ı	T	DT
24. I believe that Bob was quite pleased with					
the conversation	DF	F	ı	Т	DT
25. Bob was able to change his messages		_		_	
when this was required by his partner	DF	F	1	Т	DT
26. The way Bob communicated resulted in		_		_	
some misunderstandings	DF	F	!	T	DT
27. Bob got right to the point	DF	F	ı	Т	DT
28. Bob showed that he could overcome		_			
misunderstandings	DF	F	ŀ	Т	DT
29. Bob failed to get his messages across		_		_	
fully	DF	F	İ	Ţ	DT
30. Bob seemed to me to be intelligent	DF	F	ı	Т	DT