

Changes in the Interaction Patterns of an Individual with Severe Aphasia Given Three Types of Partner Support

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Global aphasia, or aphasia with profound impairment in all aspects of language, is the most common type of aphasia. Collins (1986) estimated that 10% to 30% of all aphasic patients are ultimately classified as global, which would translate into a present U.S. prevalence of 40,000 to 120,000 individuals.

Effective treatment approaches to global aphasia have been elusive. Alexander and Loverso (1993) pointed out that language rehabilitation for individuals with global aphasia can be costly and of uncertain value. Collins (1986) thought that one of the features that distinguished global aphasia from other forms of aphasia was its resistance to traditional forms of language and speech treatment. He called upon the field of communication disorders to develop more creative forms of treatment for global aphasia instead of continually citing the patients' failure to respond to traditional techniques.

Some aphasiologists (Glass, Gazaniga, & Premack, 1975; Johannsen-Horbach, Cegla, Mager, & Schempp, 1985) tried to compensate for their patients' expressive deficits by providing them with an alternative means of communication. These researchers adopted the view that aphasic individuals with limited speech could substitute another modality (e.g., gestures, visual symbols) for the impaired speech channel and communicate more successfully. However, as Kraat (1990) noted in a review of the literature on augmentative and alternative communication (AAC) interventions in aphasia, most persons with severe aphasia could not use their repertoire of trained referents uniquely or generatively outside of training contexts. She observed that "it was

as if the aphasic did not think to turn to these alternative forms, could not shift strategies to use them, or somehow could not integrate them into real communication contexts" (p. 324). Clinicians may have expected simply too much flexibility and generativity of their severely aphasic clients' devastated neurological systems in early ACC interventions.

AN ALTERNATIVE INTERVENTION STRATEGY

We developed a technique called written choice conversation (Garrett & Beukelman, 1992) to assist partners in conversing with globally aphasic individuals about topics of interest. The technique was intended for use with aphasic individuals who displayed the following characteristics: (1) environmental awareness as indicated by sustained eye contact and partial participation in common routines; (2) frequent attempts to communicate by gesturing or vocalizing; (3) failure to communicate the intent of a message the majority of the time; and (4) an inability to volitionally say more than a few functional words.

The technique is used as follows:

1. A topic of mutual interest is selected.
2. The partner asks a question to initiate the conversation.
3. If the aphasic communicator is unable to answer, the partner then writes two to five choices (words or phrases) that would potentially answer the question in a logical manner, *or* generates a 5-point scale with clearly marked endpoints to represent potential qualitative responses to the questions.
4. The partner encourages the person with aphasia to point to an answer.
5. After the person with aphasia answers by pointing, the partner verbally reinforces the response based upon its intent and content.
6. The partner then asks a follow-up question and provides written choice support as before until the topic is exhausted or until either member of the dyad chooses to discontinue the conversation.

Written choice conversation incorporates treatment principles for global aphasia that have been espoused by other authors. It attempts to accommodate the variable processing patterns of the individual with severe aphasia (McNeil, 1983) by providing linguistic support on a turn-by-turn basis. It provides an alternative modality to bypass the speech output mechanism; the adult with aphasia simply has to point in order to be understood. The technique focuses on the exchange of conversational meaning rather than the form of the communication act, which corresponds with the reviews of Nicholas and Helm-Estabrooks (1990). Partners become an integral component of the treatment approach as they scaffold the communication event for the person with severe aphasia, and the unit of treatment expands beyond the impaired individual to the dyad. This dyadic approach parallels Lindblom's (1990) notion that communication is a mutual, co-constructive process. The use of conversation as a vehicle for treatment is advocated by many aphasiologists (Davis & Wilcox, 1985), particularly when personally relevant topics are used (Wallace & Canter, 1985). Finally, the technique may provide a means for successful communication despite the persistence of severe communication problems—a deviation from a medical model emphasis on the treatment of deficits.

PURPOSE OF INVESTIGATION

The purpose of the present investigation was to determine if treatment effects occurred when the written choice communication technique was used with a severely aphasic individual. The quantity (number of exchanges and topics), comprehensibility, and accuracy of information transfer between the subject and a partner were measured during unsupported (baseline) and written choice conversations. Mode of communication was also tallied. The thematic structure (i.e., logical topical order) of the written choice treatment package was manipulated in a third condition (nonthematic written choice) to determine if topic cohesion was a contributing factor to potential treatment effects; response accuracy was the targeted dependent variable. Social validation data on the technique were obtained by evaluating the aphasic subject's perceptions of comfort, enjoyment, communicative competence, and the partner's communicative competence during the treatment and nontreatment conditions.

METHOD

Subject

R.B. was a nonambulatory 66-year-old male who lived at home with his wife. He had sustained one minor left cerebral vascular accident (CVA) followed by a major left hemisphere CVA 1 year and 5 months prior to the experiment. Although he had participated in an extensive period of rehabilitation following the CVAs, he had not regained the ability to communicate meaningful verbal information at functional levels. He frequently responded "yes" and "no" when asked questions about immediate needs or past events, but the accuracy of his responses was inconsistent. He sometimes gestured or vocalized to communicate information about basic needs, but was often frustrated by his wife's inability to understand his specific requests and by his own difficulty with communicating novel ideas. R.B.'s *Western Aphasia Battery* (Kertesz, 1982) Aphasia Quotient was 20.4.

Procedures

An ABAB'B single-subject reversal design was used to measure the effects of three treatment conditions: no support (baseline), thematic written choice support, and nonthematic written choice support. During the baseline sessions (A1 and A2), the experimenter spontaneously generated open-ended questions pertaining to a topic that had been chosen from a pool of 15 possible topics. After asking the question, the experimental partner paused and encouraged the subject to respond via any communication modality. The partner changed topics if she was unable to understand and confirm two consecutive responses. When the subject's communication acts were uninterpretable during the thematic written choice conditions (B1 and B2), the partner spontaneously generated written word choices that represented potential answers to the question, or drew a linear scale with 5 numerical divisions and labeled endpoints for quantity or opinion questions. She then read the choices and endpoint labels aloud and encouraged the subject to respond by pointing to the desired choice. If the subject's response was confirmed, the partner then continued the topic by asking a follow-up question. Topics were again terminated if two consecutive responses were not interpretable. The partner also occasionally terminated the topic if she was unable to think of additional questions. In condition B', the structure of the conversational treatment technique was varied to investigate the potential effects of thematic structure on response

accuracy. Questions generated during condition B1 were asked for a second time during this condition, but were presented in random order with regard to topic.

The baseline and thematic written choice treatment conditions were replicated, and 17 experimental sessions were conducted. The primary investigator served as the only experimental partner; procedural reliability checks were conducted every third session and averaged 99.6%.

Data Collection and Analysis

Each 10-minute session was conducted at R.B.'s residence. Sessions were videotaped with a Panasonic Model AG-170 camcorder. The experimenter reviewed the videotapes from each session, identified the exchange boundaries, and coded the exchanges for topic change, comprehensibility, and communication mode. Interrater coding reliability exceeded 95%. Data on accuracy were obtained by asking R.B.'s wife to verify his responses as accurate or probable after each session. R.B. also rated his comfort, enjoyment, communicative competence, and partner's communicative competence on a 5-point scale immediately following each session. All data were graphed and visually inspected to determine if changes in the mean level or slope of the data were present across conditions.

RESULTS

Quantitative Data

Proportion of Exchanges Per Topic. Figure 1 shows that during conditions A1 and A2, the proportion of conversational exchanges per topic was lower than for conditions B1 and B2. This indicated that the participants engaged in fewer exchanges per topic (range = 2 to 3 exchanges/topic) when the written choice conversation technique was not used; conversely, they were able to communicate more extensively about topics when written choice support was available (range = 5 to 11 exchanges/topic). Proportion of exchanges per topic was not a valid dependent variable for the B' condition because the topic was purposefully changed after each exchange.

Proportion of Comprehensible and Incomprehensible Responses. Figure 2 depicts inverse patterns of data for the dependent variables of comprehensibility and incomprehensibility. In the baseline phases,

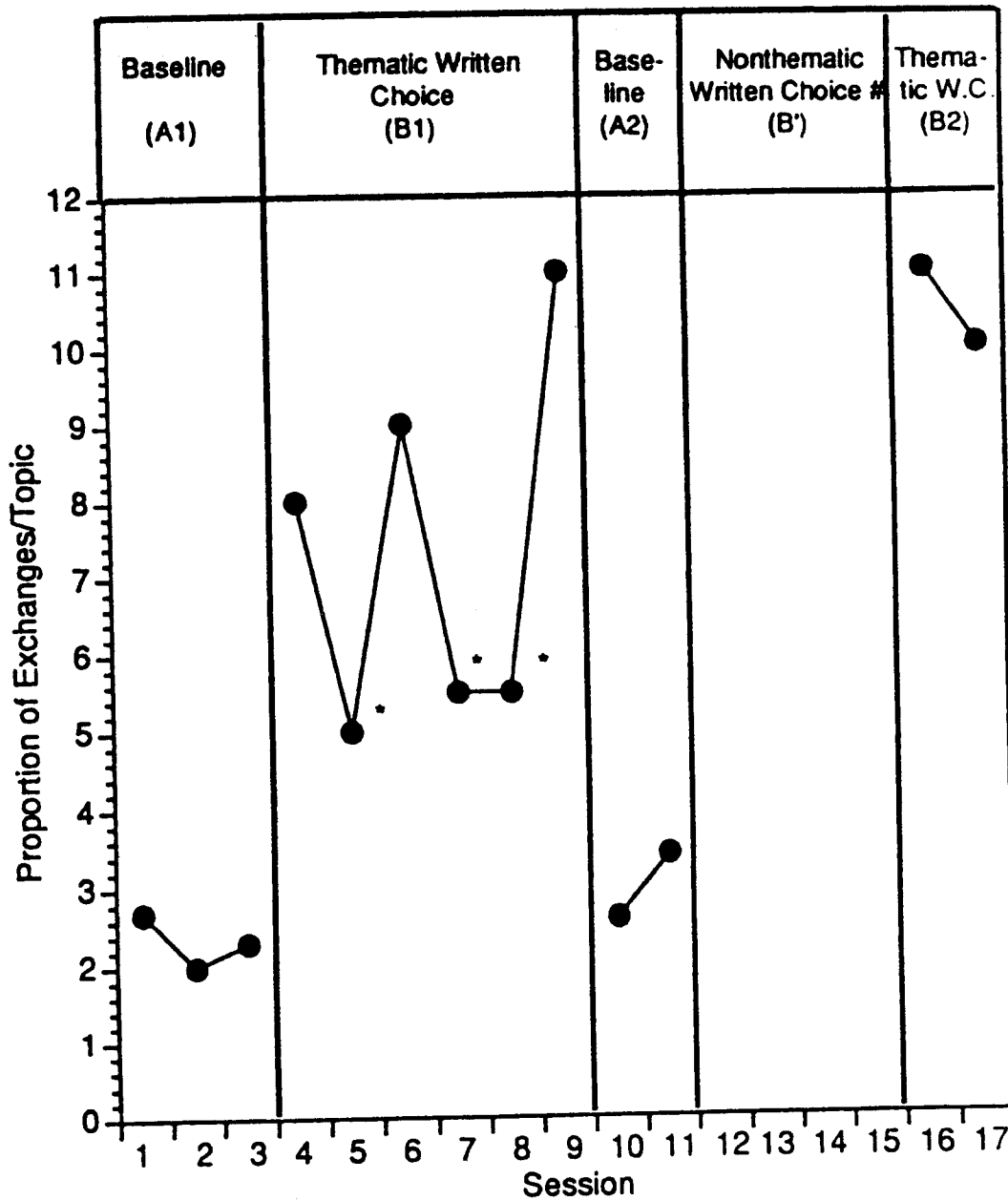


Figure 1. Proportion of exchanges per topic for subject R.B. * = Additional topic introduced at discretion of experimental partner. ** = Not an available variable during this treatment condition.

R.B. demonstrated a much higher proportion of incomprehensible responses, whereas during the thematic and nonthematic written choice conditions the majority of his utterances were comprehensible. These data on comprehensibility correspond with the findings on average

number of exchanges per topic (Figure 1). The experimental partner was able to continue a topic for an extended period of time due to her ability to expand upon the information contained in the subject's comprehensible responses.

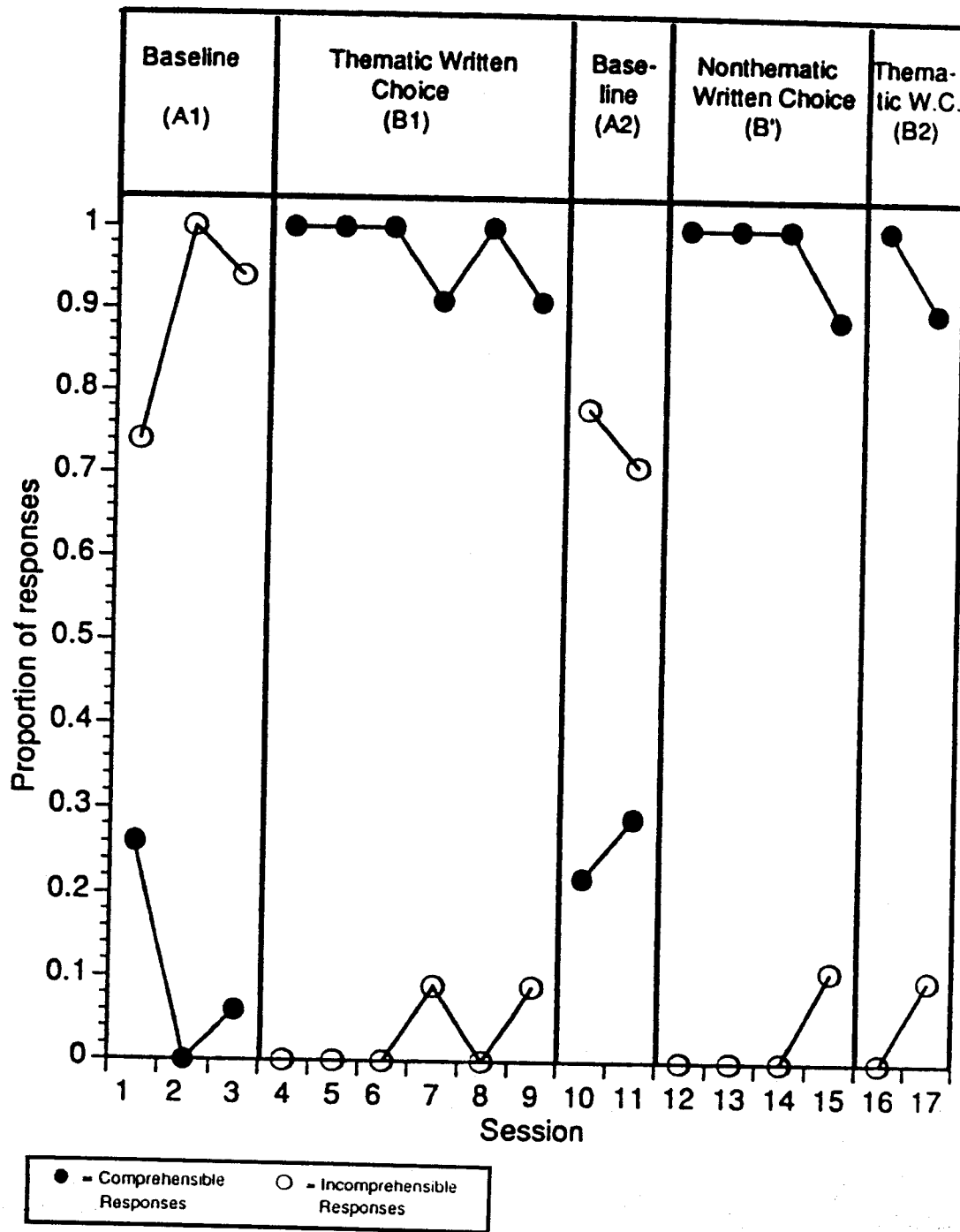


Figure 2. Proportion of comprehensible and incomprehensible responses for subject R.B.

Response Accuracy. R.B.'s wife judged his responses to be relatively accurate (either completely or partially) when he answered via written choices (Figure 3). This finding implied that R.B. was able to successfully process the meaning of the choices via the visual, auditory, or combined presentation channels and to then make an appropriate

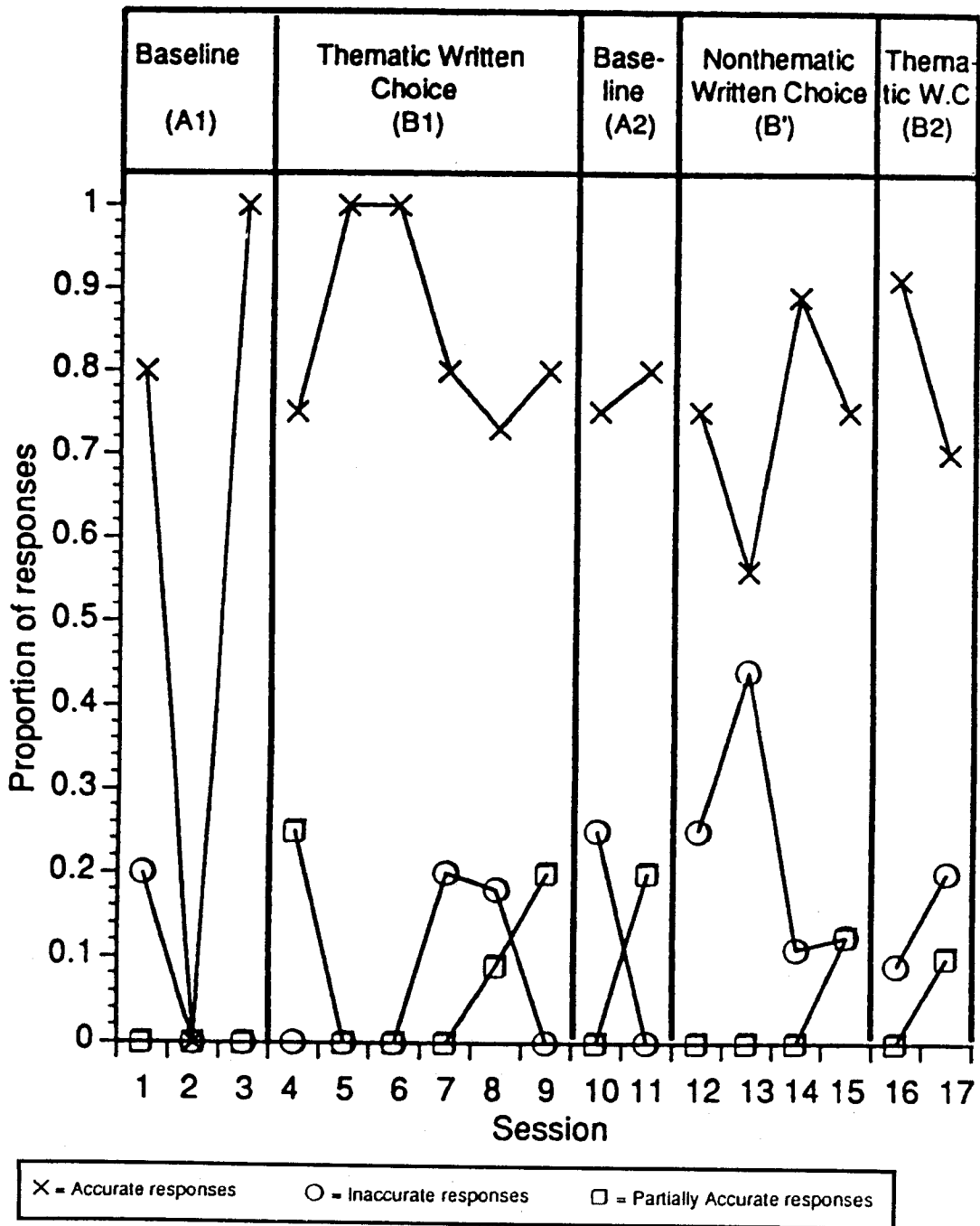


Figure 3. Proportion of comprehensible responses that were accurate, inaccurate, or partially accurate for subject R.B.

selection in accordance with the conversational context. It also indicated that the partner was able to infer and provide reasonable choices during the dynamically constructed conversation.

When the independent variable of thematicity was manipulated (B'), accuracy did decrease slightly during the second session of B' relative to the mean level of the data points in the other phases. However, because the accuracy levels obtained during the other three sessions of B' were similar to the mean data levels during the other conditions, a relationship between thematicity and accuracy of responses could not be established.

Communication Mode. Figure 4 depicts the emergence of written choice communication as R.B.'s preferred response mode when available. This preference for written choice communication did not completely suppress R.B.'s communication through other channels. R.B. communicated gesturally and vocally throughout the experiment although the frequency of these modes decreased during conditions B1, B', and B2.

Qualitative Data

R.B. approached the rating portion of each experimental session thoughtfully and methodically. However, he demonstrated little variability in his ratings for the four perceptual parameters across the five conditions.

Subjective Ratings of Comfort. R.B.'s ratings ranged from 3 (average) to 4 regardless of treatment condition (Figure 5).

Subjective Ratings of Enjoyment. The data in Figure 6 revealed no apparent trend in R.B.'s enjoyment of the interaction techniques relative to baseline communication conditions. Ratings again ranged from 3 to 4 on the 5-point scale. Lack of thematicity did not appear to influence his ratings.

Subjective Ratings of Communicative Competence. Initially, R.B. rated his own communicative competence at a level 3 during each session of the baseline phase (Figure 7). He demonstrated a consistent 1-point increase in his rating after the written choice intervention was introduced, but this rating remained steady during the second baseline. Confounding the possibility of a trend, R.B. decreased the rating of his own competence from a 4 to a 3 during the second thematic written choice condition (B2). The presence of thematic structure in the interaction also appeared to have no significant effect (B').

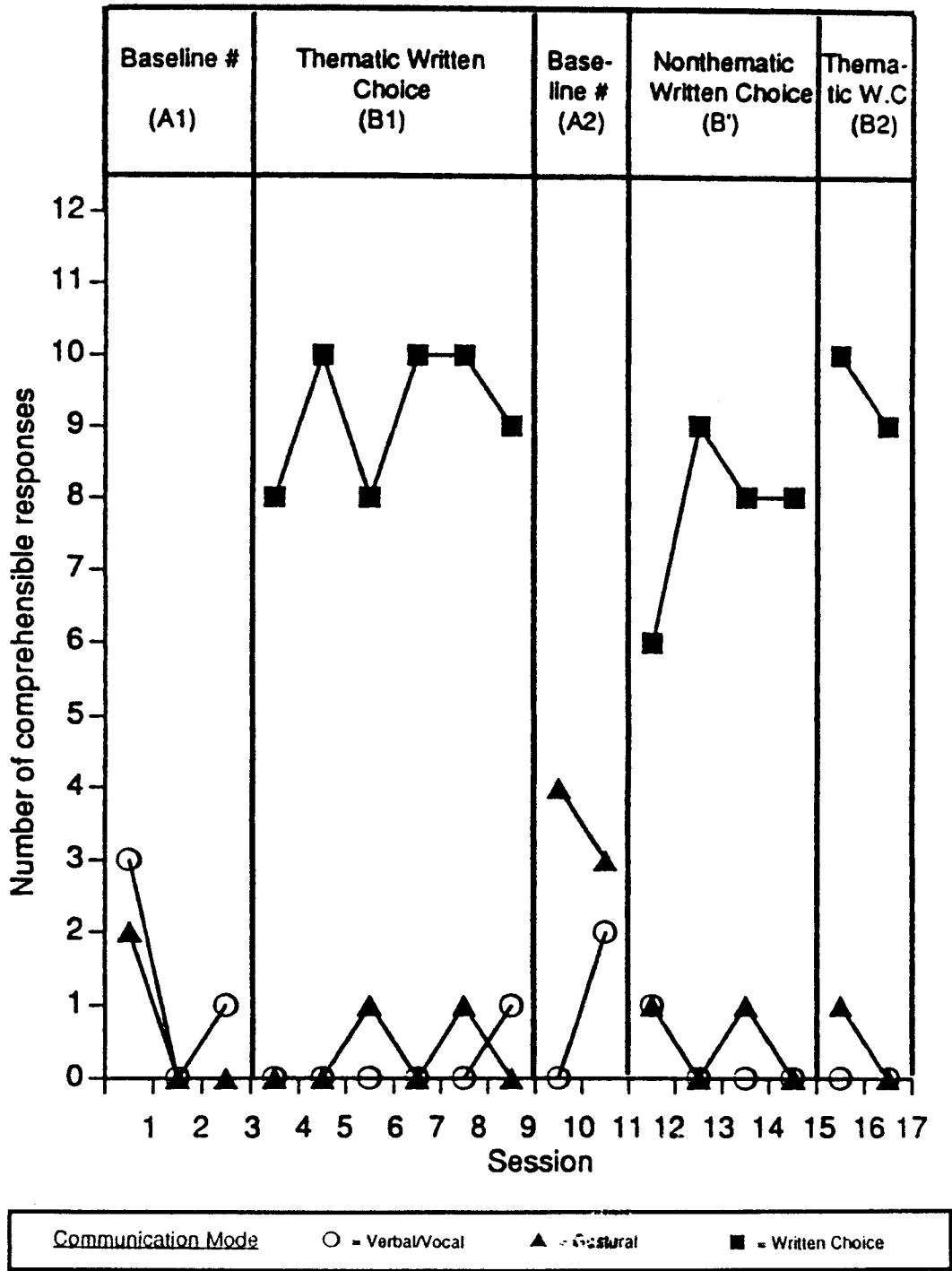


Figure 4. Number of comprehensible responses by communication mode for subject R.B. # = Written choice response mode not an available variable during these conditions.

Subjective Ratings of the Partner's Communicative Competence. Figure 8 also depicted minimally variable ratings. Of note, R.B. did rate his partner's communicative competence at a level 3 more frequently than he had done for the other three subjective variables.

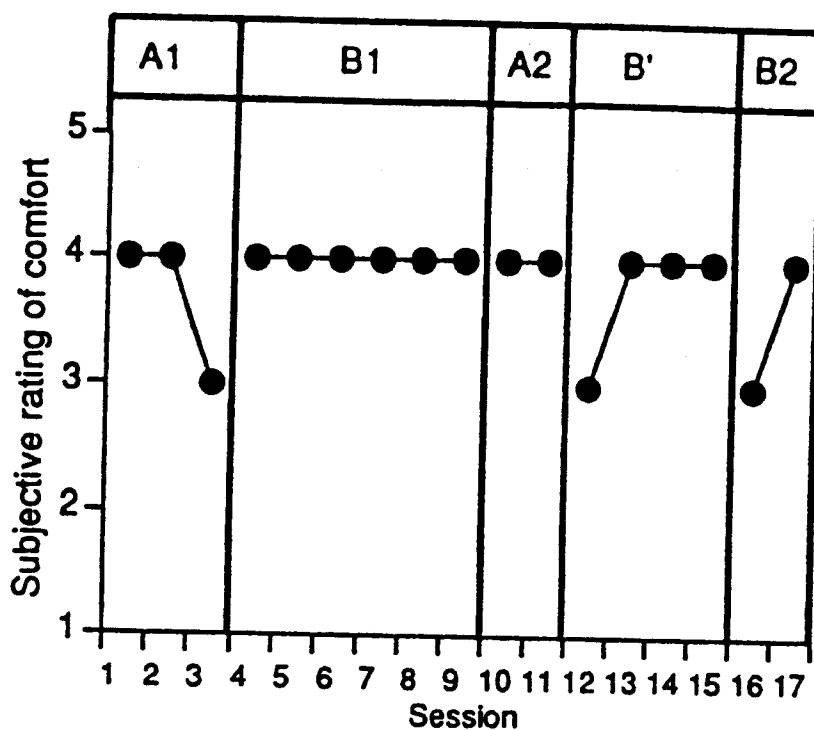


Figure 5. Subject R.B.'s subjective ratings of comfort with communication techniques.

Data Summary

Quantitative Data. Clearly, use of the written choice technique supported the transfer of information between the partner and the aphasic communicator, which in turn allowed conversational exchanges to extend beyond the minimum number mandated by the experimental procedures. Use of the technique did not appear to suppress the subject's use of other communication modalities, although he used the written choice mode much more frequently than natural communication modes when it was available. The subject's ability to answer questions with a reasonable level of accuracy was demonstrated, although the withdrawal of topical order (thematicity) did not appear to influence response accuracy. However, the repetition of the thematic condition choice questions in the nonthematic condition may have obscured a potential effect because of the familiarity of the questions to the subject.

Qualitative Data. R.B. did not appear to perceive the treatment conditions differently with regard to the dependent variables of comfort,

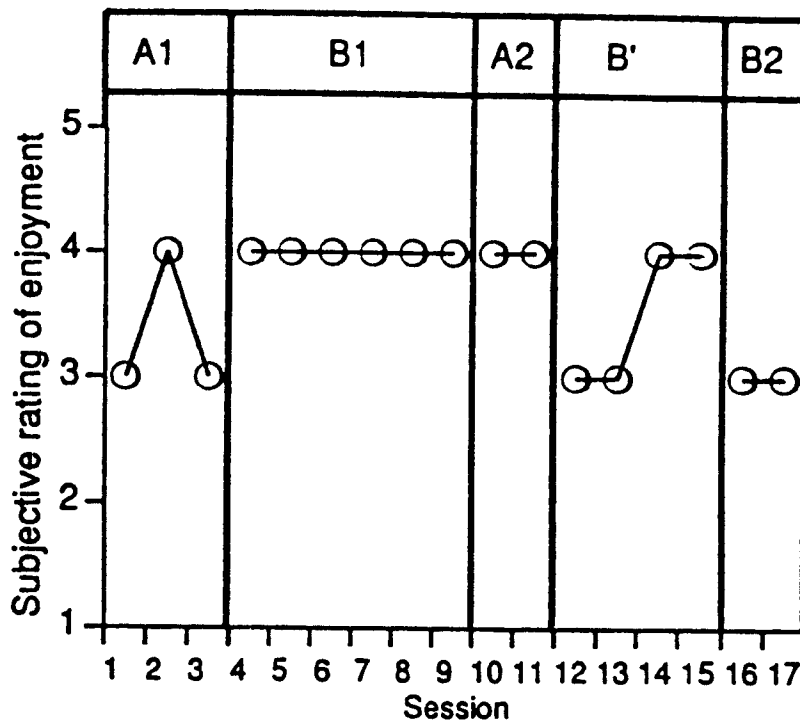


Figure 6. Subject R.B.'s subjective ratings of enjoyment with communication techniques.

enjoyment, communicative competence, or partner's communicative competence. Ratings ranged from 3 to 4 on a 5-point scale regardless of treatment condition or dependent variable.

DISCUSSION AND CLINICAL IMPLICATIONS

The ability of a person with severe aphasia to interact with a partner who provided them with written choice response options was demonstrated in this study. The subject was able to auditorally and visually process linguistic information at the word or phrase level, and to respond meaningfully to unique conversational questions through this structured linguistic mode. This ability to respond to conversational questions in an interpretable manner allowed conversational topics to be jointly constructed and expanded. Interactions with the aphasic communicator were therefore more substantive and cohesive.

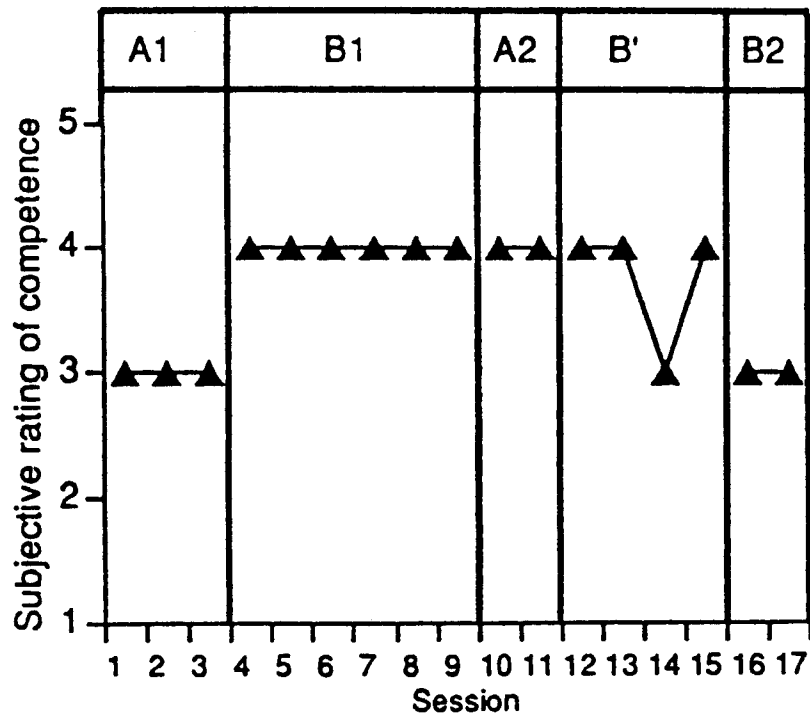


Figure 7. Subject R.B.'s subjective ratings of his own communicative competence.

The manipulation of thematic structure apparently did not affect the ability of the person with severe aphasia to participate in sustained interactions, nor did it affect the accuracy of his responses. This finding may indicate that the written choice technique would be useful in nonconversational situations as well—for instance, during rapid exchanges between nurses and patients regarding medical needs, or between families and the aphasic person when choices for leisure events are being planned.

Ryan, Giles, Bartolucci, and Henwood (1986) stated that "having ineffectual conversations may be as bad as having very few" (p. 1). This study demonstrated that the written choice communication strategy may provide a means for individuals who otherwise have extremely limited communication options to interact with others. Although this communication strategy limits aphasic communicators to a restricted set of choices by definition and depends on some highly structured rules for interpersonal communication, it may allow persons with aphasia to regain a degree of communicative quality that was previously unavailable in their post-stroke lives.

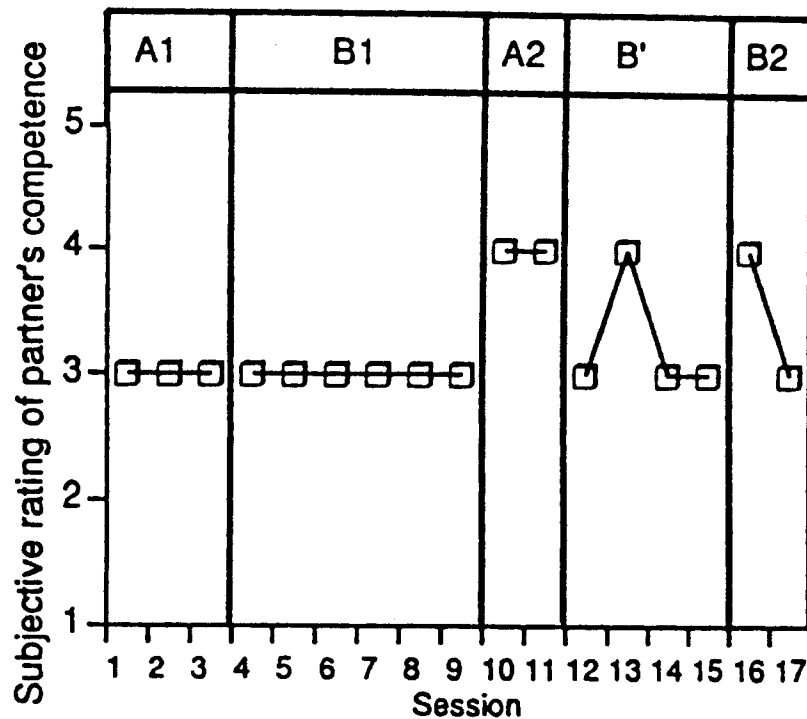


Figure 8. Subject R.B.'s subjective ratings of his partner's communicative competence.

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