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Effectiveness of Staged Partner Training on Conversational Interactions Involving a Person with Severe Aphasia

Kelly M. Hanna

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Effectiveness of Staged Partner Training on Conversational Interactions

Involving a Person with Severe Aphasia

Kelly M. Hanna

A Thesis

Submitted to the John G. Rangos, Sr.

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ABSTRACT

A single subject investigation measured the effects of staged partner communication training on conversational interactions between a familiar conversational partner and a participant with severe aphasia. Conversational variables were analyzed across four conditions: Condition A -- baseline; Condition B -- general aphasia communication strategies; Condition C -- augmented expression strategies; and Condition D -- augmented comprehension strategies. The instructional protocol (slideshow lecture, examples, roleplay, discussion) was implemented immediately before each experimental condition. Two, 5-minute conversations per condition were videotaped, transcribed and coded for the following dependent variables: number of exchanges per topic, percentage of facilitative communication acts, communication role and function, and success of conversational exchanges. Descriptive statistical analysis showed that the partner noticeably increased and maintained his use of natural facilitative strategies immediately following Condition B. Although the partner effectively used complex communication techniques in Condition C, he did not continue to use these strategies in the final condition.

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CHAPTER I

INTRODUCTION

Aphasia is “an acquired communication disorder caused by brain damage and characterized by an impairment of language modalities: speaking, listening, reading, and writing” (Chapey & Hollowell, 2001, p.3). The most common cause of aphasia is a cerebrovascular accident (CVA), or stroke, in the left hemisphere of the brain. Approximately one-third of Americans who survive the first week after a stroke have aphasia, resulting in 80,000 Americans who develop aphasia each year (Chapey & Hollowell, 2001). Individuals with aphasia may experience impairments in the expression and/or comprehension of language to the extent that it affects their ability to effectively communicate with others. A variety of speech-language therapy approaches strive to help individuals with aphasia rebuild and maintain effective communication skills in a variety of contexts.

Traditional Aphasia Treatment

Treatment for individuals with aphasia, although diverse in approach and delivery, has historically focused on direct remediation of linguistic deficits. Darley (1975), Davis (1993), and Sarno (1981) reported the widespread use of stimulation approaches that targeted specific areas of linguistic impairment. For example, proponents of Schuell’s Stimulation Approach (Duffy & Coelho, 2001) recommend repeated, intensive stimulation of the individual’s sensory system through auditory as well as visual channels. Individuals with aphasia may, for example, practice listening to spoken commands prior to completing them. They may also repeat verbal targets. Morganstein and Smith (2001) modified the stimulation approach by incorporating themes and related vocabulary into therapy sessions. They chose words that communicators could produce

within linguistic communication tasks and emphasized their use within a functional setting. A third stimulation approach described by Chapey (2001) targeted the cognitive subsystems used to process language including attention, memory, convergent and divergent thinking and evaluative processing. Chapey (2001) suggested that semantic stimuli activated these cognitive processes in individuals with aphasia and thereby improved their comprehension and production of language.

Others have advocated the use of a multimodal approach to stimulation-oriented aphasia treatment. For example, one study by Beukelman, Yorkston, and Waugh (1980) found that combining verbal commands with pantomimed instructions increased an individual with aphasia's ability to follow single-stage commands. Similarly, Records (1994) found that the combination of gestural and auditory modalities improved comprehension of information for individuals with severe aphasia. Language-oriented treatment (Bandur & Shewan, 2001) also extended this dual modality concept by categorizing the communication system into five language modalities (auditory processing, visual processing, gestural and gestural-verbal communication, oral expression, and graphic expression), each containing specific skills. Clinicians developed treatment protocols in each skill area according to an instructional hierarchy that was tailored to each individual with aphasia.

While stimulation-based approaches and interventions focus solely on improving specific linguistic deficits of individuals with aphasia, they typically do not explore the effect of these deficits on the social functioning of the person with aphasia. Rather, proponents of stimulation therapy emphasize "fixing" the person with aphasia rather than promoting functional use of residual skills.

New Directions for Aphasia Treatment

Some interventionists have questioned the overall success of stimulation-based treatment approaches for individuals with aphasia. For example, Simmons-Mackie (2001) stated that many people with aphasia experience residual communication problems that significantly impact their daily lives. She observed that despite extensive drill and practice in speaking and listening to controlled stimuli, these individuals remained isolated from interactions with others. Although these individuals continued to demonstrate a desire to communicate as well as evidence of nonverbal competence after onset of aphasia, they often had a limited role within a larger context of social participation. Consequently, Simmons-Mackie and Damico (1997) advocated integration of authentic social and interactional opportunities into therapeutic approaches. One method for achieving this integration is through conversation.

Calculator and Luchko (1983) stated that conversation is a focal point around which communication programs may be initiated, maintained, and terminated. Similarly, Ferguson (1996) stated that communication competence arises from an interactive relationship between conversation partners as they negotiate messages to exchange information. Conversational treatment approaches for individuals with aphasia generally teach communicators to increase their conversational competence through direct instruction to improve their skill and confidence as a conversational participant (Kagan & Gailey, 1993; Simmons-Mackie & Damico, 1997; Ferguson, 1996). One means of increasing a person with aphasia's skill in conversation is to teach compensatory strategies (Simmons-Mackie, 2001). Simmons-Mackie and Damico define compensatory strategies as "a new or expanded communicative behavior, often spontaneously acquired and systematically employed, to overcome a communication barrier in an effort to meet both transactional and interactional communicative goals" (1997, p.770). Simmons-Mackie and

Damico (1997) further described compensatory strategies as: 1) purposeful and goal-oriented in nature; 2) occurring as novel or expanded behaviors; 3) flexible; 4) specific to the individual; 5) spontaneous; and 6) automatic. Examples of compensatory strategies include gestures, writing, changes in vocal intonation, as well as the use of augmentative aids such as remnants, conversation books and topic setters. These compensatory strategies are also associated with augmentative and alternative communication (AAC), an increasingly popular arena from which to derive supportive conversation strategies for individuals with aphasia (Simmons-Mackie & Damico, 1997).

Augmentative and Alternative Communication

Historic AAC Interventions for Individuals with Aphasia

AAC is used to enhance the communication participation of individuals with aphasia by supplementing, replacing, or scaffolding residual natural speech (Hux, Manasse, Weiss, & Beukelman, 2001). Early AAC interventions were designed with the narrow goal of compensating for an individual's weaknesses in communicative performance, specifically in the expressive modality (Stuart, 1997). More recently, AAC interventions, like conversational approaches to the management of aphasia, have adopted the participation model. The 'Participation Model' includes the following three elements: a) identification of current participation patterns and communication needs; b) determination of barriers to opportunities for communication; and c) assessment of access barriers to communication (Beukelman & Mirenda, 1998). Garrett and Beukelman (1992) applied this model to non-speaking people with aphasia to promote their active communication in real life settings.

Critics of AAC or conversational approaches to management of severe aphasia believe that people with aphasia seldom generalize these compensatory strategies (e.g. gesture, writing, asking for message repetitions, and using augmentative aids). Simmons-Mackie (2001) described several reasons for this failure to generalize including: a) a lack of opportunities for generation of novel messages and interactions; b) a need for more individualized instruction; c) a need for scaffolded conversations; and d) a lack of partner training. Several treatment techniques have sought to address the first three issues listed above including: a) enhanced compensatory strategy training, b) conversational coaching (Hopper, Holland & Rewega, 2002), and c) implementation of scaffolded and supported conversations respectively (Simmons-Mackie, 2001). However, until recently, little attention was directed toward the fourth reason for minimal generalization of compensatory strategies, that of minimal partner training.

Partner Training in AAC

When the Participation model is applied to treatment, goals for the individual with aphasia focus on improving communicative competence within naturalistic environments. Wood, Lasker, Siegel-Causey, Beukelman, & Ball, 1998) reported that conversational partners of individuals with aphasia can act as facilitators of AAC by actively encouraging participation of the individual with aphasia in the communication process. Another component of the Participation model is the contribution of the conversational partner. Several authors (Ferguson, 1996; Oelschlaeger & Damico, 2000; Kagan, 1995; Simmons-Mackie 1997; Kagan, 1999) believe that training conversation partners to augment the comprehension and expression of individuals with aphasia will directly improve their communicative competence. Through practice, modeling, counseling, and education, partners can be taught to use compensatory

strategies, which in turn support communicative competence despite linguistic limitations of individuals with aphasia (Oelschlaeger & Damico, 2000). The emphasis on partnership and partner training promotes the idea that partners are speaking *with* the individual with aphasia and not *for* them. The following studies include partner training as a key component in their treatment program.

Conversational coaching, developed by Holland in 1991, is a form of partner training that involves instructing conversational partners to use verbal and non-verbal strategies under the guidance of a speech-language pathologist (Simmons-Mackie, 2001). Hopper, Holland, and Rewega (2002) investigated the effects of conversational coaching. Participants included two conversational dyads involving one person with severe aphasia and his or her spouse. After viewing baseline conversations of the couples, the experimenters identified facilitative strategies for each couple and discussed them with the conversational partner. Each partner then chose preferred strategies and demonstrated its use for the experimenters. In ten treatment sessions the person with aphasia viewed a brief video clip and then attempted to communicate the story to the spouse who had not viewed the clip. The experimenters intervened in two circumstances: 1) when a communication breakdown occurred; and 2) when a miscommunication occurred (Hopper, Holland, & Rewega, 2002). Intervention included suggestions for resolving communication breakdowns and demonstrations of possible strategies to use.

Following intervention, conversations between the spouse and the person with aphasia were transcribed and coded. The number of main concepts successfully communicated served as the primary dependent measure. Other measures included administration of the *Communication Activities of Daily Living-Second Edition (CADL-2)* and social validation ratings. Experimental data were variable for both dyads; however positive results were reported for the primary

dependent measure as well as for social validation judgments for both couples. Specifically, the percentage of main concepts successfully communicated increased from 20% in pre-treatment probes to 40% of post-treatment probes. In addition, one participant demonstrated significant improvement (an increase in 20%) in his CADL-2 scores following treatment, thereby indicating a global change in this participant's communication over the course of treatment. Observers of pre-and post-treatment conversations understood more of the post-treatment conversations than pre-treatment ones. These findings support the importance of partner training, a service that spouses and long-term partners usually do not receive during their partner's recovery from aphasia (Hopper, Holland, & Rewega, 2002). However, this study did not involve a replicable training protocol that systematically described and analyzed the training procedure.

Kagan, Black, Duchan, Simmons-Mackie, Square , (2001) attempted to address this issue of a replicable training protocol by investigating the impact of training conversational partners of individuals with aphasia on the overall communicative exchange. Kagan (1993) developed Supported Conversation for Adults with Aphasia (SCA) as a training package for partners of individuals with aphasia. Kagan et al.'s (2001) investigation involved twenty volunteers who received Supported Conversation for Aphasia training during a one-day workshop at the Aphasia Institute in Toronto, Canada, while 20 control volunteers were merely exposed to individuals with aphasia. Volunteers interacted with individuals with aphasia during a semi-structured interview. Two measures developed and validated by Kagan were used to record pre- and post-training communication (2003). The *Measure of Supported Conversation for Adults with Aphasia (MSCA)*, asked the conversational partner to answer questions relating to the interaction, while the other, the *Measure of Participation in Conversation for Adults with Aphasia (MPCA)*, asked similar questions of the individual with aphasia. Both of these measures rated behaviors

on a numerical scale ranging from 0 (totally inadequate) to 4 (outstanding). Data analysis included the use of two statistical tests: 1) Analysis of Co-variance (ANOVA) and 2) Chi-square. Kagan reported a statistically significant ANOVA ($p < .001$) for the effect of training on the conversation according to the volunteer conversational partner using data from the MSCA. The training effect was also statistically significant for the effect of training conversational partners according to participants with aphasia using the MPCA. This data indicated that trained volunteers scored significantly higher than untrained volunteers when rated for their ability to acknowledge and reveal the competence of their partners with aphasia. A positive change in ratings of social and message exchange skills was also noted

This study provided evidence that training conversational partners in SCA improved the conversational skills of individuals with aphasia. Kagan et al. (2001) stated that their findings supported the argument for a social approach to aphasia treatment. This study also itemized the training procedure into a specific sequence of activities (e.g., obtaining background information on aphasia, receiving conversational technique training, and participation in interactive role-plays). Rating scales administered at the end of the study yielded subjective information from the individual with aphasia and their conversational partner about their interactions. However, Kagan and her colleagues did not systematically analyze interactions between partners and people with aphasia. While valuable, this qualitative data was difficult to analyze statistically. Also, this study involved volunteer conversation partners who may have lacked the context and emotional investment in the success of the conversation that familiar partners may naturally possess.

Rayner and Marshall (2003) drew on Kagan et al's (2001) techniques in a second study that evaluated the effectiveness of training conversational partners of individuals with aphasia.

They specifically examined the effect of changing the volunteer's knowledge about aphasia on the participation of the individual with aphasia in conversation. Six volunteers were trained as a group across three sessions that included group discussions, viewing of videos and role-play activities. Conversations were videotaped and rated by speech-language pathologists with the MSCA and MPCA rating scales used by Kagan et al (2001). Factual and strategic questionnaires were also administered to the volunteers to measure their change in knowledge of aphasia. One-factor within-subjects ANOVAs were performed using the MSCA and MPCA data and were found to be statistically significant ($p < .001$). A two-factor mixed ANOVA was performed using the data from the factual and strategic questionnaires. A significant difference was reported between the responses of trained partners ($p = .001$) and untrained partners ($p = .43$) indicating improvement in identifying the characteristics of aphasia and knowledge of conversational strategies after training.

Rayner and Marshall's (2003) results supported Kagan et al's (2001) findings that training in supported conversation can improve the interactions of volunteers and individuals with aphasia. They also found that partner training can improve the knowledge and behavior of long-standing volunteers with well-established patterns of interaction. A number of questions remained unanswered, however, including how Rayner and Marshall's (2003) training protocol would apply to familiar conversation partners such as spouses. Additionally, the content of the training in this study was not specifically tailored to the conversational dyads, although it did provide support for generic training procedures.

A study by Lyon et al. (1997) sought to extend conversational aphasia treatment to real-life settings. This study used 10 community volunteers who initially interacted with an individual with aphasia within a clinical setting by practicing facilitative communication

strategies that the experimenter had previously identified as naturally occurring. After becoming familiar with the use of these strategies, treatment was relocated to either the individual with aphasia's home or a community setting chosen by the individual with aphasia. A combination of standardized, non-standardized, and informal measures was used to analyze the interactions including experimenter-constructed questionnaires and rating scales. The standardized measures included administration of the *Boston Diagnostic Aphasia Examination* (BDAE, Goodglass & Kaplan 1983), *Communication Abilities in Daily Living* (CADL, Holland, 1980), and the *Affect Balance Scale* (ABS, Bradburn, 1969). Non-standardized measures consisted of two investigator-constructed questionnaires, the *Communication Readiness and Use Index* (CRUI) and the *Psychosocial Well-being Index* (PWI) which were administered pre- and post treatment. No statistically significant differences were reported for any of the formal measures after partner training. The Wilcoxon signed rank test was used to evaluate pre-and post treatment differences on the two non-standardized measures. Both measures yielded statistical differences ($p < .05$). Additionally, two clinicians informally evaluated all dyads for successfully meeting outcomes. Out of ten dyads, nine of them established positive conversational behaviors that were observable after treatment. These informal measures indicated potential benefit from training communication partners to interact in real-life settings. This study is unique in that strategies used in training within the clinical setting were used functionally outside of the clinic.

One final study by Cunningham and Ward (2003) evaluated a partner-training program in terms of its impact on communication and well-being. Participants included four individuals with severe expressive and receptive aphasia and a familiar conversational partner. Training sessions occurred 1.5 times per week for five weeks in the individual with aphasia's home and consisted of education, video-feedback, and role-play. Conversations were videotaped and analyzed using

conversational analysis and frequency counts of non-verbal behaviors. Non-verbal behaviors were tallied according to five categories: a) use of props, b) use of gesture, c) writing and drawing, d) use of touch, and e) other relevant nonverbal behaviors. In addition, more baseline measurements were obtained using the *Visual Assessment for Self-Esteem Scale (VASES)* for the individual with aphasia, and a *Hospital Anxiety and Depression Scale (HADS)* for the conversational partner. The number of successfully completed conversational repairs and of trouble sources (e.g. breakdown sequences) initiated by the person with aphasia was counted.

Results indicated the proportion of successful repairs increased and the number of trouble sources initiated by the person with aphasia was reduced post-intervention for three of the four dyads. A multivariate ANOVA analyzed all nonverbal data from the video analysis and yielded non-significant findings, although as noted previously, positive individual differences were observed for three of the four dyads as stated above. Analysis of the questionnaires, using the same multivariate ANOVA, yielded significant results ($p < .01$) for the HADS measure only.

Cunningham and Ward's (2003) study is one of few to evaluate a partner-training protocol's effect on the functional communication of a person with severe aphasia. However, individual variation was present throughout the study, possibly contributing to the lack of significant results. This variation may have been due to the fact that conversation in general, and particularly between an individual with aphasia and their partner, is inherently variable. Despite the lack of statistically significant results, the positive individual changes and positive trends noted in this study suggest that training conversational partners can result in beneficial effects.

Limitations of Previous Studies

The aforementioned studies each contributed to the rapidly growing mosaic of literature on conversational interaction between individuals with severe aphasia and their partners. The results of these studies indicate the importance of real-life contexts and trained conversational partners for obtaining generalization of therapy techniques (Fox, Sohlberg, & Fried-Oken, 2001). Each study documents the potential benefits of training conversational partners.

The exact content of partner training protocols was not systematically documented in any of the previous studies. In addition, specific training in communication strategies was not presented in sufficient detail to replicate the training procedures. Therefore, the present study will implement partner training in three distinct modules: a) general information about aphasia and basic communication strategies, b) strategies to enhance expression, and c) strategies to enhance comprehension. Support for each of these components is listed below.

Facilitative Communication Strategies

General Aphasia Communication Strategies. Several researchers have described general strategies for conversing with an individual with aphasia. Strategies include: a) responding to all communication attempts, b) reduction in number of comments, and c) pausing briefly after asking a question (Ho, Weiss, Garrett, & Lloyd, in press; Garrett & Huth, 2002; Kagan et al., 2001). Several studies have documented the benefit of educating conversational partners about the nature and reason for adopting these strategies prior to direct instruction on their use (Kagan et al., 2001; Lyon et al., 1997; Rayner & Marshall, 2003).

Strategies to Enhance Expression. In addition to general strategies, other interventionists have suggested that partners can encourage communicators with aphasia to use specific strategies

to support their spoken expression. For example, partners can encourage communicators to use *naturally occurring strategies* such as gestures and pantomime (Lyon et al., 1997; Kagan & Gailey, 1993; Garrett & Beukelman, 1995).

a. Expressive strategy -- Gestures. Often, the person with aphasia can use gestures/pantomimes to compensate for their linguistic deficits following initial partner modeling of these gestures. Gestures such as facial expressions, eye movements, body positions, and arm or hand movements serve a wide range of communicative functions. People use gestures to communicate wants and needs through iconic gestures (i.e., holding a curved hand to the mouth to indicate drinking), to convey feelings, likes and dislikes (i.e., wrinkling the nose to indicate displeasure), for social messages (i.e., waving 'hi' and 'bye'), or to indicate direction (i.e., pointing to your conversational partner) (Hux et al., 2001). Kagan and Gailey (1993) advocated that the partner model gestures and pantomime during conversation with the hope of encouraging their use by the individual with aphasia.

However, for communicators with very limited expressive language, other *partner-dependent expressive strategies* (Lasker & Garrett, 2003) that require the partner's active participation often must be utilized (e.g. Conversational Written Choice, tagged yes/no questions, drawing/writing key words).

b. Expressive strategy -- Conversational Written Choice. One specific partner-supported strategy for augmenting the expression of the communicator with aphasia is the Written Choice Conversation strategy developed by Garrett (1993). This strategy consisted of the following steps: a) a topic of mutual interest is selected; b) the partner asks a questions to initiate conversation; c) partner writes 2-5 choices (words or phrases) that would

potentially answer the question if the individual with aphasia is unable to answer verbally; d) the partner encourages the individual with aphasia to point to an answer; e) the partner comments or acknowledges the response; f) the partner asks a follow-up question using written choice support until the topic is exhausted or a decision is made to discontinue the conversation. The investigators documented an improvement in length of topical conversations and success between individuals with aphasia and their partner when the strategy was used (Garrett 1993; Garrett & Beukelman, 1995). In Garrett's (1993) original application of the strategy, simultaneous verbal and visual stimuli were presented to the individual with aphasia. Lasker et al. (1997) performed a variation on the written choice expressive communication strategy by altering the presentation modality (e.g., auditory and visual, visual only, auditory only) of its various components. The findings of this followup study suggested that different presentations of the written choice strategy may be appropriate for individual clients depending on their strengths and weaknesses in various skill areas. In yet another variant of the technique, the person with aphasia can also point to certain parts of partner-generated drawings to answer questions (e.g., person with aphasia points to dots on a map that represent cities to answer the question, "Where did you grow up?").

c. Expressive strategy -- Tagged yes/no questions. Individuals with severe aphasia are often limited in the amount of language that they can process at one time (Chapey & Hallowel, 2001). Questions place an increased demand on the person with aphasia due to the fact that they must simultaneously listen to the linguistic information and process the rising intonation that marks a question. By 'tagging' each yes/no question with the phrase "yes... or no?" (e.g., "Do you want to go to the store... yes or no? "), and using

exaggerated inflection and the corresponding head movements (nod for “yes” and shake for “no”), the conversational partner effectively reduces the linguistic burden placed on the person with aphasia (Garrett & Kimelman, 2000).

Strategies to Enhance Comprehension. In addition to expressive strategies, other interventionists have suggested that partners can specifically augment the comprehension of communicators with severe aphasia to improve their understanding of the message. Kagan (1993) advocated that partners actively monitor the individual with aphasia for indications of receptive difficulty. Acknowledging a comprehension breakdown is a strategy that requires action on the part of both communicators. It provides the individual with aphasia with more independence in terms of expressive communication, (i.e., they have a way to signal that they don’t understand what their partner is saying) and encourages active listening on the part of the communication partner.

In a communication classification system for individuals with severe aphasia developed by Garrett and Beukelman (1998), they described *augmented input communicators* as individuals who have auditory processing difficulties that interfere with their ability to understand language that switches conversational topic. These individuals often ‘hold their place’ in conversation by nodding their heads rather than signaling true comprehension, thus creating the potential for communication breakdowns. To avoid these communication breakdowns, conversational partners may supplement the comprehension of individuals with aphasia.

One augmented comprehension intervention model, the AAC Input Framework (AACIF) (Wood, Lasker, Siegel-Causey, Beukelman, & Ball, 1998), recommends enhancing the meaning and salience of messages by elaborating the primary message using objects, pictures, photographs, gestures, and/or voice output techniques (Wood et al., 1998). Among those partner-

supported comprehension strategies that seek to enhance conversation success, those that occur naturally appear to be the most effective (Ferguson & Peterson, 2002; Oelschlaeger & Damico, 2000; Simmons-Mackie & Damico, 1997). These strategies include: a) partner's active use of joint referencing, b) partner's use of supplementary gestures, c) partner's use of written key words/maps/drawings (Kagan & Gailey, 1993) to elaborate spoken messages, and d) partner's intonation changes

a. Joint referencing. For conversation to be successful, both communicators must be cognizant of and have the ability to attend to the topic of conversation. Joint referencing has been implemented with children as a scaffold for improving language skills (Sturm, 1998). This technique involves both conversational partners who visually attend to a referent such as a picture or object after one partner has pointed or gazed in its direction. Garrett & Kimelman, 2000) have indicated that joint referencing may also be useful for the adult neurogenic population, as they often experience language difficulties similar to children in terms of attention to and comprehension of conversation topic. Ho et al. (in press) also advocated the importance of sustaining joint attention during conversation through the use of remnant books. Joint referencing may help to focus the individual with severe aphasia's attention to the topic of conversation.

b. Gestures. Beukelman and Mirenda (1998) advocate the use of gestures as a convenient way to augment the comprehension of individuals with developmental delays.

Researchers have also shown that individuals with severe aphasia often require their conversational partners to use gestures when speaking about a highly specific topic.

Gestures may also provide context for the specifics of the conversation and serve to improve the overall receptive language of individuals with severe aphasia (Carlomagno,

1994; Records, 1994). Kagan (1993) found that conversational partners learned to successfully use gestures and pantomimes in combination with speech when communicating with individuals with aphasia. Additionally, she reported that interactive drawing of pictures and written words during conversation increased comprehension for the individual with aphasia and made them feel like a more equal conversation partner. As an augmented comprehension strategy, the conversational partner uses gestures to supplement the verbal information he or she provides to the person with aphasia (e.g., Partner states “I’m being nosy” while touching their nose).

c. Written key words/maps/drawings. In addition to gestures, Garrett and Huth (2002) reported the use of picture referencing as a partner-supported strategy for augmenting the comprehension of an individual with moderately severe aphasia. Graphic topic setters consisting of pictures and descriptive statements used during conversations were found to increase the overall successfulness of the interaction. Ho et al. (in press) similarly advocated the use of remnants during conversation with individuals with global aphasia. These remnants were presented in a book that was referenced by the individual with aphasia as well as the conversational partner throughout conversation. Visual supplementation of verbal information is often used during conversation with people without aphasia because it adds context to highly specific vocabulary. Several studies have documented the benefit of using written key words in much the same manner as pictures or objects. In these studies the communication partner wrote key words down on paper and pointed to them while discussing a particular topic (Kagan et al 2001; Kagan & Gailey, 1993; Garrett 1993; Garrett & Beukelman, 1995). Written key words/maps/drawings are different from the Written Choice Conversational Strategy

discussed earlier as an augmented expression strategy. As an augmented comprehension technique, written key words/maps/drawings are used to supplement the person with aphasia's comprehension of spoken information. The person with aphasia is not asked to respond to a question by pointing to this written information, but instead simply directed to it as a reference throughout the conversation.

d. Intonation changes. Although joint referencing, gestures, and written key words target the visual modality, changes in partner intonation patterns target the auditory system of the person with aphasia. Intonation is a natural or untrained behavior that is unintentionally used by conversational partners of individuals with aphasia to supplement verbal information. It appears to compensate for the auditory deficits that individuals with aphasia retain after their stroke (Simmons-Mackie & Damico, 1997). A recent study by Ferguson and Peterson (2002) examined intonation variations made by non-aphasic conversational partners of individuals with aphasia. This single-subject case study described the intonation patterns used by a speaker without aphasia when addressing a person with aphasia and a person without aphasia. Results indicated that the conversation partner used different intonation patterns when speaking to the subject with aphasia than to the subject's wife who did not have aphasia. Ferguson and Peterson (2002) hypothesized that the conversational partner's use of different intonation indicated his natural accommodation for the person with aphasia's known comprehension deficits. Their analysis of intonation patterns alluded to its possible use as a compensatory strategy that may be taught to conversation partners of individuals with aphasia.

Statement of the Problem

To date, there have been no controlled studies that reported a systematic protocol of partner training for interactions with people who have severe or global aphasia. In addition, the conversations between the person with severe aphasia and the conversational partner have not been analyzed for specific behaviors. Instead, the impact of partner training protocols has been measured by comparing results of rating scales administered pre-and post training. Finally, previous studies used volunteers as conversational partners versus familiar partners who may have additional context and emotional investment in communicating successfully and naturally with the individual with aphasia. Therefore, the present study will attempt to address these limitations by: a) using familiar conversational partners; b) systematically delineating the components of the training protocol; and c) systematically analyzing the conversational interaction through quantitative analysis of key behaviors.

The present study explored differences in conversations between the person with aphasia and his communication partner under four conditions: Condition A (Baseline): Partner receives no training in conversation with an individual with severe aphasia; Condition B (general aphasia strategies): Partner receives training in general aphasia communication techniques; Condition C (augmented expression): Partner receives training in augmented expression strategies; and Condition D (augmented comprehension): Partner receives training in augmented comprehension strategies. Comparison of conversational variables (e.g., percentage of facilitative communication acts, number of exchanges, number of exchanges per topic, function of communication, and communicative role) allowed the primary researcher to examine the effects of the partner training sessions across conditions.

Research Question

The following research question will be examined:

1. Do quantitative conversational variables (e.g. percentage of facilitative communication acts, percentage of specific strategies, number of exchanges per topic, etc.) change in dyadic interactions between a person with severe aphasia and a familiar conversational partner without aphasia, following staged partner training in communication strategies: (a) no treatment (baseline); (b) general aphasia communication strategies; (c) augmented expression techniques; followed by (d) augmented comprehension techniques?

CHAPTER II

METHODS

Participants

Two types of participants were recruited for enrollment in this study: a) a communicator with chronic severe-to-profound receptive and expressive aphasia who did not use natural speech as his primary mode of communication, and who demonstrated severe auditory comprehension deficits in decontextualized settings and b) a familiar conversational partner with no aphasia. The person with aphasia and the conversational partner constituted a single dyad, or unit of experimental measurement. Subject selection continued until one person with aphasia and a familiar conversation partner were chosen according to the following criteria.

Participant Characteristics

Person with Aphasia (R.C.) The investigator identified a potential participant from the pool of clients at the Duquesne University Speech-Language Hearing Clinic. An experienced speech-language pathologist who was not involved in this study referred an appropriate client, R.C., according to the written criteria contained in Appendix A.

R.C. was a 62 year-old, African-American college-educated male with a diagnosis of severe-to-profound aphasia confirmed by an aphasia quotient (AQ) of 12 out of 100 obtained from the Western Aphasia Battery (WAB) (Kertesz, 1982). He exhibited a severe communication impairment in the areas of verbal expression and comprehension of commands resulting from a single left hemisphere CVA sustained one year prior to initiation of the study. On additional screening tasks, the participant with aphasia demonstrated an inability to verbally

respond spontaneously and independently to 2 of 3 wh-questions according to the protocol listed in (Appendix C), thus verifying his suitability for this study. He spoke English as his primary language. He demonstrated no dramatic fluctuations in alertness due to medical conditions, had functional visual acuity (aided or unaided) as determined by his ability to match words pointed in 16-point font, passed a pure tone hearing screening at 40dB in both ears, and showed no evidence or reported history of disease processes associated with dementia or chronic substance abuse. He was pre-morbidly right-handed, but because of right hemiparesis associated with the CVA, used his left hand to sign his name or attempt writing tasks. Because some of the compensatory strategies used in this study required rudimentary word recognition skills, he was screened for and passed the following tasks: 1) matching five target words to the correct word out of a field of 3 words; 2) pointing to the correct answer to 4 of 5 questions given binary choices as answers.

R.C. was married and lived at home with his wife and grown son. The principal investigator verified all information by examining the patient's clinical records and by interviewing the spouse.

Conversational Partner (T.R.). The investigator identified a familiar communication partner, R.C.'s brother-in-law, who was suggested as a conversational partner by the wife of the person with aphasia. T.R., a 52 year-old college-educated Caucasian male, had minimal knowledge of aphasia as a disability and reported having no explicit knowledge of communication interaction strategies for individuals with severe communication impairments. He had known R.C. for 25+ years prior to the CVA, and continued to visit him on a monthly basis since the CVA. He had normal speech, language, and cognition as reported by scores on the *Mini Mental State Exam* (Folstein & McHugh, 1975), demonstrated functional visual acuity aided by

glasses, and reported no hearing complaints that interfered with conversation. In addition, T.R. verbally indicated that he continued to perceive the person with aphasia as competent despite the onset of disability (Simmons-Mackie & Kagan, 1999). During the initial informational session in which he was provided with information about the study, the investigator asked T.R., “Do you think your brother-in-law has the potential to show his competence during interactions?” to elicit this opinion.

Acquisition of Informed Consent

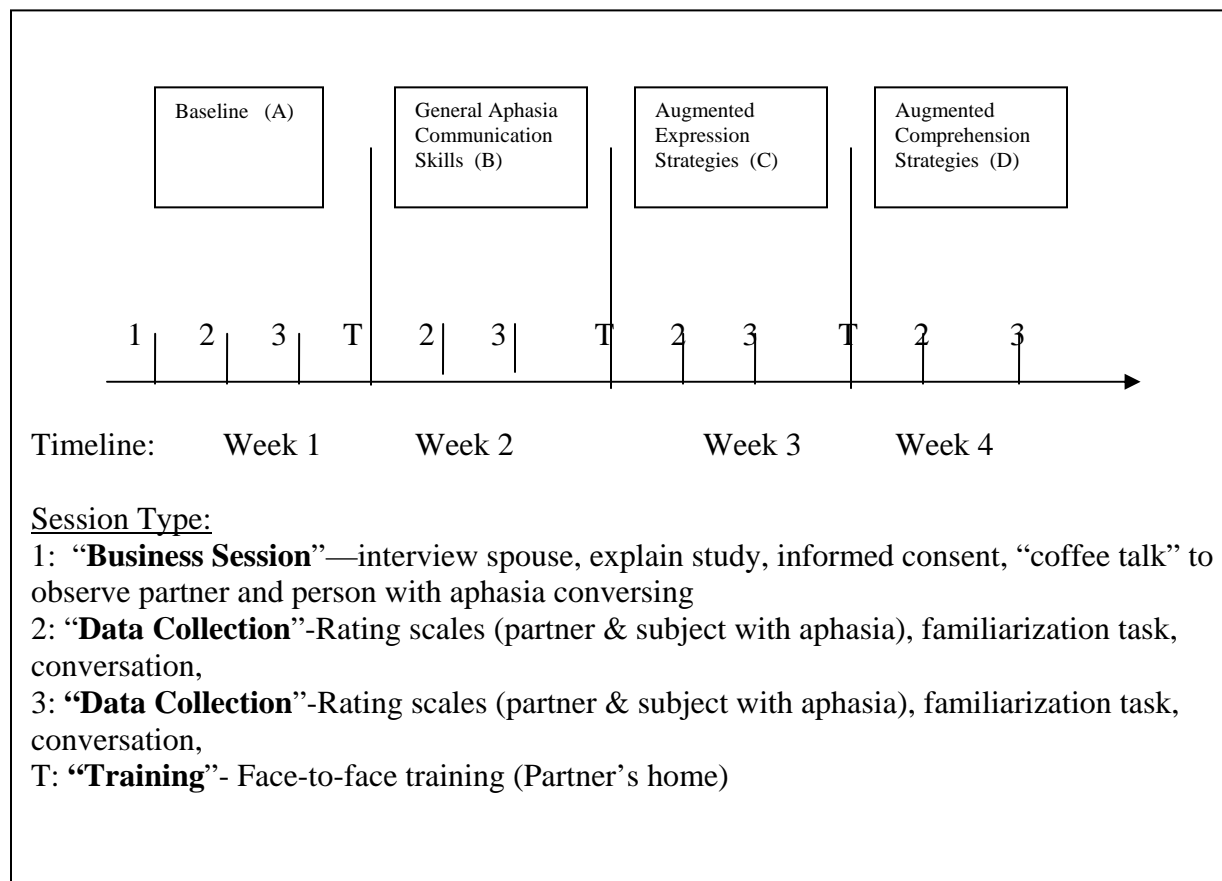
Prior to implementation of secondary screening procedures, the primary investigator met with the prospective subject with aphasia and his wife as well as the conversational partner to explain the purpose and specifics of the study, during which the potential risks and benefits were clearly defined. This information was presented orally as well as in written form. An adapted large-print form with simplified language was devised for the person with aphasia. The subject with aphasia, his wife, and the conversation partner were encouraged to ask questions at any time throughout the course of the explanation. After all questions were answered, the subject with aphasia, his wife, and the conversation partner were asked to sign a Consent Form attached to the Explanation of Research (Appendix B). The subject with aphasia was then asked to sign a simplified Assent Form (Appendix B) that signaled his approval to be a participant in the study. The investigator also asked the person with aphasia’s wife to review his response and rate her degree of certainty that the individual with aphasia wished to participate in the study.

Protection of Confidentiality

The confidentiality of the participants were protected using the following methods: a) the participants were identified by code rather than name on the research materials, and b) the results were stored in a locked file cabinet in the Faculty Advisor's and Principal Investigator's research laboratory in 413 Fisher Hall. No identifiers, such as address, phone number, or social security number were recorded on the actual test forms, transcripts, videos, or printed data. All participants signed the additional consent form allowing use of the videotapes for teaching or presentation at scientific conferences.

Research Design

A single case, comparative condition (A, B, C, D) repeated measures design was used to compare the effectiveness of three partner training packages on the interactions between a person with severe aphasia and his conversational partner. Treatments were applied in a progressive manner. First, in condition A (baseline) participants were instructed to converse with no training regarding communication strategies. The first treatment package (condition B) taught the partner to use general communication strategies for individuals with aphasia. Next, the second treatment package (condition C) taught the partner to use augmented expression strategies. Finally, the third treatment package (condition D) taught the partner to use augmented comprehension strategies. This design allowed for the effects of each treatment package to be compared with each other and with a baseline or no treatment condition. The following figure illustrates the experimental sequence in more detail.



Independent Variables

In this study, the independent variable was the partner training procedures associated with each treatment condition. Each training session was viewed as a single independent variable or treatment “package.” In condition A (baseline,) the conversational partner received no training and was simply asked to converse with the person with aphasia. In condition B, the conversational partner was trained in basic conversational rules for interaction with persons with severe aphasia. In condition C, the conversational partner was instructed in strategies to augment

the expression of the person with aphasia. In condition D, the partner was trained in how to augment the person with aphasia's comprehension.

Dependent Variables

Dependent variables were derived from the aphasia literature to analyze the experimental conversational interactions (Simmons-Mackie, 2001; Kagan & Gailey, 1993; Garrett & Huth, 2002; Garrett, 1993). All verbal and non-verbal behaviors that conveyed intent were transcribed at a "macro" level, meaning that words (intelligible and unintelligible), sounds, vocalizations, and observable nonverbal behaviors (e.g., gestures, writing, facial expressions, pointing) were written in standard orthography in the sequence in which they occurred. A general description of dependent variables that were derived from the transcription follows; complete definitions and examples for each quantitative variable are included in Appendix D.

- a) Percentage of facilitative communication acts. The number of communication acts, or back-and-forth turns between both conversational partners, out of the total number of communication acts in the conversation, that contained the strategies taught during the training sessions (e.g., general aphasia strategies, augmented expression strategies, augmented comprehensions strategies).
- b) Percentage of communication acts using specific supportive strategies. The number of communication acts out of the total number of acts containing facilitative strategies corresponding to the three types of training (e.g., general aphasia strategies, augmented expression strategies, augmented comprehensions strategies).

- c) Percentage of communication acts containing non-facilitative behaviors. The number of communication acts out of the total number of communication acts containing: a) exchanges with no overt opportunities for the person with aphasia to communicate, and/or b) exchanges containing confusing questions or comments for the person with aphasia.
- d) Number of exchanges. A series of at least two shared conversational turns between a sender and receiver that attempted to achieve a joint communication goal. An exchange conveys a new idea or concept even if this concept is related to the same topic. Acts devoted to repairing breakdowns are included in the same exchange as long as they pertained to the same idea.
- e) Number of communication acts. A cohesive unit of meaning or idea (complete or attempted). Has a different semantic and syntactic structure than preceding or subsequent acts.
- f) Percentage of initiated exchanges. The number of exchanges initiated by each participant (conversational partner and the person with aphasia)
- g) Percentage of exchanges per topic. The number of exchanges required to complete a discussion about one topic.
- h) Function of communication. The communicative function of each conversational act (e.g. to gain joint attention, to provide information, to ask a question, to request confirmation, non-function/regulatory).
- i) Mode of communication. The communication method by which the person with aphasia communicated (e.g., symbolic gestures, jargon, deictic pointing, pointing to written choices, spoken language).

- j) Percentage of successful exchanges. A rating of the success of each conversational exchange (e.g., 0, 1, 2, 3). Successfulness ratings were based on the complexity of the message, its intelligibility, and the independence with which the participants communicated the message within the exchange.

Control Variables

The *Western Aphasia Battery* (Kertesz, 1982) was administered just prior to and immediately following the experiment to control for the possibility that changes in the dependent variables were due to spontaneous recovery or improvement in language ability by the person with aphasia. A recent study by Lyon et. al (1997) demonstrated the use of a similar control by readministering the *Boston Diagnostic Aphasia Exam* (Goodglass & Kaplan, 1983) to ensure that scores had not changed during the experimental period. Recent literature (Cunningham & Ward, 2003) has indicated that all conversational variables have the potential to change as the result of conversational partner training, therefore implementation of this control variable was important. Results of testing showed that the pre-test aphasia quotient was 12 of 100 points possible which differed minimally from the post-experiment score of 13.4. This minimal difference in scores provided some validation that changes in dependent variables were due to the effects of the independent variable (partner training).

Additional Data

The primary investigator interviewed the conversational partner to obtain his perceptions of the training process at the conclusion of the experiment. In addition, she interviewed the participant with aphasia (via written choice conversations and use of tagged yes/no questions) as

well as his wife at conclusion of the investigation. These interviews were videotaped and transcribed to obtain social validation for the partner training sessions.

Design Controls

Several experimental controls were implemented to protect against threats to validity including: history (i.e., events outside of experiment produce changes in scores); maturation (i.e., participants' spontaneous recovery); learning (i.e., participants' learning of one skill carries over into another condition without being treated); Hawthorne effect (i.e., participants perform differently because they know they are being observed); familiarity (i.e., partners and participants perform better across time because of increased familiarity and ease of interaction); partner variability (i.e., selected partner differed significantly from pool of other available, more representative partners); insufficient data (i.e. not enough sessions to see a clear treatment effect); and tainted subject (i.e. subject has already been exposed to treatment procedures from previous therapy). These controls are described in more detail in Appendix E.

Experimental Procedures

Experimental Sessions

Treatment Sessions Setting. The treatment sessions took place in the dining room of the participant with aphasia's home. The participant with aphasia, R.C., and the conversation partner, T.R., were seated in comfortable chairs around the dining room table. The primary investigator operated the digital video camera from a corner of the dining room and also explained the procedures but otherwise did not participate in the data collection sessions.

Training Sessions Setting. The three, 1-hour training sessions for the conversational partner took place at the conversational partner's home in the living room. The primary

investigator delivered the content of the training modules via several modalities, including a live Power-Point© presentation on a laptop computer, written Power Point© handouts for review, role-playing between the primary investigator and the conversational partner, and video clip review. Throughout the sessions, the primary investigator described each conversational strategy and included examples of key behaviors. She then engaged in role-playing exercises with the partner so he could practice using each strategy. Discussion then followed during which the partner asked questions or requested additional practice. See Appendix F for a detailed description of training modules.

Number/Length/Scheduling of Sessions. Within each condition (Baseline A, Treatment B, Treatment C, Treatment D), two experimental sessions were conducted for a total of eight experimental sessions. Three training sessions were also conducted. Training sessions were scheduled for Tuesday evenings in the partner's home, and the experimental sessions (consisting of the conversations) took place on the Saturday and Sunday in R.C.'s after each training session. All sessions (training and experimental) took place at a time that was mutually agreeable with all parties.

Length of Study. All data collection and training took place during March 2004. Data analysis was completed by July 2004.

Preliminary Familiarization Task. Prior to the beginning of each experimental session the conversational partner asked the subject three warm-up social questions: 1) "How are you today?"; 2) "Anything new?"; and 3) "What do you think of the weather?" The purpose of these communicative turns was to prepare the subject for conversation rather than to converse at a content level.

Duration of Data Collection Session. Conversations within each experimental session continued with the same topic as long as the partner could interpret the subject's responses and/or until: a) the partner could not think of an open-ended question relating to the topic, or b) the partner judged the subject's verbal and non-verbal communication to indicate that he was no longer interested in the topic. The conversation continued until either the subject with aphasia or the conversational partner indicated their desire to terminate filming. Each experimental session was divided into 5-minute segments that were transcribed analyzed according to the dependent variables described earlier.

Experimental Conditions

Baseline (Condition A). In this condition, the subject with aphasia and the conversational partner were instructed to "have a conversation" about anything they wanted. These conversations were scheduled to last no longer than 10 minutes, however both conversational participants extended the length of conversations independently. The primary investigator presented three possible topic suggestions (recent personal events, local and national news, and television shows) at the beginning of each experimental session by stating the topic aloud as well as displaying an index card with the topic written on it. Additional materials including paper and markers were placed on the table near both participants. No instruction was provided regarding their use.

General Aphasia Communication Skills (Condition B). General aphasia training included general parameters for conversing with an individual with aphasia by augmenting their comprehension and expression. The partner was instructed to follow the same protocol described for Baseline (Condition A) regarding choice and introduction of topic.

Training Module 1: General Aphasia Communication Skills

- a) Responding to all communication (e.g., “Oh, do you mean you like Bush?”)
- b) Reducing number of comments (e.g., saying one or two comments instead of four or five before pausing)
- c) Pausing briefly after asking a question or making a comment (e.g., saying one comment and then pausing before making another one)

Augmented Expression Strategies (Condition C). During augmented expression training, the partner was instructed to follow the same protocol described for Baseline (Condition A) regarding choice and introduction of topic. In addition, the partner was taught how to support the person with aphasia’s expression with additional materials including (paper and markers) which were placed on the table near both participants. When the partner judged that the person with aphasia was unable to adequately himself, he was instructed to use one or more of the following techniques in training module 2:

Training Module 2: Augmented Expression Techniques

- a) Gestures. Partner verbally instructs the person with aphasia to use gestures when he is unable to communicate verbally (e.g., What do you think, R.C., show me your thumb [models thumbs-up and thumbs down]).
- b) Written Choice Conversational Strategy. Partner writes possible answers to the wh-question he just asked in the form of a list of written words/phrases, then reviews each choice aloud and instructs the person with aphasia to answer by pointing to one of the choices (e.g., “So, R.C., which restaurant is your favorite – the Murray Avenue Grill, Poli’s, or your wife’s kitchen?”[partner points to each choice as he says them aloud])
- c) Tagged yes/no questions. Partner asks the person with aphasia a yes/no question, and then “tags” or attaches the phrase “yes...or no?” to the end of the question and uses rising intonation plus corresponding head nods to emphasize the expressive technique (e.g., “So, R.C., do you think Stevie would like to go to college in Slippery Rock...yes [raises intonation and nods head]...or no [lowers intonation and shakes head]?)

Augmented Comprehension Strategies (Condition D). The training protocol for this condition taught the partner how to supplement the receptive communication of the person with aphasia using one or more of augmented comprehension strategies. The partner followed the

same protocol for conversation used in condition A (baseline) and condition C (augmented expression) but was instructed to use augmented comprehension strategies by utilizing additional materials including (paper and markers) which were placed on the table within reach of both participants.

Training Module Three: Augmented Comprehension Techniques

- a) Joint referencing. Partner observes that person with aphasia does not seem to understand what he is talking about, and so gets PWA's attention and points to the referent (e.g., "So, R.C., do you see what I mean about the weather?" [points outside])
- b) Gestures. Partner observes that the PWA doesn't understand a specific concept delivered verbally, and so uses an additional gesture before reiterating the message (e.g., Partner touches his nose when saying "I'm being nosy.")
- c) Written Key Words/Maps/Drawings Partner writes a key word, draws a schematic map or other item and shows it to the PWA to supplement his spoken explanation (e.g., partner writes key word 'volleyball' on a piece of paper to let person with aphasia know the new topic of conversation i)
- d) Intonation Changes. Partner changes his intonation to emphasize the meaning of a specific word or concept (e.g., Raises intonation when saying 'huge' to help person with aphasia know that word is important)

For the specific training sequence and protocol for all four conditions, refer to Appendix F.

Procedural Reliability

Several steps were taken to ensure that sessions were conducted in a consistent manner and that the experimental behaviors were typical of the participants on a given day. First, at the beginning of each experimental session, the participants were asked to rate their alertness and readiness for testing on a 5- point rating scale. The endpoints of the scale were marked with the terms "excellent day for testing", which corresponded to the number "5", and "terrible day for testing", which corresponded with the numerical rating of "1". If any of the participants' ratings

were below a “3” on the scale, the experimental session was postponed until another day. See Appendix G.

The primary investigator identified and recorded each of the procedural steps used in the experimental and training sessions. These steps were standardized across conditions to ensure that all steps were identical except for those related to manipulation of the independent variables. 100% procedural reliability was obtained.

Data Collection Methods

Data on the quantitative variables were collected by videotaping the conversational dyad throughout each experimental session. All video equipment was set up before the sessions to avoid distracting the subject and the conversation partner. The digital video camera was placed unobtrusively in one corner of the room and operated by the primary investigator. Training sessions were also videotaped using the same camera.

Data Analysis and Summarization

Videofilm Transcription and Coding

The primary investigator reviewed and transcribed the first five minutes of each videotaped experimental session. Communicative exchanges during experimental sessions were transcribed using the data sheet in Appendix H. The primary investigator then coded each question-answer exchange for each of the quantitative dependent variables defined in Appendix D.

Reliability

Coding Reliability. The investigator re-coded 15% of the data, which was equal to 1.5 minutes of conversational interaction per condition. Samples were chosen using a random-number generation program found on the Internet (www.random.com). The original data were then compared to the second set of data; intra-rater reliability was computed for each variable using the following formula:

$\frac{\text{Number of Agreements}}{\text{Number of Agreements} + \text{Disagreements}} \times 100$

Overall intra-rater coding reliability was 94% for all of the dependent variables. Intra-rater reliability for each variable was as follows: 100% for exchange initiations, 95% for PWA communication role, 94% for partner communication role, 90% for communication function (both participants), 95% for PWA communication mode, 90% for partner supported communication acts, and 94% for success.

Data Summarization

Means, standard deviations, and ranges were calculated for all dependent variable in each experimental condition. Each condition was represented by one number (average of the two sessions) for each dependent variable. In addition, this descriptive data were graphed separately for each dependent variable to determine if visible differences existed between conditions.

Institutional Review Board (IRB)

This project was submitted for full board review by the Duquesne University Institutional Review Board, and approved on 12-16-03. Full board review was required because the participants were potentially vulnerable due to communication challenges associated with

aphasia. In addition, the review board ensured that the investigators used adequate protections to maintain confidentiality. Please refer to sample consent forms contained in Appendix B. The IRB approval letter is contained in Appendix I.

CHAPTER III

RESULTS

Patterns evident in the data led to the formation of three summary questions pertaining to changes in dependent variables. These questions reflected patterns in partner variables, person with aphasia variables, or variables that pertained to the overall dyadic interaction.

Partner Variables

Did the conversational partner change his communicative behavior as a function of the training sessions?

Facilitative behaviors. T.R., the conversational partner, demonstrated observable changes in his communication behavior immediately after each intervention. Figure 1 reveals that T.R. increased the percentage of facilitative communication acts that had been targeted in the preceding training sessions. During condition A (baseline), an average of 36% (range: 33-40%) of his communication acts were facilitative. However, immediately following the first training session on general communication strategies (Condition B), the percentage of T.R.'s acts that supported R.C.'s (person with aphasia) communication almost doubled to a mean of 68% (range: 61-76%) for the two sessions. This significant increase in supportive acts was maintained across the remaining two conditions. The mean percentage following both condition C (augmented expression) and condition D (augmented comprehension) were 71% (ranges: 64-78% and 66-76% respectively).

T.R. also demonstrated changes in the number of specific supportive strategies (general, augmented expression, augmented comprehension) he used following training in those strategies (Figure 2). Specifically, the mean percentage of general communication strategies (e.g.

responding to all communication attempts, reiterating, and pausing) used during condition A (baseline) increased from 26% (range: 25-26%) to a mean of 42% (range: 39-44%) during condition B (general strategies). The mean percentage of general strategies decreased slightly to 29% (range: 28-29%) during condition C (augmented expression), however increased again to 41% (range: 30-51%) during condition D (augmented comprehension).

Immediately following training in augmented expression techniques (e.g. written choice conversation or tagged “yes/no” question format), 27% of T.R.’s (partner) acts facilitated R.C.’s (person with aphasia) expressive communication in condition C (Figure 2). This average level of 27% (range: 24-29%) contrasted with means of 1% and 0% in conditions A (baseline) and B (general strategies), respectively. However, the increase in the use of augmented expression techniques seen during condition C was not maintained throughout the final two conversations in Condition D (augmented comprehension) when the mean decreased to 9% (range: 3-14%).

There was no clear treatment effect for the final instructional protocol in augmented comprehension (Figure 2). However, the percentage of acts in which the partner, T.R., facilitated R.C.’s comprehension more than doubled from a mean of 18% (range:17-19%) in condition A (baseline) to a mean of 50%(range: 35-64%) in condition B immediately following instruction on general communication strategies. This increase was maintained throughout the remaining two conditions; 40% (range: 38-42%) in condition C (augmented expression) and 43% (range: 35-51%) in condition D (augmented comprehension). Implications for this phenomenon are discussed in the next chapter.

Non-facilitative Behavior. Although T.R., the conversational partner, supported R.C.’s communication acts to some extent, there were instances when T.R.’s communicative behaviors did not promote interaction from R.C. However, the frequency of non-facilitative communication

behaviors changed in response to treatment. The mean percentage of exchanges where T.R. did not provide overt opportunities for R.C. (person with aphasia) to communicate decreased from 63% (range: 54-71%) during condition A (baseline) to 31% (range: 29-33%) during condition B (general strategies) (See Figure 3). This decrease of more than half occurred immediately following the initial training session in general communication strategies and, although slight increases were seen, was maintained during the final two conditions C and D; (mean: 39%, range: 16-61%) for condition C (augmented expression) and (mean: 44%, range: 33-54%) for condition D (augmented comprehension).

At times T.R. (conversational partner) also generated communication acts that appeared to be difficult for R.C.(the person with aphasia) to respond to. Seventeen percent (range: 10-23%) of T.R.'s communication acts consisted of confusing questions/comments during condition A (baseline) (See Figure 3). A similar mean for condition B was computed (13%; range:0). In contrast, during condition C, the mean percentage of exchanges containing confusing questions/comments decreased to 3% (range: 0-6%) following training in augmented expression strategies. However, in condition D, T.R.'s mean number of confusing communication acts returned to the baseline level of 17% (range:8-26%).

Communication Role. T.R.'s average percentage of initiations, which represented the majority of his acts, remained at approximately 68% (range: 63-77%) throughout the investigation. T.R. never responded to any of R.C.'s four initiations throughout the investigation, but instead chose to use equivocal statements. T.R.'s percentage of equivocal acts, or acts that were neither clearly initiations or responses, increased from 23% (range: 21-25%) in condition A (baseline) to 40% (range: 37-43%) in condition B (general strategies), an increase of almost twofold. T.R.'s mean percentage of equivocal acts decreased slightly to 37% (range: 32-42%) in

condition C (augmented expression) and 29% (range: 21-36%) in condition D (augmented comprehension).

Function of Communication: T.R. (conversational partner) also demonstrated changes in the function of his communication following training. Specifically, the mean percentage of T.R.'s requests for information increased throughout the investigation. In condition A (baseline) 18% (range: 14-21%) of T.R.'s acts were requests for information. This mean percentage increased to 27% (range: 23-30%) in condition B (general strategies). T.R. continued to increase the mean percentage of requests for information during the following two conditions. In condition C (augmented expression) T.R. requested information in 21% (range: 20-22%) of his communication acts and 29% (range: 19-39%) in condition D (augmented comprehension)

This increase in requests for information is paralleled by a decrease in the mean percentage of information acts. In condition A (baseline), T.R.'s mean percentage of information acts was 60% (range: 57-63%) which decreased to 35% (range: 33-36%) in condition B (general strategies). T.R. continued to provide less information in condition C (augmented expression) with 44% (range: 40-48%) and in condition D (augmented comprehension) with 40% (range: 37-43%). The reason for this overall increase in requests for information and decrease in provision of information may indicate more effort by T.R. to elicit information from R.C.

T.R. also increased his mean percentage of emotional/confirmatory response acts. In condition A (baseline) 6% (range: 5-6%) of T.R.'s acts were to confirm R.C.'s (person with aphasia) message. This percentage increased by more than half to 18% (range: 17-19%) in condition B (general strategies), and remained stable with 17% (range: 16-18%) in condition C (augmented expression), and 16% (range: 13-18%) in condition D (augmented comprehension). This upward trend may reflect T.R.'s attempt to ensure his own comprehension of R.C.'s

utterances before continuing the conversation. The mean percentage of non-function/regulatory acts, or acts that did not serve a communicative function, (e.g. looks up or down from a paper or around the room while thinking and facial expressions) decreased for the conversational partner (T.R.) from 9% (range: 8-10%) in condition A (baseline) to 1% (ranges: 0-2%) in conditions B (general strategies) and C (augmented expression) respectively. Condition D (augmented comprehension) revealed a slight increase to 3% (range: 0). T.R.'s decrease in overall mean percentage of non-function/regulatory acts may be an informal indicator of increased comfort while communicating with R.C. following partner training.

Functions of communication that did not change throughout the study for both participants were: requests for clarification, joint attention, greeting/small talk, and requests for social interaction. Specifically, the mean percentage of requests for clarification remained at approximately 17% (range: 14-21%) for T.R. and 1% (range 0-1%) for R.C. across conditions. The mean percentage of requests for social interaction, joint attention, and greeting/small talk acts remained at approximately 1% (range 0-2%) throughout the study for both participants.

Participant with Aphasia Variables

Did the participant with aphasia change his communicative behavior as a function of the training sessions?

R.C. (person with aphasia) exhibited some changes in his communicative behavior after his conversational partner (T.R.) received training, although most differences were slight or less noticeable with regard to their impact on the overall interaction with the exception of his ability to provide specific information via written choices in condition C, and a slightly increasing use of deictic pointing across the four study conditions.

Communication Role. The primary investigator had initially hypothesized an increase in the person with aphasia's (R.C.) conversational initiations following partner training in the use of facilitative communication strategies. However, this was not supported by the data. Specifically, the mean percentage of initiations for R.C. was 1% (range: 0-2%) for condition A (baseline) and 6% (range: 4-7%) in condition B (general strategies). In condition C (augmented expression) the mean percentage of initiations was 2% (range: 0-3%) and 0% for condition D (augmented comprehension). R.C.'s mean percentage of communicative responses also did not change significantly throughout the investigation despite an increase in the percentage of T.R.'s communication acts containing facilitative strategies. R.C.'s average percentage of responses remained at approximately 27% (range: 21-31%). The majority of R.C.'s communication acts were equivocal. The average percentage of R.C.'s equivocal acts was relatively consistent at 78% (range: 71-85%) in condition A (baseline), 64% (range: 56-71%) in condition B (general strategies), 74% (range: 71-76%) in condition C (augmented expression) and 73% (range: 63-82%) in condition D (augmented comprehension).

Communication Function. The mean percentage of R.C.'s requests for information remained at 0% throughout the investigation. However, the average percentage of times that R.C. provided specific information increased immediately following the first training session in general communication strategies from 21% (range: 13-29%) in condition A (baseline) to 36% (range: 29-42%) in condition B (general strategies). In condition C (augmented expression) the mean percentage of information provided by R.C. was 24% (range: 0) and 28% (range: 18-37%) in condition D (augmented comprehension). The slight decline in the final two conditions may be related to T.R.'s attempts to facilitate R.C.'s communication with specific augmented

expression and comprehension strategies, which may have inadvertently decreased R.C.'s opportunities to provide novel information.

The majority of R.C.'s communication throughout the study was classified as performing a confirmatory function (e.g. nodding his head after T.R.'s confirmation). The average percentage of confirmatory acts was 80% (range: 71-88%) in condition A (baseline) and 62% (range: 56-68%) in condition B (general strategies). In condition C (augmented expression), the mean percentage of confirmatory acts was 73% (range: 69-76%) and was 70% (range: 63-76%) in condition D (augmented comprehension). The slight overall decrease in confirmatory acts for R.C. immediately following the baseline phase may have reflected T.R.'s attempts to elicit more information from R.C. by providing opportunities for him to communicate. R.C.'s average percentage of non-function/regulatory acts remained at approximately 3% (range: 1-4%) throughout the study.

Mode of Communication/Level of Symbolic Complexity. One aspect of communication that was measured solely for R.C., the person with aphasia, was mode of communication. The mean percentage of R.C.'s acts containing symbolic gestures was 52% (range: 40-64%) in condition A (baseline) and increased to 68% (range: 60-75%) in condition B (general strategies). This increase was not maintained, however, during the remaining two conditions and subsequently decreased to 14% (range: 7-21%) in condition C (augmented expression) and 33% (range: 31-35%) in condition D (augmented comprehension). The reason for this decrease in acts containing symbolic gestures may be due in part to an increase in the percentage of written choice acts from 0% (range: 0%) during conditions A and B to 28% (range: 24-31%) during condition C. This condition occurred immediately following training in augmented expression strategies, of which written choice is one.

The decrease in the percentage of acts with symbolic gestures is similar to the decrease in the mean percentage of yes/no head nod acts: from 80% (range: 77-82%) in condition A (baseline) and 72% (range: 71-72%) in condition B (general strategies) to 52% (range: 24-79%) in condition C (augmented expression). This percentage subsequently increased in condition D (augmented comprehension) back to 74% (range: 71-76%).

The mean percentage of deictic point acts increased from 0% (range: 0%) in baseline to 8% in conditions B and C (ranges: 5-11% and 5-10% respectively) and 13% (range: 8-18%) in condition D. Condition C (augmented expression) showed an increase in the percentage of written choice communication acts (an augmented expression strategy), and a corresponding decrease in all other modes of communication. This may be reflective of T.R.'s (conversational partner) primary use of written choice when communicating with R.C. (person with aphasia) in this condition.

Throughout the investigation, R.C. never communicated with intelligible spoken language; instead he used jargon for all of his verbal language. The mean percentage of acts in which R.C. communicated with jargon was approximately 70% (range: 67-77%). The mean percentage of modalities classified as "other" (e.g. looks of frustration and communicative facial expressions such as smile and frown) remained at approximately 8% (range: 6-9%) across sessions.

Dyadic Conversational Variables

Did variables pertaining to the overall conversational interaction change as a function of the training sessions?

Exchanges, Topics, and Exchanges per Topic. Figure 4 shows the mean number of exchanges (i.e., a series of conversational turns that convey a single idea) across experimental

conditions. This measure served as the denominator in subsequent computations of several derived variables. In condition A (baseline), the mean number of exchanges decreased from 33 (range: 31-35) to 27 (range: 24-30) in condition B (general strategies). It further decreased to 18.5 (range: 18-19) in condition C (augmented expression). This decline from baseline was not continued in condition D (augmented comprehension) in which the mean number of exchanges was 25.5 (range: 24-27).

The mean number of topics (Figure 5) discussed in each 5-minute interaction was also tallied. In condition A (baseline), the mean number of topics was 9.5 (range: 9-10). In condition B (general strategies) the mean number of topics was 7 (range: 6-8). This value sharply decreased to 2.5 (range: 2-3) in condition C (augmented expression). However, in Condition D the downward trend in mean number of topics reversed, increasing to 6.5 (range: 6-7).

The mean number of exchanges per topic remained relatively stable throughout the study (see Figure 5). In condition A, the mean number of exchanges per topic was 3.5 (range: 3.1-3.89), which increased slightly to 3.88 (range: 3.75-4.00) in condition B. In condition C, which immediately followed partner training in the use of augmented expression strategies, the mean number of exchanges per topic approximately doubled to 7.75 (range: 6.00-9.5). However, this value subsequently decreased to 3.93 (range: 3.86-4.00) in condition D. Possible reasons for the corresponding decrease in mean number of topics and increase in mean number of exchanges per topic in condition C (augmented expression) are discussed in the next chapter.

Exchange Initiations. The mean percentage of exchanges initiated by each participant was also computed. For T.R. (the conversational partner), this percentage remained at approximately 100% (range: 95-100%) throughout the investigation, whereas R.C.'s (person with aphasia) mean percentage of initiated exchanges ranged from 0-6% for all conditions. In

condition A (baseline) and condition D (augmented comprehension), R.C.'s mean percentage of exchanges was 0%, which did increase slightly to 6% (range: 4-7%) and 3% (range: 0-6%) for conditions B (general strategies) and C (augmented expression) respectively. The exchanges that R.C. initiated involved the use of gestures in condition B and written choice in condition C. Both of these strategies allow the person with aphasia to take a more active role in communicating thereby encouraging more initiations.

Acts. The proportion of each participant's communication acts, or the number of turns devoted to the continuation of a single idea (exchange), was also computed. The mean percentage of T.R.'s (the conversational partner) acts out of total communication acts was maintained at approximately 60% (range: 60-63%) throughout the investigation, whereas R.C.'s (person with aphasia) mean percentage of acts averaged approximately 40% (range: 38-44%) across conditions. However, the total number of communication acts required to complete an exchange steadily decreased throughout conditions A, B and C. In condition A (baseline), the mean number of acts was 136.5 (range: 129-144), while in condition B (general communication strategies) the mean number of acts decreased to 111.5 (range: 97-126). A sharp decrease in mean number of acts (mean 88, range 79-97) occurred in condition C (augmented expression). However, in condition D (augmented comprehension), the mean number of acts returned to near-baseline levels (mean: 123.5, range: 119-128). This decrease in mean number of acts in condition C (augmented expression) corresponded with a similar decrease in the mean number of exchanges and topics. An increase in mean number of exchanges per topic was also noted in condition C. Implications for these trends are discussed in the next chapter.

Success

The overall success of each exchange was rated by the primary investigator on a scale ranging from 0-to-3, with 0 being “no response or communication attempt” and 3 being “a message conveyed with adequate partner response indicating complete comprehension and entire intended message was conveyed without interpretation.” Contrary to the outcome hypothesized by the primary investigator, the mean percentage of exchanges with a rating of 3 (completely successful) decreased from 61% (range: 57-65%) in condition A (baseline) to 49% (range: 47-50%) in condition B (general strategies). In conditions C (augmented expression) and D (augmented comprehension), the mean percentage increased slightly to 55% (range: 37-72%) and 57% (range: 54-59%) respectively, averages that were closer to baseline levels (Figure 14).

This momentary decrease in the average percentage of exchanges rated as a 3, particularly during Condition B, parallels an increase in the mean percentage of exchanges rated as a 2 (“message partially conveyed, requires some partner interpretation to obtain full meaning”). In the baseline condition, 29% (range: 23-34%) of exchanges were rated as a 2. This increased to 41% (range: 40-42%) in condition B, 40% (range: 22-58%) in condition C and 34% (range: 26-42%) in condition D. The mean percentage of exchanges rated as a 1 (“message attempted but not conveyed/abandoned”) is as follows: 10% (range: 6-13%) in condition A, 9% (range: 4-13%) in condition B, 3% (range: 0-5%) in condition C and 10% (range: 4-15%) in condition D. The mean percentage of exchanges rated as a 0 were 2% for conditions A and B (ranges: 0-3% and 0-4% respectively) and 3% (range: 0-6%) for condition C. 0% of exchanges were given a rating of 0 for condition D. The significance of the overall decline in ratings of 3 may be due to the difficulty of quantifying success. Implications are further discussed in chapter 4).

CHAPTER IV

DISCUSSION

Summary of Primary Findings

The present investigation sought to augment the comprehension and expression of a single participant with severe aphasia, R.C., by training a familiar conversational partner, T.R., to interact with him using specific facilitative strategies. These strategies were presented to the partner during a 3-stage instructional intervention consisting of: 1) general communication strategies for people with aphasia (e.g., pausing, responding to all communication attempts, reducing the number of comments); 2) augmented expression strategies (e.g., gestures, Written Choice communication, and tagged “yes/no” questions); and 3) augmented comprehension strategies (e.g., written key words, supplemental gestures, and facial expressions). Dependent variables quantifying various communication behaviors (e.g. number of exchanges/topic, number partner-facilitated communication acts, success of exchange) were coded, tallied, and summarized. Informal interviews conducted with each participant and R.C.’s wife at the conclusion of the study revealed support for the training process as well as an appeal for more programs and research in the area of conversation training.

A single case, comparative condition, repeated measures design was used to compare the effectiveness of the three, progressively applied instructional protocols on the interactions between a person with severe aphasia and his familiar conversational partner. This design also allowed effects of each treatment package to be compared with each other.

Facilitative Communication Acts

The primary finding of this investigation was that the mean percentage of partner-facilitated communication acts increased throughout the investigation. Immediately following the first partner training session in general aphasia communication strategies, the mean percentage of communication acts facilitated by T.R., the conversational partner, almost doubled from the baseline level (see Figure 1). This significant increase was maintained after the next two trainings on augmented expression and augmented comprehension respectively.

Use of specific communication strategies by the conversational partner

T.R.'s use of specific communication strategies revealed an interesting pattern in that they reflected the material taught during the previous training session (Figure 2). For example, immediately following the training session on general communication strategies, the mean percentage of communication acts involving general strategies increased from 26% in baseline to 42% in condition B (general strategies). T.R. also increased the mean percentage of questions he asked R.C. as well as the mean percentage of acts that confirmed R.C.'s communication. This increase also occurred immediately after the initial training in general strategies and remained higher than baseline levels for the final two conditions.

Similarly, immediately following the training session on augmented expression strategies, the mean percentage of acts involving augmented expression increased from 1% in baseline to 27% in condition C (augmented expression). The increase in acts that augmented R.C.'s expression is also supported by an increase in the percentage of written choice communication acts introduced during partner training on augmented expression strategies. Interestingly, despite an increase in acts involving written choice communication, there was a

decrease in the percentage of R.C.'s communication acts involving yes/no head nods and symbolic gestures although both strategies were included in the instructional protocol on augmented expression strategies. The reason for R.C.'s increase in the use of Written Choice communication during condition C (augmented expression) may be that T.R., the conversational partner used this as the primary communicative strategy for this condition. Similarly, following the training session on augmented comprehension strategies (Condition D), the mean percentage of acts in which T.R. facilitated R.C.'s understanding of conversational statements and questions, increased from 18% in baseline to 43% in condition D (augmented comprehension).).

Several reasons for the change in T.R.'s communicative behaviors are proposed. First, as a result of the training sessions, T.R. was encouraged to spend more time ensuring his own understanding of R.C.'s utterances to have more rich, in-depth conversations. In order to accomplish this, T.R. had to reduce the amount of information he provided, and focus instead on making sure that he understood what R.C. was saying. Second, T.R. may have increased the amount of questions he asked R.C. due to an increased capacity for carrying on conversations. Prior to communication strategy training, T.R. was not equipped with the tools to effectively communicate with R.C. T.R.'s interest in R.C.'s opinion on topics most likely did not increase as a result of training, but rather his ability to obtain the opinion using specific compensatory communication strategies did.

Although T.R. increased his use of facilitative strategies immediately after the corresponding training session, he did not always continue to use them. For example, the sharp increase in use of augmented expression strategies (e.g. written choice communication, tagged "yes/no" questions) seen in condition C was not continued in the final condition, D. Likewise, the increase in general strategy use (e.g., pausing) seen immediately after the general strategy

training session (condition B) was not maintained in the next condition, C. However, T.R.'s use of general strategies in the final condition, D (augmented comprehension), increased to levels comparable with condition B when the general communication strategies were initially introduced.

One possible reason for T.R.'s failure to retain trained strategies across conditions involves the presentation of new material in the subsequent training session, which may have interfered with material previously presented. Another reason may have been differences in the naturalness of the communication strategies. That is, general communication strategies (e.g. pausing, reducing number of comments/questions, responding to all communication attempts) are fairly similar in purpose to augmented comprehension strategies (e.g., using gestures and written material to increase the person with aphasia's comprehension) and T.R. may not have been able to differentiate between them. Both general strategies and augmented comprehension strategies resemble natural communication behaviors exhibited by untrained but empathetic communication partners (Ferguson & Peterson, 2002; Kagan, 1995; Simmons-Mackie & Damico, 1997). This may also account for the increase in general strategy use in condition D that occurred immediately after training in augmented comprehension strategies. In contrast, the augmented expression strategy of written choice communication follows a specific protocol for providing answers for the person with aphasia to choose from during conversation. Due to its more precise nature, it may have been difficult for T.R. to maintain the use of written choices in the final condition D (augmented comprehension) without additional training in use of this strategy. Natural strategies such as pausing may not require the additional training that more clinical strategies such as the written choice conversation strategy may require. However, this

finding does not necessarily imply that clinical strategies are less important components of a partner training protocol, just that they are more difficult to internalize.

Non-facilitative Behaviors exhibited by the partner

Other data that validated the positive impact of the partner training sessions were T.R.'s increased use of communication strategies following specific instruction in their use. For example, the percentage of exchanges in which T.R. did not provide overt opportunities for R.C. to communicate decreased by half following the initial training session in general strategies (see Figure 3). This percentage remained significantly lower than baseline throughout the investigation. Likewise, the mean percentage of exchanges in which R.C., the person with aphasia, had difficulty responding to T.R. due to confusing questions/comments also decreased immediately following the initial training session.

T.R. also reduced the number of non-function/regulatory acts immediately following the first training session in general strategies. These regulatory acts included such actions as shuffling topic cards and looking around the room. Use of regulatory acts remained lower than baseline throughout the investigation. Following the initial training in general strategies, T.R. also consistently reduced instances of 'monologuing', or providing information in consecutive acts without opportunities for R.C. to respond, which were frequent during the first two conversations. He maintained this trend throughout the remaining conditions.

The majority of T.R.'s communication acts involved the provision of information. Although significantly reduced from baseline levels, the percentage of his acts involving provision of information remained high at approximately 40%. T.R.'s tendency to dominate conversations is reflective of an assertive conversational style (Tye-Murray, 2004). However,

frequency of acts may be an imperfect measure of communication opportunities. One method of compensating for this may be to measure the length of individual communication acts in seconds and compare them across conditions for each communicator, which may be a better measurement of opportunities to speak throughout the conversation.

Another reason for the sharp decline in T.R.'s use of non-facilitative communication behaviors may have been the impact of the initial partner-training session in general communication strategies. In this first instructional session, the investigator presented didactic information and demonstrated strategies that primarily focused on teaching T.R. to provide opportunities for R.C. to communicate. This intervention condition (B) on general communication strategies may have been the most powerful of all three based on the data shown in Figures 1 and 2. Immediate visible changes in interaction behaviors occurred after the first training. T.R. may also have been more comfortable when communicating with R.C. following the initial training session. In T.R.'s final interview, he stated, "I'm more comfortable with it [conversations with R.C.]. I have a better understanding of what some of the problems are, and a better understanding of ways that I can help him to participate in the conversation."

However, this decrease in non-facilitative behaviors was not completely sustained as the experiment progressed. Instances of confusing comments and no opportunities to communicate increased steadily throughout the remaining two experimental conditions. This reduction in non-facilitative communication behaviors after the conclusion of condition B (general strategies) is similar to the pattern described earlier for facilitative strategies. The increase in the occurrence of non-facilitative communication behaviors and the decrease in facilitative strategies in the final condition, D, may be reflective of a need for a 'refresher' session on communication strategy use.

Dyadic Variables

Throughout the investigation, the number of exchanges, number of topics, and the percentage of communication acts per topic decreased from baseline with the exception of the final condition D (augmented comprehension) (Figures 4 and 5). This decline is visually significant when conditions B (general strategies) and C (augmented expression) are examined in comparison to condition A (baseline). These trends may be indicative of increased conversational efficiency reflected by fewer acts and exchanges required to confirm and co-construct meaning.

The sharp increase in exchanges per topic in condition C is reflective of increased time spent on each topic. It corresponds with the increased use of written choice communication during condition C, which allowed the partner to ask additional, semantically specific questions of the person with aphasia in a logical conversational sequence. The overall increase in exchanges per topic throughout the investigation may indicate increased depth in T.R.'s conversations with R.C., although further research is needed to confirm this hypothesis. However, because the data on these conversational “efficiency” and “depth” variables noticeably decreased in condition D, the case for presentation of a refresher training session or additional practice is strengthened.

Communication Successfulness

Interestingly, the percentage of exchanges that were rated as successful did not change significantly across the experimental sessions. This could have been a function of the difficulty encountered in quantifying conversational success described by Kagan and colleagues (2001). For example, in condition A (baseline), the majority of exchanges were rated as a 3 (“message

conveyed with adequate partner response indicating complete comprehension. Entire message was conveyed without interpretation”) due to T.R.’s tendency to move on without confirming R.C.’s act. The primary investigator was forced to assign a rating of 3 to such exchanges. A rating of 2 (“message partially conveyed. Requires some partner interpretation to obtain full meaning”) was inappropriate as neither the partner nor the person with aphasia attempted to interpret. Although it appeared that the mean percentage of exchanges with a rating of 3 decreased slightly over the remaining conditions, the mean number of exchanges rated as a 2 increased slightly. The final result is maintenance of success at or near baseline levels throughout the investigation.

Social validation

Results of informal interviews at the conclusion of the study revealed several interesting trends. T.R., the conversational partner, felt that he gained a framework to use when conversing with R.C., as revealed by his statement, “I have a framework to operate from in terms of speed, and volume, and ideas on how to allow him to participate in a more meaningful way.” He also stated that his level of comfort increased after attending the training sessions and that he had a better understanding of R.C.’s communication difficulties. When asked if there was any one thing he did that seemed particularly helpful, T.R. responded, “ One technique, the fact of writing things down, helps R.C. in understanding what I’m trying to communicate and it helps me to be specific.”

R.C.’s wife also stated that the training sessions had been beneficial. She reported her amazement at what T.R. had learned after three evenings of training. “ I found it amazing, how after three hours worth of [training] sessions how much he [T.R.] learned about communicating

better with R.C. It just made me very happy.” She also stated that after reading the training materials that T.R. had been given, she also started to change the way that she interacted with R.C. “I mean after reading it [training materials], I sort of paid a little bit more attention to what I was saying too.” Finally, R.C.’s wife reiterated the importance of providing such information to family members of individuals with aphasia. “ I think it [partner training] has so much potential for a bigger process. He was in speech therapy every day [in an cute rehabilitation facility] and we were given absolutely no information about what we should do.”

Interestingly, R.C., the person with aphasia did not see a difference in his conversations with T.R. after the training in communication strategies. The primary investigator asked R.C. whether he felt that conversations with T.R. were any different using a variety of different methods (e.g., written choices, tagged yes/no questions). R.C. consistently indicated that he felt the conversations with T.R. were the same as before training. One reason for R.C.’s view may be confusion regarding the time frame. He may have been comparing the conversations with T.R. to those from before his stroke rather than just prior to partner training. Another reason may be that R.C. truly did not perceive a difference in the effectiveness or richness of conversations with T.R. in light of his chronic severe linguistic impairments.

Theoretical Implications

The results of this investigation validated previous studies regarding the effectiveness of communication strategy training (Simmons-Mackie, 2001; Hopper, Holland, & Rewega, 2002; Kagan et. al, 2001). The fact that T.R. demonstrated use of specific communication strategies immediately following the training session on their use reflected his ability to apply these strategies in a short period of time. This investigation improved upon previous training protocols

by teasing apart their components and grouping these communication strategies according to three main areas of function (general strategies, expression, and comprehension). This grouping allowed the conversational partner to be introduced to these strategies in small concentrated doses. It also became possible to examine the additive contribution of each group of strategies.

This investigation was also unique because the conversational partner was familiar to the person with aphasia and highly motivated to learn more effective ways to communicate with him. Previous studies (Hengst, 2003; Kagan et.al. 2001; Lyon et.al, 1997, Rayner & Marshall, 2003) have used unfamiliar conversational partners who must first establish rapport with the individual with aphasia before beginning conversation. Partner familiarity could be an advantage due to increased motivation to learn, shared social context, and increased potential for carryover. However, partner familiarity may be disadvantageous due to old patterns of interaction that could interfere with new learning. The potential drawback to a familiar partner requires a partner training protocol robust enough to overcome partner differences. The present investigation demonstrated increased use of facilitative communication strategies, despite a familiar partner with an assertive conversational style, which may be an indirect indicator of the strength of the training program used in this investigation.

Clinical Implications

The primary finding of this investigation was an increase in use of facilitative strategies by the conversational partner of the individual with severe aphasia immediately following one two-hour training session on their use. This is significant because it implies that conversational partners can be trained to use such strategies in a relatively short amount of time. This brief training timeline may assist with the dissemination of critical communication instruction to

families following the diagnosis of aphasia. The grouping of facilitative strategies into replicable protocols may also assist speech pathologists to efficiently and consistently administer strategy training in a consistent manner. Although the current investigation did not allow the investigator to identify the most critical phase due to the additive nature of the conditions, a significant change in partner behaviors resulted from the very first training protocol in general strategies. However, each type of conversational strategy (e.g., general, augmented expression, augmented comprehension) may be an important component of the entire partner training process, and training in each set of strategies may be necessary to address all of the person with aphasia's communication needs.

This investigation also demonstrated the possible need for reminders regarding the use of facilitative strategies. Clinical strategies such as written choice conversation require additional training and practice due to their specific protocol. Strategies such as pausing and reducing the number of comments are more natural and appear to be used more readily by the conversational partner. Although the written choice strategy is more clinical in nature and may require additional training, it is an important part of partner training that when used, results in more opportunities for the person with aphasia to contribute specific ideas to conversations. Additional partner training focusing on more clinical strategies may increase the likelihood of the partner retaining such strategies for longer periods of time. Clinician feedback would be very important during this re-training, as would frequent rehearsal of strategies by the partner.

As a result of partner training, quantitative analysis effectively revealed an increase in the depth of interactions between the person with aphasia and his conversational partner, specifically when the number of exchanges per topic was calculated. This variable could be used to judge parameters such as conversational depth or level of interest in a particular topic. However,

despite the increase in exchanges per topic, other benchmark conversational variables such as initiations and success did not increase as expected. With regard to initiations, it appeared that the person with aphasia's linguistic impairment was so significant that he was unable to initiate even when provided with the opportunity. R.C.'s stable, low scores on the WAB indicated that the conversational interactions changed as a result of partner training and not R.C.'s linguistic impairment. Success also did not appear to change throughout the investigation, although the primary investigator felt this reflected the need for a more effective quantification system that accurately captured the person with aphasia's comprehension of partner acts.

Overall, communication strategy training appeared to increase the comfort level of the partner and the spouse of the individual with aphasia. Both the partner and the spouse of the individual with aphasia reported an improvement in the quality of conversations with the individual with aphasia, specifically in terms of having 'tools' to facilitate communication. Interestingly, R.C., the individual with aphasia did not report changes in the quality of communication with T.R. from before training. This finding also supports previous studies that have found low social validation scores for the individual with aphasia. Additional research is needed in this area to identify the precise cause for this discrepancy in ratings.

Limitations of the Study

Results of this research illustrate the inherent difficulties in defining and capturing the dynamic nature of conversation, particularly in terms of opportunities for initiation and overall success of the interaction. Initial analysis of the data proved to be difficult for several reasons. First, the primary investigator encountered difficulty deciding where to begin transcribing each individual five-minute data session. The nature of conversation in each of these sessions began

with dialogue centered on “small talk” and progressed to more specific conversations centered on a topic. In between these two types of dialogue, instances of partner-generated ‘monologue’ were noted. These monologues continued throughout the investigation, although to a noticeably lesser extent. Based on the inconsistent nature of these monologues, the primary investigator chose to begin transcription from the beginning of each five-minute session. Additionally, the primary investigator determined that contrary to typical small talk, the nature of the small talk in this investigation had specific communicative content. In other words, T.R., the conversational partner, truly wanted to know the answer to the “small talk” questions (e.g. “How are you feeling today?”). For this reason, transcription began at the beginning of each session.

Another limitation encountered in this investigation was quantification of more complex conversational variables (e.g. depth of conversations, success of exchanges). These terms contain a certain amount of subjectivity that makes defining them difficult. To judge success of exchanges, a rudimentary rating system based on a four-point scale was used. While effective for rating most exchanges in this investigation, it proved inadequate when attempting to interpret R.C., the person with aphasia’s, communicative acts. Often the primary investigator assigned a rating of three to an exchange due to the fact that no interpretation by the partner or the person with aphasia was evident. A more detailed rating scale that accounts more appropriately for the person with aphasia’s comprehension of messages is warranted. However, this is difficult when the individual is non-speaking, and therefore the issue of judging success of message transfer may not be easily solved. This investigation also examined the number of exchanges per topic to determine the ‘richness’ of conversation. Another option for determining depth of conversations may be to count the duration of each conversational topic in seconds while also counting the number and duration of breakdown sequences.

Finally, caution is required when attempting to generalize the findings of this investigation to other individuals with aphasia and their familiar conversational partners because the data were derived from a single participant with aphasia and his partner. The limited subject number may also have exaggerated any partner or participant effects such as conversational style and educational level. In this investigation in particular, for example, the conversational partner (T.R.) was highly educated, which may have inflated the effect of increased strategy use following training to some extent. T.R. asked thoughtful, intuitive questions throughout the training sessions and in certain respects appeared to be the ‘ideal student.’

Directions for Future Research

The following points reflect possible avenues for future research.

- a) Qualitative analysis of partner’s perceptions of the training process over time
- b) Identification of specific components of the training sessions that are most effective/preferred by the conversational partner
- c) Use of naïve raters to evaluate the success of communicative exchanges throughout the training process.
- d) Re-classification of facilitative strategies into *natural vs. clinical* training packages to determine which strategies are learned more effectively
- e) Separate and re-order training packages (i.e., begin with baseline and then teach augmented expression strategies); compare to present findings.

Conclusions

Conversation is a vehicle through which humans express their thoughts, feelings, and emotions. Human relationships are driven by the depth and richness of conversations as well as the ease with which these conversations are conducted. Factors that make conversations

successful for most individuals may be significantly limited for a person with severe aphasia. However, several authors (Ferguson, 1996; Oelschlaeger & Damico, 2000; Kagan, 1995, Simmons-Mackie & Kagan 1999) believe that training conversation partners to augment the comprehension and expression of individuals with severe aphasia will directly improve their ability to effectively participate in conversations and in turn increase their communicative competence.

Communication is a fundamental part of life that allows us to express our thoughts, feelings, and emotions. It is the thread that holds our social world together. For an individual with severe aphasia, this thread is torn and frayed, possibly even cut altogether. Family and friends become harder to talk to and relationships change dramatically. Communication strategies can help tie those pieces of thread together and allow the individual with severe aphasia to interact again. With conversational strategy training, partners can be empowered to improve the quality of life for someone with severe aphasia and renew some of the independence that aphasia took away. As T.R. put it, "It takes a lot of commitment and it takes a lot of work but it's possible to improve the quality of life for someone who has suffered from this."

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FIGURES

Figure 1

Mean Percentage of Facilitative Communication Acts

Figure 1: Mean Percentage of Facilitative Communication Acts/ Total Communication Acts

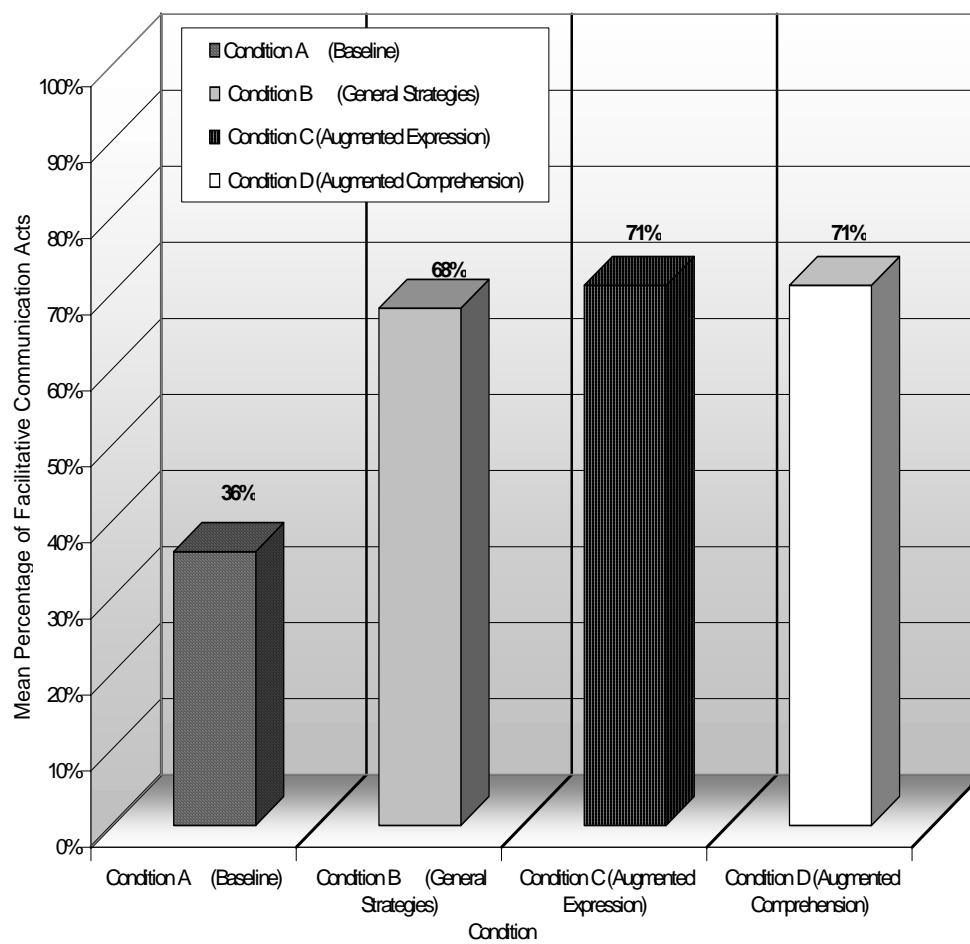


Figure 2
Mean Percentage of Specific Support Strategies

Figure 2: Mean Percentage of Specific Supportive Strategies / Total Facilitative Communication Acts

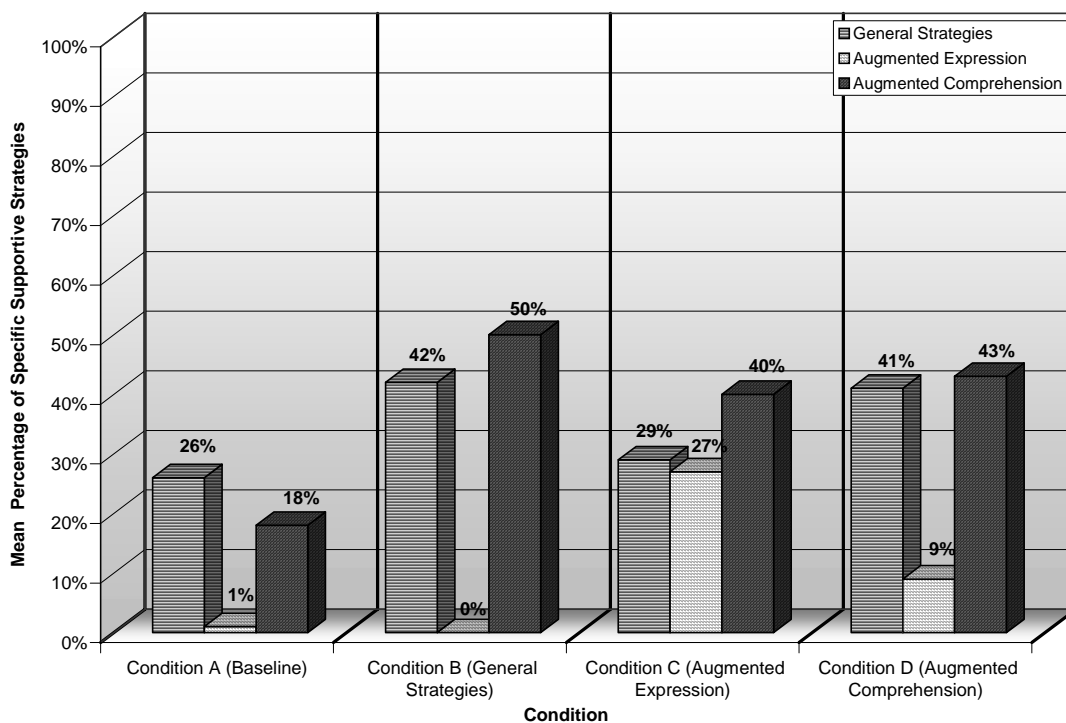


Figure 3

Mean Percentage of Exchanges with Non-facilitative Behaviors

Figure 3: Mean Percentage of Exchanges with Non-facilitative Behaviors

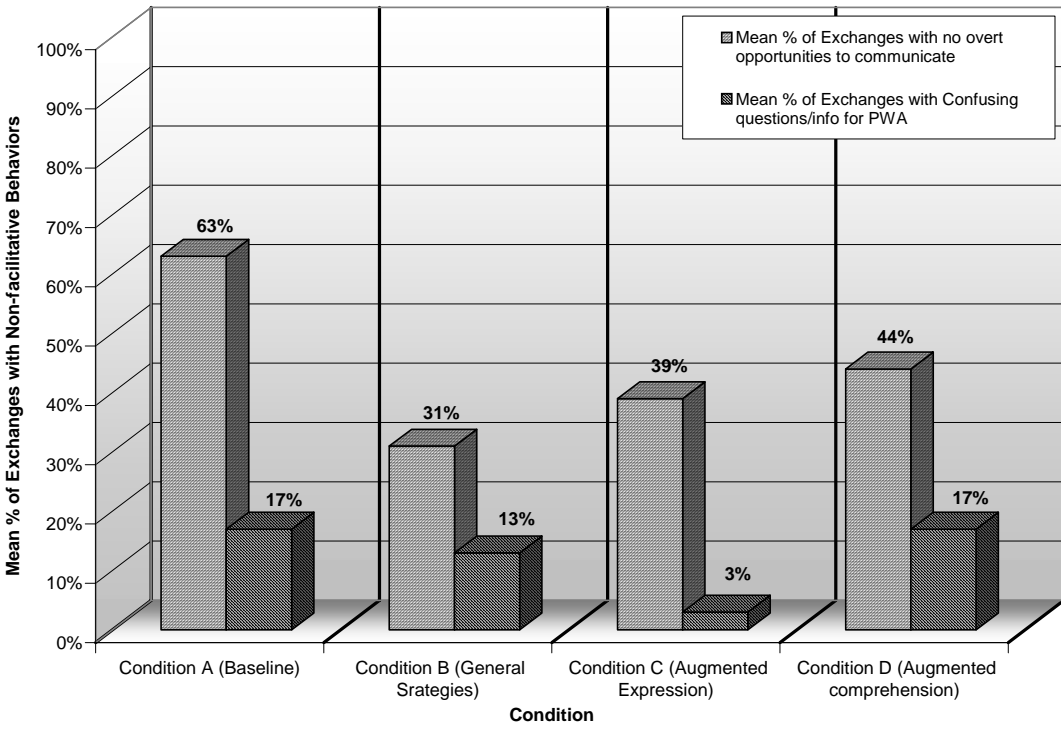


Figure 4

Mean Number of Exchange Initiations by Participant

Figure 4: Mean Number of Exchange Initiations by Participant

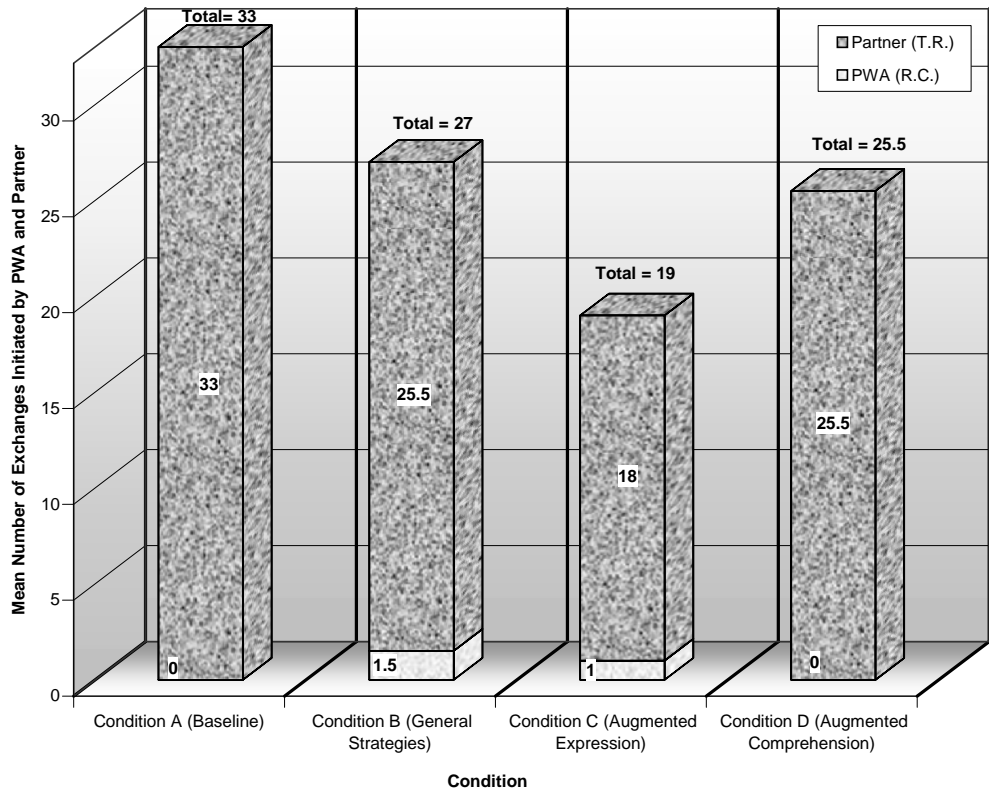
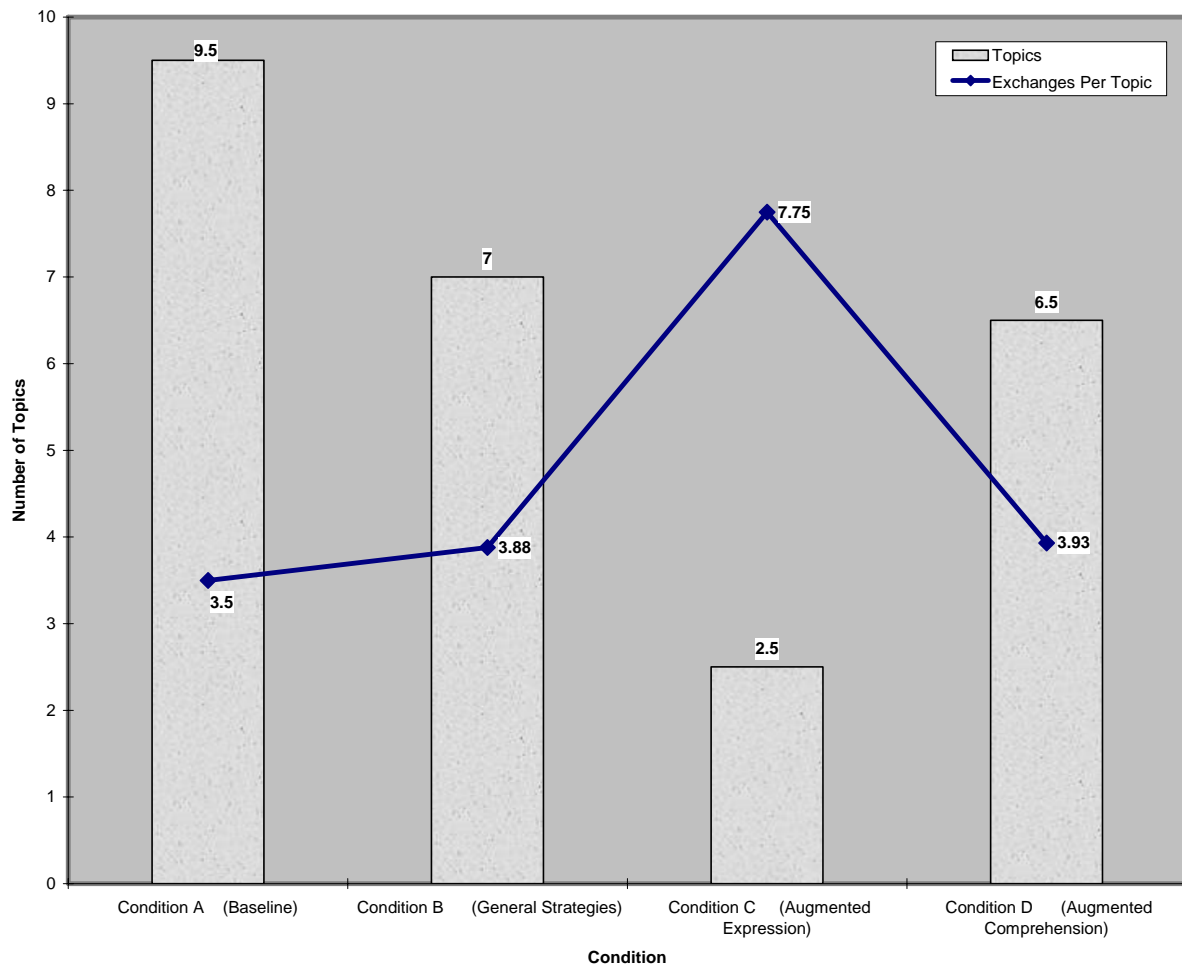


Figure 5

Mean Number of Topics and Exchanges per Topic

Figure 5: Mean Number of Topics and Exchanges Per Topic



APPENDICES

Appendix A
Participant Selection Criteria

Subject Selection Criteria for Referral Source

Potential Subject's Name: _____

Address: _____

Spouse/Contact Person: _____

Phone Number: _____

This Subject Must:	Referral Check-off	Investigator Verif.
1) Be between the ages of 40 and 85. List Subject's age _____	_____	_____
2) Have a diagnosis of global aphasia associated with a focal left CVA	_____	_____
3) Be at least 1 year post-onset	_____	_____
4) Speak English as a primary language	_____	_____
5) Have a minimum of an 8 th grade education	_____	_____
6) Have been able to read and comprehend a newspaper pre-morbidly	_____	_____
7) Be alert and attentive for 6 or more hours per day _____	_____	_____
8) Have no dramatic fluctuations in alertness or behavior due to uncontrolled diabetes, blood pressure problems, or other medications	_____	_____
9) Have no evidence of disease processes related to dementia or chronic substance abuse _____	_____	_____
10) Have been pre-morbidly right-handed	_____	_____

Name/Credentials of Referral Source: _____

Date of Referral: _____

Date of Investigator Verification: _____

Subject Selection Criteria for Referral Source (Continued)

Please Circle the number corresponding to your rating of the patient's capabilities on each of the following scales:

1. Patient rarely meets communication needs with speech

1 2 3 4 5 6 7

Patient usually meets communication needs with speech

2. Patient rarely responds accurately to commands

1 2 3 4 5 6 7

Patient usually responds accurately to commands

3. Patient rarely communicates specific information with gestures when unable to speak

1 2 3 4 5 6 7

Patient usually communicates specific information with gestures when unable to speak

4. Patient rarely gains attention via any modality

1 2 3 4 5 6 7

Patient frequently gains attention via any modality

At or below a 4 on all scales? _____

Subject accepted? _____

Partner Selection Criteria

Potential Subject's Name: _____

Address: _____

Spouse/Contact Person: _____

Phone Number: _____

This subject must:

Investigator Verification

- | | |
|--|-------|
| 1) Be a family member (other than spouse) or a friend | _____ |
| 2) Have minimal knowledge of aphasia as a disability | _____ |
| 3) Have minimal knowledge of communication interaction strategies for individuals with severe communication impairments | _____ |
| 4) Have known the individual with aphasia for a minimum of 5 years in social and/or work contexts | _____ |
| 5) Are within 20 years of the person with aphasia's age | _____ |
| 6) Have normal speech, language, and cognition as reported by scores on the Mini Mental State Exam (Folstein & McHugh, 1975) | _____ |
| 7) Demonstrate functional visual acuity (aided or unaided) as determined by the ability to match words in 16pt font | _____ |
| 8) Report no hearing complaints | _____ |
| 9) Have a minimum of a high school education and demonstrate functional literacy by the ability to read a short article from the newspaper and write a brief paragraph which summarizes it | _____ |
| 10) Perceive the individual with aphasia as competent despite the onset of disability | _____ |

Subject Accepted: _____

Appendix B
Consent Forms

**AGENT'S INFORMED CONSENT
FORM FOR AN ADULT RESEARCH
PARTICIPANT WITH APHASIA**

TITLE: Measuring the impact of staged communication strategy training on dyadic interactions between a person with severe aphasia and a familiar conversation partner

PRIMARY INVESTIGATOR: Kelly M. Hanna B.S.H.S.
Resource Room Mailbox
403 Fisher Hall
Pittsburgh, PA 15282-2231
(724) 493-9035
hanna620@duq.edu

**FACULTY
ADVISOR:** Kathryn L. Garrett, Ph.D., CCC-SLP
Assoc. Professor, Dept. of Speech-Language Pathology
Duquesne University
403 Fisher Hall
Pittsburgh, PA 15282-2231
(412) 396-4219
garrettk@duq.edu

SOURCE OF SUPPORT: Duquesne University
Dept. of Speech-Language Pathology

INVITATION TO PARTICIPATE: Your family member, _____
_____ is invited to participate in my Master's thesis research study. In this study, I will train a friend, someone that you have recommended, to converse with your family member. The following information should help you make an informed decision regarding whether or not the person with aphasia (your family member) should participate. You have been asked to review this information because you have power as agent under a power of attorney that gives you authority to act for your family member in this matter. If you have any questions please do not hesitate to ask.

Your family member is a candidate for the study because he/she has difficulty speaking following a stroke. This condition is also known as aphasia. He or she is also a candidate because the stroke was more than 1 year ago, and because he or she is between the ages of 40 and 85. Your family member was recruited through recommendation from a speech-language pathologist at the Duquesne University Speech-Language-Hearing Clinic.

PURPOSE OF THE STUDY/STUDY REQUIREMENTS

In this research project, I will train your family members' friend (conversational partner) to use a variety of communication strategies during conversation.

Your family member will need to meet with the primary investigator for approximately 10 hours total. First, they will be asked to participate in testing so we can better understand their skills and challenges. We need to complete an aphasia test, a vision screening test, and a hearing screening test. This testing should take approximately 4 hours, and can be completed across more than one session if your family member tires. Some of the testing may be completed at the Duquesne Speech-Language-Hearing Clinic during regular therapy times.

Next, an initial 'coffee talk' session lasting no more than 1/2 hour will familiarize everyone with the procedures. During the 8 experimental sessions that follow, your family member will converse with a friend for 10 minutes during each session. Each 1/2 hour session will be video recorded for later analysis.

The conversations will be conducted in your home at a mutually agreeable time. If this is not convenient, sessions will take place at the Duquesne University Speech-Language Hearing Clinic in a clinical treatment room. The location of the conversations will depend on scheduling and convenience for you and your family member. The experimental sessions will be scheduled around any other treatment sessions or appointments. The experiment will not interfere with any treatment your family member is already receiving.

Total Number of Sessions/Time Requirements for Participant with Aphasia

	Testing/Informed Consent/Secondary Screening	"CoffeeTalk" Session	Experimental Sessions
Person with Aphasia (PWA)	<ul style="list-style-type: none"> -Verify selection criteria -Informed Consent -Administer WAB -Secondary Screening <p>_____</p> <p>One 1-hour meeting to obtain informed consent at Duquesne Univ. after regular therapy session.</p> <p>2 to 3, 1-hour testing sessions at Duquesne University Speech-Language-Hearing Clinic during regularly scheduled therapy sessions (no additional time req'd.)</p>	<ul style="list-style-type: none"> -preliminary conversation -Interview spouse -Explain study question/answer <p>_____</p> <p>One 1/2 hour Session in PWA's own home or at the Duquesne University Speech-Language-Hearing Clinic</p>	<ul style="list-style-type: none"> -rating scales -familiarization task -conversation (data collection) -response accuracy verification <p>_____</p> <p>Eight 10-minute conversations in PWA's own home or at the Duquesne University Speech-Language-Hearing Clinic/max session length = 1/2 hour.</p>
TOTAL TIME PWA = Maximum of 10 hours			

RISKS AND BENEFITS

There are minimal risks associated with this study. Your family member should be in no physical discomfort during the experiment. The sessions will be held during a time of day and in a location that you and your family member judge to be most convenient. This research may also benefit other individuals with aphasia and their families. We will protect your privacy throughout the study.

COMPENSATION AND COSTS

There is no cost to you and your family member for participating in this study. If your family member completes the study, he or she will be awarded a \$25 restaurant gift certificate.

ASSURANCE OF CONFIDENTIALITY

Any information obtained during this study that could identify your family member will be kept strictly confidential. All videotapes and written information will be kept in a locked file cabinet in the investigator's locked office. Your family member will only be identified by a code on the test forms, videotapes, and other research data. We will use some limited health information obtained from your family member's health records in the Duquesne University Speech-Language-Hearing Clinic. Examples include: date of stroke, age, medical description of the stroke, test scores, and therapy history. No identifiers will be used, such as phone number, initials or address. You must sign the additional HIPPA form entitled "Authorization to Release Patient Health Information" so that we can legally access this information.

The information obtained in this study may be published in scientific journals or presented at scientific meetings, but your family member's identify will be kept strictly confidential. If you and your family member wish to do so, you may sign a video release form that will enable us to use the video-film data for teaching purposes and/or for presentations at scientific conferences. This is optional, and you may cancel this agreement at any time. Videotapes will be destroyed upon completion of this research unless you have signed this additional consent form.

RIGHT TO WITHDRAW

You are free to decide not to allow your family member to participate in this study. You can also withdraw your family member at any time without adversely affecting your relationship with the investigators, Duquesne University, or the Duquesne University Speech-Language Hearing Clinic. Your family member will continue to receive any therapy or other services to which s/he is entitled even if s/he stops participating in this research.

SUMMARY OF RESULTS

No information will be withheld from you or your family member. The results of the study will be reviewed with you if you express an interest in this information. A written summary of this research will be supplied to you and your family member, at no cost, upon request.

VOLUNTARY CONSENT

Your family member's rights as a research participant have been explained to you. If you have any additional questions concerning your rights as a research participant you may contact the Chairman of the Duquesne University Institutional Review Board (IRB):

Dr. Paul Richer
 Room 403 Administration Bldg.
 Duquesne University
 (412) 396-6326 richer@duq.edu

YOU ARE VOLUNTARILY MAKING A DECISION REGARDING THE PARTICIPATION OF YOUR FAMILY MEMBER IN THIS RESEARCH STUDY. YOUR SIGNATURE CERTIFIES THAT YOU HAVE DECIDED TO CONSENT TO YOUR FAMILY MEMBER'S PARTICIPATION, HAVING READ AND UNDERSTOOD THE INFORMATION PRESENTED. YOU WILL BE GIVEN A COPY OF THIS CONSENT/ASSENT FORM TO KEEP.

Signature of AGENT

Date

Thank you for providing a copy of the "Durable Power of Attorney document for our records.

IN MY JUDGMENT THE AGENT IS VOLUNTARILY AND KNOWINGLY GIVING INFORMED CONSENT AND POSSESSES THE LEGAL CAPACITY TO GIVE INFORMED CONSENT FOR _____ TO PARTICIPATE IN THIS RESEARCH STUDY.

Signature of Primary Investigator

Kelly M. Hanna, B.S.H.S.
 (C) 724-493-9035 (H) 412-431-6039

Date

Signature of Faculty Advisor

Kathryn L. Garrett, Ph.D., CCC-SLP
 (W) 412-396-4219 (H) 412-422-0376

Date

ADULT PARTICIPANT WITH APHASIA: MODIFIED INFORMED CONSENT/ASSENT FORM
--

TITLE: Measuring the impact of staged communication strategy training on dyadic interactions between a person with severe aphasia and a familiar conversation partner

PRIMARY INVESTIGATOR: Kelly M. Hanna B.S.H.S.
Resource Room Mailbox
403 Fisher Hall
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**FACULTY
ADVISOR:** Kathryn L. Garrett, Ph.D., CCC-SLP
Assoc. Professor, Dept. of Speech-Language Pathology
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403 Fisher Hall
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(412) 396-4219
garrettk@duq.edu

SOURCE OF SUPPORT: Duquesne University
Dept. of Speech-Language Pathology

INVITATION TO PARTICIPATE:

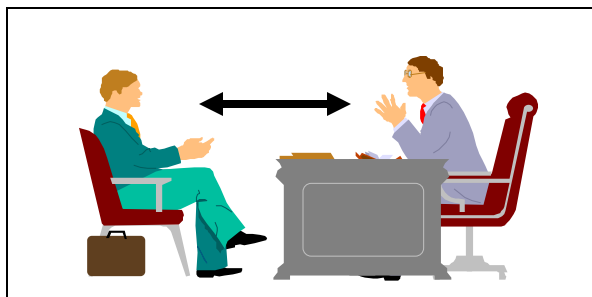
You, _____, are invited to participate in my Master's thesis research study. I want to help you decide whether to participate or not. You can ask me questions at any time.

PURPOSE:

You are able to participate because you had a stroke more than 1 year ago, causing you to have difficulty speaking. This condition is called aphasia. You are also between the ages of 40 and 85 years.

- **APHASIA** – 1+ years ago
- **Between ages 40 and 85**

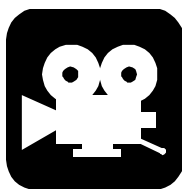
In this study, I want to see how you talk with a familiar person before and after they receive training. During the sessions, you will talk with a familiar person.



We need to meet for approximately 10 hours total. The first two sessions would involve testing, informed consent, and secondary screening. The third session would be a 1/2 hour ‘coffee talk’ session where we can all get to know each other. The 8 experimental sessions should last no more than 1/2 hour each. In these sessions, you will talk with your friend for 10 minutes. We will meet at your home at a time that is good for you. We can reschedule any session.

Meet for a MAXIMUM of 10 hours			
Informed consent/secondary screening			1- 2 hours
Testing during regular therapy sessions			2 hours – but no extra sessions
Week 1	Monday	“Coffee Talk	1/2 hour
	Wednesday	Conversation	10 mins – 1/2 hr
	Friday	Conversation	10 minutes – “
Week 2	Monday	Conversation	10 minutes – “
	Wednesday	Conversation	10 minutes – “
Week 3	Monday	Conversation	10 minutes – “
	Wednesday	Conversation	10 minutes – “
Week 4	Monday	Conversation	10 minutes – “
	Wednesday	Conversation	10 minutes – “

I would like to film you with a video camera each time we meet. After the conversations are finished, I will look at the film and count things that you do. We will use this for the research.



RISKS AND BENEFITS:

There is very low risk for discomfort in this research. You should not be in pain, feel tired, or be uncomfortable. This study will not

help you get better – BUT we hope to understand aphasia more with this information. We will use some of your health information (age, description of stroke) but we will protect your privacy at all times.

**NO
PAIN!!**

COMPENSATION:

If you finish the study – you will receive a **\$25 gift certificate** to a restaurant. You will **not** have to pay \$\$\$ to be a part of this study.

#1a.

PWA 7

CONFIDENTIALITY:

We will not reveal your name to anyone else. Research assistants who gather information from the videotape will see only a code, not your name. I will keep the film and data in a locked file. We will destroy the videotapes after we are done coding them – unless you sign the extra form. We may publish the results of this study and limited health information (date of stroke, age) however your name will not be used.

RIGHT TO WITHDRAW:

I appreciate your participation in this study. However, you can stop at any time. This will not hurt your relationship with the investigators or Duquesne University.

“I QUIT” – OK to say this any time!

SUMMARY OF RESULTS:

You can get a copy of the RESULTS of this study if you want it – and it will NOT cost you any \$\$\$\$!

VOLUNTARY CONSENT:

I have read the above. I understand what is being requested. I am participating voluntarily. I can QUIT anytime, for any reason. I will get a copy of this consent form to keep. I signed below to show that I am willing to participate in this research.

X_____
Signature of Participant_____
Date

In my judgment the participant is voluntarily and knowingly providing:

informed consent to participate in this research study

informed assent to participate in this study (must also attach agent consent)

X_____
Signature of Primary Investigator_____
Date**X**_____
Signature of Faculty Advisor_____
Date

If you have any questions about whether it is appropriate to participate in this study, call:

<p>Dr. Paul Richer, IRB Director 403 Administration Bldg. Duquesne University (412) 396-6326 richer@duq.edu</p>

**INFORMED CONSENT FORM FOR AN ADULT
CONVERSATIONAL PARTNER WITH NO APHASIA**

TITLE: Measuring the impact of staged communication strategy training on dyadic interactions between a person with severe aphasia and a familiar conversation partner

PRIMARY INVESTIGATOR: Kelly M. Hanna B.S.H.S.
Resource Room Mailbox
403 Fisher Hall
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**FACULTY
ADVISOR:** Kathryn L. Garrett, Ph.D., CCC-SLP
Assoc. Professor, Dept. of Speech-Language Pathology
Duquesne University
403 Fisher Hall
Pittsburgh, PA 15282-2231
(412) 396-4219
garrettk@duq.edu

SOURCE OF SUPPORT: Duquesne University
Dept. of Speech-Language Pathology

INVITATION TO PARTICIPATE: You, _____, are invited to participate in my Master's thesis research study. In this study, I will train you to interact with a friend of yours who has a severe language impairment known as aphasia. The following information is provided to help you to make an informed decision regarding whether or not you should participate. If you have any questions please do not hesitate to ask.

You are a candidate for the study because you have no difficulty speaking, have no known neurological deficits, have normal speech, language, reading, and hearing skills, and because you are **between the ages of 40 and 85**. You are also a candidate because you have known a person with severe aphasia since before his/her stroke and you have stated that you would be interested in learning strategies to communicate better with him/her.

PURPOSE OF THE STUDY

In this research project, I will train you to use a variety of communication strategies during conversation with your friend who has aphasia.

You will be asked to participate in testing to better understand your language and thinking abilities. We need you to complete a vision screening test, and a hearing screening test, and the mini-mental status questionnaire. This should take approximately 1 hour, but no more than 2 hours, at a location of your choice (clinic, your home, friend's home).

Next, an initial ‘coffee talk’ session lasting no more than 1/2 hour will familiarize everyone with the procedures. During the 8 experimental sessions that follow, you will converse with your friend for a maximum of 10 minutes within each 1/2 hour session. Each session will be video recorded. You will also be asked to participate in three, 1-hour training sessions at the Duquesne University Speech-Language-Hearing Clinic. In these sessions, you will learn strategies to improve your communication with the person with aphasia. Your total time requirement for this study will be no more than 10 hours.

The conversations will be conducted in the person with aphasia’s home at a mutually agreeable time, however, if this is unacceptable for any reason, sessions may take place at the Duquesne University Speech-Language-Hearing Clinic. The location of the conversations will depend on scheduling and convenience for all participants. Your training sessions will take place at the Duquesne University Speech-Language-Hearing Clinic. All sessions will be video recorded and analyzed at a later time by the primary investigator or a trained research assistant.

Total Number of Sessions/Time Requirements for Participants

	Testing/Informed Consent/Secondary Screening	“CoffeeTalk” Session	Experimental Sessions	Training Sessions
Partner	-Verify selection criteria -Administer MMSE -Informed Consent -Secondary screening <hr/> One, 1-2 hour session at Duquesne University Speech-Language-Hearing Clinic	-preliminary conversation -Explain study question/answer <hr/> “Coffee Talk” -- One 1/2 hour Session in PWA’s Home or at the Duquesne University Speech-Language-Hearing Clinic	-rating scales -familiarization task -conversation (data collection) -response accuracy verification <hr/> Eight, 1/2 hour sessions in PWA’s home or at the Duquesne University Speech-Language-Hearing Clinic	- Definitions of strategies -video review -role-play -rating scale <hr/> Three 1 hour training sessions at Duquesne University
TOTAL TIME Partner = Maximum of 10 hours				

RISKS AND BENEFITS

There are minimal risks associated with this study. You should be in no physical discomfort during the experiment. The sessions will be held during a time of day that you and the person with aphasia judge to be most convenient. We will protect your privacy throughout the study. This research may benefit the field of speech-language pathology, individuals with aphasia, and their families

COMPENSATION AND COSTS

There is no cost to you for participating in this study. If you complete the study, you will be awarded a \$25 restaurant gift certificate.

ASSURANCE OF CONFIDENTIALITY

Any information obtained during this study that could identify you will be kept strictly confidential. All videotapes and written information will be kept in a locked file cabinet in the investigator's locked office. You will only be identified by a code on the interview forms, test forms, videotapes, and other research data. We will not use any of your own health information in this project.

The information obtained in this study may be published in scientific journals or presented at scientific meetings, but your identify will be kept strictly confidential. If you wish to do so, you may sign a video release form that will enable us to use the videotaped interviews for teaching purposes and/or for presentations at scientific conferences. This is optional, and you may cancel this agreement at any time. Videotapes will be destroyed upon completion of this research unless you have signed this additional consent form.

RIGHT TO WITHDRAW

You are free to withdraw from this investigation at any time without adversely affecting your relationship with the investigators, Duquesne University, or the Duquesne University Speech-Language Hearing Clinic.

SUMMARY OF RESULTS

No information will be withheld from you. The results of the study will be reviewed with you if you express an interest in this information. A written summary of this research will be supplied to you, at no cost, upon request.

VOLUNTARY CONSENT

Your rights as a research participant have been explained to you. If you have any additional questions concerning your rights as a research participant you may contact the Chairman of the Duquesne University Institutional Review Board (IRB):

Dr. Paul Richer
403 Administration Bldg.
Duquesne University
(412) 396-6326 richer@duq.edu

YOU ARE VOLUNTARILY MAKING A DECISION REGARDING YOUR PARTICIPATION IN THIS RESEARCH STUDY. YOUR SIGNATURE CERTIFIES THAT YOU HAVE DECIDED TO PARTICIPATE HAVING READ AND UNDERSTOOD THE INFORMATION PRESENTED. YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP.

X

Signature of Adult Participant

Date

IN MY JUDGMENT THE ABOVE INDIVIDUAL IS VOLUNTARILY AND KNOWINGLY GIVING INFORMED CONSENT AND POSSESSES THE LEGAL CAPACITY TO GIVE INFORMED CONSENT TO PARTICIPATE IN THIS RESEARCH STUDY.

Signature of Primary Investigator

Kelly M. Hanna B.S. H.S.

(C) 724-493-9035 (H) 412-431-6039

hanna620@duq.edu

Date

Signature of Faculty Advisor

Kathryn L. Garrett, Ph.D., CCC-SLP

(W) 412-396-4219 (H) 412-422-0376

Date

**INFORMED CONSENT FORM FOR
SPOUSE OF PARTICIPANT WITH
APHASIA REGARDING SPOUSE'S
PARTICIPATION IN RESEARCH
INTERVIEW**

TITLE: Measuring the impact of staged communication strategy training on dyadic interactions between a person with severe aphasia and a familiar conversation partner

PRIMARY INVESTIGATOR: Kelly M. Hanna B.S.H.S.
Resource Room Mailbox
403 Fisher Hall
Pittsburgh, PA 15282-2231
(724) 493-9035
hanna620@duq.edu

**FACULTY
ADVISOR:** Kathryn L. Garrett, Ph.D., CCC-SLP
Assoc. Professor, Dept. of Speech-Language Pathology
Duquesne University
403 Fisher Hall
Pittsburgh, PA 15282-2231
(412) 396-4219
garrettk@duq.edu

SOURCE OF SUPPORT: Duquesne University
Dept. of Speech-Language Pathology

INVITATION TO PARTICIPATE: You, _____, are invited to participate in my Master's thesis research study. In this study, I will train a friend, someone that you have recommended, to converse with your spouse. At the beginning and end of this study, I will interview you about your spouse's communication skills. The following information should help you make an informed decision regarding whether or not you should participate. If you have any questions please do not hesitate to ask.

You are a candidate for the study because you have no difficulty speaking, have no known neurological deficits, have normal speech, language, reading, and hearing skills, and because you are **between the ages of 40 and 85**. You are also a candidate because you are the spouse of an individual with severe aphasia who is participating in another part of this investigation.

PURPOSE OF THE STUDY/STUDY REQUIREMENTS

I will conduct this project in several stages. First, I will test your spouse. Next, I will schedule an initial 'coffee talk' session lasting no more than 1/2 hour with you, your spouse, and his/her friend. This will familiarize everyone with the procedures. This session will be held in your home, with your permission, or at the Duquesne University Speech-Language-Hearing Clinic if this setting is more appropriate. At the end of the coffee talk session, I would like to interview you about your spouse's communication abilities. This interview should last approximately 15

minutes. Then I will begin the experiment. For the next 8 meetings, I will film your spouse and his/her friend while they communicate. There will be 10 minutes of conversation during each ½ session. I will teach the friend different communication strategies before they begin to converse. All sessions between your spouse and the friend will be video recorded and analyzed at a later time by the primary investigator or a trained research assistant. You do not need to participate in any of these sessions.

At the end of the experiment, I would like to interview you again about your spouse's communication abilities while s/he talked with the friend. I would like to videotape these interviews so that I can analyze them at a later time. Your total time requirement for the two interviews and the "coffee talk session" will be approximately 1 hour.

I would like to conduct the experiment in your home at a mutually agreeable time. However, if this is unacceptable for any reason, sessions may take place at the Duquesne University Speech-Language-Hearing Clinic. The location of the conversations will depend on scheduling and convenience for all participants.

RISKS AND BENEFITS

There are minimal risks associated with this study. You should be in no physical discomfort during the experiment. The sessions will be held during a time of day that you and the person with aphasia judge to be most convenient. This research may benefit the field of speech-language pathology, individuals with aphasia, and their families. We will protect your privacy throughout the study.

COMPENSATION AND COSTS

There is no cost to you for participating in this study. If you complete the study, you will be awarded a \$25 restaurant gift certificate.

ASSURANCE OF CONFIDENTIALITY

Any information obtained during this study that could identify you will be kept strictly confidential. All videotapes and written information will be kept in a locked file cabinet in the investigator's locked office. You will only be identified by a code on the interview forms, test forms, videotapes, and other research data. We will not use any of your own health information in this project.

The information obtained in this study may be published in scientific journals or presented at scientific meetings, but your identify will be kept strictly confidential. If you wish to do so, you may sign a video release form that will enable us to use the videotaped interviews for teaching purposes and/or for presentations at scientific conferences. This is optional, and you may cancel this agreement at any time. Videotapes will be destroyed upon completion of this research unless you have signed this additional consent form.

RIGHT TO WITHDRAW

You are free to withdraw from this investigation at any time. This will not damage your relationship with the investigators, Duquesne University, or the Duquesne University Speech-Language Hearing Clinic. Your spouse will continue to receive any therapy or other services to which s/he is entitled even if you stop participating in this research.

SUMMARY OF RESULTS

No information will be withheld from you. The results of the study will be reviewed with you if you express an interest in this information. We will give you a written summary of this research, at no cost, upon request.

VOLUNTARY CONSENT

Your rights as a research participant have been explained to you. If you have any additional questions concerning your rights as a research participant you may contact the Chairman of the Duquesne University Institutional Review Board (IRB):

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Signature of Adult Participant

Date

IN MY JUDGMENT THE ABOVE INDIVIDUAL IS VOLUNTARILY AND KNOWINGLY GIVING INFORMED CONSENT AND POSSESSES THE LEGAL CAPACITY TO GIVE INFORMED CONSENT TO PARTICIPATE IN THIS RESEARCH STUDY.

Signature of Primary Investigator

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Date

Signature of Faculty Advisor

Kathryn L. Garrett, Ph.D., CCC-SLP
 (W) 412-396-4219 (H) 412-422-0376

Date

Appendix C

Comprehension Check PWA

4. What month is it....(write 3 choices, and say them as writing them)

+ - Correct answer: _____
 Response modes: verbal, point in direction, written choice/map

+ - 2nd try needed? Y N
 Confirmed? Y N

5. Do you think talking to someone is PAINFUL/HURTS YOU (gesture back and forth as if talking, then exaggerate facial expression and intonation to indicate pain, gesture back to participant), yes...or no?

+ - Correct answer: NO
 Response modes: verbal, head nods, point to written choices

+ - 2nd try needed? Y N
 Confirmed? Y N

Number Correct _____ / 5

Accepted for study? _____

Appendix D
Secondary Screening

SECONDARY SUBJECTS SCREENING TASKS

TASK #1: COMMUNICATION OF SPECIFIC INFORMATION - descriptive

The subject will demonstrate his or her ability level in communicating the following three target messages to an unfamiliar partner via verbal or gestural modalities. Instructions to person with aphasia will include three cues:

- | <u>Verbal</u> | <u>Referential</u> |
|----------------------|--|
| b. Name: _____ | (cue #1: tell me your name
cue #2: sentence completion
cue #3: choices) |
| c. Location: _____ | (cue #1: tell me where you live
cue #2: sentence completion
cue #3: map of Pittsburgh) |
| d. Occupation: _____ | (cue #1: tell me what your job was
cue #2: sentence completion
cue #3: choices) |

The primary investigator will first tell the subject that he or she needs to let the partner know some personal information. (Ex: "This person doesn't know very much about you - why don't you tell her some things.") The investigator will then cue the subject to communicate his or her name, hometown, and previous occupation using cues listed above. The investigator will wait 30 seconds for the subject to respond. The investigator will be allowed to repeat the cue once. The subject's responses will be rated on the following scale for verbal and/or referential response.

Verbal Scale

- 3 = Intelligible, accurate, within 3 seconds, independent response
- 2 = Intelligible, may be distorted but accurate, may be delayed, correct using sentence completion or choices cues
- 1 = Minimal intelligibility, unclear accuracy or inaccurate, needed direct model, delayed,
- 0 = No response

Referential Scale

- 3 = Referent is clear, specific using gestures or verbal output, independent response
- 2 = Referent is distorted but accurate, delayed
- 1 = Referent is minimally intelligible, unintelligible, unclear, or inaccurate
- 0 = No response

Subject Accepted? _____

TASK #2: VISION: WORD MATCHING/OBJECT FINDING - descriptive

The subject will be presented with a card containing four single words (1" in size, 2" in size as backup) listed vertically. The investigator will then present a small card containing a single target word and will instruct the subject to, "Find this word on your card." She will also demonstrate the task with two pre-screening items by saying "watch me" and then matching the small card to the correct word on the large card.

#1 (target label = client's name):	successful	unsuccessful
#2 (target label = bird):	successful	unsuccessful
#3 (target label = funny):	successful	unsuccessful
#4 (target label = Sunday):	successful	unsuccessful
#5 (target label = basketball):	successful	unsuccessful

Total # pairs matched correctly: _____

Criterion 4 out of 5 correct

Subject Accepted? _____

The subject will be presented with a grid the size of a personal workspace (one open manila folder) with five target areas designated by outlined squares measuring 2"x2". The squares will be placed in all four corners and in the middle. The investigator will place an object (a picture of the client's family member) in each of the five spaces, in no particular order, and then ask the client to point to the object. The client will be considered successful in the attempt if he or she is able to point to the correct square within 10 seconds of the prompt.

Top Right:	successful	unsuccessful
Top Left:	successful	unsuccessful
Middle:	successful	unsuccessful
Bottom Right:	successful	unsuccessful
Bottom Left:	successful	unsuccessful

Total # Correct: _____

**Criterion 3 out of 5 correct
Accepted? _____**

Subject

TASK #4: HEARING SCREENING

Frequency	Target Threshold	Subject's Threshold	
		<u>Right Ear</u>	<u>Left Ear</u>
500 Hz	40 dB - one ear	_____	_____
1000 Hz	40 dB - one ear	_____	_____
2000 Hz	40 dB - one ear	_____	_____
4000 Hz	40 dB - one ear	_____	_____

Any complaints related to hearing? _____

Is subject aided? _____ Which ear? _____

Criterion: **3 out of 4 frequencies at target threshold in one ear and appears to demonstrate functional hearing for conversation**

Subject accepted? _____

Appendix E
Coding Definitions

A. SEGMENTATION and TRANSCRIPTION RULES

1) Identify and Transcribe: Primary Communication Acts (Garrett, 1993).

- *Divide individual communication acts with a colored line on the coding sheet.*
 - *Use the following criteria to determine whether acts should be separated (i.e., communication act boundaries). :*
- a. Phonological: Act is separated by stress, intonation, pause; not associated with word retrieval breakdown or visual search time to locate a referent.
 - “The weather’s been hot lately.” = **1 act**
 - “The weather’s been hot lately. Don’t you think?” = **2 acts**
 - b. Communicative: A cohesive unit of meaning or idea (complete or attempted). Has a different semantic and syntactic structure than preceding or subsequent acts.
 - 1) **Verbal Acts**: include the *independent clause* plus any corresponding *dependent clauses*. This comprises a **C-unit**. Clauses are divided as follows:
 - *If connected by [**and (then), so (then), but, or**] link *Independent Clauses* = **2 acts**
 - *If connected by [**because, when, that, who, after, before, so (that) which, although, despite, if, unless, while, as, how, until, as, like, where**] link *dependent clauses* = **1 act**
 - ****Enclose in quotation marks (“Is this you?”)**
 - 2) **Non-verbal Acts**: include gestures, head-nods, head turns, pointing, written choices; any behavior not involving vocalizations
 - ****Enclose in brackets [gives ‘thumbs-up’ gesture]**
- Code 1 C-unit per act + accompanying non-verbal sub-acts
 - Code Yes + head nod as 1 sub-act, No + head shake as 1 sub-act
 - Code “And...” In same verbal/non-verbal subact if it is a filler
 - If there is a change in the person or the role (from initiation to response) of communication act, code as a different act

2) Identify and Transcribe: Secondary Communication Acts (Subacts) :

- a. Verbal Communication Sub-Acts – code in quotations marks. Includes:
 1. Crucial acts – anything with semantic content or meaning
 2. Non crucial acts e.g., confirmatory -- uh huh.
 3. Vocalizations with communicative intonation (e.g., muh, muh?)
 - *However, do not code coughing, etc.*
- b. Nonverbal Communication Sub-Acts (Gestures, Head nods, Pointing, Written Choice) – code in brackets:
 1. Beats, or nonlinguistic gestures that do not convey supplemental meaning, that accompany the spoken language of the communicator.
 - *Do NOT code as a separate subact (they always accompany speech but have no meaning on their own). In this case, transcribe them in brackets, but put them in the same coding line as the verbal act.*
 2. Pointing: any gestural signal used to purposefully convey the importance of attending to a referent or to regulate the social interaction e.g., pointing.

- *indicate, in brackets, what the individual is pointing to [point to book]*
 - *code as separate subact on a different line*
3. Symbolic gestures -- communicate minimal units of meaningful, discriminatory information about a specific referent in the reminiscing conversation. Referents can be: visual (location, size, existence), descriptive (gender, hair color), actions (e.g, fishing), temporal (when an event occurred), spelling (spell out words), emotive (conveying emotion) Examples:
- Visual:* [point to here], [point to location in picture]
Descriptive: [gesture long hair, gesture big fish]
Actions: [gesture 'fishing' by holding onto a pole]
Temporal: [gesture with hand over back to indicate past]
Spelling: Also includes "air writing", whereby communicator writes in the air to spell a word.
Emotive: shoulder shrug, 'thumbs-up', rolling eyes
4. Head Nods— nodding head 'yes' or shaking head 'no' in response to yes/no questions
5. Written Choice— answering a question by pointing to written information (words, numbers, pictures) that a partner has put on paper

3) Identify Exchange Boundaries (Separate with Yellow line)

Exchange: A series of at least 2 shared conversational **turns** between a sender and receiver that attempt to achieve a joint communication goal. It conveys a new **idea** or concept even if this concept is related to the same **topic**. Breakdown acts/sub-acts and **repair sequences** that relate to this **idea** are included in the same exchange.

Conversational turn: a unit of behavior bound by a pause that conveys a message between a sender and a receiver (Garrett, 1993, unpublished). It may be followed by another turn from the same sender or by a response from the receiver.

Topic: (Code once for entire exchange) A clause or noun phrase that identifies the central issue of a discussion and provides a global description of a sequence of utterances (Keenan & Schieffelin, 1976).

* **Can be multiple exchanges per topic**

* **Only 1 topic per exchange**

Repair Sequence: A sequence of turns initiated with the sole purpose of repairing a communication breakdown (e.g. asking for clarification, repeating)

- **Is included in the same exchange**
- **Exchanges DO NOT have to involve an INITIATION and a RESPONSE, but can include an INITIATION and EQUIVOCAL**

<p>Example: Partner: "Did you go to the movies this weekend?" PWA: [Nods head 'yes'] Partner: "You did?" PWA: "Mama" [nods head 'yes'] <hr/> Partner: "What did you see?" [Writes 3 choices on paper] PWA: "Mama" [Points to 3rd written choice]</p>	}	<p>1 Topic 2 Exchanges 6 Acts 2 Sub-Acts</p>
---	---	---

B. WHO INITIATED THE EXCHANGE (Code once for entire exchange)

The individual who is responsible for beginning the communication exchange.

- 1) Can be the communicator who is the enrolled subject of the investigation (with aphasia or without)
- 2) Or the person who is assigned to be the communication partner for this investigation.

C. ROLE OF THE TARGET COMMUNICATOR (code for each communication act)

The relative degree of conversational control demonstrated by the communicator (Garrett, 1993). Subtypes include:

1. **Initiation**: participant is participating but has not been obligated to do so. Note: A Communication Act is Not counted as an initiation unless it *contains specific semantic content* (e.g., “where did you go?”)
 - * **May include jargon or gestures**
2. **Response**: participant is obligated to take a turn by other participant’s preceding communicative act.
 - * **Yes/no responses count to wh-questions count here.**
 - * **May include Jargon, Head nod/shake, gestures, written choice**
 - * **Is not confirming previous initiation or response but is communicating novel semantic information**
3. **Equivocal**: degree of initiation or responsiveness is ambiguous and/or shared equally by both participants. * May include jargon, gestures Can also include: -
 - *confirmation/acknowledgement.* mutual laughing, ‘uh huh’ to maintain conversational flow (not “uh huh” as a “yes” answer), confirmatory question (“You feel either way?”)
 - * **No new information or question provided**
 - *Request for Elaboration:* -- one participant states an incomplete understanding of the communication act/message generated by another and asks for additional information. Example: “Huh?”
 - * **Can also be a nonverbal act, such as a quizzical look.**
 - * **Can include a reiteration of the question**

D. REFERENTIAL FUNCTION (code for each Act)

1. **Joint Attention**: A signal to the communication partner to indicate or request attention to referent under discussion. Is *intentional/illocutionary* (e.g., catching partner’s gaze then looking/gesturing purposefully at a visual referent). Observable behaviors can include:
 - Pointing to an item or person (not a beat)
 - Pointing to paper with key words (not when answering a question)
 - Pointing to a location in the room
 - Looking at a person while attempting to communicate to engage them in the discussion
2. **Greeting/Small Talk**: (Beukelman & Mirenda, 1998)
 - Greeting**: questions/comments used to signal awareness of someone’s presence, communicative intention, does NOT convey specific semantic info
 - Small Talk**: questions/comments following greeting that refer to **specific** shared information

- * **For the purposes of this study these are combined due to the partner's desire for a specific response when asking small talk questions**
- * **Response to Small Talk questions is coded as Small Talk, not provision of specific information**

3. **Requests for social interaction:** point to others to indicate a turn
4. **Request for Information (Question):** a statement with the sole purpose of obtaining information from the communication partner using question words (who, what, when, where, why, how) or asked in a yes/no format
 - *May also include provision of specific information with rising intonation or jargon spoken with rising intonation
 - *Is NOT related to previous utterances (request for clarification) therefore is part of a NEW EXCHANGE
5. **Provision of Specific Semantic Information:** Provision of specific semantic content to inform, share ideas, elaborate, or otherwise convey novel meaning. Typically associated with:
 - a) Verbal-symbolic spoken language
 - words, sentences
 - verbal “yes” and “no” or standard variations (e.g., “yeah”)
 - jargon or stereotypes, as long as intonational patterns and context reflect an attempt to convey meaning.
 - *Note: Verbal-symbolic communication subacts do NOT have to be intelligible or successful to be coded as provision of specific semantic info (e.g., intentional jargon)*
 - b) Symbolic gestures/pantomime
 - Example:
 - [point in a circle by side to indicate “past”]
 - [nod “yes” and “no” to answer a specific yes/no question]
 - [lift hand up to indicate “oldest child”]
 - [point to specific person in picture to answer a wh-question e.g., “Which one’s your daughter?”]
 - thumbs-up gesture
 - should shrug
 - *Note: if pointing is in response to wh-question, then it is coded as provision of specific semantic information*
 - *Note: Symbolic gesture subacts do NOT have to be intelligible or successful to be coded as provision of specific semantic info*
 - *Note: is a new idea, therefore a NEW EXCHANGE*
6. **Request for Clarification** conversational repair strategy used when the conversational partner did not comprehend the message from the sender, may be in one of the following forms:
 - a) repetition of the sender’s message with rising intonation (i.e. “You like the snow?”)
 - b) partner’s interpretation of the message with/without rising intonation or non-specific tag (i.e. “Not a big deal?” or “Like that, huh?”)

- c) statement of confusion (i.e. “I’m not following you.”)
 *MUST be related to the previous utterance, therefore is within the same EXCHANGE
 *ALWAYS coded as EQUIVOCAL because no new info is exchanged, participants are engaging in clarification of same idea

7. Emotional/ Confirmatory Response:

- verbal or gestural emotional response to preceding communication acts (e.g., “Wow!”, [laughing], “No way!”, [shrugs shoulders to indicate I don’t know”, head-nod [not in answer to yes/no question], thumbs-up gesture)
- Answer to confirmatory questions that does not contain specific semantic information describing referents, provide new details, or answer a specific wh-question. E.g., ‘uh huh’ or “yes” if communicator is attempting to confirm partner’s interpretation of prior message (not answer a “yes/no” question.
 *MUST be related to the previous utterance, therefore is within the same EXCHANGE
 *ALWAYS coded as EQUIVOCAL because no new info is exchanged, participants are engaging in clarification of same idea

- 8. No function/Regulatory/Absence of Behavior** behavior that does not serve a communicative function (i.e. looking up/down from notecards or paper)
 *When this is coded, DO NOT code anything else

E. MODE OF COMMUNICATION (code only for PWA for each sub-act)

*May have multiple for each sub-act

1. **Verbal language** – question/comment made using recognizable words (i.e. “How are you?”)
2. **Meaningful vocalization with intonation/jargon-** question/comment made using incomprehensible paraphasic speech containing little or no meaning (i.e. “Mamama”)
3. **Deictic Point** – See **pointing above**.
 Purposeful, *nonverbal* acts that guide the partner’s attention to a specific referent (visual, descriptive, or temporal) (e.g., point to room in house to indicate location)
4. **Symbolic Gesture-** See **symbolic gesture above**
5. **Yes/No head-nod-**See **Head nods above**
6. **Written Choices-**See **Written Choices above**
7. **Other** – movement, look, or facial expression that cannot be classified by one of the above (i.e. look of frustration, moving hands in a way that is not a gesture)

F. TYPE OF PARTNER SUPPORT (code only for PARTNER for each ACT)

- 1) **General Aphasia Communication Skills:** general parameters for conversing with an individual with aphasia by augmenting their comprehension and expression.

- a. Responding to all communication attempts
- b. Reducing number of comments
- c. Pausing briefly after asking a question or making a comment
- d. Reiterating person with aphasia's statement

2) Strategies to Enhance Expression. Strategies designed to support the person with aphasia's spoken expression. Usually are *naturally occurring strategies* such as:

- a. Pointing/Symbolic gestures See gestures above
- b. Tagged Yes/No questions- a yes/no question where person is asked to respond with a head nod (yes) or head shake (no) [i.e. "Do you like chocolate ice-cream?" Give me a yes or no.] *Person asking question accompanies yes/no with appropriate head movement
- c. Auditory choice: variation of tagged yes/no question without head mmt
- d. Written Choice- See Below

3) Strategies to Enhance Comprehension. Strategies designed to support the comprehension of the person with severe aphasia in order to improve the understanding and/or processing of the partner's message.

- a. Joint Referencing: pointing to what you are talking about
- b. Gestures: See gestures above
- c. Written key words/maps/drawings: partner writes key words, draws maps to indicate location, or draws pictures to help person with aphasia understand topic of conversation
- d. Intonation changes: Compensate for comprehension deficits by emphasizing key words in the conversation with changes in the pitch of your voice or the stress you place on specific words.
- e. Breakdown Resolution: partner and person with aphasia work mutually agree on a course of action for resolving the communication breakdown
 - Keep trying to fix the breakdown
 - Use another modality
 - Provide more choices
 - Keep guessing
 - Move on

4) Negative Behaviors (code for each EXCHANGE) actions/lack of action on the part of the partner that negatively impact the overall nature of the interaction with the person with aphasia

- a. Not asking for PWA's opinion: partner did not **directly** ask for person with aphasia's opinion/feelings during the exchange (i.e. partner monologues)
- b. Communicating in a confusing way: method of questioning/commenting confusing to the person with aphasia (i.e. using a lot of words, speaking quickly)

F. SUCCESSFULNESS (code for each EXCHANGE)

- 3** – Message conveyed with adequate partner response indicating complete comprehension. Entire intended message was conveyed without interpretation.
- 2** – Message partially conveyed. Requires some partner interpretation to obtain full meaning.
- 1** - Message attempted but not conveyed/abandoned
- 0** - No response or no communication attempt

Appendix F
Design Controls

Controls

Potential Threat to Validity	Possible Impact	Design/Procedural Control
History	Events outside experiment produce changes in scores.	A 5-point rating scale will be administered to the spouse of the person with aphasia, the subject and the conversational partner prior to the initiation of each experimental session. A score of 4 or 5 must be obtained from both the spouse and the partner before the experimental session will commence.
Hawthorne Effect	Participants perform differently because they are aware of being observed.	Camera will be placed unobtrusively in the subject's living room, and participants will be told to interact as normally as possible.
Partner variability	Partner differs significantly from pool of other more representative partners.	Future replication of study will be recommended. During initial informational session investigator will confirm the presence of qualities listed for a 'good' conversation partner (Simmons-Mackie & Kagan, 1999).
Maturation - PWA	Interaction skills improved secondary to participant with aphasia's improving communication/linguistic skills, not training protocol.	Administer comprehensive test of linguistic ability (Western Aphasia Battery – Receptive and Expressive Portions) in pre/post experiment
Maturation/Familiarity -- Partner	Unfamiliar communication partners may cause participant with aphasia to behave differently after becoming comfortable with partner over several sessions. Partner gradually adapts to the interactional task because of exposure or time with PWA versus change as a result of treatment.	Utilize familiar partner who has known client for a minimum of 10 years in work or personal situation – pre-morbidly and post-morbidly. "Coffee" session prior to initiation of the study in which partner and PWA engage in small talk and brief questions about the general requirements of the study (complete after obtaining informed consent).
Learning-PWA	Person with aphasia appears to improve performance because all quantitative variables are being trained.	Administer comprehensive test of linguistic ability (Western Aphasia Battery – Receptive and Expressive Portions) in pre/post experiment
Insufficient Data	Limited number of sessions per condition may result in unstable data that does not clearly represent a consistent change in behavior that can be associated with the independent variable (treatment).	Could not address directly due to difficulty in scheduling communication partners for longer periods of time. However, an option exists to split data collection segments into smaller units for analysis.

Appendix G
Training Procedures

TRAINING PROTOCOL

The conversational partner received training in the living room of his own home on three consecutive Tuesday evening sessions lasting 1-2 hours each. Three training sessions were conducted, (one for each experimental condition excluding baseline). Training commenced according to the following procedures:

- 1) Primary investigator taught/explained strategies in that particular condition by referencing a power point presentation containing definitions and examples of each technique. A print-out of this presentation was given to the conversation partner at the conclusion of each training.
- 2) The partner engaged in integrative role-play exercises during which he acted as a conversation partner for an individual with aphasia, simulated by the primary investigator, who periodically broke role to provide corrective feedback when needed.
- 3) As part of the final training module, the primary investigator provided video clips of conversation that illustrated each strategy in use with the subject with aphasia. The primary investigator assisted the partner in identification of good and bad techniques seen on the film. The primary investigator confirmed these identifications and assisted the partner by answering questions giving corrective feedback when needed.
- 4) At the conclusion of each training session, the primary investigator used a five-point scale to determine whether the partner demonstrated a working knowledge of the techniques taught in the training session. The scale ranged from zero to four with anchors such as 'unacceptable'(1), 'very poor'(2), 'adequate'(3), and 'outstanding' (4). A score of 3 or 4 was obtained in order to proceed. Additional training and practice was provided as necessary.

Experimental sessions (conversations) commenced on the Saturday and Sunday immediately following each Tuesday training session.

<p>Training Session #1</p> <p>Qualitative Interview (P)</p> <p>General Information about Aphasia and Basic Communication Skills</p> <p>(P, PI, FA)</p>	<p>The PI conducted a semi-structured interview with the partner regarding his views of the previous week's conversations. (See Appendix F)</p> <p>The PI then presented the first training session on General Strategies for Conversing with a person with aphasia as well as information on aphasia in general. The PI used a power point presentation on a laptop computer as well as role-play to complete the training. The FA filmed the training using a digital video camera and assisted the PI in answering any questions the P had throughout the training.</p> <p>See Appendix I for a more detailed description of the training protocol.</p>	<p>Tuesday February 10, 2004 6:30 PM</p>	<p>Partner's House</p>
<p>Condition B</p> <p>General Aphasia Communication Strategies</p> <p>(SA, P, PI)</p>	<p>Experimental Session 3:</p> <p>1) Convenience of Test Day Rating Scales (SA,P)</p> <p>2) Familiarization task- Warm-up Questions (SA, P)</p> <p>3) conversation.(data collection) – PI filming with digital video camera</p> <p>Experimental Session 4:</p> <p>1) Convenience of Test Day Rating Scales (SA,P)</p> <p>2) Familiarization task- Warm-up Questions (SA, P)</p> <p>3) conversation.(data collection) – PI filming with digital video camera</p>	<p>Saturday February 14, 2004 9:30 AM</p> <p>Sunday February 15, 2004 2 PM</p>	<p>SA's House</p>

<p>Training Session #2 Qualitative Interview (P) Augmented Expression Strategies (P, PI, FA)</p>	<p>The PI conducted a semi-structured interview with the partner regarding his views of the previous week's conversations. (See Appendix F)</p> <p>The PI then presented the second training session on Augmented Expression Strategies. The PI used a power point presentation on a laptop computer as well as role-play to complete the training. The FA filmed the training using a digital video camera and assisted the PI in answering any questions the P had throughout the training.</p> <p>See Appendix I for a more detailed description of the training protocol</p>	<p>Tuesday February 17, 2004 7PM</p>	<p>Partner's House</p>
<p>Condition C Augmented Expression Strategies (SA, P, PI)</p>	<p>Experimental Session 5: 1) Convenience of Test Day Rating Scales (SA,P) 2) Familiarization task- Warm-up Questions (SA, P) 3) conversation.(data collection) – PI filming with digital video camera</p> <p>Experimental Session 6: 1) Convenience of Test Day Rating Scales (SA,P) 2) Familiarization task- Warm-up Questions (SA, P) 3) conversation.(data collection) – PI filming with digital video camera</p>	<p>Saturday February 21, 2004 12 NOON</p> <p>Sunday February 22, 2004 2 PM</p>	<p>S A's House</p>

<p>Training Session # 3 Qualitative Interview (P) Augmented Comprehension Strategies (P, PI, FA)</p>	<p>The PI conducted a semi-structured interview with the partner regarding his views of the previous week's conversations. (See Appendix F)</p> <p>The PI then presented the second training session on Augmented Comprehension Strategies. The PI used a power point presentation on a laptop computer as well as role-play to complete the training. The FA filmed the training using a digital video camera and assisted the PI in answering any questions the P had throughout the training.</p> <p>See Appendix I for a more detailed description of the training protocol</p>	<p>Tuesday February 24, 2004 7PM</p>	<p>Partner's House</p>
<p>Condition D Qualitative Interviews (W, P, SA) Group Interview Augmented Comprehension Strategies (SA, P, PI, FA, W)</p>	<p>Experimental Session 7: 1) Convenience of Test Day Rating Scales (SA,P) 2) Familiarization task- Warm-up Questions (SA, P) 3) conversation.(data collection) – PI filming with digital video camera</p> <p>Experimental Session 8: 1) Convenience of Test Day Rating Scales (SA,P) 2) Familiarization task- Warm-up Questions (SA, P) 3) conversation.(data collection) – PI filming with digital video camera</p> <p>Immediately following the final data collection session, the PI individually interviewed the SA, P, and W regarding their views of the study as a whole. A group interview was then conducted in a round-table discussion format during which all participants and researchers were invited to voice their opinions on the study in general.</p>	<p>Saturday February 27, 2004 9:30 AM</p> <p>Sunday February 28, 2004 2 PM</p>	<p>SA's House</p>

Competence Check for Training Modules

Evaluator(s) _____

Date _____

Training Module _____

Partner _____

Unacceptable
0

Very Poor
1

Poor
2

Adequate
3

Outstanding
4

Evaluator(s) _____

Date _____

Training Module _____

Partner _____

Unacceptable
0

Very Poor
1

Poor
2

Adequate
3

Outstanding
4

Evaluator(s) _____

Date _____

Training Module _____

Partner _____

Unacceptable
0

Very Poor
1

Poor
2

Adequate
3

Outstanding
4

Appendix H
Procedural Reliability

Procedural Reliability Checklist-Trainings

Date _____

Condition _____

Forms Signed

- 1) Convenience of Test Day _____
- 2) Competence rating of training _____

General Procedures

- 1) Qualitative Interview _____
- 2) Lap-top set up with power point
Presentation _____
- 2) Video clips _____
- 3) Role-play _____
- 4) Print-out of training module
(Give to Partner) _____

Camera

- 1) Set up tripod _____
- 2) Plug charger into wall _____
- 3) Attach charger to camera _____
- 4) Open screen _____
- 5) Remove lens cap _____
- 6) Turn camera to "Movie" _____
- 7) Focus _____
- 8) Silver button-Record _____
- 9) Silver button-Stop _____
- 10) Turn camera to "Off" _____
- 11) Replace lens cover _____
- 12) Close screen _____
- 13) unplug charger from camera _____
- 14) unplug charger from wall _____
- 15) Fold up tripod _____
- 16) Charge battery _____
- 17) Back up data EVERY MON _____

Procedural Reliability Checklist-Conversations

Date _____

Condition _____

Forms Signed

1) Convenience of Test Day _____

Physical Set-up

1) Dining room table _____

2) Well lit _____

3) Subject with aphasia
angled to compensate
for right visual field cut _____

4) Topic cards present on table _____

5) Newspaper, markers, paper
present on table _____

Camera

1) Set up tripod _____

2) Plug charger into wall _____

3) Attach charger to camera _____

4) Open screen _____

5) Remove lens cap _____

6) Turn camera to "Movie" _____

7) Focus _____

8) Silver button-Record _____

9) Silver button-Stop _____

10) Turn camera to "Off" _____

11) Replace lens cover _____

12) Close screen _____

13) unplug charger from camera _____

14) unplug charger from wall _____

15) Fold up tripod _____

16) Charge battery _____

17) Back up data EVERY MON _____

Appendix I

Sample Transcription / Coding

Appendix J

IRB Approval Letter



DUQUESNE UNIVERSITY

INSTITUTIONAL REVIEW BOARD

403 ADMINISTRATION BUILDING ♦ PITTSBURGH, PA 15282-0202

Dr. Paul Richer
Chair, Institutional Review Board
Phone (412) 396-6326 Fax (412) 396-5176
e-mail: richer@duq.edu
web site: <http://www2.duq.edu/research/policies.cfm#human>

December 16, 2003

Ms. Kelly Hanna
Resource Room Mail Box
403 Fisher Hall
Rangos School of Health Sciences
Pittsburgh, PA 15282

**Re: "Measuring the impact of staged communication strategy training on dyadic interactions between a person with severe aphasia and a familiar conversation partner"
Protocol #03-90**

Dear Ms. Hanna:

Thank you for submitting the revisions requested by the IRB.

After review by IRB representatives, Dr. Clifford Pohl and Dr. Daniel Goldreich, along with the entire board, the study is approved under the federal Common Rule, specifically 45-Federal Code of Regulations 46.101 and 46.111. In addition, since it involves some use of medical records, the study has been reviewed and approved by Dr. Joan Kiel, Duquesne University's HIPAA officer.

Please remember that in accordance with those federal regulations, you must produce two original signed copies of all consent forms, one set for you and one set for parent/guardian. We will enclose the first pages of each form stamped with approval and expiration dates.

This approval will be renewed in one year as part of the IRB's continuing review. You will need to submit a progress report to the board at the address shown above. It should detail the number of subjects whose involvement has been completed and the number yet to be completed.

If, prior to the annual review, you propose any changes in your procedure or consent process, you must inform the board of those changes and wait for approval before implementing them. In addition, if any

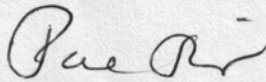
procedural complications or adverse effects on subjects are discovered before the annual review, they immediately must be reported to the IRB Chair before proceeding with the study.

When the study is complete, please provide the IRB with a summary, approximately one page. Often the completed study's abstract suffices. Please keep a copy of your research records, other than those you have agreed to destroy for confidentiality, over a period of three years after the study's completion.

Thank you for contributing to Duquesne's research endeavors.

If you have any questions, feel free to contact me at any time.

Sincerely yours,



Paul Richer
Chair, IRB
Duquesne University

C: Dr. Kathryn Garrett
Dr. Clifford Pohl
Dr. Daniel Goldreich
Dr. Joan Kiel
IRB Records