An Ethnographic Investigation of Compensatory Strategies in Aphasia. (Volumes I and II).

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An ethnographic investigation of compensatory strategies in aphasia. (Volumes 1 and 2)

Simmons, Nina Newlin, Ph.D.
The Louisiana State University and Agricultural and Mechanical Col., 1993
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ABSTRACT

An ethnographic investigation of compensatory strategies in two individuals with nonfluent aphasia was undertaken. Data were collected from videorecordings of natural conversations between subjects and a variety of partners, observations of speech-language pathology assessment and therapy sessions, participant observations, ethnographic interviews, lamination sessions and documentary evidence. Data were analyzed to identify compensatory strategies employed by the aphasic subjects, to determine patterns of occurrence and functions of compensatory strategies, to determine the expectations and practices of speech-language pathologists, and to identify underlying themes relative to compensatory strategy usage.

An operational definition of compensatory strategy was derived from the data, and every compensatory strategy used by each subject was identified in videorecorded samples and subjected to behavioral coding across 38 dimensions of relevant contextual variables. Usage patterns and a rich, authentic description of 25 compensatory behaviors were drawn from these data and triangulated with observations, interviews and lamination sessions to ensure reliability and authenticity.
Results indicated that subjects adopted a variety of idiosyncratic, contextually flexible compensatory strategies to satisfy transactional and interactional goals of communication. Identified compensatory behaviors included strategies specifically taught by the speech-language pathologists and natural, untrained compensations.

Compensatory strategies were adjusted to contexts and conversational goals. The usage patterns suggested several overall motivations including: the need to exchange information, the drive to conserve energy, the desire to maintain autonomy, and the need for social acceptance. Although speech-language pathologists interviewed and the aphasia literature reviewed defined strategies primarily in terms of "message transmission", many of the compensations adopted by the subjects subserved the goal of "promoting interaction" rather than conveying information. In fact, the flexibility and contextual sensitivity of compensatory strategies indicated the primacy of social motivations in communication. The results raised questions about traditional definitions of compensatory strategies and traditional aphasia management practices, and suggested the need to employ socially driven models of communication in aphasia.
Chapter 1

INTRODUCTION

It all began after a startling luncheon at an exclusive New Orleans restaurant. As a speech-language pathologist, I had spent the last twelve years working with adults with aphasia. One of these individuals, Howard, had been my patient for over two years. We had worked diligently on restorative language therapy to rebuild Howard’s linguistic ability. However, our therapy goals had long since shifted from attempts to restore linguistic skills, to a focus on developing and refining compensatory strategies — alternative means of achieving communicative ends. Howard practiced describing items which he could not name. He wrote the initial letters of words to cue himself. Gestural signs were introduced as a means of self-cueing and conveying information when the spoken word was unavailable. Since speech came slowly, he was taught attention getting devices to alert speaking partners that he had something to say, or signal that he needed more time to talk. We role played situations such as ordering in restaurants or requesting information from the pharmacist. For example, I might act the part of a busy sales clerk to whom Howard would politely raise his hand and quietly say "Miss" or
"pardon" to get my attention before initiating a request. During these sessions Howard utilized his strategies with enthusiasm and finesse. His gentle manners and strong motivation conspired to make him an excellent patient. As we neared the date of his ultimate discharge from treatment, Howard asked me to lunch at a well-known restaurant. I viewed this as an excellent opportunity to see Howard in action -- communicating in a natural situation away from the hospital. I felt smugly confident that I would get to observe first hand the results of "splendid" treatment.

We met at the restaurant and I was immediately impressed with Howard’s command of the situation. He nodded politely to the Maitre d’ who recognized Howard’s subtle nonverbal request to be seated. When ushered to a table, Howard pointed with a questioning look to another table near the window. We were graciously seated by the window. Although Howard had not said a word, he had communicated clearly. The maitre d’ seemed unaware that Howard’s gentle, quiet manner masked a severe and pervasive language impairment. As we perused the menu, the waitress arrived and asked if we were ready. Howard hesitated. It was clear to me that he was involved in word search, but the busy waitress interpreted the silence otherwise, and politely stated that she would give us more time to look at the menu. A few minutes
later the waitress returned, and asked Howard if we were ready. He said yes, then hesitated... The waitress glanced at nearby customers. The moment hung suspended in time. I was acutely aware of the bustling activity and lively chatter of conversation around us. Suddenly Howard reached out toward the waitress, and over the noisy background noise I heard him loudly utter "Lady!". The waitress looked shocked. The noisy chatter around us came to an abrupt halt. All eyes were on Howard. The anxious waitress waited. Howard attempted to say what he wanted. He was flustered. The word wouldn't come. He began to "pretend write" on the table cloth (a strategy that had worked well in therapy). The waitress' eyes grew wide and she looked imploringly at me. Howard's face flushed with embarrassment. How different things were here in the restaurant than during our pleasant role playing sessions in my office! Howard's subtle attention getting strategy had transformed itself into a loud, rude command, and somehow, in this setting, his "writing" strategy looked like the gesticulations of a madman. Howard's demonstration of his learned strategies (no doubt to please his therapist) had resulted in social disaster. Howard and I recovered from this momentary interruption in the tranquility of our luncheon, but the incident struck a chord which reverberated in my work for years to come.
Around this period of time discussions of "generalization of treatment" in aphasia were pervading conversations with colleagues at professional meetings. Co-workers also expressed concern about the poor generalization of some behaviors, particularly compensatory strategies, to situations outside of treatment. We adopted remedies such as increasing training trials, loosening treatment, building more natural reinforcements (Baer, 1981) and incorporating functional and pragmatic treatment approaches (Holland, 1977; Wilcox & Davis, 1978). Yet, I was unsure if patients were actually generalizing the behaviors taught in therapy to "real life" situations. Therefore, I began to work on an experimental research design to investigate the effects of training compensatory strategies in natural situations. I also began to examine clinical cases and search the literature for a better understanding of generalization in aphasia. I questioned the didactic and narrow perspective adopted in much aphasia therapy. Was inadequate learning or incomplete treatment an adequate explanation for poor generalization? Armed with the stinging memory of the restaurant scene and other recent experiences with patients in natural settings, I suspected that a clearer understanding of the variables which influence the
performance of aphasic speakers in natural environments would provide insight into the generalization puzzle.

In fact, authors have alluded to the need to study variables associated with aspects of communicative context (e.g. Behrmann & Penn, 1984; Cicone, Wapner, Foldi, Zurif & Gardner 1979; Gurland, Chwat & Wollner, 1982; Penn, 1987; Ritter, 1976; Wambaugh, Thompson, Doyle & Camarata, 1991; Ulatowska, Macaluso-Haynes & Richardson, 1976; Wilcox & Davis, 1977). But the literature offered little substantive data. One study by Glosser, Wiener and Kaplan (1988) was a noted exception. These authors found that multiple variables within the "complex social communication matrix" significantly influence the communication of the aphasic speaker. In other words, the variability observed in aphasic speakers might be due in part to context rather than variability "within the speaker's system". These findings bolstered my interest in alternative explanations of communicative behavior in aphasia.

Again the aphasia literature offered little help. The perspective of the individual with aphasia or his/her family members, and the social system in which the aphasic speaker must function were rarely addressed in aphasia research. Although Holland noted in 1978 that "functional responding involves development on the part of the clinician and patient of a more compromising
attitude about how people communicate" (p. 6), there was no information available about what clinician and patient attitudes are or how they should be compromised. For example, how do speakers with aphasia and those around them perceive and deal with the pragmatic rule violations which language disorder and strategy use inadvertently impose? We all expect our speaking partners to behave like a member of the social system, and there is little tolerance for violations of rules (Canale & Swain, 1980; Hymes, 1972; Saville-Troike, 1982). Then, how are the aphasic individual's rule violations perceived, and how do these attitudes influence outcomes in aphasia therapy and strategy training?

I wondered how attitudes of the speech-language pathology community differ from those of the individual with aphasia? Speech-language pathologists typically view aphasia as a language disorder; the belief that "to communicate is good" seems to be a driving force for the profession. On the other hand, the patient and family members might view aphasia as a handicap and a mark of "abnormality". While we do not know what attitudes are held by people with aphasia, the following quote by Rosenbek, LaPointe and Wertz (1989) seemed suggestive: "Witness the number of severely aphasic people who continue thumbing through magazines when they can no longer read, or cheerfully nod 'yes' or 'no' even when
they have not understood. Most of us want to be normal, or at least, appear to be so." (p. 139). Similarly, Malone (1976) noted that "remaining silent but appearing normal sometimes is preferred" (p. 357). I began to wonder if attempts to teach a compensatory strategy to promote successful communication, might conflict with the client’s need for social acceptance and anonymity as an aphasic. Thus, the social significance and beliefs affecting strategy use could have a major impact on the efficacy of this approach.

I continued to question the potential social invalidity of some of our accepted beliefs. For example, aphasiologists embraced Holland’s (1982) suggestion to measure communicative improvement by success in conveying a message as opposed to linguistic accuracy as a more functional and pragmatically valid approach. However, Howard’s embarrassing public display of "compensations" raised questions about this definition of success. Perhaps the fact that success has been judged relative to the listener’s understanding of the intent of the message is a fallacy of current aphasia therapy and research. The focus on meaning transmission and accuracy implies an assumption that meaning transmission is the sole or overriding feature of importance, and that simply "getting the idea across", regardless of the manner, is rewarding to the patient. This overlooks the fact that...
most aphasic patients have retained knowledge of the appropriate manner of communication for a given context. Since speakers' and listeners' goals are not simply to "transmit meaning" but to achieve a socially acceptable and satisfying exchange, unconventional strategies might, in fact, not be perceived by aphasic speakers as appropriate. Perhaps a focus on meaning transmission has created a paradoxical goal for the patient: to transmit meaning in a socially inappropriate or nonconventional manner.

As I pondered these multiple influences on aphasic performance, I continued to experiment with potential research designs to investigate compensatory strategies in aphasia and clarify the influences of context. It was not difficult to design experimental training situations and probe the natural environment for generalization of operationally defined behaviors. However, the research probes invariably missed a host of fascinating behaviors and variables. Attempts to expand the boundaries of study were unsuccessful; the difficulty of measuring and controlling multiple interacting variables within a given communicative environment was overwhelming. Thus, my repeated attempts to develop a controlled study of compensatory strategy acquisition and use by aphasic individuals met with extreme frustration since each attempt resulted in the stripping away of variables which
were in fact the essence of the complex tapestry of human communication (Simmons, 1987, 1988b). Also, I became interested in explaining the complex behavior rather than simply quantifying components of compensatory behavior. Applications of traditional research methodology were simply insufficient.

Having met with recurring barriers, I was considering abandoning this line of research until a doctoral seminar conducted by Jack Damico introduced me to several qualitative research methodologies and provided theoretical support for some of the ideas which I had been formulating. I was interested in the works of Dell Hymes (1968, 1972) and Muriel Saville-Troike (1982). For example, Saville-Troike (1982) noted that communication is intricately connected to how and why it is used. Hymes (1972) pointed out that communicative competence includes not only grammatical competence but also "competence as to when to speak, when not, and as to what to talk about with whom, when, where and in what manner....This competence, moreover, is integral with attitudes, values and motivations..." (p. 278). I was struck by the contrast of these ideas with the influence on traditional aphasiology of Chomsky's (1965) theories which equated communication competence with grammatical or linguistic competence. Even the recent shift of aphasiology towards a more functional and pragmatic
perspective failed to adequately address the "appropriateness" of meaning transmission or the interaction of culture and language.

The ethnographic research embodied by Hymes (1972) and others (Agar, 1986; Spradley, 1980; Saville-Troike, 1982) offered a solution to my frustrating pursuit of a methodology for studying compensatory strategies within the multidimensional context of social communication. After years of pursuing an appropriate research design, it was clear that qualitative research methods would permit me to investigate aphasic communication as it occurs naturally. Ethnography would allow me to study the communication system in aphasia as a whole, to look beyond the linguistic deficits and to view the social and emotional influences on aphasic communication.

Furthermore, the expanded view of communicative competence, including the interaction of language and social conduct, would clarify the issue of generalization of treatment gains to natural settings, provide explanations for communicative behavior in aphasia, and promote more socially responsible approaches to treatment of aphasia. Finally, I was excited at the prospect of applying this alternative research methodology to the study of aphasia. Consequently, I chose to conduct an ethnography of compensatory strategies in aphasia as my doctoral research.
The ethnographic study was designed to provide information on when, where and why people with aphasia utilize compensatory strategies. Specifically an in depth descriptive analysis of compensatory strategies of two individuals with aphasia was undertaken. General questions of interest included:

1. What compensatory strategies are used in natural situations by aphasic subjects?
2. What is the relationship between compensatory strategy use and communicative or social success?
3. What variables influence strategy use?
4. What are the aphasic individual's and family's attitudes towards compensatory strategies?
5. What are the beliefs and attitudes of speech-language pathologists regarding use of strategies by individuals with aphasia?
6. What are the beliefs and attitudes of unfamiliar speaking partners regarding use of strategies by individuals with aphasia?

Finally, the questions which began to emerge years ago were addressed. Unaware of the implications at the time, I had entered the realm of ethnography during that luncheon with Howard. The following chapters constitute the unfolding of this ethnography of compensatory strategies in aphasia.
Chapter 2

LITERATURE REVIEW

A review of the available literature regarding compensatory behaviors in aphasia reveals a number of interesting points relevant to this ethnographic investigation. First, there are a number of references regarding compensatory strategies of individuals with aphasia. From early descriptions and studies of aphasia, compensation has been recognized. Second, the discussions regarding compensatory strategies appear to mirror the overall evolution of the field of aphasiology. That is, as the focus on aphasia has shifted from a behaviorist perspective to a structural/linguistic perspective and finally to the current functional/communicative perspective, the discussions of compensatory strategies have also shifted. Third, discussion of compensatory strategies tends to focus on three areas of concern: what they are, how they are classified, and how they are used or applied. Fourth, while there are a number of discussions regarding compensatory strategies, relatively little actual data are available. Finally, the reason for the lack of actual data is that while conceptions of aphasia
treatment have changed, the methodologies needed to investigate compensatory strategies have not changed.

Historical Accounts of Compensation

Compensation, the alternative means to a behavioral end product, has been an accepted tenet of aphasia management since the advent of aphasia treatment. Early work by Lashley (1929) established a framework for theories of compensatory recovery processes in aphasia. Later, Goldstein (1939) suggested that aphasic patients compensated for their impairments in order to adapt to and maintain a balance with the environment. He questioned the dual goals of aphasia rehabilitation:

"should we simply help the patient to regain his lost performance capacity, to use it in the same way as he did before injury, or should he learn to compensate with other performances?" (Goldstein, 1942, p.147).

Zangwill (1947) proposed that individuals with brain damage could utilize "substitution" described as the "deliberate, self-initiated application of a procedure to achieve a goal that is difficult to achieve because of impaired functioning."(p. 237); this description mirrors conceptions of compensation. Luria (1963) also discussed compensation training as a means of rebuilding function in aphasia. Thus, the utilization of "compensatory strategies" to improve communication in individuals with
aphasia is stated or implied in much of the aphasia treatment literature throughout the twentieth century.

In fact, as the field of aphasiology has evolved and expanded, interest in compensatory strategies has followed suit. For example, 19th and early 20th century writings about aphasia focused primarily on brain-behavior relationships in an effort to correlate behavior and anatomical site of lesion and explain functional recovery after brain damage (reviewed by Buckingham, 1981; Finger and Stein, 1982). Thus, early reports of compensation were offered as one explanation for recovery (Lashley, 1929). With the advent of World War II the treatment of aphasia gained considerable momentum and efforts were directed towards building a theory and technology of aphasia management (Luria, 1963, 1970; Schuell, Jenkins & Jimenez-Pabon, 1964; Sheehan, 1946; Wepman, 1947, 1951). Hence, purposeful compensation was incorporated as an approach to retraining in aphasia (Luria, 1970). In the 1950s linguistics had a marked impact on the study of aphasia, with a resulting focus on the form and structure of aphasic language (Jakobson, 1962; Luria, 1977; Scargill, 1954). Behaviorist trends in psychology also strongly affected the way language and behavior in aphasia was measured and manipulated (Brookshire, 1967; Holland, 1970; LaPointe, 1977; Salvatore, 1972; Sidman, 1971). With the introduction of
standardized tests (particularly Porch's multidimensional scoring system, 1967) the treatment of aphasia became more structured and systematic with an emphasis on clearly defined linguistic variables and careful measurement. In spite of these new developments and theoretical orientations, compensation continued to play a role in aphasia recovery and treatment. Whether one emphasized promoting brain reorganization through compensation, remedying the linguistic impairment through compensation, or training operationally defined compensatory behaviors, the actual introduction of strategies into treatment appeared relatively independent of the theoretical orientation of the clinician or of the treatment approach employed (Rau & Golper, 1989).

In the 1980s compensatory strategies gained a more prominent place in aphasiology with the shift in emphasis from the structural properties of language to the functional use of language by aphasic communicators (Aten, 1986; Aten, Caliguiri & Holland, 1982; Davis & Wilcox, 1981, 1985; Holland, 1975, 1977, 1982). That is, the focus shifted to language in social situations. Pragmatic treatment emphasized success in conveying ideas in various contexts, rather than linguistic accuracy (Davis & Wilcox, 1985; Holland, 1982). Thus, compensatory strategies were viewed as an effective method of achieving functional communication.
Description of Compensatory Strategies

While interest in compensatory strategies has remained widespread in aphasiology, operationally specific definitions are not available. Nicolosi, Harryman and Krescheck (1978) define adaptation or compensation as "an adjustment intended to counteract the effect of some anomaly, dysfunction, disability or social deficiency." (p. 49). Ylvisaker and Holland (1985) provide a more graphic description: "When a patient requires a crutch to function effectively, we enter the rich domain of compensation." (p. 25). Ylvisaker and Szekeres (1986) discuss compensations used in traumatic head injury and define compensatory strategies as procedures, often unconventional, that are deliberately applied to accomplish a goal. These authors distinguish deliberate, patient-generated compensatory strategies from the more general notion of organized strategic behavior, or from treatment strategies controlled by the therapist. Davis and Wilcox (1985) describe "abnormal yet communicatively effective" behaviors that are developed by aphasic patients in response to their linguistic impairments (p. 65). McNeil and Kozminsky (1980) define a "self generated strategy as a mechanism for resolving a processing deficiency over which the
patient has some volitional control, at either a conscious or subconscious level." (p. 269). LaPointe (1985) distinguishes compensatory and facilitative strategies in aphasia treatment.

"Compensatory techniques involve adjusting the patient's level of response to one commensurate with his or her abilities, and utilizing alternative modes of communication... Facilitative strategies, in contrast, typically strive to maximize performance in the more natural modes of functioning..." (p. 187).

In other words, compensation provides a new approach to performing the communicative behavior; facilitation helps elicit performance in the premorbid manner. In practice, the term "strategy" often seems to be used generically to refer to behavior that facilitates independent and successful communication in spite of aphasic deficits.

There appear to be several potential functions of compensatory strategies in aphasia (Argyle, 1975; Behrmann & Penn, 1984; Yorkston & Dowden, 1984). First, compensatory behavior can substitute for the expected mode of communication. Hence, nonverbal communication such as gesture can take the place of the verbal mode when speech fails. These compensations are, in fact, alternative means of communication. A second function of compensatory strategies might be to support or add information to the verbal mode. An example of such an augmentative strategy is combining a gesture with speech to enhance the listener's comprehension. Finally,
strategies might facilitate a natural communication channel. For example, Whitney (1975) suggested that patients might write the first letter of a word to facilitate production of the verbal label.

Strategies which enable individuals with aphasia to independently facilitate verbalizations are typically referred to as "self cues". Self cueing often involves the production of novel or unexpected behaviors that "release" or facilitate the verbal response.

"Training clients to generate their own cues allows them to become less reliant on the clinician and communicate more effectively in natural settings when the clinician is not available to provide assistance" (Kearns, 1990, p. 27).

These behaviors, designed to assist patients to "cue themselves", straddle the line between facilitative and compensatory behaviors. In fact, LaPointe (1985) warns that:

"the distinction between compensatory and facilitative techniques is a fine one, and these strategies are not mutually exclusive in their application." (p. 188).

The aphasia literature is replete with examples of compensatory strategies that appear to improve communication in aphasia. Compensatory strategies to improve auditory comprehension include vocal or subvocal rehearsal or responding after a delay (McNeil & Kozminsky, 1980). Holland (1978) suggested that training a functional approach to auditory comprehension problems
might include teaching the patient to ask for repetitions, request that messages be written, or ask the speaker to slow down, rather than simply attempting to restore comprehension to prior levels.

Others have reported verbal compensatory strategies. For example, Marshall (1976) identified five types of word-retrieval strategies used by aphasic speakers. These strategies included: 1) delays in which the person with aphasia takes additional time to produce the word, 2) semantic association or production of a word semantically related to the target, 3) phonetic association or production of a word phonetically similar to the target, 4) circumlocution or description of the target, and 5) use of "empty" words to maintain the flow of communication. Gleason, Goodglass, Green, Ackerman and Hyde (1975) identified spontaneous strategies used by subjects with Broca's aphasia to compensate for syntactic deficits such as using concatenated phrases to avoid embedding (e.g. a large house, a white house), using adverbs to express future tense (e.g. "he work again" for "he will work"), or using stressed words to help initiate utterances. Adopting a slowed rate of speech has been proposed as an "adaptive delay strategy" which promotes more fluent and organized discourse in some aphasic patients (Penn & Beecham, 1992; Whitney & Goldstein, 1989), and reiterative or reduplicated utterances have
been observed to overcome lexical retrieval difficulties (Hand, Tonkovich & Aitchison, 1979; Kearns & Simmons, 1983). Onomatopoeia is another possible compensation for word retrieval deficits (Beland & Ska, 1992).

Compensatory strategies referred to as "stop" or "go" strategies interrupt or maintain the flow of conversation as appropriate (Whitney, 1975). For example, a "go" strategy might maintain the flow of communication with purposeful circumlocution. Holland (1982) observed subjects with aphasia in natural conversations and noted numerous compensatory strategies to overcome word retrieval difficulties. These included writing words that could not be spoken, consulting word lists to find a word, physically searching for objects when the label could not be retrieved, requesting help from the speaking partner, requesting more time to retrieve a word and spelling aloud. Another strategy observed was alerting the listener to the language handicap (Ulatowska, Haynes, Hildebrand & Richardson, 1977).

Perhaps the most widely recognized and studied forms of compensation in the aphasia literature are nonverbal compensatory strategies. Skelly, Schinsky, Smith and Fust (1974) taught American Indian sign language (Amer-Ind) to verbally apraxic patients to facilitate communication. Rao (1986) outlined a justification for Amer-Ind training to facilitate and augment verbal

In addition, increased use of nonverbal behaviors such as gesture or body movement by aphasics have been observed by some (Ahlsen, 1991; Behrmann & Penn, 1984; Feyereisen, 1983; Hadar, 1991; Herrmann, Reichle, Lucius-Hoene, Wallesch & Johannsen-Horbach, 1988; Larkins & Webster, 1981; Smith, 1987; review in Feyereisen & Seron, 1982). For example, Behrmann & Penn (1984) studied dyadic communication of eleven (11) subjects with aphasia and found that gesture, pantomime and facial expression were actively used by nonfluent subjects as a compensatory strategy. Nonverbal behavior frequently substituted for verbal expression in their nonfluent subjects. In another study of nonverbal behavior in aphasia, Smith (1987) concluded that:

"the higher rate of nonverbal behavior in aphasic subjects suggests that aphasic patients..."
attempt to compensate for their verbal deficit by increasing the frequency of their nonverbal behaviors." (p. 134).

Moreover, Smith found that her aphasic subjects used higher rates of both iconic gestures (including natural gestures and signs), deictic movements and regulatory gestures. She was unable to determine the source but postulated speaking partners and prior treatment might influence rates of gestural behavior. In contrast, other investigations found little support for spontaneous compensatory exploitation of nonverbal/gestural communication by aphasic subjects (Cicone, Wapner, Foldi, Zurif & Gardner, 1979; Glosser, Wiener & Kaplan, 1986).

In addition to gesture, alternative and augmentative communication (AAC) aids such as artificial languages, communication boards, notebooks or electronic devices have been proposed as a compensatory form of communication for individuals with aphasia (Bellaire, Georges & Thompson, 1991; DiSimoni, 1986; Gardner, Zurif, Berry & Baker, 1976; Garrett, Beukelman & Low-Morrow, 1989; Glass, Gazzaniga & Primack, 1973; Johannsen-Horbach, Cegla, Mager & Schempp, 1985; Kraat, 1990; Malone, 1976; Rabidoux, Florance & McCauslin, 1980; Steele, Weinrich, Wetz, Kleczewska & Carlson, 1989; Yorkston & Dowden, 1984). Others have used drawing to augment or facilitate communication (Bertoni, Stoffel & Weniger, 1991; Hatfield & Zangwill, 1974; Lyon & Sims,
Interestingly, in spite of frequent mention in the literature, including numerous examples of compensatory strategies, there have been few attempts to classify, categorize or organize compensatory strategies. Holland (1982) differentiated compensations for impaired auditory comprehension from compensations that assist word retrieval. Yorkston and Dowden (1984) differentiated nonaided and aided strategies, aided being those which require an external prop such as a communication board. Penn (1987) made the only effort to develop a true taxonomy of compensatory strategies. She described seven broad categories believed to capture compensatory strategies in aphasia as follows: 1) simplification (e.g. changing word order), 2) elaboration (e.g. circumlocution), 3) repetition (e.g. repeating an utterance to aid understanding), 4) fluency assists (e.g. placeholders or pauses), 5) sociolinguistic sensitivity (e.g. self-correction comments), 6) nonverbal adjustments (e.g. gesture or intonation), and 7) interlocutor adjustments (e.g. cueing or slowed speech).

The head injury literature has distinguished "external" compensations such as word lists, from "internal" compensations such as using mental imagery to
recall a word (Ylvisaker and Szekeres, 1986). Similarly, Szekeres, Ylvisaker and Holland (1985) categorized compensations into "overt" procedures such as requesting that a speaker slow down to improve comprehension, "covert" procedures such as thinking of a related word to retrieve a target word, and "environmental" compensations such as changing spatial arrangements to promote conversation.

Generally compensatory strategies are "imposed behaviors" which produce successful but not necessarily accurate or normal communication. Many of these strategies involve the exaggeration of normal aspects of communication such as imposing delays to allow more processing time during conversation or rehearsal to aid self-correction (Bugbee and Nichols, 1980). These compensations are often relatively unobtrusive. Other strategies involve introduction of a behavior into communication which is not typical or expected. For example, Simmons (1978) introduced "finger counting" as a strategy for facilitating fluency in a patient with apraxia of speech and Broca's aphasia; thus, the individual paired speech production with a manual gesture similar to "counting on ones fingers". Similarly, pantomime or communication boards are not standard aspects of natural communication. Such novel strategies are relatively obtrusive and obvious. Thus, compensatory
strategies range from unobtrusive activities to obvious, and often unusual behaviors.

Compensatory Strategy Training

Information on actual training methods for compensatory strategies in aphasia is scattered and often vague, and incorporating compensatory strategies into treatment appears to take many forms. Conceptually strategy training seems to reflect a recognition that linguistic restorative treatment, in most cases, is not enough to promote functional communication (Penn, 1987). Therefore, compensations are introduced to convey messages which cannot be conveyed through traditional auditory-verbal means. Compensations are taught through direct didactic training (e.g. Coelho, 1991; Simmons Zorthian, 1979) or indirectly modeled within the hierarchy of cues presented by clinicians to restore language processing (e.g. Linebaugh & Lehner, 1977). Many programs seem to incorporate compensatory strategy training and facilitation of language into one treatment package (Berman & Peelle, 1967; LaPointe, 1985). Thus, strategies, particularly self-cueing methods, often serve a dual purpose -- to facilitate verbal responses, then if verbal facilitation fails -- the cue itself conveys information (Berman & Peelle, 1967; LaPointe, 1985;
Tompkins & Marshall, 1982). Reinforcement and enhancement of existing compensatory behaviors has also been recommended (Berman & Peelle, 1967; Whitney, 1975). Thus:

"it is the therapist's job to direct the aphasic toward the strategies that help them...the therapist gives the aphasic a tool to help himself not only in the therapy room but outside as well." (Whitney, 1975, p. 4).

Certain treatment programs, particularly those which emphasis "functional" therapy, appear to capitalize on compensatory behavior. For example, Wilcox and Davis (1978) introduced a pragmatically driven therapy for aphasia called Promoting Aphasics Communicative Effectiveness (PACE). This therapy regime encourages the patient to convey ideas through any means or combination of means possible. Thus, PACE has been used to reinforce and promote compensatory strategies (Davis & Wilcox, 1981, 1985).

The cognitive rehabilitation literature has been more direct in delineating programs for compensatory strategy training of cognitively impaired individuals with traumatic head injury (Szekeres, Ylvisaker & Holland, 1985; Ylvisaker, Szekeres, Henry, Sullivan & Wheeler, 1987; Ylvisaker & Szekeres, 1986). For example, Ylvisaker et. al. (1987) discuss candidates for compensation and variables to consider in selecting and training strategies. They also outline teaching
procedures including developing strategic thinking, directly teaching the strategy and promoting generalization.

Efficacy of Compensatory Strategies

It is interesting to note that compensatory strategy training is often assumed to be efficacious. For example, Collins (1986) seems to summarize prevailing views about compensatory strategy training in aphasia in his statement that:

"...drawing, writing, pointing, gesturing, communication boards and such devices as memory joggers...are effective communication devices. Their use should not only be encouraged but trained." (p. 126).

Unfortunately, there is conflicting evidence in the research literature relative to the true efficacy of compensatory strategy training in aphasia.

Group studies of aphasia treatment efficacy have measured changes on objective test scores; thus, improvement cannot be attributed to specific components of the treatment package such as compensatory strategy training (Basso, Capitani & Vignolo, 1979; Broida, 1977; Shewan & Kertesz, 1984; Wertz, Collins, Weiss, et. al., 1981). Also the appropriateness of specific strategies or combinations of strategies varies greatly among individual patients making intersubject comparisons
impossible. Rau and Golper (1989) reviewed the literature on "cueing" and concluded that:

"there is not much evidence for existence of a systematic potency hierarchy of cues that can be applied generally to all patients...()... There is conflicting evidence regarding the effectiveness of specific types of cues" (p. 174).

This problem is also suggested by Peterson and Kirshner (1981) in a review of gestural strategies in aphasia; they report that:

"the 'average' statistic does not provide insight into the selective potential of some aphasics to learn to use gestures or pantomime as an alternative communication modality" (p. 345).

Furthermore, it appears impossible to isolate specific compensatory strategies for study across subjects. McNeil and Kozminsky (1980) studied self generated strategies for facilitating auditory comprehension in aphasia. They found a low success rate of strategies studied and concluded:

"it is not enough to teach a strategy. The patient must have skill with many strategies which then can be recruited as task demands change." (p. 271).

Yorkston, Beukelman and Flowers (1980) proposed that general strategies which are appropriate to all aphasic speakers do not exist; "instead there may be categories of patients who benefit from specific strategies" (p. 101). Thus, the tremendous variety and combinations of potential compensatory strategies available, paired with
the wide variability among aphasic individuals precludes adequate assessment of the general effectiveness of compensatory strategies using traditional scientific research paradigms.

Another approach to studying the efficacy of strategy training is to investigate the success of training specific strategies with individual patients. Many of these studies bring into question the efficacy of compensatory strategy training in aphasia. For example, in a review of studies of specific gestural training in aphasia, Peterson and Kirschner (1981) summarize that "a general problem has been the transfer of gestures learned in the clinical setting to spontaneous communication at home or work" (p. 345).

Single subject experimental studies have attempted to determine the efficacy of training specific compensations. For example, Coelho and Duffy (1985) observed two aphasic subjects in natural environments and found that despite sign acquisition in therapy, spontaneous use of signs was extremely limited.

A general review of the single subject literature in aphasia treatment suggests that treatment in aphasia often results in acquisition of specific targeted behaviors, but generalization to untrained settings or contexts is not always forthcoming (Thompson, 1989). Lyon (1992) observed that:
"despite documented gains in linguistic and communicative use in clinical settings, there is little evidence to suggest that communication or participation in life is notably improved once adults with aphasia return home." (p. 7).

Kraat (1990) reviewed alternative modes of communication in aphasia and noted:

"As the field of AAC has evolved, it has become apparent that the mere provision or acquisition of signs and symbols does not necessarily lead to the pragmatic use of these alternate language forms in social interactions" (p. 327).

Thus, while patients with aphasia seem to learn trained compensations, there has been little demonstration of "real life" functional application. These findings call into question the need to examine trained compensatory strategies both within and outside of the therapy environment.

There is also little information on the frequency or success of spontaneously acquired compensatory behaviors. Penn (1987) has made the most headway in identifying and classifying compensatory behavior in aphasia using a pragmatic analysis protocol and linguistic assessment (Penn & Beecham, 1992; Penn & Cleary, 1988). However, considering the longevity and prevalence of references to compensation in the aphasia literature, the paucity of research in this area is remarkable. The preponderance of descriptive and anecdotal references to compensatory strategies contrasts markedly with the scarcity of research-generated data on compensatory behavior. The
limited data base makes it difficult to formulate theoretical constructs to support compensatory strategy training. Moreover, research results that conflict with prevailing opinions make it difficult to draw conclusions as to whether compensatory strategies, trained or spontaneously developed, are actually successful in natural situations for overcoming barriers imposed by aphasia. In fact, widespread acceptance of compensatory strategies as an important element in the recovery of functional communication in aphasia seems to be based largely on the "illusion of evidence" created by repeated mention in the literature.

Problems studying communication in aphasia have been attributed to a lack of adequate and appropriate research methods (Lyon, 1992). In fact, Weniger and Sarno (1990) noted that very little research has been conducted on the adaptive strategies that aphasie patients spontaneously acquire possibly because these behaviors "defy traditional paradigms of experimental study." (p. 305). Traditional scientific research methods have proven ineffectual in addressing compensatory strategy usage in natural communication situations. Remarkably, while aphasiologists have embraced more functional and pragmatic approaches to aphasia management, we have failed to adopt appropriate methods of investigating communication within "functional" social situations.
In summary, aphasiologists have accepted compensatory strategies as an integral aspect of aphasia recovery and management for years. Compensatory strategies can facilitate comprehension, improve verbal production, augment speech and promote functional communication among individuals with aphasia. In spite of their apparent importance to communication in aphasia, operational definitions and taxonomies of compensatory strategies are in short supply. Furthermore, there is little data available to support the effectiveness of training compensatory strategies in aphasia, or to clarify what compensatory strategies are used, by what type of patients and in what situations.

Given the paucity of data regarding compensatory strategy use in aphasia, and the difficulties experienced in applying traditional scientific research to this complex social phenomenon, the current investigation adopted an ethnographic research methodology to contribute a rich description of functional usage patterns, an operational definition, and an explanatory account of compensatory strategies in aphasia.
Overview of Ethnographic Methodology

Ethnographic methodology was the research approach of choice for the current investigation. Ethnographic methodology is a qualitative approach to research which originated in the social sciences, particularly anthropology, as a means of seeking out relationships, patterns, and connections between elements or events in the world (Geertz, 1973). Early ethnographies concentrated on understanding exotic cultures. Ethnographers attempted to make sense out of alien societies, and developed a careful methodology for understanding social systems. Since the research proved highly useful in uncovering how and why people, objects, settings or events interacted with one another and influenced behavior, social scientists realized that this research paradigm was suited to studying social events in one's own culture (Kovarsky & Crago, 1991; Spradley, 1980). Consequently, ethnography was embraced by sociology, psychology and education in an attempt to study many other societal phenomena. Communication disorders researchers have been slow to grasp the
significant impact that this research methodology holds for our field; however, publications applying this methodology to the study of communication disorders have begun to appear (Damico, Maxwell & Kovarsky, 1990; Erickson & Westby, 1992; Kovarsky, Maxwell & Damico, in press).

Ethnographic research offers several advantages for studying complex human behavior. First, ethnographic investigation focuses on contextualization. Second, ethnography is a cyclical process which allows the data collection and data analysis to inform one another. Third, theory evolves out of the data rather than from preconceived ideas; thus, opportunities to expand our conceptions regarding communication and its disorders are provided. Finally, this descriptive approach not only enables a rich authentic description of "what" speakers do, but also contributes insights on "why" they do it.

**Contextualization in Ethnography**

Unlike traditional scientific research, ethnographic research approaches discovery from the rich perspective of finding patterns in the whole fabric of the context. Ethnographers believe that society cannot be understood unless all potential factors or variables are scrutinized to determine the impact on the phenomenon of interest. This provides a richness to investigation of social
behavior that cannot be accounted for by experimental study (Polkinghorne, 1983).

While traditional science has afforded many important insights which have advanced the practice of clinical aphasiology, it forces the investigator to reduce the focus of inquiry to components of the whole and to control variables, thereby creating a decontextualization. The complex fabric of human communication defies such decontextualization. Conversation is dynamic and interactive. It unfolds over time in a mutating mosaic of ideas, incomplete syntax, sentence fragments and subtle body language; the whole interacts to draw upon an ample and ever-present context for interpretation of meaning. Decontextualizing conversation through experimental control eliminates many of the important variables. Moreover, since the social, interactive character is a predominant characteristic of communication, research which eliminates the complex matrix of culture and context eliminates the essence of what we need to know from a functional perspective. In other words, what the patient can do communicatively is less important than what s/he actually does and what s/he actually does is dependent on a very complex interaction of internal and external motives, beliefs and events (Hymes, 1968). Introduction of an ethnographic approach to the study of aphasia broadens the field to the study
of communication-in-context, and introduces new dimensions to the study of aphasic communication.

The Interactive and Cyclical Nature of Ethnography

Ethnographic research can best be described as interactive and cyclical. There is an ongoing process of data collection and analysis which gives rise to evaluation and interpretation. As data are collected and analyzed, new questions arise and more data are collected and evaluated. Thus, data collection interacts with interpretation to produce new cycles of data collection, analysis and interpretation. The data, not a predetermined question, inform and guide the investigation. This cyclic and interactive process evolves in an ever narrowing spiral towards the final results (Spradley, 1980).

The advantage of the cyclical nature lies in its ability to consistently and progressively focus on phenomena that are interesting and most relevant to the research questions. All significant variables and factors that "come into play" need not be known in advance, and the investigation is not restricted to a linear and sequential progression toward an interpretive end (Agar, 1986; Maxwell, 1990). Rather, as the data inform the investigation, more questions or realms of investigation regarding contextual variables may be focused upon in order to understand the question. This
cyclical process results in a deep, rich and authentic knowledge base.

**Grounded Theory and Ethnography**

The ultimate outcome of an ethnographic investigation is the development of themes and theoretical constructs. Theory is drawn from and driven by the data. In other words, the collection and close examination of natural data suggest patterns which implicate theory. Since theories grow out of the analysis and interpretation of data, the term "grounded theory" is often used in reference to this methodology. As with other types of qualitative research that may be considered grounded theory (Glaser & Strauss, 1967), there are distinct advantages to the ethnographic approach when studying complex social phenomena. Primarily, the investigator does not need a significant base of theory and empirical knowledge about the phenomena under investigation before the research is conducted. In effect "grounded theory" approaches are theory building in nature. This is an advantage when studying the social and communicative aspects of a phenomenon like aphasia.

As Milroy (1987) suggests, "to frame a specific hypothesis the experimenter needs to have acquired in advance a good deal of detailed knowledge." (p.149). She suggests that this knowledge must initially be gleaned from observational methods that eliminate the biases
inherent in framing a hypothesis, controlling predetermined variables and eliminating measures of variables not "believed" to be of interest. Furthermore, a theoretical construct upon which to base ones hypothesis is important in devising a theoretically driven scientific investigation. Since current theories of aphasic communication are couched largely in cognitive and linguistic tradition, there is little to drive socially based hypotheses of aphasic communication.

This potential for disclosing new theories and uncovering facts hidden by cultural bias, provide new vistas for both scientific and naturalistic inquiry. Ethnographic research can expose unexpected and even unplanned observations to direct the line of inquiry. New observations and theoretical constructs can then enrich the more traditional approaches to scientific investigation. Therefore,

"qualitative and quantitative approaches to the study of culturally situated communication are not mutually exclusive, and...each can and should inform the other." (Saville-Troike, 1982, p. 10).

**Authenticity in Ethnography**

The goal of ethnography is authenticity -- a detailed, genuine and consistent recording of complex phenomena rich with an explanatory description of human behavior. Authenticity is derived from triangulation of phenomena by the ethnographer. Triangulation is a term adopted
from the jargon of the surveyor; it refers to measurement of an event or item from a variety of angles or perspectives in order to enhance the reliability of conclusions drawn from the data. In ethnography the investigator attempts to reduce error in data collection by obtaining a variety of data sources to triangulate on a particular social phenomenon. Triangulation can be attained by studying a full range of events associated with the research topic, collecting data in repeated occurrences of such events, and looking at the events from a number of different perspectives and levels of the social system (Kovarsky & Crago, 1991). The result is a vivid, rich depiction of the activities, events or structures studied. Moreover, only when a researcher becomes steeped or immersed in the activities of interest can a truly authentic description emerge. The result is a rich and multidimensional account and understanding of the events or activities being studied that has been referred to as "thick description" (Geertz, 1973). The existence of such in-depth depictions of natural activities promotes a more direct "fit" between ethnographic data and real life; this is the essence of authenticity.

The ethnographer also seeks to ensure that the conclusions of an investigation meet the criterion of confirmability (Guba & Lincoln, 1981); that is, the
results are reported with clarity and "disciplined subjectivity" (Erickson, 1973). For example, Agar (1986) suggests that observations can be disciplined by 1) imitating the acts observed to see the effects or success, 2) describing the observations to informants to see if they agree with the explanations, and 3) testing observations by observing the behavior in various other situations. In part, this ensures that the findings are a function of the events under study and not a projection of the investigator's beliefs or biases. This criterion is similar to the traditional experimenter's requirement of objectivity. However, as Maxwell notes "..there is no such thing as purely objective data; there is always interpretation." (Maxwell, 1990, p. 3). Similarly Guba and Lincoln (1981) suggest:

"to imagine that an evaluator by an act of will or by virtue of clever methodology, can rid himself of subjectivity, is the worst kind of fantasy. No human being can be objective in that sense" (p. 126).

Finally Agar (1986) proposes that "ethnography is neither subjective nor objective. It is interpretive, mediating two worlds through a third" (p. 19). The design of ethnographic methodology attempts, as much as possible, to allow the investigator to expose his/her own biases, contrast these with the perspectives of others, and present a rich and detailed interpretation based on these multiple perspectives.
Specific Ethnographic Methodology

The preceding section provided an overview of the general principles and methods of ethnographic research. This investigation of compensatory strategies in aphasia adhered to these general principles and methods. The following section will present the specific ethnographic methods and procedures of the current investigation including the subjects, data collection procedures and data analysis procedures.

Subjects

To explore compensatory strategies in aphasia, two individuals with aphasia were chosen as the focus of this investigation. It should be noted that although traditional ethnography uses the term "participants", the word "subject" (terminology most familiar in communicative disorders research) is used throughout this manuscript to refer to these two individuals with aphasia, while "participants" will refer to informants and other interviewees.

The selection of the two aphasic subjects was based largely on willingness to participate in the investigation over a period of several months. Four subjects were eliminated during the early stages of the project because they did not wish to be repeatedly
videotaped or were unavailable for repeated participant observation.

The two subjects demonstrated a clinical diagnosis of Broca’s aphasia based on the Western Aphasia Battery (Kertesz, 1979). In addition, both subjects exhibited apraxia of speech (Darley, Aronson & Brown, 1975). Both subjects had been patients of the Touro Speech Pathology department since the onset or initial diagnosis of their disorder. Subjects were white females who demonstrated no prior history of communication or neurological disorder, and both had passed 30 dB hearing screenings. Table 1 presents relevant demographic data on each subject.

**Subject # 1**

DC, a 50 year old woman, spoke with a slight German accent having moved to the United States from Germany at the age of 2 years. DC lived alone. She was divorced with two adult children who lived in another city. DC had a high school education and had worked as the office manager of the local Alcoholics Anonymous for over 10 years. To DC this was more than a job; it was a way of life. Having a history of alcoholism herself, DC credited her 10 year history of sobriety to the AA twelve step plan. She was described as outgoing, friendly, well organized, "thrifty" in her management of funds, careful about decisions, and "hard headed". She was often
described as a bit of a perfectionist. By all reports she had many friends and was active and healthy.

In May, 1991 DC sustained a left hemisphere cerebral vascular accident. Upon admission to the hospital DC was paralyzed on the right side and was severely aphasic. Initial speech-language evaluation suggested a severe Broca's aphasia and coexisting apraxia of speech. Although auditory comprehension was only moderately impaired, DC's verbal communication was virtually nonexistent, consisting primarily of three words "no", "OK" and "Hi". In spite of marked language problems DC attempted to interact with friends and visitors on the hospital unit. She liberally used left-handed pointing gestures, facial expression and intonation. Observations of DC for this investigation were initiated during this early phase of her recovery.

DC was seen daily by an experienced speech-language pathologist. In addition, DC worked with a speech therapy assistant on activities assigned by the therapist. Over the first few months DC slowly improved until she was able to communicate in single words and short phrases, accompanied by gesture and some writing, although writing showed difficulty with both spelling and word retrieval. After discharge from the hospital rehabilitation unit in the summer of 1991 DC continued her rehabilitation program as an outpatient, maintained
<table>
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<th>Subject</th>
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<th>NN</th>
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<tr>
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</tr>
<tr>
<td>PICA Overall</td>
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<td>8.85</td>
</tr>
</tbody>
</table>

her relationships with several friends, and continued attending AA meetings. After several months it was apparent that DC would not be able to perform her job, and the AA board hired a replacement.

In October, 1991 DC switched speech-language pathologists. Both therapists reported that DC often appeared frustrated during speech therapy. They described episodes of crying, and felt that therapy time was often "taken up" with counseling activities. Her new speech pathologist continued goals already established,
but after six months began to feel that DC was plateauing in her improvement. During this period of time, DC had several seizures and anti-seizure medication was prescribed. DC became very concerned about her financial situation, her poor insurance coverage for speech services, and her lack of significant progress in learning to talk. In May, 1992 DC chose to discontinue speech therapy. However, participation in this investigation continued after treatment was terminated.

Scores on the Porch Index of Communicative Ability (Porch, 1981) administered in July, 1992 placed DC in the 72nd percentile of aphasic individuals with a mean score of 12.63 as indicated in Table 2. She evidenced moderate Broca’s aphasia and apraxia of speech characterized by nonfluent, agrammatic and telegraphic verbal output. DC primarily produced content words (e.g. nouns, verbs) with a mean length of utterance (MLU) at about 3.5 word forms (approximations were counted). Her verbal productions were frequently delayed and sometimes followed visible word search and groping behavior.

Subject # 2

The second subject, NN, was also a 50 year old woman. She lived with her husband. Her youngest son continued to live at home but was away at college most of the year. Her three older sons were married. She was described as very religious, family oriented, energetic and
<table>
<thead>
<tr>
<th></th>
<th>DC</th>
<th>NN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>7-30-92</td>
<td>8-04-92</td>
</tr>
<tr>
<td>Overall</td>
<td>12.63</td>
<td>8.85/9.93*</td>
</tr>
<tr>
<td>Gestural</td>
<td>13.66</td>
<td>13.14</td>
</tr>
<tr>
<td>Reading</td>
<td>13.10</td>
<td>12.45</td>
</tr>
<tr>
<td>Pantomime</td>
<td>12.25</td>
<td>10.90</td>
</tr>
<tr>
<td>Auditory</td>
<td>14.30</td>
<td>14.80</td>
</tr>
<tr>
<td>Visual</td>
<td>15.00</td>
<td>14.40</td>
</tr>
<tr>
<td>Verbal</td>
<td>11.23</td>
<td>5.83</td>
</tr>
<tr>
<td>Graphic</td>
<td>12.18</td>
<td>5.15/8.40*</td>
</tr>
<tr>
<td>Writing</td>
<td>11.58</td>
<td>5.00/8.20*</td>
</tr>
<tr>
<td>Copying</td>
<td>13.40</td>
<td>5.45/8.75*</td>
</tr>
</tbody>
</table>

*Scores represent two modes of completing graphic subtests as follows: writing/computer.*

Intelligent. According to her family, NN was a "real talker" who loved people and socializing. NN had a college education and had been an elementary teacher in a catholic girls school for nineteen years, and was described as a "wonderful" teacher with particular interest in poetry and language arts. She led an active life and considered herself very healthy.

In 1989 NN began to notice difficulty thinking of words while teaching her classes. According to NN she
pretended nothing was wrong and substituted easier words. The condition progressed until a problem was apparent, not only in speaking but also in reading and writing. She withdrew from teaching, and began circulating through medical specialists seeking help. She was first seen by the investigator in the fall of 1990, at which time she presented with mild nonfluent aphasia and mild apraxia of speech. There was no evidence of coexisting nonlinguistic memory or cognitive problems. She was diagnosed with "Primary Progressive Aphasia" (Duffy, 1987; Duffy & Peterson, 1992; Mesulam, 1981). In addition, NN had a mild right hand weakness and sensory loss. She was enrolled in weekly speech-language therapy to learn methods to compensate for speaking and reading problems. The family was told that speech therapy would be conducted on an "as needed" basis thereafter, to learn new strategies to deal with the progressing disorder.

NN was instructed in pacing techniques to control speech rate and taught strategies to improve reading comprehension. She showed improved speech and writing after two months of therapy. She was placed on a home maintenance program, and returned approximately every six weeks for the first year for new home assignments and rechecks.

NN’s disease was relatively stable during 1991. After that time she began to show increased word finding
problems and articulatory search behavior, particularly on more difficult to produce sounds and multisyllable words. Writing became nonfunctional, and reading became too difficult to be enjoyable. Her disease slowly progressed with increased aphasia and apraxia of speech as well as weakness of her right side. In addition, bilateral limb apraxia was observed. She continued to show no generalized cognitive or memory decline. Speech therapy was continued with the goal of introducing augmentative and alternative communication techniques as speech and language deteriorated. Amer-Ind gestures, a communication book and a Franklin spell-check computer were introduced.

By the summer of 1992, NN’s diagnosis had evolved to severe apraxia of speech and moderate Broca’s aphasia. Her markedly impaired verbal communication was characterized by word finding problems and, most notably, by apraxic sound errors that rendered much of her verbal output unintelligible. She frequently groped for articulatory positions during repeated self correction attempts. Although writing was nonfunctional, she was able to approximate the spelling of some words graphically using the Franklin spell-check computer. Auditory comprehension remained good. The results of the Porch Index of Communicative Ability (Porch, 1981) administered in August, 1992 placed her in the 30th
percentile of an aphasic population with an overall scale score of 8.85 as shown in Table 2.

**Data Collection**

In keeping with the technique of triangulation (Agar, 1986), data from a variety of sources were obtained in order to gain in-depth insight into the use of compensatory strategies by these two aphasic communicators. The data included not only information on communication, but also, on attitudes, opinions and beliefs about compensatory strategies in order to understand how and WHY aphasic speakers communicate as they do. The following data collection methods were employed: 1) participant observation, 2) videotaping, 3) ethnographic interviewing, 4) lamination, and 5) review of written documents.

**Participant Observation**

The investigator participated in and observed subjects in a variety of settings with several speaking partners (Spradley, 1980). The total time spent in participant observation was 14 hours and 32 minutes. Participant observations for subjects are listed in Tables 3 and 4. The investigator's participation ranged from that of an active member of the conversation (e.g. having lunch with DC and her daughter) to that of a relatively passive observer (e.g. sitting in on a therapy session).
### Table 3.

**Participant Observations for DC.**

<table>
<thead>
<tr>
<th>Date</th>
<th>Setting</th>
<th>Partner</th>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-24-91</td>
<td>Clinic &amp; Rehab. Unit</td>
<td>Therapist</td>
<td>Therapy</td>
<td>:30</td>
</tr>
<tr>
<td>06-03-91</td>
<td>Clinic</td>
<td>Therapist</td>
<td>Therapy</td>
<td>:45</td>
</tr>
<tr>
<td>07-29-91</td>
<td>AA Offices</td>
<td>Friends</td>
<td>Visit</td>
<td>1:10</td>
</tr>
<tr>
<td>07-29-91</td>
<td>AA Offices</td>
<td>Strangers</td>
<td>Meeting</td>
<td>1:00</td>
</tr>
<tr>
<td>07-29-91</td>
<td>Car</td>
<td>Investigator</td>
<td>Driving home</td>
<td>:50</td>
</tr>
<tr>
<td>08-07-91</td>
<td>Clinic</td>
<td>Therapist</td>
<td>Therapy</td>
<td>:50</td>
</tr>
<tr>
<td>03-30-92</td>
<td>Cafeteria</td>
<td>Strangers</td>
<td>Lunch</td>
<td>:20</td>
</tr>
<tr>
<td>03-30-92</td>
<td>Cafeteria</td>
<td>Investigator</td>
<td>Visit</td>
<td>:18</td>
</tr>
<tr>
<td>06-10-92</td>
<td>Restaurant</td>
<td>Daughter</td>
<td>Lunch</td>
<td>2:43</td>
</tr>
<tr>
<td>07-22-92</td>
<td>Home &amp; Restaurant</td>
<td>Friend</td>
<td>Visit &amp; Lunch</td>
<td>2:10</td>
</tr>
<tr>
<td>07-30-92</td>
<td>Restaurant</td>
<td>Investigator</td>
<td>Lunch</td>
<td>:50</td>
</tr>
</tbody>
</table>

**Total Time**  11:26

### Table 4.

**Participant Observations for NN.**

<table>
<thead>
<tr>
<th>Date</th>
<th>Setting</th>
<th>Partner</th>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>08-04-92</td>
<td>Cafeteria</td>
<td>Investigator &amp; Strangers</td>
<td>Lunch</td>
<td>:45</td>
</tr>
<tr>
<td>08-04-92</td>
<td>Car</td>
<td>Investigator</td>
<td>Drive</td>
<td>:32</td>
</tr>
<tr>
<td>08-31-92</td>
<td>Home</td>
<td>Husband</td>
<td>Conversation</td>
<td>:34</td>
</tr>
<tr>
<td>10-09-92</td>
<td>Home</td>
<td>Investigator</td>
<td>Visit</td>
<td>:30</td>
</tr>
<tr>
<td>10-26-92</td>
<td>Home</td>
<td>Stranger</td>
<td>Conversation</td>
<td>:45</td>
</tr>
</tbody>
</table>

**Total Time**  3:06
Consistent with Spradley (1980), the investigator collected notes during and/or immediately after participant observations in the form of condensed notes which reflected the key details of the speakers, content, settings and activities. Soon afterwards, expanded notes were developed by elaborating on the condensed notes. In order to reduce personal bias, notes reflected as many details of the situation as possible, and were written in a concrete, objective rather than interpretive style. For example, instead of "the patient was pleased", the investigator observed the actual behavior as in "the patient smiled, nodded and leaned back in her chair". In addition, a journal of personal notes reflecting the investigator's feelings, ideas, experiences and mistakes was maintained in order to evaluate the perspective through which the data collection had been filtered. Finally, interpretive notes were maintained, consisting of generalizations, insights and questions for further study. A sample of condensed and expanded field notes is provided in Appendix A.

Videotaping

In addition to participant observation, communicative interactions of the subjects in several settings were videotaped for later analysis. Videorecording was completed using a battery operated Panasonic S-VHS A6450 video camera on a tripod within the setting of interest.
In order to remain unobtrusive the video camera remained in the record mode throughout an activity; that is, there was no one operating the camera during recordings, and no starting and stopping as the subjects moved about a room or new speakers entered the conversation. Informed consent was obtained for all videorecording sessions. Attempts were made to obtain samples which represented a variety of situations, speaking partners and topics. Videorecorded samples were obtained both with the investigator present for all or part of the session and with the investigator absent. The total time spend videotaping the two subjects was 8 hours and 30 minutes. Tables 5 and 6 list the videorecordings obtained for the two subjects.

All videorecorded sessions were transcribed and each turn was numbered. A sample transcript from a videorecorded segment is provided in Appendix B. A key to transcription conventions and a brief description of each videorecorded situation are provided in Appendices C and D respectively.

It will be noted that both subjects participated in spontaneous conversations with familiar and unfamiliar partners during a variety of activities. In addition, administration of the first twelve subtests of the Porch Index of Communicative Ability (Porch, 1981) and a planned "barrier activity" were videotaped. The barrier
activity required the aphasic subject to convey information about a picture not visible to the speaking partner; the speaking partner was instructed not to ask questions during the aphasic subject’s explanation (Brown, Anderson, Shillicock & Yule, 1984; Damico & Schweitzer, 1991).

Table 5.

**Videorecordings of DC.**

<table>
<thead>
<tr>
<th>Date</th>
<th>Setting</th>
<th>Partner</th>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-22-92</td>
<td>Lobby</td>
<td>Strangers</td>
<td>Waiting</td>
<td>:10</td>
</tr>
<tr>
<td>01-22-92</td>
<td>Lobby</td>
<td>Investigator</td>
<td>Waiting</td>
<td>:05</td>
</tr>
<tr>
<td>01-22-92</td>
<td>Clinic</td>
<td>Therapist</td>
<td>Sp. Therapy</td>
<td>:56</td>
</tr>
<tr>
<td>01-22-92</td>
<td>Cafeteria</td>
<td>Strangers</td>
<td>Lunch</td>
<td>:31</td>
</tr>
<tr>
<td>04-03-92</td>
<td>Home</td>
<td>Friend</td>
<td>Visit</td>
<td>:54</td>
</tr>
<tr>
<td>04-06-92</td>
<td>Clinic</td>
<td>Therapist</td>
<td>Sp. Therapy</td>
<td>:11</td>
</tr>
<tr>
<td>04-22-92</td>
<td>Cafeteria</td>
<td>Strangers</td>
<td>Coffee</td>
<td>:38</td>
</tr>
<tr>
<td>04-22-92</td>
<td>OT Clinic</td>
<td>OT</td>
<td>OT</td>
<td>:43</td>
</tr>
<tr>
<td>07-31-92</td>
<td>Clinic</td>
<td>Therapist</td>
<td>Evaluation</td>
<td>:36</td>
</tr>
<tr>
<td>07-31-92</td>
<td>Clinic</td>
<td>Stranger</td>
<td>Barrier</td>
<td>:05</td>
</tr>
<tr>
<td><strong>Total Time</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>4:49</strong></td>
</tr>
</tbody>
</table>
Table 6.

Videorecordings of NN.

<table>
<thead>
<tr>
<th>Date</th>
<th>Setting</th>
<th>Partner</th>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-12-90</td>
<td>Clinic</td>
<td>Therapist</td>
<td>Conversation</td>
<td>:21</td>
</tr>
<tr>
<td>01-08-91</td>
<td>Clinic</td>
<td>Therapist</td>
<td>Conversation</td>
<td>:05</td>
</tr>
<tr>
<td>06-28-92</td>
<td>Home</td>
<td>Friend</td>
<td>Visit</td>
<td>:05</td>
</tr>
<tr>
<td>06-20-92</td>
<td>Home</td>
<td>Husband</td>
<td>Breakfast</td>
<td>:12</td>
</tr>
<tr>
<td>06-20-92</td>
<td>Home</td>
<td>Sister</td>
<td>Visit</td>
<td>:13</td>
</tr>
<tr>
<td>06-20-92</td>
<td>Home</td>
<td>Husband</td>
<td>Conversation</td>
<td>:29</td>
</tr>
<tr>
<td>06-21-92</td>
<td>Home</td>
<td>Husband</td>
<td>Breakfast</td>
<td>:26</td>
</tr>
<tr>
<td>06-22-92</td>
<td>Home</td>
<td>Therapist</td>
<td>Conversation</td>
<td>:09</td>
</tr>
<tr>
<td>08-04-92</td>
<td>Clinic</td>
<td>Therapist</td>
<td>Evaluation</td>
<td>:33</td>
</tr>
<tr>
<td>08-04-92</td>
<td>Clinic</td>
<td>Stranger</td>
<td>Barrier</td>
<td>:18</td>
</tr>
<tr>
<td>08-04-92</td>
<td>Clinic</td>
<td>Stranger</td>
<td>Conversation</td>
<td>:23</td>
</tr>
</tbody>
</table>

Total Time 3:41

Ethnographic Interviewing

Interviews were conducted with family members, speech pathologists and "lay" people (persons unfamiliar with aphasia). Table 7 lists the ethnographic interviews which comprised a total of 13 hours and 7 minutes of interview time. The interviews were conducted to determine the perspectives of interviewees regarding the nature of aphasia, attitudes regarding communication, attitudes regarding speech-language therapy, and specific
Table 7.

**Ethnographic Interviews**

<table>
<thead>
<tr>
<th>Date</th>
<th>Interviewee</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>02-07-91</td>
<td>Therapist A</td>
<td>1:00</td>
</tr>
<tr>
<td>04-09-91</td>
<td>Family Member</td>
<td>:45</td>
</tr>
<tr>
<td>05-10-91</td>
<td>Speech Assistant</td>
<td>1:15</td>
</tr>
<tr>
<td>08-12-91</td>
<td>Family Member</td>
<td>:40</td>
</tr>
<tr>
<td>12-10-91</td>
<td>Friend of DC</td>
<td>1:15</td>
</tr>
<tr>
<td>12-12-91</td>
<td>Speech Assistant</td>
<td>1:04</td>
</tr>
<tr>
<td>12-12-91</td>
<td>Therapist B</td>
<td>1:25</td>
</tr>
<tr>
<td>07-29-92</td>
<td>Therapist B</td>
<td>1:15</td>
</tr>
<tr>
<td>07-28-92</td>
<td>Spouse of NN</td>
<td>:15</td>
</tr>
<tr>
<td>08-18-92</td>
<td>Spouse of NN</td>
<td>1:18</td>
</tr>
<tr>
<td>09-28-92</td>
<td>Therapist A</td>
<td>1:30</td>
</tr>
<tr>
<td>10-02-92</td>
<td>Stranger</td>
<td>1:25</td>
</tr>
<tr>
<td>10-26-92</td>
<td>Sister of NN</td>
<td>:36</td>
</tr>
<tr>
<td><strong>Total Time</strong></td>
<td></td>
<td><strong>13:07</strong></td>
</tr>
</tbody>
</table>

Beliefs and opinions about the subjects' use of compensatory strategies.

The speech-language pathologists working with the research subjects were asked more specific information regarding subject demographics, family support, therapy goals and procedures, their own professional training and their views about compensatory strategies used by the aphasic subjects.

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Each interview was conducted in a progressive cycle from general to specific information. It is the attempt of ethnography to avoid bias inherent in "preselecting" what is deemed important; rather, the unfolding of the interview allows the interviewee to introduce what s/he deems important. Therefore, there were no predetermined lists of questions to conduct the session in a structured direction; however, a predetermined "network" of topic areas assisted in obtaining data on potentially relevant subject areas (Milroy, 1987). Descriptive question style utilizing grand tour and mini tour formats was employed (Spradley, 1979; Westby, 1990). In general, the focus of interviews was guided by the ongoing discoveries from the data. As the data collection proceeded over time towards more focused and selective observations, more specific "structural" questions were introduced into the interviews (Spradley, 1979, 1980). All preplanned interviews were audiotaped and transcribed. Unplanned interviews (e.g. spontaneous discussion with family members) were documented as described for field notes in participant observations. A sample of an ethnographic interview transcript is provided in Appendix E.
Lamination

In addition to participant observation, videorecording and interviewing, video replay sessions were conducted to obtain perspectives from others on the data collected (see Table 8 for a listing). When an event is videotaped and replayed for any number and variety of viewers "indefinite triangulation" takes place (Cicourel, 1974). That is, the viewers provide opinions and insights on the sample allowing many perspectives on a single event. This approach, referred to as "lamination", provides additional layers of interpretation to insure greater reliability and thickness of description (Agar, 1986).

Table 8.
Lamination Sessions

<table>
<thead>
<tr>
<th>Date</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>07-29-92</td>
<td>Therapist B</td>
</tr>
<tr>
<td>09-28-92</td>
<td>Therapist A</td>
</tr>
<tr>
<td>10-02-92</td>
<td>Speech assistant</td>
</tr>
<tr>
<td>09-30-92</td>
<td>5 speech-language pathologists</td>
</tr>
<tr>
<td>10-21-92</td>
<td>3 speech-language pathologists</td>
</tr>
</tbody>
</table>

Samples of videotaped communication situations or therapy sessions which demonstrated relevant aspects of compensatory strategy use by the aphasic subjects were replayed for selected viewers either individually or in small focus groups. Segments of the tape were played,
then stopped at intervals to discuss specific features of the communication event. There were no predetermined "stop" points, rather the participants were free to choose when to stop the tape to comment. As in the ethnographic interviews, the leader progressively guided the discussion from general, open-ended discussion to more specific observations over the course of the session. For example, an early direction might be to reflect on what you see going on", while a later question might be "Do you consider this behavior a compensatory strategy?". Viewers were asked to provide examples and explain their interpretations of the events viewed. Sessions were audiotaped and transcribed.

**Documentary Evidence**

Documentary evidence was collected in the form of artifacts. Artifacts refer to objects or aspects of the physical environment such as furniture and its arrangement, props such as note pads or communication boards, or other objects which might contribute to the social communication situation, differentiate the therapy setting from other settings, or affect the attitudes of participants. These items were included in the analysis of settings. In addition, patient charts, medical reports and correspondence were examined. Finally, documentation on test results, diagnostic reports, goals and objectives, scores from treatment sessions and daily
progress notes provided another source of data to compare and contrast with reports gathered in interview and observation.

The five sources of data described above -- participant observation, videorecording, ethnographic interviewing, lamination and documentary evidence, were used to view the same behaviors from a variety of perspectives. For example, the investigator participated in a lunch visit with DC and took notes on observations immediately following. In addition, the lunch conversation was videotaped for conversational analysis. Another participant at this lunch visit served as an informant regarding her feelings and attitudes about the visit. Finally a group of speech pathologists unfamiliar with DC observed the videotape of the lunch visit and provided comments. Thus, one event was viewed from multiple perspectives. This opportunity to compare and contrast information from different sources not only insures reliability, but also enhances the authenticity of the data (Agar, 1986; Cicourel, 1974; Geertz, 1973). That is, it prevents the investigator from "seeing" only those aspects of interest dictated by personal and professional bias and simultaneously introduces a remarkable depth and richness that recreates the event through many diverse "eyes and ears".
Data Analysis

During ethnographic investigation data analysis is not separated operationally from data collection. The two are ongoing and interconnected to produce a spiraling cycle of study which moves progressively towards a central focal point -- the conclusions of the research. This integrated and cyclical evolution of data collection and data analysis forms an important conceptual basis for the methodology of ethnography. Artists sometimes relate that their works reveal themselves in the canvas, and mutate in response to colors and hues which could not have been imagined or preplanned. So the ethnographer enters a study with the conceptual notion of weaving a tapestry of data which will reveal a theory. Thus, at all times the data collection and analysis were guided by the conceptual belief that the purpose of the study was "to discover". At all times triangulation and authenticity were of paramount importance in ensuring that the discoveries actually reflected a vivid portrayal of the communication events, and that the conclusions were verified by diverse observers.

Therefore, throughout the period of data collection, ongoing examination and analysis of the data were undertaken. Early data collection and examination were oriented towards broad-based, descriptive observation (Spradley, 1980) to obtain an overview of the subjects
and their communication. Observations were conceptually guided by Hymes' (1968) "SPEAKING" taxonomy which was developed as a terminology for relating language and social life. The taxonomy includes the following components of communication: Situation, Participants, Ends (defined as goals or expected outcomes), Act sequences (form and content of what is said), Keys (tone or manner), Instrumentalities (channels), Norms (social beliefs) and Genres (categories of talk). As patterns emerged from the analysis of descriptive data, more focused observation and analysis was undertaken to concentrate on specific relevant areas of strategy use. Relevance was judged through a "domain analysis" (Spradley, 1980). Finally the cycle of collection-analysis-collection narrowed to selective observations in which contrasts and differences were sought among aspects of the domains studied. Ultimately major themes were established to help explain the behavior of strategy use in aphasia.

A modified version of Spradley’s data analysis system was conducted throughout the project. Spradley’s system includes four forms of data analysis including: 1) domain analysis, 2) taxonomic analysis, 3) componential analysis and 4) theme analysis (Spradley, 1980). The analyses were oriented towards a search for patterns in compensatory strategy use by the aphasic subjects.
Domain Analysis

From the data collected, categories of meaning or domains related to compensatory strategies were identified. "A category is an array of different objects that are treated as if they are equivalent" (Spradley, 1980, p. 88). The domain analysis was created by searching fieldnotes, transcripts and videotapes for behaviors or terms which suggested a category of relevant communicative behavior. Domains can be derived from the data itself and/or from "sensitizing concepts" derived from the literature or experience (Crago, 1988). For example, the literature suggested that "gestural systems" are compensatory strategies for many patients; thus, gesture comprised a domain for further study.

Lists of all potential categories were compiled, carefully avoiding any attempt to interpret meaning. For example, early examination of data for subject DC revealed categories of ways to communicate such as "using her hands", "writing " and repeated verbalizations such as "is me" and "is good". Another category which appeared to be an important aspect of strategy use was reasons to communicate such as "convey information" or "be friendly". Videotapes were repeatedly viewed to search for unusual or unexpected behaviors, patterns of behavior or repeated behaviors to insure inclusion of all pertinent categories.
**Taxonomic Analysis**

Examination of the categories was continued by reviewing videotapes and notes to search for similarities among the categories or patterns of occurrence which might suggest subsets within or across the domains. Throughout this analysis, new categories presented themselves as the researcher began to strip away the blinders of learned expectations.

As the categories and their attributes began to reveal themselves from the data, a definition of compensatory strategies was formulated. Thus, one focal point of the taxonomic analysis was to determine which behaviors appeared to "group" together as compensatory behaviors. In this way a taxonomy of compensatory strategies evolved from the data. Once each aspect of the taxonomy was developed, further data collection and analysis were conducted to confirm or refute preliminary conclusions. Ultimately a definition of compensatory strategy evolved. This definition provided criteria for identification of each occurrence of compensatory strategies.

As the taxonomy of compensatory strategies was developed, an exhaustive outline of attributes associated with compensatory strategies was amassed. For example, the category of speaking partner included variables of interest such as familiarity and number of speaking partners. The investigator and project supervisor each
listed the attributes of each category related to compensatory strategies, then jointly collapsed or reformatted lists to arrive at an ultimate taxonomy of variables associated with compensatory strategies. At all times the categories and their attributes were validated by re-examination of the data. Thus, throughout the analysis terms and variables were added or deleted to maintain authenticity in data analysis. In addition, further data collection was guided by the results of the ongoing analyses and questions raised.

Componential Analysis

According to Spradley (1980) componential analysis is the "systematic search for attributes (components of meaning) associated with cultural categories." (p. 131). Thus, the analysis of attributes representing the categories is designed to shed light on the meaning of the behaviors. For example, a category can be further classified by delineating presence or absence of a given attribute, or by assigning values of attributes to be analyzed. Componential analysis was conducted to more clearly define the underlying principles and recurrent patterns of behaviors in the data. Specifically the componential analysis incorporated microanalysis of videotaped interactions between the subjects and speaking partners.
Microanalysis of videotapes was conducted to obtain a detailed picture of the presence of compensatory strategies and their pattern of occurrence. This was completed using a Panasonic AG 1960 S-VHS video recorder/player, Panasonic color monitor and Panasonic AG A95 editing controller which allowed variable speed forward and backward viewing of interaction details.

The analysis included all videotaped samples. Table 9 presents the total number of speaking turns analyzed for subjects and their speaking partners. It should be noted, however, that for both subjects the results of the barrier activity and the evaluation were not computed into the total figures since these were not considered spontaneous conversational interactions. Instead the results of these situations were included when individual variables such as setting and speaking partner were considered in the analyses. Additionally, the early recovery videotapes of NN (1990 and 1991) were not included in overall analyses of compensatory strategies since NN had not acquired many of her strategies at this point in time; again, the results were used for comparison purposes when variables influencing strategy usage were considered. Therefore, although a total of 922 speaking turns for DC and 853 turns for NN were analyzed, the spontaneous conversation samples used for the general identification of compensatory strategies
represented 864 speaking turns for DC and 723 turns for NN.

Table 9.  
**Number of Speaking Turns included in Microanalysis.**

<table>
<thead>
<tr>
<th></th>
<th>DC</th>
<th>NN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject turns</td>
<td>922</td>
<td>853</td>
<td>1775</td>
</tr>
<tr>
<td>Partner turns</td>
<td>1011</td>
<td>863</td>
<td>1874</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1933</td>
<td>1716</td>
<td>3649</td>
</tr>
</tbody>
</table>

Microanalysis consisted of two investigatory phases. The first phase involved the actual identification of the compensatory strategies used by each subject. The second phase involved behavioral coding of every compensatory strategy across an array of variables believed to influence strategy usage.

**Identification of compensatory strategies.** The definition of compensatory strategy provided criteria for determining what was or was not a compensatory strategy. These "criteria" were used to identify compensatory strategies in all videotaped samples. For each subject a list of all potential compensatory strategies was devised based on the definition. Then videotapes were viewed, one turn at a time, to score each potential compensatory behavior as "meets criteria" or "does not meet criteria" to be considered a compensatory strategy. A sample of
the strategy identification form is found in Appendix F. The result was a record of all compensatory behaviors, typology relative to the criteria, their frequency, and the location in transcripts.

Coding of compensatory strategies. Upon completion of the identification phase, behavioral coding of all identified compensatory strategies was conducted. Again the categories and attributes derived from the ethnographic analysis were used to develop a coding system representing variables of interest. Six major areas were considered important to compensatory strategy practices. These included characteristics of the 1) Discourse, 2) Setting, 3) Speaking partner, 4) Topic, 5) Listener reactions and 6) Success of strategies. Within each area, subcategories believed to affect strategy use were defined and used as coding categories. Table 10 lists coding categories; Appendix G defines each coding category.

Coding was conducted in the following manner. The investigator briefly reviewed background information on the setting, subject and speaking partners to be viewed, then listened to several minutes of the conversation to obtain an overview of the style, topic, and tempo. A written transcript was available with each identified compensatory strategy highlighted. The investigator listened to one of the subject’s turns including the
speaking partner’s preceding and following turns. Each utterance could be reviewed as many times as needed. All coding categories were scored for each compensatory strategy in each turn using coding sheets (see Appendix H for example of coding sheets). A total of 1457 compensatory behaviors for DC and 1285 compensatory behaviors for NN were coded across the 38 categories resulting in 104,196 data points from the microanalysis.

Once coding was completed, the data were examined for patterns. Frequency counts were computed for all coding

Table 10.

Behavioral Coding Categories used in Microanalysis.

<table>
<thead>
<tr>
<th>Discourse Categories</th>
<th>Setting Categories</th>
<th>Topic Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech act</td>
<td>Physical factors</td>
<td>New vs. Old information</td>
</tr>
<tr>
<td>Strategy initiator</td>
<td>Formality</td>
<td>Topic introduction</td>
</tr>
<tr>
<td>Situation tempo</td>
<td>Familiarity</td>
<td>Interest of subject</td>
</tr>
<tr>
<td>Discourse key</td>
<td></td>
<td>Technicality</td>
</tr>
<tr>
<td>Goals of strategy</td>
<td># People</td>
<td>Abstractness</td>
</tr>
<tr>
<td>Spontaneity</td>
<td>Distractibility</td>
<td>Propositional complexity</td>
</tr>
<tr>
<td>Accompanying modes</td>
<td>Predictability</td>
<td>Structural complexity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Speaking Partner</th>
<th>Presence of Investigator</th>
<th>Emotional load of topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role</td>
<td>Presence of SLP</td>
<td></td>
</tr>
<tr>
<td>Relative power</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Knowledge of aphasia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort with subject</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solidarity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listener Reaction</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discourse consequences</td>
<td>Effectiveness</td>
</tr>
<tr>
<td>Mood of response</td>
<td>Efficiency</td>
</tr>
<tr>
<td></td>
<td>Appropriateness</td>
</tr>
</tbody>
</table>

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categories for each video session. In addition, frequency counts were computed within and across subcategories of interest. Proportions of total occurrences of each compensatory strategy to total turns, or total occurrences to total words were computed when appropriate.

As previously mentioned, data analysis interacted with data collection in an ongoing cycle. Thus, as the microanalysis began to reveal patterns and frequencies of compensatory strategies, other data sources were checked and new data were collected to verify or refute the unfolding discoveries.

**Coding reliability.** To ensure reliability of behavioral coding a second rater independently scored a sample of utterances in the same manner as the investigator. Utterances subjected to reliability coding were chosen as follows. One turn was randomly selected from each of eight videotaped situations. Beginning with this turn, a sequence of turns totaling approximately 10% of the session was coded by the reliability judge. The judge identified all compensatory behaviors for each turn based on the selection criteria for compensatory behaviors, then coded each compensatory behavior across all behavioral coding categories. The categories of situation tempo, predictability and mood were deleted from reliability coding and later analyses, since these
categories were found redundant with other coded categories.

A total of 189 strategies were coded by the reliability judge. A 95% point-to-point agreement was obtained between the judges for identification of compensatory strategies, and 94% overall point-to-point agreement was obtained for behavioral coding categories. Table 11 presents point-to-point reliability for each coding category. All categories achieved adequate reliability for purposes of investigation (Kazdin, 1977) with the exception of the propositional complexity category which was excluded from consideration in analysis of results.

Theme Analysis

The final stage of analysis was theme analysis. This analysis was conducted to determine the relationships among the categories and to determine the underlying principles and recurring themes which explain and summarize strategy use in the aphasic subjects. The theme analysis involved taking a holistic perspective to develop schema and relating the schema to other similar findings in aphasic behavior as a whole. Thus, the theme analysis required stepping back from the micro-level of analysis to "put the pieces back together" into an integrated picture which related to compensatory strategy use in general. Literature review, ethnographic
interviews and lamination data were particularly useful in pulling the inventory of findings into perspective to suggest universal themes.
Table 11.

Point-to-point Agreement between Two Judges for Each Coding Category.

<table>
<thead>
<tr>
<th>Discourse Categories</th>
<th>Setting Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech act</td>
<td>Physical factors</td>
</tr>
<tr>
<td>.94</td>
<td>1.00</td>
</tr>
<tr>
<td>Strategy initiator</td>
<td>Formality</td>
</tr>
<tr>
<td>.95</td>
<td>1.00</td>
</tr>
<tr>
<td>Situation tempo</td>
<td>Familiarity</td>
</tr>
<tr>
<td>NA</td>
<td>.93</td>
</tr>
<tr>
<td>Discourse key</td>
<td># People</td>
</tr>
<tr>
<td>.94</td>
<td>1.00</td>
</tr>
<tr>
<td>Goals of strategy</td>
<td>Distractibility</td>
</tr>
<tr>
<td>.89</td>
<td>.99</td>
</tr>
<tr>
<td>Spontaneity</td>
<td>Predictability</td>
</tr>
<tr>
<td>.99</td>
<td>NA</td>
</tr>
<tr>
<td>Accompanying modes</td>
<td>Investigator</td>
</tr>
<tr>
<td>.97</td>
<td>.99</td>
</tr>
<tr>
<td>Speaking Partner</td>
<td>SLP</td>
</tr>
<tr>
<td>Familiarity</td>
<td>Location</td>
</tr>
<tr>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Role</td>
<td>Topic Categories</td>
</tr>
<tr>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>New Information</td>
</tr>
<tr>
<td>1.00</td>
<td>.86</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Topic Intro.</td>
</tr>
<tr>
<td>1.00</td>
<td>.92</td>
</tr>
<tr>
<td>Gender</td>
<td>Interest</td>
</tr>
<tr>
<td>1.00</td>
<td>.86</td>
</tr>
<tr>
<td>Age</td>
<td>Technicality</td>
</tr>
<tr>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Comfort</td>
<td>Abstractness</td>
</tr>
<tr>
<td>1.00</td>
<td>.87</td>
</tr>
<tr>
<td>Occupation</td>
<td>Propositions</td>
</tr>
<tr>
<td>1.00</td>
<td>.46</td>
</tr>
<tr>
<td>Solidarity</td>
<td>Structure</td>
</tr>
<tr>
<td>.99</td>
<td>.84</td>
</tr>
<tr>
<td>Listener Reaction</td>
<td>Emotional load</td>
</tr>
<tr>
<td>Consequences</td>
<td>.91</td>
</tr>
<tr>
<td>Mood</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Chapter 4

RESULTS: COMPENSATORY STRATEGIES IN TREATMENT

The results of this investigation into compensatory strategies in aphasia will be presented in three results chapters. This chapter addresses aspects of training compensatory strategies including the attitudes and practices of speech-language pathologists and contextual influences on aphasia treatment. Chapter 5 presents specific data on compensatory strategies identified for the two subjects. Chapter 6 integrates the findings into themes consistent with use of compensatory strategies.

Professional Expectancies and Practices

In order to develop a perspective on compensatory strategy use in aphasia, the attitudes and practices of speech-language pathologists relative to compensatory strategies were investigated. The following areas were explored to build an understanding of the relationship of compensatory strategies and speech-language therapy: the speech-language pathologists’ definitions of compensatory strategies, speech-language pathologists’ expressed goals for therapy, the techniques for teaching compensatory strategies, the speech-language pathologists’ perceptions
of results, and the context for training of compensatory strategies.

There were three speech-language pathologists who treated aphasic subjects in this investigation. All three speech-language pathologists specialized in adult neuropathologies of communication. Two of the therapists had greater than ten (10) years of experience, the other had greater than five (5) years of experience with adult aphasics. All had worked in different facilities for their Clinical Fellowship Year, and all had worked in at least three different settings. All had received their training at institutions in Louisiana. All reported attendance at numerous national conferences on trends and practices in aphasia.

**Definition of Compensatory Strategy**

In order to determine the views of the speech-language pathologists regarding compensatory strategies, they were asked to describe subjects' strategies and talk about the role of compensatory strategies in therapy. The therapists were in general agreement that compensatory strategies were:

"anything that compensates for an inability to speak how they used to or get their thoughts across..."

[Lamination;10-21-92;2]
When asked to provide examples of compensatory strategies the speech-language pathologists working with the subjects suggested the following: gestures, writing, circumlocution, requesting clarification or repeats, requesting help and alternative communication devices. They were then asked to list the strategies specifically targeted in treatment for the subjects. Table 12 lists those strategies reportedly targeted in therapy for each subject. Review of artifacts including medical charts and daily speech therapy records substantiated these reports.

All of the strategies listed by the speech-language pathologists were designed to enhance the transactional aspect of communication — that is, to convey messages or content. In addition, many of the strategies trained constituted "novel" behaviors introduced into the communication situation such as writing or pointing to a word on a list. The speech-language pathologists' did not spontaneously focus on untrained or "natural" behaviors such as intonation which might compensate for linguistic deficits. Nor did they list pragmatic or interactional behaviors which control the flow of conversation in the face of speech failure.

In order to compare these findings with the beliefs of other speech-language pathologists, lamination groups were asked their views on compensatory strategies.
Table 12.

**Compensatory Strategies Targeted in Aphasia Therapy.**

<table>
<thead>
<tr>
<th>DC</th>
<th>NN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate/gesture</td>
<td>Gestural signs</td>
</tr>
<tr>
<td>Request repeats</td>
<td>Mini-computer writing</td>
</tr>
<tr>
<td>Request help</td>
<td>Communication book</td>
</tr>
<tr>
<td>Write</td>
<td>Word lists</td>
</tr>
<tr>
<td>Tactile self-cues</td>
<td>Tactile self-cues</td>
</tr>
</tbody>
</table>

Initially lamination group members listed the following examples of compensatory strategies: writing, gesture, circumlocution or substituting words, requesting repeats, drawing and communication boards. Again there was an emphasis on trained strategies to convey messages. The views of speech-language pathologists appeared consistent with an emphasis in the literature on compensations taught in therapy to convey information when traditional modes fail (e.g. Holland, 1977, 1978; LaPointe, 1985).

Interestingly as the informants watched videotapes and were asked opinions of a variety of behaviors their definitions of compensatory behaviors expanded. For example, one interviewee initially defined compensatory strategies as follows:

"To me I guess it is whenever you use a modality other than the one you normally use..like if you’re wanting to hold a verbal
conversation but you have to do something else than verbal output...anything that is other than the modality that is commonly used or that you would choose to use at that moment and you can’t for some reason so you use another modality as a way to compensate."

[Lamination;9-28-92;3]

Yet, after observing videotapes of the subjects this interviewee noted that the patient was using some naturally occurring strategies such as body language and pointing:

"and that is, I guess, a compensatory strategy. In a way I guess I don’t think of that in the same way as I guess I defined it...I mean using another modality ..."

[Lamination;9-28-92;4]

Other informants also appeared to make some distinction between the concrete, trained strategies such as writing and gestural signs, and the more natural strategies such as gaze, verbal placeholders and regulatory gestures. For example, one lamination group member was unsure if natural behaviors such as facial expression and body lean should be considered compensatory.
"It's not something I'd think of teaching somebody, that's why I'm not sure it's a compensatory strategy."

[Lamination, 9-30-92; 10]

Others described why natural behaviors had not been included in initial definitions of compensatory strategy by interviewed speech-language pathologists.

01: It just seems like part of what we all use already, you know.
02: It also doesn't draw attention to you.
03: It's not unusual.

[Lamination, 9-30-92; 3]

O: Those are more natural like we said earlier, like the leaning and the gesture (pointing) is more natural...()... people without aphasia use those things... people use body leans, facial expression, and we point when we talk and all.

[Lamination, 9-30-92; 11]

O: Well, we wouldn't think of them as a common compensatory strategy that you know, we're taught, but the PATIENT developed them as a way of (compensating).

[Lamination, 9-30-92; 18]

Only one speech-language pathologist suggested a definition at odds with the others:
"It's also an adaptation to the uh environment and how much they might rely on another person to help them out...()...its also how they might use their listeners..."

[Lamination,10-21-92,2]

This informant seemed to focus on natural adaptive strategies and the collaboration between communication partners, rather than on the strategies introduced in therapy. Interestingly, this informant had a unique perspective due to extensive study of the interactive phenomena associated with augmentative and alternative communication.

Thus, initially, most speech-language pathologists tended to view compensatory strategies as "obvious", often novel, behaviors typically taught in speech therapy. However, after detailed viewing of videotapes lamination group members suggested that there were two categories of behaviors which could be considered compensatory -- those which were trained and were overtly geared towards message transmission, and those acquired naturally that were employed to convey information and regulate interactions.

Speech-Language Pathology Goals

When asked to define their goals, speech-language pathologists interviewed generally agreed with an informant who stated:
"the goal is for them to get across the idea...communicate the idea"

[Interview, 12-12-91; 58]

Speech-language pathologists achieved this goal through restorative and facilitative means as well as teaching compensations. Moreover, several informants stressed the point that they strived for "improved" communication, not "perfect" or "normal" communication.

"One thing to remember is you don't need to get it perfect...just get something."

[Observation, 6-3-91; 9]

"My goal was to get across the idea...that if you are close and you are in context and you have a communication with someone, you DON'T have to be perfect. That's good enough. And what 'good enough' means, is when the point gets across and if the point gets across you communicated, so who cares."

[Interview, 12-12-91; 12]

However, therapists seemed to recognize that their patients were less enamored with the goal of "get the message across regardless of how".

"To US well we say 'that's great I got the idea of what you're communicating' but she (aphasic subject) might be looking at HOW to communicate it...that partially there was some
difficulty...or that it wasn't the same as before...that she wasn't able to SAY something. But if we (SLPs) think that we got SOME KIND of communication we feel that's good, you know. We might not recognize it was an alternative."

[Interview,12-12-91;9]

"I think compensatory means of communicating are very worthwhile. Now from her (the aphasic subject) perspective its not always as thrilling as it might be to me. I'm just glad if I can get the communication... ()... I think about it alot cause most people don't feel satisfied with that or they think when you're teaching them compensation they think it will be a road to verbal output."

[Interview,9-28-92;1]

Similarly another therapist described the need for "attitude adjustment" relative to accepting "less than normal" communication:

"...so there's where part of the attitude adjustment comes in...it doesn't have to be perfect."

[Interview,12-12-91;58]

There was a feeling throughout the discussions with the speech pathologists that subjects should "try" to transmit messages through any means. In fact, "giving
a communicative exchange was viewed as a failure by three informants. Aphasiology practices seem to support a similar bias in suggestions to train "go" strategies in which aphasic speakers are taught to keep on communicating in spite of breakdowns (Whitney, 1975; Holland, 1977).

Thus, the speech-language pathologists strived for communicating ideas regardless of manner. This was supported by their emphasis on teaching "message transmission" compensatory strategies such as writing and gestural signs (see Table 11). Moreover, the speech-language pathologists recognized their patients' reluctance to accept means which varied from the norm, but felt that by counseling patients and families to achieve "attitude adjustments", and through reinforcement in therapy, this reluctance would be overcome.

**Techniques for Teaching**

While all informants agreed that compensatory strategies were very important in aphasia therapy, they were vague about their approaches to incorporating compensatory strategies in therapy. They commented that they encouraged patients to use their strategies "outside" and often practiced strategies within activities such as PACE therapy. However, the techniques used to teach the strategies were often obscured in the overall therapy "package". For example:
O1: I think you just sort of incorporate it throughout your session.
O2: Yea, I would agree with that.

[I laminate, 9-28-92; 4]
"I mean they both happen at the same time (facilitation and compensation)...you know you start using one for one purpose and it helps the other."

[I laminate, 10-2-92; 1]
"I think therapists use them all the time...(we do it from the moment we lay eyes on the patient...(we don't know that we really always target them as goals that are measurable...we tend to measure the products like number of content units."

[Interview, 7-29-92; 7]

Observation of therapy sessions supported these statements. For example, one activity in DC's gestural sign training involved imitation of signs produced by the clinician as well as imitation of verbal labels for the signs. Her writing activities involved practice in writing sentences then reading them aloud. In fact, her therapist described the writing task as:
"multi-purpose...I was trying to get her to come up with words, improve her writing, syntax...so multipurpose".

[Interview,9-28-92;12].

The clinicians were clearly attempting to pursue multiple goals in the most efficient fashion. That is, they were attempting to improve or restore linguistic functions (word finding, sentence formulation) and at the same time strengthen message transmission alternatives such as writing and signing.

However, observations suggested that both therapists and aphasic patients were often confused by the goal of activities. That is, subtle attitudinal messages were transmitted by the speech-language pathologists which contradicted their stated purposes. For example, there was frequently a covert emphasis on linguistic and structural "accuracy", although the speech-language pathologists insisted that they emphasized success in "getting ideas across" rather than accuracy. The following observations demonstrate that mixed messages might be transmitted.

The instructions for a writing activity with DC were: "I'm gonna show you a picture. I want you to write as complete a sentence as possible". During the activity DC writes THE WOMAN IS FINISHING GROCERY SHOP AND TALK WITH MAN. The
SLP responds "That's good,- only have a couple of more things to add to be a totally complete sentence".

[Video,1-22-92;DC,B15]

During the same activity the SLP reminds DC:
"remember we're worried right now about the content...how many things can you tell me...not is it you know grammatically correct.."

[Video,1-22-92;DC,B17]

After the task the SLP explained the rationale for writing tasks as follows:
"when you can't get out what you want to tell her, if you could write down 5 or 6 or 7 pieces of information, even if its not a whole sentence, she'll get your message very easily, and once you write it you can say it."

[Video,1-22-92;DC,B28]

Similarly another speech-language pathologist is providing feedback during a similar writing task:
"What you did was great, but I want you to listen to the order when I read it" and then later corrects another sentence: "Well that is not perfect...it is not proper English but it gets the idea across"..."You gave me the idea but you put it in the wrong way."

[Observation,8-7-91;27]
In addition to mixed messages about accuracy versus success of message transmission, there was often an overwhelming though covert message that "verbal is first, verbal is best", even though treatment activities focused on gesture, writing or communication boards. Therapists seemed unaware that this subtle message prevailed and undermined their attempts to train nonverbal strategies.

For example:

DC's speech-language pathologist is teaching Amerind signs by having DC imitate.

SLP: Show me. Don't talk. [Pts to picture of sign].

   Eat ...Eat
   [signs EAT]

DC: aaaat
   [signs EAT]

SLP: Great, Eat. Hot...Hot
   [signs HOT]

DC: maaht
   [signs HOT]

SLP: Listen Hot [exaggerates production]
   [signs HOT]

DC: aht

SLP: Good.

[Observation, 6-3-91; 13]

The speech language pathologist provided verbal models, then ignored DC's correct "HOT" sign while correcting the speech error. The impression was that the therapist was more concerned with DC's verbal approximations, in spite of her initial caution to "Show
me. Don't talk". Likewise, during a PACE activity (Davis & Wilcox, 1981) designed to encourage multimodality communication, the following notes were taken by the investigator:

DC picks a picture (from the stack) and says 'I don't know' and laughs. She picks up a pencil to write. The SLP says 'Can you say something first?'

[Observation,8-7-91;25]

Again the emphasis appeared to be on transmitting the message in the most normal manner -- verbally. The design of activities appeared to reinforce the emphasis on verbalization as the preferred channel, and implied that nonverbal compensations were less appropriate. In fact, several speech pathologists who touted writing, gesture, communication boards and similar "novel" compensatory strategies expressed conflicting attitudes.

"...and I think when they go out in the world and you know, when you start imagining yourself doing those things...you know you were in that position and that was the only way you could communicate, how would you feel about it? Frankly I wouldn't want to do it either. Even when we go...um..you take them to a place like a restaurant, like you go on an outing to a restaurant...I'll even feel uncomfortable when
I'm trying to get them to use the things I taught them in therapy."

[Interview, 9-28-92; 2]

Perhaps understandably the speech-language pathologists have conflicting attitudes about these novel compensatory strategies. They believe in teaching them, but would not want to use them! Conceivably speech-language pathologists unwittingly transmitted negative attitudes about the very compensatory strategies that they were trying to teach.

Outcome of Compensatory Strategy Training

Speech-language pathologists were optimistic about the message transmission potential of many compensatory strategies. They incorporated compensatory strategy training into therapy and expressed a desire for carry-over of these trained strategies to natural conversation. When asked methods for promoting generalization the following techniques were presented:

"reinforce, reinforce, reinforce...that's right. If they see they're getting their message across by using a certain strategy then they'll use it again."

[Lamination, 9-30-92; 6]
"...we work on training the staff so everyone is using it with them so it is reinforced all the time. Training the family."

[9-30-92; Lamination]

There appeared to be some agreement that success in transmitting information would be reinforcing to their patients and promote generalized usage of compensatory strategies.

However, the speech-language pathologists expressed frustration at limited carry-over of many trained strategies. For example, the subjects' therapists expressed the belief that gestures could facilitate verbal expression and substitute for speech when verbal failed. Both subjects demonstrated acquisition of trained gestures within treatment activities. However, in spite of a therapeutic emphasis on gesture as a compensatory strategy, the therapists stated that their patients had failed to generalize the strategy and rarely used gesture as an effective tool to enhance communication. For example, one of DC’s therapists remarked:

I always have mixed feelings about that (teaching gestures) although I use them alot...()...I think they’re WONDERFUL. Again like I was saying I think that its a way to get across ideas relatively successfully and
relatively complicated ideas without talking, and it's a way to get around the problem and enhance your communication to the best that you can do it. But I have found in most cases people don't use them. Ya know beyond pointing and shrugging your shoulders and things you would use anyway. I don't find that people use them very much...()...I think in my own head I would do anything I could to get a point across. I would be happy to use a gesture if you understood it...but they don't use em..they just don't use em."..."I keep using (teaching) them even if they don't use them as alternatives to verbal...()...because I do think they are very successful in helping initiate verbal...()...and it shows there is more than one way of communicating."

[Interview, 9-28-92; 11]

Another therapist stated:

"She seemed to be able to do that okay (gesture) although she didn't use gestures functionally to communicate you know..."

[Interview, 7-29-92; 5]

Although the speech-language pathologists working with DC and NN felt that gesture training had not resulted in a viable compensatory strategy, the data from videotaped
conversations of both subjects suggested otherwise. For example, 343 meaningful gestures out of 864 turns were judged as compensatory strategies for DC, and 645 gestures out of 723 turns met the definition for NN. This substantial frequency of gestural communication appeared to contradict the reports of the speech-language pathologists. However, closer analysis revealed that speech-language pathologists were using a narrow definition of gestures to refer to gestural "signs" such as Amer-Ind signs that they taught in therapy. These compensatory signs were expected to substitute for spoken words when needed. Similarly, a lamination group was asked to give examples of the compensatory strategy "gestures"; they demonstrated Amer-Ind signs for: bathroom, eat, sleep, read, walk, sit, man, woman [Lamination, 9-28-92; 2].

When "gesture" was redefined as "sign production", the data aligned more closely with therapists' reports. Eight percent (8%) of DC's gestures were signs which substituted for speech, and only 1% of NN's gestures were signs. In fact, signs constituted a very small portion of their compensatory gestures. (These gestures will be described in Chapter 5). These therapists appeared justified in their pessimistic view of the viability of gestural signs as a compensatory strategy. The reasons for failure to generalize were unclear to them. Lack of
motivation or lack of support by family members had been suggested by lamination group members as possible reasons. However, both subjects expressed a strong desire to communicate and evidenced a strong support system.

Similar to the experiences with gestural signs, the speech-language pathologists were unsure of the success of graphic compensations. For example, DC's therapist reported that DC was very reluctant to use writing as a strategy; she stated that this was confirmed in conversations with DC and her daughter. However, the data from videotaped interactions suggested that DC successfully used writing when she felt it appropriate. Interestingly the format of writing training might have contributed to this mismatch between therapist reports and data. Treatment activities involved writing a message then reading the message aloud; thus, writing was trained to precede verbalization — as a facilitator. DC viewed writing as a back-up mode to resort to when talking failed. Thus, DC did not use writing preemptively to facilitate and substitute for verbal expression in the manner trained by the therapist. Since the therapist's judgement of carry-over was dependent on reports from DC and the family, this could have led to a miscommunication about how much carry-over was taking place. Perhaps the therapist's judgement that DC did not
use writing outside of therapy meant that DC did not use
writing as described by the therapist.

Similarly, NN's therapist was surprised that NN failed
to use computer communication on all videotapes outside
of speech therapy or the speech clinic. The speech-
language pathologist had reports from family members that
the computer was effective and useful; yet, videotapes,
participant observations and interviews suggested a very
specific and relatively restrained usage pattern outside
of therapy similar to the "last resort" writing repair
employed by DC.

Comparison of observation and videotape data with
reports of the speech-language pathologists suggested
that usage patterns of trained compensatory strategies
were often impossible to judge from clinical observation
and evaluation alone. Moreover, reports of family and
patients sometimes contradicted usage patterns actually
observed suggesting that reports were not adequate
substitutes for observation in a variety of situations.
Finally, therapists' optimistic expectations regarding
the message transmission potential of trained
compensatory strategies were not always rewarded with
widespread implementation by the subjects.

In summary, the speech-language pathologists favored
overt, trained "message transmission" behaviors when
asked to describe compensatory strategies. They appeared
to make a distinction between trained strategies and naturally occurring behaviors which serve to compensate for language impairments. Goals in training compensatory strategies emphasized getting ideas across through any means available. However, subtle biases towards "standard" modes of communication (i.e. structurally accurate, verbal) were often conveyed to the subjects during treatment. Finally, the speech-language pathologists expressed disappointment and frustration with poor carry-over of several of the trained compensatory strategies.

The Context of Speech-Language Therapy

Over the course of observing, videotaping and interviewing, it became increasingly apparent that the "speech-language therapy session" constituted a different context from the natural communication situations studied. While this observation was certainly not unexpected, there have been little objective or authentic data to help aphasia clinicians understand the multiple dimensions which influence aphasia therapy. Therefore, an ethnographic description of the therapy setting was undertaken in an effort to highlight potential influences on teaching and evaluating compensatory strategies in aphasia.
Physical Context

The physical context of therapy sessions was the most obvious distinction from the natural situations studied. Treatment was conducted in a quiet room which looked like an office, with participants seated across a table from each other. A desk with office materials, files and books was next to the table. On the wall were framed certificates and diplomas of the speech-language pathologist. The arrangement of furnishings and materials conveyed the impression that this was a place for "work" not "fun". As Kovarsky (1989) described in a study of speech therapy sessions "...the therapy room gave the appearance of being its own little world with its own special rules for behaving while lessons were talking place." (p. 244). Such physical differences may be significant. Physical contextual cues may well serve to mark the therapy room as different and to trigger what was learned as only appropriate to this context. In effect, the specificity of physical context in therapy may help engender selective implementation of trained behaviors.

Roles of Participants

The roles of the participants in the therapy sessions also distinguished this setting from more socially oriented communication situations. The role of the therapist was that of a "helper" and "leader". The
therapist's job was to help the aphasic patient communicate. The therapists appeared to effect this in several ways. They offered an exaggerated degree of support and positive feedback. Communication attempts by the aphasic subjects were not only "responded to", but also verbally rewarded as in "Hey that sounded great", "good going", "nice job". In addition, therapists provided a significant degree of attention and patience. For example, field notes from therapy sessions related:

"SLP is very attentive and sits close to D__.
She uses alot of humor and warmth to help her through".

[Observation,5-24-91;3]

"SLP really keeps eye contact and exaggerates intonation and hand movements. She frequently says that patient is doing well."

[Observation,6-3-91;9]

"SLP is very attentive and gives head nods and 'that's right' sorts of reinforcement. She is calm (soft spoken, slow rate) and reassuring."

[Notes on video,1/22/92]

Thus, the therapists were supportive and reinforcing, and helped their patients feel successful. In natural situations, speaking partner reactions were highly varied -- some were supportive but others were impatient or visibly uncomfortable. Rarely did speaking partners,
other than speech pathologists, provide verbal reinforcements such as "good talking".

Another difference in roles related to the control or power differential inherent in therapy sessions. At all times it was clear that the speech-language pathologist "called the shots". This asymmetrical distribution of control in the therapy session was highlighted in field notes about an interaction between DC and her therapist:

SLP is attempting to elicit words from DC by having her sing Happy Birthday. Unison production and tapping result in DC's continued singing "no no.. no no..no no" in tune. DC indicates to SLP to write the words of the song. SLP seems reluctant but proceeds to do so. They begin to sing again and DC approximates Happy Birthday. SLP says 'Wow, you be the speech therapist and teach me, you really know your stuff'. They both laugh alot at DC telling SLP what to do".

[Observation,5-24-91]

The humor appeared to rest in the participants appreciation of the incongruity of DC "directing" the activity. Similarly, Ripich and Panagos (1985) report that children in therapy perceive the therapist as "in charge' and perceive their own role as a passive one. Such interactional asymmetries have been observed
frequently in speech therapy sessions (Kovarsky, 1989; Prutting, Bagshaw, Goldstein, Juskowitz & Umen, 1978; Katz, 1990; Wilcox & Davis, 1977; Lubinski, Duchan & Weitzner-Lin, 1980). Silvast (1991) studied six conversations between aphasics and their speech therapists and found that the interactions were unequal with the therapist directing, and creating a "rigid framework". Prutting et. al. (1978) noted that clinicians tend to talk more, request known information, and evade children's efforts to introduce new topics. Remarkably, during the videotaped therapy sessions of both DC and NN, the aphasic subjects introduced NONE of the topics. Thus, as reported by others, these speech-language pathologists introduced the tasks and topics, shifted topic when deemed appropriate, provided feedback to the subjects and "manipulated" behavior to achieve therapeutic ends.

One of the therapeutic activities used with both subjects was PACE therapy (Davis & Wilcox, 1981, 1985). This treatment approach attempts to approximate more natural communication and remove the interactional asymmetry by having the therapist and patient take turns communicating information and choose their own channels. While PACE succeeded in bringing treatment closer to a natural situation, it did not overcome the interactional asymmetry. Observation of PACE activities with both
subjects suggested that neither the client nor clinician were "fooled" into accepting a truly symmetrical role. The clinician continued to point out "good ways of getting an idea across", modeling alternative channels, and providing feedback directed at the response rather than at the content such as "that was great". Additionally, the clinician continued to perform leader activities such as keeping score, introducing the lesson, providing the materials and determining the amount of time spent.

In fact although aphasia therapy has been described as a gradual shift from clinician control to client control, there was a sense throughout this study that the aphasia clinicians felt a need to remain "in control" even as they were allowing the clients to develop more independent strategies. For example, one therapist noted that even during community outings with her aphasic patients:

"It feels like I always take responsibility for everything...like if they are going to need help or be upset I need to handle it."

[Interview,2-7-91,57]

In fact, natural settings were cited as very difficult contexts for treatment because "you just lose control of everything".
Format

The format and the motivating principles of treatment were often different from natural communication. In therapy the demands on the patient and the interaction were adjusted so that the patient could achieve success. For example, the investigator made the following notes on a therapy observation:

The pace is lively but not in the way a normal interaction is. It is not like the fast pace of normal conversation. While DC is not having the halting, laboring attempts she does elsewhere, neither is she engaging in a give and take interaction.

[Notes on video, 1-22-92]

In addition, the communicative interaction itself took on a different framework from natural conversation. The typical exchange in speech therapy began with the therapist's request or question, followed by the patient's response, which was then followed by the therapist's feedback on the response. Similar findings have been reported for speech therapy sessions with children (Katz, 1990). This sequence was rarely found in natural communication. As Norris and Hoffman (1990) suggest, feedback in natural communication consists of natural contingencies such as asking for clarification or continuing to talk about the topic.
Thus, observation revealed that the context of speech therapy differed from the natural contexts sampled in the physical characteristics, the roles of the participants and the format of interactional exchanges. Within this speech therapy context, therapists taught and reinforced compensatory strategies which were designed to help the aphasic subjects convey messages whenever and wherever needed. However, the speech-language pathologists expressed disappointment with their aphasic patients' use of several trained strategies outside of treatment.
Chapter 5

RESULTS: TAXONOMY OF COMPENSATORY STRATEGIES

This chapter presents data on the actual compensatory strategies utilized by the aphasic subjects. First the definition of compensatory strategy derived from the data will be discussed, and a brief introduction to the actual compensatory strategies used by the subjects will be presented. Next, the purposes or goals of compensatory strategies of these two subjects will be defined. Finally, actual frequencies, patterns of occurrence and data analysis results of each subject's unique array of compensatory strategies will be presented.

Definition of Compensatory Strategy

Based on the data collected and analyzed, compensatory strategy was defined as a new or expanded communication behavior which is used to overcome a communication barrier in an effort to meet communication goals. Compensatory strategies represent systematic, goal oriented behaviors. The behaviors are purposeful and appear in a recurring pattern. To be considered new or expanded communicative behaviors, the compensatory strategies possessed one or more of the following
attributes: 1) the quantity or frequency of occurrence of the behavior exceeds premorbid or expected usage, 2) the quality of the behavior is such that it is used in an exaggerated manner compared to premorbid or expected usage, 3) the behavior is novel, that is, it was not present in the premorbid or normal interactive communication system, or 4) the behavior is a recasting of a premorbid or normal conversation behavior; that is, it is used for a different purpose than premorbid or expected usage.

For example, NN used the words "nice" and "really" far more often than one might expect; both her husband and son remarked on her frequent use of these words, and their increased frequency relative to premorbid usage. Frequency counts from the video samples verified subjective impressions that "nice" and "really" appeared very often. The behavior clearly met the quantity criterion for compensatory strategy. Similar analyses were conducted for behaviors which appeared to meet the quality, novelty and recasting criteria for compensatory strategies. For example, DC employed an exaggerated combination of gaze and body position to solicit help from her speaking partner during word retrieval failures; this "request for help" strategy satisfied the quality criterion of compensatory strategies since it involved an exaggeration of normal behavior. NN used the phrase "all
the time" on many occasions to express magnitude; the phrase not only referred to time, but also to amount, size or number. Therefore, this phrase was considered recast to perform another function in NN's discourse. Finally, DC used writing during conversational interactions to convey information. Since writing is not a typical aspect of spontaneous conversation, this was considered a novel compensatory strategy. Thus, behaviors were evaluated to determine if they fulfilled the quality, quantity, novelty or recasting criteria of compensatory strategies.

Behaviors not considered in the identification of compensatory strategies were 1) behaviors which were considered an inherent aspect of the aphasic disorder based on the literature (e.g. groping for words, dysfluency), 2) behaviors which were used in a normal or expected manner, or 3) behaviors which could not be identified from direct observation (e.g. subvocal rehearsal, visual imagery).

Not only was a behavior required to pass the "criteria" test, the potential strategy had to be systematic, achieve a communicative function and overcome communication barriers. Thus, each potential strategy was put to this test. The behaviors which satisfied the definition and were classified as compensatory strategies for each subject are listed in Tables 13 and 14. In
addition the typology of each compensatory strategy relative to the quantity, quality, novelty or recasting criteria is identified in these tables.

It will be noted that both subjects utilized a unique variety of strategies. Moreover, the typology of strategies was peculiar to each subject. For example, NN used a variety of gestures as compensatory strategies. Compared to her premorbid communicative patterns, gesture frequency and quality were exaggerated. In addition, she used several natural gestures, such as pointing, for new purposes such as holding her turn. Finally, she introduced into her communicative repertoire a few novel gestures such as Amer-Ind signs (Skelly, 1979). Thus, gestures used by NN to enhance her communication could variously be classified within the quantity, quality, novelty and recasting criteria. Further explanation of each of these compensatory strategies will be forthcoming.

**Purpose of Compensatory Strategies**

The overall function of compensatory strategies was to overcome communication barriers imposed by aphasia. In order to fulfill this overall purpose there appeared to be several functions to which compensatory strategies were applied. First, many strategies were used to convey
<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
<th>Quality</th>
<th>Recasting</th>
<th>Novelty</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Is’</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>‘Isy’</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘Is me’</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>‘Is good’</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>‘I don’t know’</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Slow down</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Request for repeats</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gaze requests</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Giving up</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Gesture</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Writing</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Contextualization cues</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Reiterative utterances</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Serialization</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Contrast utterances</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Tactile self-cue</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Table 14.  

Typology of Compensatory Strategies for NN.

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
<th>Quality</th>
<th>Recasting</th>
<th>Novelty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reiterative Yes/No</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>'Really/Nice'</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gestures</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'All the time'</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contextualization cues</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Computer/writing</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Communication book</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

information. This transactional aspect of compensatory strategy was often operative for DC. For example, when verbal production failed, DC sometimes used writing to transmit the message -- to overcome the barrier imposed by verbal failure.

A second function of compensatory strategies was to display feeling. For example, NN often used gestural and nonverbal affective displays to augment her unintelligible verbalizations in an effort to convey the affective intent of the utterance even though the information content was unclear.

A third function of compensatory strategies was to regulate interaction. Both subjects used numerous strategies to control the interaction or regulate the exchange. This interactional function of compensatory
strategies was dominant for NN. For example, because of limited verbal abilities, she resorted to exaggerated gestures to hold her turn and signal the listener to wait and attend to her coming utterance.

In addition to these functions, compensatory strategies often repaired breakdowns in communication. This function might be considered an aspect of the transactional goal described above since repair strategies involved conveying information after a transactional failure had occurred in the interaction. For example, when NN produced an unintelligible utterance and the listener signaled failure to comprehend, she would often resort to a repair strategy of typing the message on her mini-computer.

Finally, there were behaviors designed to facilitate verbalizations or self cue to retrieve spoken words. For example, DC used a tactile self-cue to aid her in producing target words. These self generated cues straddle the line between compensation and facilitation since they simultaneously facilitate a verbal response and convey information to the listener. Since facilitative behaviors are employed independently as self cues and are mentioned frequently in the aphasia literature, facilitation was included conceptually as a function of compensatory strategies. However, since the
behaviors were rarely observed for either patient, the category is not included in summary tables.

Tables 15 and 16 present each of the subject's strategies and their communicative functions. Obviously most of these communicative functions are not unique to compensatory strategies. Rather they comprise the major goals of communication -- to convey information, display feeling, regulate social interaction and repair communication breakdowns. The features which distinguish compensatory strategies are 1) the fact that compensatory strategies serve to overcome barriers caused by aphaic breakdown, and 2) the fact that compensatory strategies are new or expanded behaviors adhering to the quantity, quality, novelty and recasting criteria described above, and 3) the fact that compensatory strategies fulfill one or more of the communicative functions described above.

Frequency of Compensatory Strategies

Based on the ethnographic data, a total of twenty-five (25) compensatory strategies were identified for the two subjects. DC used seventeen (17) separate compensatory strategies. NN used eight (8) separate compensatory strategies. DC's 17 strategies represented 1457 individual compensatory strategy occurrences during the 922 turns of the videotaped samples studied. NN employed
<table>
<thead>
<tr>
<th>Communicative Functions of DC's Compensatory Strategies.</th>
<th>Transmit Info.</th>
<th>Display Feeling</th>
<th>Regulate Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Is'</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>'Isy'</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>'Is me'</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>'Is good'</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>'I don't know'</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>Slow down</td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Request for repeats</td>
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<td>X</td>
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<tr>
<td>Gaze requests</td>
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<td></td>
<td>X</td>
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<tr>
<td>Avoidance</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Giving up</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Gesture</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Writing</td>
<td>X</td>
<td></td>
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<tr>
<td>Contextualization cues</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Reiterative utterances</td>
<td>X</td>
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<tr>
<td>Serialization</td>
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<tr>
<td>Contrast utterance</td>
<td>X</td>
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<tr>
<td>Tactile self-cue</td>
<td></td>
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<td>X</td>
</tr>
</tbody>
</table>
Table 16.  

**Communicative Functions of NN's Compensatory Strategies.**

<table>
<thead>
<tr>
<th></th>
<th>Transmit Info.</th>
<th>Display Feeling</th>
<th>Regulate</th>
<th>Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reiterative Yes/No</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>'Really/nice'</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gestures</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Avoidance</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>'All the time'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contextualization cues</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Computer writing</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication book</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

1285 individual compensatory strategies over her 853 turns studied. The number of individual compensatory strategies employed per turn ranged from none (0) to ten (10). These "total" occurrences include the barrier activity and evaluation situations, as well as the two early videotapes of NN. However, for purposes of general analysis of compensatory strategies the barrier, evaluation, and early recovery tapes were excluded since these could not be equated with the spontaneous samples across all dimensions. Therefore, only 864 turns (1431 strategies) for DC and 723 turns (1177 strategies) for NN are included in general statistics. A list of compensatory strategies, the frequency of occurrence of the identified compensatory strategies and the proportion...
of each to the total number of turns for each subject is represented in Tables 17 and 18.

As clearly evidenced in these tables, the frequency of compensatory strategy use is widely varied, with some strategies appearing often and others appearing very rarely. It should be noted that several compensatory strategies do not include frequency counts. Quantification of these strategies was considered beyond the scope of this project; rather, the strategies were identified qualitatively with supportive evidence gathered during ethnographic interviews and participant observations. For example "avoidance" was a compensatory strategy for both subjects. By definition this strategy involved "avoiding" interaction or contact with others. Adequate sampling of this behavior would have required full time video monitoring. Instead triangulated impressions were sought from others to verify the occurrence and function of these behaviors.

Description of DC Compensatory Strategies

The following discussions will focus on the results of the data analyses of each subjects' individual compensatory strategies. While quantitative data will be
Table 17.

**Frequency Distribution of DC's Compensatory Strategies over 864 Turns.**

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Frequency</th>
<th>Proportion of total turns</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Is' runs</td>
<td>434</td>
<td>.50</td>
</tr>
<tr>
<td>'Isy'</td>
<td>222</td>
<td>.26</td>
</tr>
<tr>
<td>'Is me'</td>
<td>44</td>
<td>.05</td>
</tr>
<tr>
<td>'Is good'</td>
<td>83</td>
<td>.10</td>
</tr>
<tr>
<td>'I don't know'</td>
<td>186</td>
<td>.22</td>
</tr>
<tr>
<td>Slow down</td>
<td>4</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Request repeat</td>
<td>46</td>
<td>.05</td>
</tr>
<tr>
<td>Request help</td>
<td>28</td>
<td>.03</td>
</tr>
<tr>
<td>Give up</td>
<td>6</td>
<td>.01</td>
</tr>
<tr>
<td>Gesture</td>
<td>343</td>
<td>.40</td>
</tr>
<tr>
<td>Writing</td>
<td>16</td>
<td>.02</td>
</tr>
<tr>
<td>Reiteration</td>
<td>10</td>
<td>.01</td>
</tr>
<tr>
<td>Circumlocution</td>
<td>2</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Serialization</td>
<td>5</td>
<td>.01</td>
</tr>
<tr>
<td>Tactile cue</td>
<td>2</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Avoidance</td>
<td>Not counted</td>
<td></td>
</tr>
<tr>
<td>Context cues</td>
<td>Not counted</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,431</strong></td>
<td></td>
</tr>
</tbody>
</table>
Table 18.

Frequency Distribution of NN’s Compensatory Strategies over 723 Turns.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Frequency</th>
<th>Proportion of total turns</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Yes/No' runs</td>
<td>239</td>
<td>.33</td>
</tr>
<tr>
<td>'Really/Nice'</td>
<td>210</td>
<td>.29</td>
</tr>
<tr>
<td>'All the time'</td>
<td>46</td>
<td>.06</td>
</tr>
<tr>
<td>Computer</td>
<td>37</td>
<td>.05</td>
</tr>
<tr>
<td>Gesture</td>
<td>645</td>
<td>.89</td>
</tr>
<tr>
<td>Comm. Book</td>
<td>0</td>
<td>.00</td>
</tr>
<tr>
<td>Context cue</td>
<td>Not counted</td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>Not counted</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,177</td>
<td></td>
</tr>
</tbody>
</table>

drawn exclusively from the video microanalyses, supporting evidence will be presented from interviews, video lamination reviews and participant observations. The results will be presented separately for each subject. Later discussion will integrate the findings in the pursuit of underlying themes.

As noted above DC used seventeen (17) identified compensatory strategies during the time period studied. Several of these were repeated utterances which might have been considered a form of meaningless stereotype or automatism if in-depth analysis had not revealed their pattern and purpose. The repeated utterances included ‘is’, ‘isy’, ‘is me’, ‘is good’ and ‘I don’t know’.
These "stereotypic" or automatic verbalizations were investigated to determine if there was a systematic pattern of occurrence and functional significance.

'Is' as a Compensatory Strategy

Throughout conversations with DC the utterance 'is' occurred quite frequently. This utterance was pronounced fluently and invariably as [Is] with a voiceless sibilant (not to be confused with the orthographically similar auxiliary verb). There were 569 individual instances of 'is' during the 864 videotaped turns submitted to analysis. Often 'is' occurred reiteratively such as "is is is coffee". There were 434 of these runs of 'is' during the 864 turns. A run was defined as an occurrence of one or more 'is'. In other words, "is is is coffee" was counted as three (3) individual occurrences, or one (1) run. The frequency of occurrence of this word suggested that it was either a purposeful strategy employing a novel utterance, or a meaningless, perseverative stereotype which DC could not inhibit. Therefore, further analysis was required to determine if a systematic pattern and purpose could be gleaned.

Scrutiny of the data revealed that 'is' typically introduced the important content of the utterance. 'Is' initiated thoughts or pieces of information within the discourse, appearing before content words such as "is old..is boy". In order to explore this observation a

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count was undertaken of the number of instances in which 'is' introduced content.

The number of runs of 'is' preceding each of the following content items were summed: nouns or noun phrases, verbs or verb phrases, adjectives, adverbs, any of the preceding classes written, and meaningful gestures. Occurrences of 'is' preceding 'me' and 'good' were not included since these are included in the analysis of the phrases 'is me' and 'is good' as units which will be discussed in a later section. Table 19 presents the frequencies of 'is' by word class compared to the total runs (434) of 'is'.

The data support the suggestion that 'is' usually introduced content items during DC's turns. Clearly 90% of the 'is' runs initiated a piece of substantive information. Interestingly, the 10% of 'is' occurrences not accounted for were largely characterized by utterance failures (DC initiated an utterance with 'is' then failed to retrieve the targeted word and gave up), interruptions by the speaking partner, and unintelligible responses which could not be analyzed. In reviewing videotapes, lamination group members noted this unique occurrence of 'is', remarking that DC used 'is':

"when she's gonna have to do something in the conversation volitionally" versus "with those
spontaneous things -- when she just throws
something in, she's not using it ..."

[Lamination,9-30-92;16].

For example, there were no instances of 'is' preceding
greetings or yes/no responses. This further supports the
contention that 'is' served to introduce content words or
substantive information.

Table 19.

Occurrence Pattern of 'Is'

<table>
<thead>
<tr>
<th>Utterance</th>
<th>Frequency</th>
<th>Proportion of total runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>is + Noun</td>
<td>221</td>
<td>.51</td>
</tr>
<tr>
<td>is + Verb</td>
<td>61</td>
<td>.14</td>
</tr>
<tr>
<td>is + Adjective</td>
<td>48</td>
<td>.11</td>
</tr>
<tr>
<td>is + Adverb</td>
<td>7</td>
<td>.02</td>
</tr>
<tr>
<td>is + Writing</td>
<td>8</td>
<td>.02</td>
</tr>
<tr>
<td>is + Gesture</td>
<td>46</td>
<td>.10</td>
</tr>
<tr>
<td>Subtotal</td>
<td>391</td>
<td>.90</td>
</tr>
<tr>
<td>is + Misc.</td>
<td>43</td>
<td>.10</td>
</tr>
<tr>
<td>Total</td>
<td>434</td>
<td></td>
</tr>
</tbody>
</table>

Furthermore, 'is' frequently initiated not only verbal
content (e.g. "is is coffee?") but also gestural content
(e.g. "is is [points to ear]") and written content (e.g.
"is is [writes noon]"). This finding also supports the
view that 'is' initiates information -- not merely VERBAL
content.
Thus, 'is' exhibits a unique pattern of occurrence. Study of this pattern in context reveals the purposeful nature of this compensatory strategy. For example, the following interchange demonstrates DC's use of 'is' to highlight and "point out" her gestural information to the speaking partner.

DC's friend is telling me that she doesn't try to force DC to talk during their visits; DC agrees and proceeds to explain how her friend helps her communicate.

Is is good ______, help me isy,

[pretends to write] [points to self] is____isy, is is__________.

(points to friend) (pretends to write)

[Video,4-3-92;DC-D19;169]

This passage, which might be interpreted something like "writing is good; it helps me; I can write with my friend", demonstrates the function of 'is' in DC's discourse. 'Is' held DC's turn, and kept her active in the verbal channel while gesture carried the weight of meaning transmission. More importantly, 'is' served to alert the listener to coming information. Since gesture is silent, 'is' appeared to say "look/listen...here comes the information" like an auditory signal which ignites and tunes in the listener's communication system. This function of 'is' was upheld by lamination group members
who noted that DC used 'is' to call attention to the fact that she was conveying a message:

"she's using that to let you know there is something coming."

[Lamination,9-30-92;14,17].

Another participant suggested:

"they don't seem like they're helpin her get the words she wants..but it signals to you she's still trying to say what she wants to say."

[Lamination,9-30-92;8].

Thus, 'is' serves a definite function in alerting the listener to expect information transmission.

While this function seemed quite clear, it was important to refute the possibility that 'is' served as a verbal facilitator or verbal prime to help her retrieve target words. A lamination group member noted during the video review that 'is' preceded writing; the purpose was not to get her started but to alert the speaking partners that she had a message to convey:

"So she didn't use it to verbally get started but she had to call attention to herself to show them (the written message)"

[Lamination,9-30-92;14].

During the videotaped sessions DC used 'is' on 50 occasions with no immediate attempt to verbalize. The
fact that DC frequently used 'is' with no observable attempt to speak tends to dispute the possibility that 'is' served as a verbal facilitator or articulatory starter to aid word production.

Finally, 'is' occurred in positions which would not concur with the contention that it is an "out of control" misarticulated copula or auxiliary verb. For example, 'is' not only occurred before written and gestured information, but also it occurred before the subject, verb and object of propositions as in "is man..is sleep ...is bed". Moreover, DC had notable difficulty producing the verb form "is" during therapy tasks directed at sentence formulation.

Clearly the consistent pattern indicated that 'is' served a purpose in DC's otherwise sparse and telegraphic discourse. The following exchange further demonstrates the role of 'is' in introducing information.

DC and I are discussing the fact that she has a "fasting blood test" early in the morning; therefore, she eats a late breakfast in the cafeteria.

I: So before that you can't eat?
D: No...isy. Is here...eat. Is now...eat.

[pts down]

[Video, 4/22/92; DC, F2; 20]

Obviously 'is' carries no information itself; rather it serves a regulatory function as a place holder and more importantly, to accentuate or highlight what will follow. This accentuating role is a form of interactional deixis such that the 'is' actually functions as a discourse "pointer" to alert the listener to what follows.

Thus, the accumulated data suggest 'is' as a compensatory strategy with a regulatory function in DC's discourse -- to simultaneously hold her place and focus attention on the coming content. As a lamination group member noted:

"it is her way of being the initiator...the controller...the communicator."

[Lamination, 9-30-92; 15].

In order to further explore patterns and variations in compensatory strategy use, 'is' was analyzed relative to the spontaneous speaking situations videotaped; in addition, the barrier activity and the evaluation situation were included for purposes of comparison. For each situation the number of individual productions of 'is' was compared to the total word count for that situation to arrive at a proportion of 'is' to total word
forms by situation. Table 20 presents the data on individual occurrences of 'is' compared to total word counts by situation. Figure 1 graphically presents this data for visual comparison across situations.

Review of the data suggests that five (5) settings distinguish themselves as lower in the number of occurrences of 'is' compared to total words produced by DC. These settings included the lobby conversation (A), traditional speech therapy session (B), the occupational therapy session (G) and the two evaluation sessions (H and I). 'Is' represented only 12%, 7%, 11%, 10% and 10% of total words in these settings respectively. This might be contrasted with the highest occurrences of 'is' which included the home setting (D) and the two cafeteria settings (C and F) in which DC produced 'is' at a rate of 22%, 28% and 26% of her words.

Settings D, C and F represented completely spontaneous situations revolving around purely social communication. Conversations C and F took place in the hospital cafeteria over lunch or coffee. The situations were considered informal and familiar to DC. Situation D was an informal visit to DC’s home by a close friend.
In contrast situations B, G, H and I represented less spontaneous atmospheres in which the goal was work rather than social affiliation. Setting B was a "typical" speech therapy session; setting G was a typical occupational therapy; setting H was a barrier activity contrived to force DC to convey new information to a speaking partner, and session I recorded a standardized test administration. All four of these sessions represented a moderate degree of situational formality.

In the therapy and testing settings the "power" differential rested on the side of the therapists placing DC in a "lower" position relative to control of the

Table 20.
Frequency of 'Is' by Situation.

<table>
<thead>
<tr>
<th>Setting</th>
<th>'Is' Frequency</th>
<th># Word Forms</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobby (A)</td>
<td>35</td>
<td>290</td>
<td>.12</td>
</tr>
<tr>
<td>Therapy (B)</td>
<td>38</td>
<td>533</td>
<td>.07</td>
</tr>
<tr>
<td>Cafeteria (C)</td>
<td>62</td>
<td>222</td>
<td>.28</td>
</tr>
<tr>
<td>Home (D)</td>
<td>196</td>
<td>880</td>
<td>.22</td>
</tr>
<tr>
<td>Therapy (E)</td>
<td>33</td>
<td>183</td>
<td>.18</td>
</tr>
<tr>
<td>Cafeteria (F)</td>
<td>179</td>
<td>690</td>
<td>.26</td>
</tr>
<tr>
<td>OT (G)</td>
<td>26</td>
<td>241</td>
<td>.11</td>
</tr>
<tr>
<td>Barrier (H)</td>
<td>5</td>
<td>49</td>
<td>.10</td>
</tr>
<tr>
<td>PICA (I)</td>
<td>7</td>
<td>70</td>
<td>.10</td>
</tr>
<tr>
<td>Total</td>
<td>581</td>
<td>3158</td>
<td>.18</td>
</tr>
</tbody>
</table>
Figure 1. 'Is' by situation: Proportion to DC's Words.
interaction. In all situations the speaking partners had experience and training in aphasia.

More importantly, the two therapy sessions concentrated on activities which might be considered task-oriented. For example, speech therapy and occupational therapy both focused on work rather than social communication suggesting that the discourse might be altered to reflect this less natural, less spontaneous climate. In fact, Kovarsky (1989) found an asymmetric distribution of discourse devices to regulate interaction in therapy situations with school aged children. The therapist rather than the children utilized most of the discourse devices studied. He concluded that this was due in part to the regulatory function of discourse markers. Since the speech pathologist is responsible for managing the "floor" and introducing new topics during therapy, s/he is more likely to employ devices which signal a shift in ideas. Since DC's use of 'is' signals the exchange of information, it is not surprising that the numbers are lower in treatment where much of the information is known to or introduced by the therapist, or is apparent in the physical context (e.g. stimulus cards). This is vividly confirmed in data on topic content for 'is' turns. In setting B conversation, DC used only 12% new information; in setting G she provided 42% new information. Contrasting these therapy
situations with the highest occurrence settings, it is found that DC used 60% new information in the cafeteria conversation F and 64% new information in cafeteria setting C. As expected, in those conversational settings in which DC was imparting new or unexpected information to the speaking partner, she was more likely to use the discourse device 'is'.

The barrier activity (H) and the Porch Index of Communicative Ability (PICA, Porch, 1981) (I) do not represent natural, spontaneous conversations. The barrier activity required DC to communicate the contents of pictures hidden from the speaking partner. While much of this was new information, the situation lacked the "interactive" style typical of the spontaneous conversations. DC's style indicated that she approached the barrier task and the test situation as "work" rather than as a conversation. Thus, one would expect fewer occurrences of conversational strategies employed to regulate social interaction.

Setting A took place in a hospital lobby where others engaged DC in conversation. While the situation was considered social, DC was not entirely comfortable conversing with strangers. She interacted politely, but gave up easily when she had difficulty conveying information. She maintained a relatively passive role through most of the lobby conversation. For example, DC
initiated only 20% of new topics during these conversations. The lower occurrence rate of 'is' reflected this circumscribed role.

Setting E is interesting in its unusual character. This situation began as a typical speech therapy session but quickly escalated into an argument between DC and her therapist which spanned most of the videotape. Therefore, setting E captured both the structured work characteristic of treatment and a highly spontaneous conversation. Therefore, it was not surprising that the rate of 'is' production fell in the middle range relative to other situations.

It is notable that the variation observed across settings and speakers suggests that DC shifted her use of the compensatory strategy 'is' to match the situation and listener. The finding that this strategy varied systematically across settings and speakers further supports its role as a compensatory strategy to regulate discourse.

'Isty' as a Compensatory Strategy

While analyzing the compensatory strategy 'is', the utterance 'isy' was noted on numerous occasions during DC's discourse. This utterance, pronounced [Isi] with a stressed second syllable, was produced fluently. A frequency count showed that 'isy' occurred 222 times out of the total 864 turns studied. Unlike 'is', 'isy' tended
not to occur in runs; thus, the frequency count of runs was only 213.

Again the question of whether this was a goal oriented, systematic strategy versus a meaningless, perseverative utterance was raised. Observation suggested that 'isy' tended to occur after content words or appeared to terminate a thought unit as in the following example:

O: Um.. when you eat dinner or breakfast or anything, where's your hand?
D: Is ______ is think isy.

[pts to hand] [pts to head]
Is is take..is table isy.
Is knee isy.

[Video,4-22-92;DC,G7;42]

Like 'is', 'isy' carried no substantive information; rather, it served to signal the end of a thought or form the terminal juncture for a proposition. Lamination group members supported this observation. For example one informant remarked:

"isy isy isy...its like we use 'you know'.
We'll say something and we'll 'you know' or we'll say something and we'll 'you see'... A way of...a termination kind of thing"

[Lamination,10-21-92;7].
The intonation contours of 'isy' productions also confirmed this terminal function. 'Isy' production was characterized by a falling intonation contour such as found at the end of an utterance.

As described for 'is' a pattern was detected by analyzing the place of occurrence of 'isy'. An analysis of the number of times 'isy' followed substantive content was undertaken and compared to the total number of 'isy' runs. In addition the number of times 'isy' followed DC's utterance of "yes", "no" or "I don't know" was analyzed since this appeared to reflect a common usage pattern. Finally, miscellaneous or uninterpretable occurrences were tabulated. The frequency of 'isy' and proportion to total 'isy' runs (213) relative to categories of discourse content is presented in Table 21.

A total of 92% of the 'isy' runs followed either content words (61%), or 'yes/no/I don't know' (31%). Only 8% of 'isy' runs were placed in the miscellaneous category. Miscellaneous occurrences included two isolated instances of 'isy', two instances of 'isy' following an uninterpretable or unintelligible response, and thirteen 'isys' at the beginning of a speaking turn. It was notable that 61% of 'isys' followed clear "content" items -- a noun, verb, adjective, adverb, gesture or written word. Furthermore, 31% of these markers followed 'yes/no' or 'I don't know' expressions.
Table 21.

Occurrence Pattern of 'isy'.

<table>
<thead>
<tr>
<th>Utterance</th>
<th>Frequency</th>
<th>Proportion of total runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noun + isy</td>
<td>64</td>
<td>.30</td>
</tr>
<tr>
<td>Verb + isy</td>
<td>24</td>
<td>.11</td>
</tr>
<tr>
<td>Adjective + isy</td>
<td>19</td>
<td>.09</td>
</tr>
<tr>
<td>Adverb + isy</td>
<td>2</td>
<td>.01</td>
</tr>
<tr>
<td>Writing + isy</td>
<td>4</td>
<td>.02</td>
</tr>
<tr>
<td>Gesture + isy</td>
<td>17</td>
<td>.08</td>
</tr>
<tr>
<td>Subtotal</td>
<td>130</td>
<td>.61</td>
</tr>
<tr>
<td>Yes/No + isy</td>
<td>39</td>
<td>.18</td>
</tr>
<tr>
<td>I don't know + isy</td>
<td>27</td>
<td>.13</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>17</td>
<td>.08</td>
</tr>
<tr>
<td>Total</td>
<td>213</td>
<td></td>
</tr>
</tbody>
</table>

This was consistent with the identified role of 'isy'. Frequently 'yes', 'no' or 'I don't know' followed by 'isy' served to shift from one idea to another. In such situations 'yes', 'no' or 'I don't know' might be considered "opinion content" allowing DC to confirm, deny or opt out of agreeing with the speaking partner, then proceed on to her contribution to the topic. Following are examples.

O: How many times a week you go to OT?
DC: Two
O: How many times a week you goin to PT?
DC: Two
O: Two too? heh!
DC: Yea, isy. Here three.

[Video,1-22-92;DC,B5;30]

O: Is it helping any?
DC: yea isy. I don’t know here is four week.

[pointing to leg]

[Video,1-22-92;DC,A1;3]

In both examples, ‘isy’ indicated a shift. While ‘isy’ often marked the end of a speaking turn or proposition, these examples clearly demonstrate that ‘isy’ also played a role in terminating ideas of the previous speaking partners turn while simultaneously shifting frame of reference to DC’s own ideas.

Analysis of ‘isy’ across situations showed little variation in its frequency of occurrence. Figure 2 presents the proportion of ‘isy’ productions to words uttered for each situation. The relative stability of ‘isy’ is notable. This lower and more stable occurrence rate is expected since ‘isy’, unlike ‘is’, is not a placeholder within DC’s discourse. Interestingly, the evaluation situations (H,I) demonstrated no examples of ‘isy’. Apparently removal of the interactive, social functions of communication resulted in reduction of a compensatory strategy designed for interactive discourse.
Figure 2. 'Isy' by Situation: Proportion to DC's Words.
Based on analysis of videotaped samples, 'isy' demonstrated a clear function in discourse organization. The frequently occurring discourse device signaled a terminal juncture or shift in orientation during DC's discourse and helped the listener recognize units of information during the unfolding conversation.

'Is me' as a Compensatory Strategy

In addition to the repeated occurrence of 'is' and 'isy' in DC's communication, several other phrases surfaced repeatedly in an unvarying and fluently articulated form. These phrases were 'is me' [Is mi], 'is good' [Is gUd] and 'I don't know'. The first two phrases, 'is me' and 'is good' could represent a combination of the discourse marker 'is' and the pronoun 'me' or adjective 'good'; however, the phrases appeared invariably as a single unit. They were produced as a single breath unit without intervening verbalization and demonstrated a functional organization as a unit. The fact that the two co-occurred repeatedly and purposefully suggested that the utterances had fossilized into a unit, and should be analyzed as such.

The phrase 'is me' was found 44 times during DC's 864 turns. In 59% of the instances 'is me' was paired with pointing to herself. The phrase served primarily to topicalize DC within the discourse. Two examples of the use of this utterance follow:
O: Have you lived in New Orleans all your life?

DC: No...is me...is is German.

[Video, 1-22-92; DC, A3; 16]

DC: Is is is I don know isy. Is ladies is talk...is is me I don know...is I don know.

[points to self] [points to ear]

[Video, 4-22-92; DC, F10; 98]

In both samples DC uses 'is me' to stage herself within the discourse. In the first sample she seems to be saying "I am German". In the second sample she seems to be saying something like "I don't understand what the ladies are saying; there is something wrong with me". Frequently DC uses 'is me' to attribute the cause of something to herself or take blame, almost as an apology -- an aphasic version of "mea culpa". There is a sense that 'is me' carries with it a vague notion of "it is my fault" "I can't help it", "I am sick". A lamination group member stated:

"I think she says that to indicate that she has aphasia or that she has a problem...like saying 'its me its me its my problem'"

[Lamination, 9-30-92; 13].

Similarly DC's speech pathologist mimicked "is me, is me, I don't know, I don't know, is me" when first asked to describe DC's speech. After questioning, the speech
pathologist elaborated that DC often used the 'is me' as a "woe is me" saying after failing to repair a communication breakdown or failing to understand [Interview 1-22-92]. Such "disclaimers" have been observed frequently among normal speakers to excuse themselves from performing adequately (Coupland, Coupland, Giles & Henwood, 1988).

The success of 'is me' as a topicalizer is difficult to evaluate. However, an analysis of listeners' discourse responses to DC's 'is me' turns showed that only 44% of these responses were "sustaining"; that is, the listener continued or sustained the topic of conversation. After 56% of the 'is me' turns the listener requested clarification or closed the topic. Subjective impressions would confirm that 'is me' often succeeded in establishing DC as the referent or topic, but it was often unclear what she was the topic of.

'Is Good' as a Compensatory Strategy

The phrase 'is good' was also used frequently by DC. A total of 83 instances of this phrase occurred in the videotaped samples. The phrase functioned as an affirmation device to affirm a statement while conveying a positive, congenial attitude to the speaking partner as follows.

Two hospital employees are talking about the videotaping.
01: ...Is that what it's for?
02: I think it's part of her dissertation.
DC: Is is is good. yeah.
[Video,1-22-92;DC,C2;13]
I: Is that all you're gonna eat?
01: I know, I know. Lots of times I eat, but I just didn't feel like it.
DC: Is good [shrugs]
02: I guess that's why she stays so thin.
[Video,1-22-92;DC,C8;30]

In the above examples, DC uses the phrase 'is good' much as one might say 'yeah, right', or 'that's OK', to agree and align oneself with the speaker. In other utterances the use of 'is good' becomes more of a contribution to the overall flow and contour of the utterance while maintaining its "affiliation" role.

A hospital employee is having lunch with DC and has asked DC if her son has any children. The speaking partner fails to understand the intent of DC’s utterance.

DC: Is where is job.. is [holds hand palm down and raises] isy...is good is [holds hand out palm up].
0: He has a good job?
[Video,1-22-92;DC,C14;52]
A friend is visiting DC in her home. The friend’s baby drops food on the carpet. DC is trying to make light of the situation to make her friend feel better.

DC: is is is good. um um is good. I duno isy.. what.. is good.

[Video,4-3-92;DC,D18;154]

An interpretation of the second example might be "that’s ok, that’s ok. What’s the problem! It’s OK." Thus, the phrase signals a positive orientation to the situation and registers a sympathetic tie to the listener.

'I Don't Know' as a Compensatory Strategy

DC used the phrase 'I don't know' on 186 occasions for a total of 152 turns out of 864 total turns. There appeared to be no dramatic variations in frequency of this phrase across situations or speakers. Analysis of conversations demonstrated that 'I don't know' was used primarily as a device to signal DC’s intent to shift the burden of communication back to the speaking partner or express uncertainty about information being conveyed.

In some situations the term fulfilled this role much as it does in normal conversation by conveying a lack of information or knowledge such that the speaker is unable to further elaborate on the topic. For example:
A new acquaintance is asking DC about her hand splint.
O: Are you going to have to keep that on?
DC: I duno, [laughs] I duno
[holds hand out palm up]
[Video,1-22-92;DC,A1;4]
The phrase "I don't know" was used at times to express uncertainty about a topic. For example:
DC has explained that she failed to convince her employer to hire another staff member, but now they have done so.
DC: Is good. Yea...is me, I duno. Is talk talk talk talk talk. Now, I duno isy..is good now.
[signs talk]  [pts to self]
[Video 1-22-92;DC,A8;54]
The utterance might be interpreted something like:
"That's right. Yea. It was me I guess. I kept asking. Now, I don't know, I'm not there. Now, everything is OK.. I guess." The phrase 'I don't know' appeared to express uncertainty about the facts of DC's statements.
Lakoff (1972) reported that normal English speakers use such "dubitatives" to indicate that they are not prepared to take responsibility for a claim. For instance, the phrase "I guess" is often added to statements to mark uncertainty so that the speaker can save face if the
listener refutes the statement. It appears that DC used the phrase 'I don't know' in this manner.

At other times, DC uses the phrase 'I don't know' to indirectly request the speaking partner's help. At these times the phrase assumed a more deliberately regulatory function -- that is to request the speaking partner to give feedback, clarify or assist in some way. Frequently during therapy session B, DC used this phrase to let the therapist know that she was having trouble processing or was unsure of the response, as follows:

DC is pointing to pictures named by the speech pathologist.
SLP: Show me.. book and car.
DC: [looks at pictures and shakes head no]
    I don know.
SLP: Listen again. Book and car.
DC: [points to 2]
    I don know [holds hand out]
SLP: Mhm...good, you got it.

[Video,1-22-92;DC,B6;66]

The phrase was sometimes paired with 'what' or 'where' to make more direct requests for help. There were 22 examples of help requests employing 'I don't know'. In these instances, gaze and forward body lean were often used to accentuate the request for the speaking partner to assist. That is, DC leaned forward with steady eye
contact and said "I don't know, is what?" or "I don't know, is where?" signaling her lack of understanding or her need for the speaking partner to fill in a word.

At other times 'I don't know' was used to "opt out" of responding, to give up her speaking turn when she encountered a communicative breakdown, or close a topic of discussion. These regulatory acts served to free DC from further responsibility for the turn, or even from the topic. Following are two examples:

A receptionist is attempting to engage DC in conversation in the lobby of the hospital speech clinic.

O: How's your son?
DC: [shrugs]
O: He's Ok too?
DC: I duno
O: You don't know?
DC: [nods no]
O: You haven't seen him lately?
DC: Phone
O: Oh you talked to him on the phone?
DC: Yeah
O: How often?
DC: I duno
O: About one time a week?
DC: No
O: Less often?
DC: Yea
O: About once a month?
DC: Is is Christmas.

[Video, 1-22-92; DC, A5; 30]
DC has been trying unsuccessfully to tell a new acquaintance the name of her occupational therapist.
O: You don’t know her name?
DC: Yea [nods yes]...is me ... I don know
[points to self] [holds hand out & shrugs]
I: Knowing it and saying it are two different things huh?
DC: Yea....I duno
[holds hand out]
O: Try one more time and I’ll see.
DC: [ I duno.
O: I can guess.
DC: Mmmmmimi
O: Mimi, yea...that was good. She’s nice.

[Video, 1-22-92; DC, C20; 83]

Obviously, in the above samples, DC did not mean to state literally that she did not know the name of her OT or when she spoke with her son, particularly since she ultimately produces both pieces of information. In fact,
the phrase 'I don't know' regulated interaction by shifting the turn back to the speaking partner with an implication that "I choose not to try to answer". This is reminiscent of DC's "giving up" strategy in which DC terminates her turn abruptly (this strategy will be discussed later). The major difference from the direct "giving up" strategy is the more subtle regulation of 'I don’t know' which allows the speaking partner on many occasions to override the indirect request as noted in the above sequences.

All of these examples support an underlying function for 'I don't know' -- to delegate responsibility or shift the burden of communication back to the speaking partner. It is not surprising, given DC's limited access to language, that she has recast the use of this ordinary phrase to serve her in multiple situations where she is unable or unwilling to take communicative responsibility or wishes the speaking partner to address some topic for her.

'Requests for Help' as a Compensatory Strategy

DC exhibited several behaviors to request help when a communication breakdown occurred. The goal of these behaviors was to regulate the speaking partner's behavior by having the partner initiate a communicative repair (other-repair). These behaviors could be divided into two categories including 1) requests for help with
comprehension failures and 2) requests for help with verbal failures. The requests for help exhibited a systematic and purposeful pattern of occurrence resulting in classification as compensatory strategies.

Classification of requests for help with auditory comprehension as compensatory strategies was supported by lamination group members during video replay sessions. They clearly felt that requesting help with comprehension could be considered a compensatory strategy. For example one informant stated:

"I was thinking you could use them (compensatory strategies) for people with auditory comprehension problems too; cause even if they can't say it they can indicate some kind of way that they don't understand either with a question look on their face or if they want a repeat they can gesture to you...uh you can teach em to...or if they can get a few words out sometimes they can say tell me 'again'..."

[Lamination,9-30-92;5]

**Slow down' as a request for help**

The most obvious strategy used by DC to aid her auditory comprehension was a direct request to the speaking partner(s) to "slow down". This strategy usually manifested as follows. DC would make a quizzical
facial expression or hold her hand out palm up in a questioning gesture, point to her ear and/or mouth and say 'slow please'. The following sample demonstrates her use of this strategy.

A volunteer has just joined the investigator and DC in the hospital cafeteria. The volunteer is commenting on the food she has just purchased.

O: I think the food's real good. I mean it beats cookin.

DC: Is is ______...I duno...Is is____. [points to O and I] [cups ear with hand]

O: Hard to hear?

DC: Yeah..is _______ slow please...is me. [pts to mouth then ear] [pts to self]

O: Oh...OK.

DC: Thank you.

O: This food is good..since I don’t cook it, it's pretty good. [spoken slower and louder].

[Video,4-22-92;DC,F3;30]

While this behavior occurred only four (4) times during the videotaped samples, it was a highly visible and direct method of informing speaking partners of her comprehension difficulties. Again speech-language
pathologists in lamination groups supported the strategic role of "requests to slow down".

While observing DC’s videotape, participants hear a request to slow down. A chorus of "Wow", "Great" and "that was good" arises from the lamination group.

I: Would you say that was a compensatory strategy..that "slow please"?

O1: Yea. She didn’t understand it....definitely!

O2: [ Mhm..cause she didn’t understand it.

[Lamination,9-30-92;9]

Similarly, her first speech-language pathologist was observing the video with the investigator and noted the ‘slow please’ example.

O: Well I think that’s a compensatory strategy...getting..intervening and getting them to slow down is one technique that she uses.....Well she does that more than whenever I saw her...that’s good that she developed that or in therapy.

I: She didn’t use that when you saw her?

O: Not that much...no...I mean I NEVER heard her say slow to me...sometimes she’d just go "huh" [SLP leans forward and looks questioning]..ya know or use a gesture and

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I'd repeat it, or I'd go slower and repeat it.

[Interview, 9-28-92;3]

Requests to slow down occurred in two situations only -- the home setting (D) with her friend, and the cafeteria setting (F) with the volunteers. Each of the four instances were initiated early in the interaction (during the first several minutes) and occurred only with individuals with whom DC felt some bond of solidarity. DC was allied with her friend through AA, and DC had worked as a hospital volunteer like the "cafeteria ladies". The limited use of a direct request to 'slow down' is not surprising since it reflects a significant exertion of interactive control as well as exposure of a "handicap" to others; one might not wish to be so direct and controlling or be revealed to strangers or persons of higher status.

This strategy appeared to be relatively successful. In all four instances the speaking partners acknowledged and appeared to understand the request, although their rate usually returned to "normal" when further conversation ensued. Therefore, as conversation continued DC typically resorted to her second strategy for repairing auditory comprehension problems -- requests for repeats of information.
Requests for repeats

Requests for repeats of information appeared in all settings and were conveyed through a combination of verbal and nonverbal channels. Overall, 5% (46/864) of DC’s total turns involved requests for clarification. When information was not understood, DC would generally lean forward, gaze steadily at the speaking partner with a quizzical expression and utter "what", "please" or "huh" with rising intonation. This was often preceded by a signal of communication breakdown such as frown, nodding no or holding up her hand. Following is a typical example:

O: Have they told you how many hours you’re supposed to sleep?

DC: What? [leans forward, gazes at other and furrows brow]

O: Whoever told you how many hours...what’s too much sleep?

[Video, 4-3-92; DC, D7; 58]

Again lamination group members agreed with the designation of requests for clarification as compensatory:

O: She said huh? like she didn’t understand....

I: So you think a verbalization like ‘huh’ used in particular ways can be counted as a compensatory strategy?
O: Yea...to improve auditory comprehension.

[Lamination, 9-30-92; 6]

DC's multi-channel communication of lack of understanding resulted in a high success rate for repairing auditory comprehension failures. The listener response was typically a repeat or rephrasing of the prior message. In fact, 98% of DC's requests for clarification resulted in repeats or restatements of information by the speaking partner.

It is known, of course, that requests for repeats are typical of "normal" communication as well. The aspect that distinguishes DC's use of requests is that the frequency far exceeds what one would expect in normal exchanges. Thus, it meets the definition of compensatory strategy — a behavior which occurs in natural communication but markedly exceeds the expected frequency. For example, during the cafeteria setting (C), there were numerous instances of the speaking partners talking to each other. Yet, during the 31 minutes of video there was only one instance of a request for repeat initiated by a nonaphasic speaking partner (1/218 turns, .005).

When each situation was analyzed the number of requested repeats for settings A, B, C, D, F, and G averaged 4% of the turns. During these six (6) settings, the requests for repeats were used judiciously, uttered
in a very polite manner, and sometimes followed by attempts to apologize for the difficulty. The only obviously different rate of occurrence appeared in setting E in which 12% of DC’s turns involved requests for clarification. This situation entailed an argument between DC and the speech-language pathologist. During this situation, DC was trying to tell the therapist to change the treatment task; the therapist was attempting to continue the planned task. Initially it was assumed that DC’s comprehension failed because of the argument. However, when the tape was viewed again to further analyze the "outlier" situation, another conclusion was drawn. While it is likely that DC was having trouble comprehending some of the therapist’s utterances, the number of requests, their position in the dialogue, and the abrupt manner in which the requests were uttered suggested strongly that the requests had an additional purpose. In fact, these utterances served the secondary function of signaling DC’s dissatisfaction that the therapist had failed to pay attention to the request to alter the therapy activity. In this way the requests succeeded in shifting control of the exchange to DC as she regulated the therapists behavior -- imposing a repeat of information into the flow of the lesson. Thus, an additional function of "requests" in situation E was to gain control and alter the course of the session.
Gaze solicitation as a request for help

In addition to requests to aid comprehension, DC utilized a compensatory strategy to request help in verbal expression. On occasion, when she encountered difficulty producing a word she would stop, lean forward and gaze steadily at the speaking partner. This 'gaze solicitation' strategy regulated interaction by having the speaking partner take the floor and either provide a "cue" or guess the target word. There were a total of 28 'gaze solicitations' over 864 turns. Analysis of these compensatory strategies revealed that all 28 instances regulated the speaking partner's behavior by having the partner initiate a repair (other-repair) or acknowledge DC's need for help. Two examples follow:

DC is attempting to read a sentence out loud to the speech pathologist (SLP)
DC: The ffff [leans forward & gazes at SLP]
    fai [nods no and continues to gaze]...
SLP: Fffamily
DC: [ family
    [Video,1-22-92;DC,B11;64]
DC is engaged in conversation in the cafeteria with a hospital employee; the investigator (I) is present.
O: Who is your PT?
DC: T..t...t tookie
O: Christenson?

DC: (Smiles and looks at I)

O: Say it again.

DC: Tookie

O: Tookie? Oh Tootie, Tootie OK. OK.

DC: Yea, Tootie.

O: She's real nice.

DC: And ni...na...is is mmmm [shrugs and turns body to gaze steadily at Investigator with lips in posture for m]

O: You trying to tell who your OT is?

I: [I don’t know.

[Video,1-22-92;DC,C19;79]

As can be seen, the speaking partners seem to understand DC's 'gaze requests'. Audience responses to gaze requests were generally either cues such as providing the initial sound or syllable of the target, or guesses to help provide the word. Success of these "other-repairs" was judged based on whether the cue or guess helped DC communicate the intended meaning. Table 22 presents a summary of the data on requests for verbal assistance. The data are broken down according to type of listener response (cue, guess or other response) and ultimate success in facilitating communication for each speaking situation.
It is interesting to note that 25 of the 28 (89%) gaze requests for verbal assistance were directed at speech language pathologists. Most of these occurred within the context of speech therapy tasks in setting B. In addition, all three of the requests during setting C, and one of the requests during setting F were directed at the speech-language pathologist (investigator) who was present for a brief period.

Table 22.
Success of 'Gaze Solicitation'.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Cue Success</th>
<th>Cue Fail</th>
<th>Guess Success</th>
<th>Guess Fail</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobby (A)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Therapy (B)</td>
<td>15</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>Cafeteria (C)</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Home (D)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Therapy (E)</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cafeteria (F)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
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<tr>
<td>OT (G)</td>
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<td>0</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>3</strong></td>
<td><strong>4</strong></td>
<td><strong>5</strong></td>
<td><strong>1</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

Of the 28 gaze requests, 18 resulted in cues or prompts from the speaking partner consisting of articulatory placement cues or initial sound or syllable cues; all of these cues were produced during therapy session B by the speech-language pathologist. Of the 18
cues, 15 succeeded in aiding DC's subsequent verbal production. Attempts to guess resulted from nine (9) of the gaze requests; only 4 of these guesses were successful.

The asymmetrical distribution of gaze requests in favor of speech-language pathologists suggests that DC discriminated the role of the speech pathologist, regardless of setting, as someone who "helps" with speech difficulty. This is understandable given DC's exposure to this role of the speech-language pathologist during therapy sessions. Repeatedly during the four therapy sessions observed (including videotape sample B), the therapist provided overt cues to assist DC in producing words; these cues consisted primarily of visual placement cues, initial sound or syllable cues or verbal models. While it was not the goal of the therapist to teach DC to use gaze to solicit help with verbal production, it is likely that DC learned that this strategy was very effective in therapy. Furthermore, she probably learned to expect such assistance from the therapist, but did not appear to assume that other speaking partners would fulfill this role.

The data also suggest that the success of gaze solicitation varied by speaking partner training in aphasia; that is, speech-language pathologists were more successful in assisting DC to produce the target word.
Of course, we might expect this result for verbal cues since the therapist knows the target word and can select the most effective cue. Speech pathologists were slightly more effective at guessing, with half of their attempts correct (3/6 successful). By contrast, the guess attempts of nonspeech pathologists (though few in number) were less effective in assisting DC (1/3 successful). While the data are too limited to draw conclusions, conceivably such failure experiences might limit the use of gaze solicitation with others.

Finally, the speaking partner's use of guesses instead of prompts outside of therapy is expected. Use of cues or prompts generally implies that the speaking partner already knows the target word. This knowledge rarely exists in spontaneous conversation. This would account for the fact that all gaze solicitations in natural settings (outside of therapy) resulted in attempts to guess and provide a verbal model — the most natural and efficient response to a nonspecific request for aid.

Gaze solicitation seems to have emerged early in DC's recovery as evidenced in an early participant observation in which DC and the investigator were sitting in the AA office with three of the office workers. DC was trying to tell them something about her tax forms with little success.
"DC looked at me and pointed to me... I laughed and said .. ME? and she said "say". I said in a joking manner 'I don't know what we're talking about' .."

[Observation,7-29-91;20].

Apparently DC already had learned to depend on the nearest SLP to get her out of verbal difficulty.

In summary, requests for help comprised several behaviors including asking the speaking partner to slow down, asking for repeats or clarification of spoken information, and using gaze to encourage the speaking partner to assist with verbal production. Together, these three manifestations of requests occurred 78 times out of 864 turns with a total 87% success rate. All of these requests for help were utilized in a purposeful, systematic fashion to oblige the speaking partner to repair a communication breakdown.

Avoidance and 'Giving up' as Compensatory Strategies

DC, her friends and therapists all agreed that DC frequently avoided speaking situations or gave-up communication attempts. While speech-language pathologists interviewed did not initially suggest avoidance of talk as a compensatory strategy, it appeared that DC utilized this behavior to compensate for communicative problems by staying out of difficult communicative situations and conserving her efforts for...
"important" exchanges. Moreover, this behavior was reportedly "different" from DC's premorbid pattern of social interaction.

'Avoidance' was aptly described by one speech-language pathologist relating her first encounters with DC in the halls of the hospital. The SLP stated that her first impression of DC was that of a very withdrawn, unfriendly person; yet, after working with DC, she found DC to be otherwise:

"I mean outside (of therapy) she was like mute you know, and apragmatic -- not even able to make eye contact...so it was like I had no idea of how warm she is."

[Interview,12-12-92;51].

The speech-language pathologist believed that DC avoided contact with strangers or casual social encounters because:

"she might have to interact."  

[Interview,12-12-92;51].

Similarly, this informant reported:

"with me she is very open and reaching out and wanting to communicate.. and while she's in the cafeteria like that, she's very cold... in line getting things she doesn't smile at anyone.. no interaction."

[Interview,12-12-91;53].

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Thus, avoidance kept her out of communicative trouble. Similarly the speech therapy assistant noted:

"I see her moving away from situations -- like I see her in the cafeteria and I see her shying away from being in a situation in which she has to communicate and not be able to say something."

[Interview, 12-12-92; 5].

Finally, even DC admitted that she does not "seek out" interactions because she can't talk.

Not only did DC avoid social exchanges, she sometimes avoided being an active participant once conversation ensued. Typically, DC used body language and gaze to avoid conversation. For example, an interviewee contrasted two different videotaped interactions which highlighted DC's use of body language to avoid talk. Of the first situation the informant noted:

O: She's much more closed in.() .her arms are by her side."

[Lamination, 9-28-92; 7]

During the second situation the informant contrasted her level of participation:

O: .now she's like up ready to talk

L: Her posture you mean?
"O: Yea like I'm coming toward you. I wanna communicate."

An example of DC's avoidance of talk occurred during a cafeteria lunch (C) with two hospital employees. She was polite and appropriate but never initiated a topic with the new acquaintances. Upon viewing the videotape of this cafeteria scene (C), one is immediately struck by the contrast in DC's relatively passive role with these acquaintances and lively interaction while the investigator is present. During the investigator's absence, the vast majority of talk is conducted by the two speaking partners, often directed at each other with DC politely backchanneling as appropriate, but never "jumping in" to the flow unless directly addressed. For example a lamination group member noted of this situation:

"..she's not as aggressive at talking."

The sequences in which DC engages in the interaction are largely initiated by the speaking partner. The cafeteria segment was presented to DC's former speech-language pathologist for her observations. After noting that DC was not participating in the conversation, the SLP made the following comments:
O: ...rather than trying to risk-take using some of the other stuff, she is choosing just to not communicate basically.

I: Would you call that a strategy?

O: Well, yea. I would actually. That IS a strategy...by George! That IS a strategy...and probably a relatively successful one...

[Lamination, 9-28-92; 6]

Thus, the compensatory strategy of avoidance demonstrated systematicity and purposefulness. DC employed avoidance with strangers or in situations which did not "require" conversation.

In addition to avoiding speaking situations, DC was observed to "give up" attempting to communicate at times. During six (6) videotaped exchanges DC used a verbal and/or nonverbal signal to end a sequence of utterances. Only those instances in which DC was clearly calling a halt to her attempts to communicate were counted. For example:

DC: Yeah is lahdy, is radi. [nods no & signs stop]

O: The lady in the clinic...in OT or something?

DC: Yeah, yeah, yeah, isy. is long...is sis...ses...sss [nods no & signs stop] I don know.
Several of the communication specialists appeared to view 'giving up' or 'avoidance' as a failure. For example, the speech pathology assistant defined his job as follows:

"I just encourage her to go ahead and use whatever that she uses...and that she just doesn't GIVE UP."

However, it appeared from DC's data that there were occasions when not communicating was a compensatory strategy not a failure. Another informant agreed that avoidance was being used by DC as a compensatory strategy:

"I never thought of it like that...cause I mean in a sense before you said that I would have thought 'this is a failure...she's failing or she's in a situation where she's failing...she's not able to communicate'.. But in fact, she's doing something that allows her some success basically...at least in her mind."

Interestingly all 6 instances of 'giving up' took place with strangers with whom DC had little solidarity. Her manner of giving up was usually to hold up her hand
in a stop motion, nod no and/or say 'I don’t know'. In all instances, the speaking partner appeared to be "working hard" but failing to grasp DC’s intended meaning. In contrast, there were numerous runs of communication repair sequences which spanned several turns with familiar partners during which DC never gave up in spite of frustration and repeated failure. For example during situation (D) while discussing an impending visit, DC and her friend labored through nine (9) turns before the information was transmitted. In this situation, it was important that DC find out the information in order to plan future visits; also, DC trusted her friend and knew that her friend was accepting of the communication problem. There was little risk of being socially ostracized in her own home with her close friend. Conversely, in the lobby or cafeteria the risk of drawing attention to oneself and establishing oneself as "weird", "handicapped", or "needing help" could hinder further social interaction. Therefore, at times DC gave up before imposing on strangers or acquaintances.

Perhaps another basis for ‘giving up’ or ‘avoidance’ related to DC’s sensitivity to the listener’s burden during conversation. The speech-language pathologist suggested that communicating with DC was hard work and consumed a great deal of time and energy. She stated:
"A prime example was our session on Monday when D wanted to tell me two things and went through some single words, with me trying to ask alot of questions and giving her fill-ins. It took us 35 MINUTES to get TWO ideas across...where I felt like I had what she was trying to tell me..that's just AWFUL LENGTHY to say the least."

[Interview,12-12-91;39]

Furthermore, the therapist felt that DC recognized this burden to the listener:

"If anyone were...not (just) a speech pathologist...to interact with D is very much work..and I think the interesting thing is she KNOWS that. I mean she said to me the day that it took 35 minutes...()...she looked at her watch and said 'look' and wrote down 35 and she said 'two...two thing...time'..you know she KNEW it..I thought God how insightful."

[Interview,12-12-91;48]

Thus, it appears likely that DC not only recognized her own energy consumption, but also recognized the burden on the listener imposed by her communication problem. Perhaps avoidance and giving up were regulatory strategies used as DC gaged the amount of effort to extract from the partner based on the importance of the
communication content, the social constraints of the situation, and the comfort level with the speaking partner.

**Contextualization Cues as a Compensatory Strategy**

Clearly, the tone or manner projected during an utterance or "key" as Hymes (1968) called it, has a marked impact on the audience's impression of what is meant. Thus, nonverbal and suprasegmental behaviors which encase the utterance can convey as much, or more than the words themselves. In addition, the word choice and their arrangement can change the listener's sense of what is being imparted. Gumperz (1979) described these "contextualization cues" as a collection of communicative features which assist in conveying a communicative intent. These cues include many aspects of an utterance such as prosody, phonology, body movements, lexical choices or the way turns are regulated. Exaggerating intonation or stressing a word can highlight information considered important. Pairing a gesture with a word projects a sense of emphasis. The speech-language pathologist noted DC’s superior use of body language and intonation and considered this an aid to communication [Interview, 7-29-92].

Thus, contextualization cues appeared to be an important means of conveying information for DC. For example, when limited resources restricted word choice,
DC often used the same word or phrase in different contexts to convey entirely different intents. That is, the words stayed constant, but the nonverbal and suprasegmental devices were varied to convey different meanings. For example, an interviewee noted:

"She does communicate a lot with even those kinds of words just because of her facial expressions and her gestures...the way she moves her body and the way she moves her hands...()...certainly pragmatic language in her is intact so you get a whole lot through that...and that is, I guess, a compensatory strategy."

[Lamination, 9-28-92; 4].

DC used contextualization cues early in her recovery. During the first participant observation the investigator made the following notes about an interaction:

"I comment on how it finally stopped raining. We both stare out of the window, then she points to the clouds. I have no idea what she wants to say but I say 'yea, there are some dark clouds, hope that doesn't mean more rain'. She says 'no no' and points again to the clouds. I have a feeling that she isn't disagreeing...I'm not sure how I get this...maybe because she uses a quieter voice..."
and is not looking at me but looking out the window as she says 'no no'."

[Observation, 5-4-91; 2].

Here contextualization cues conveyed agreement in spite of an ambiguous verbal message.

Contextualization cues also served an important regulatory function. For example, DC often employed gaze and body lean to maintain her turn. Lamination group members observed:

O1: ...She widened her eyes and leaned over... so bodily she's leaning in.
O2: Yea well in a way that is kinda like she's signaling for people to pay attention and give her more time... It's interesting I didn't think of it that way you know. It's kind of like ya know 'I'm gonna try now'... even when she struggles with it facially... yea it is kind of signaling that so people just sit and wait and give her more time.

[Lamination, 9-30-92; 7].

Thus, contextualization cues regulated the behavior of the listener.

These cues also helped DC maintain the conversation. she frequently demonstrated attention and a desire to communicate through gaze and body position, and regulated turns with contextualization cues. DC
typically took and held her turn using strategies previously discussed (e.g. 'is', 'isy'), attempted to convey content, then signaled the listener with contextualization cues to carry the topic. One lamination group participant remarked after a speaking partner had made several attempts to guess DC's message:

"She also indicated fairly often if you as the listener were on the right target, on the right track"

[Lamination,10-21-92;4].

This "keep going" signal was typically effected with gaze, head nods, smiling and verbal backchannels. Thus, often the responsibility for filling in the details in the conversation rested with the speaking partner, and DC used contextualization cues to encourage the speaking partner to accept this role. DC combined contextualization cues with her strategies for conveying information to set the topic then encourage the listener to fill in the rest.

"..I think she seems to be getting the key words for those concepts then you're filling in. She looks at you when she wants you to do that. So she'll give you a key word and she might even use a gesture then she'll look at
you for you to fill in the rest and then she'll say 'yeah'."

[Lamination,10-21-92;5]

Similarly during another lamination group a participant noted:

"she does alot of uh checking to see if you know her idea got across and all...she relies on the fact that she can understand better than she can express herself, that she will listen and kind of indicate yes or no, ya know, and frown or get people to repeat things and answer 'uhuh'."

[Lamination,9-28-92;7].

Contextualization cues used to shift responsibility to the listener were context dependent as were her other compensatory strategies. For example, while observing a videotape of DC speaking with a stranger, lamination group members observed:

S1; She had virtually no eye contact with J__.
S2: Nor did she try to egg him on to guess what she was trying to say.

[Lamination,10-21-92;9]

Thus, DC did not use gaze, body language and other contextualization cues to maintain a topic with a stranger in the hospital lobby as she had done with friends in other settings.
DC effectively used body language, intonation and gaze to regulate interactions and assist speaking partners in interpreting her messages. Furthermore, DC varied these behaviors systematically to fulfill specific conversational functions. Contextualization cues contributed significantly to DC's repertoire of compensations.

Meaningful Gesture as a Compensatory Strategy

Another behavior frequently employed by DC was the use of meaningful gesture. Meaningful gestures included limb or body movements which conveyed an idea or a feeling through either deictic or nondeictic means.

Deictic meaningful gestures utilized temporal or physical context through pointing. The following examples show how DC used pointing to identify contextual referents, while her verbal energies were focused on other aspects of content.

DC: Is where is eat?

[left hand extended [points at partner] palm out to partner]

[Video,1-22-92;DC,C1;1]

The regulatory gesture of extended hand paired with the verbalization of "where" suggested a question directed at the speaking partner. The pointing gesture paired with "eat" suggested that DC was referring specifically to the lunch of the speaking partner. In
context the interpretation was "Where is your lunch?". The following example further exemplifies DC's dependence on the context through deixis.

Her friend has just walked into the room.
DC: _______isy. Is_______.
[Pts. to chair] [Pts. to friend]
O: Oh this is fine [sits down]
[Video, 4-7-92; DC, D10; 83b]

The meaning is carried entirely by pointing gestures with the discourse devices 'is' and 'isy' serving to verbally outline the propositional content. In fact, lamination group members found deictic gesture to be a frequent and successful compensation replacing verbal referents. For example, while observing one video scenario a participant noted:

"so she's gesturing -- pointing... she got her point across."

[Lamination, 9-30-92; 6].

During another lamination session it was noted:

"She did alot in the beginning with pointing...()... apparently in the context you could get all that like the other woman did"

[Lamination, 9-28-92; 4].

Nondeictic gestures do not require physical or temporal context for interpretation. Typically these gestures are culturally recognized elements occurring in
conversation such as holding out one's hands palm up to indicate "I don't know" or waving good-bye. They also include symbolic representations for objects, actions or concepts such as flapping ones fingers against the thumb to indicate talk or scissoring fingers downward to indicate walk.

The current analysis of meaningful gestures did not reveal notable pattern usage differences between deictic and nondeictic gestures. Consequently, for purposes of this investigation, they will be considered together. Out of a total of 864 turns, DC used 343 meaningful gestures. Timing gestures, head nods, shrugs and nondefinitive movements were not included in this analysis since they were more appropriately studied as "contextualization cues".

A review of the meaningful gestures produced by DC suggested that this compensatory strategy performed each of the four communicative functions previously discussed (i.e. conveying information, displaying feeling, repairing conversational breakdowns, and regulating interaction). At times gestures served more than one communicative function simultaneously.

The overwhelming majority (73%) of DC's gestures served primarily to convey information. The following interchange exemplifies DC's use of gesture to convey information:
DC was having lunch with two ladies when I joined the group. The ladies were talking about hand therapy. DC had been listening to the conversation, then turned to address me.

DC: is is_______________________________

[pointed back and forth between the two ladies]

is is______________________________

[put her hand to her ear and out]

is me I duno

[pointed to self] [pointed to her ear]

[Video, 4-22-92; DC, F8; 98]

All present interpreted this utterance as an explanation that DC was having difficulty understanding what the ladies were saying, yet the verbal content did not carry the information; it was conveyed through gesture.

Meaningful gestures were also employed to repair speaker misunderstandings of DC's intent. Gestural repair occurred on 61 occasions during the 864 turns. In addition to conveying information and repairing messages, meaningful gestures controlled the audience as in requesting, questioning or warning. In DC's conversations, such gestures for regulating interaction were far less numerous than those used to convey information. DC used 27 of her total 343 gestures to
regulate interaction. Instances of this behavior included extending her hand to the speaking partner while saying "is what?" to ask for repeats of information, holding up her hand in a stop gesture to close a topic after a communication breakdown, or gesturing "come on" to get the speaking partner to take over the turn.

Finally, meaningful gestures could communicate emotion. Gestures which were specifically employed to convey feeling were rare in DC’s conversation samples. In fact, there were only 3 instances of "affect" gestures. An example of such a gesture was making a fist to indicate frustration while struggling to produce a word. Usually DC conveyed feeling through body language, facial expression, intonation and adjustments in the manner of producing information and regulatory gestures. For example, DC produced the regulatory gesture of extending her hand palm up to her speaking partner to request a repeat of information; to display feeling DC exaggerated the gesture, extending her hand further toward the listener and shaking it while leaning forward and saying "is what, what". This "coverbal" method of displaying feeling was most typical of DC’s communicative style.
Table 23 presents the frequencies and proportions of meaningful gestures by function. The proportions reflect the number of gestures employed for a given function compared to total meaningful gestures.

Table 23.

Frequency and Proportion of Meaningful Gestures by Function for DC.

<table>
<thead>
<tr>
<th>Function</th>
<th># gestures/total gestures</th>
<th>proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convey Information</td>
<td>252/343</td>
<td>.73</td>
</tr>
<tr>
<td>Repair Breakdowns</td>
<td>61/343</td>
<td>.18</td>
</tr>
<tr>
<td>Regulate Interaction</td>
<td>27/343</td>
<td>.08</td>
</tr>
<tr>
<td>Display Emotion</td>
<td>3/343</td>
<td>.009</td>
</tr>
</tbody>
</table>

In order to further determine a systematic usage pattern for gestures, analysis by situation was undertaken. The frequencies and proportions of gestures to speaking turns for each speaking situation are provided in Table 24. Figure 3 presents the proportions by situation in graphic form.

As noted in Table 24 and Figure 3, there were three situations (D, F, and E) associated with a higher proportion of meaningful gestures. All three of these situations captured highly spontaneous conversations. Situations D (home) and F (cafeteria) were social and
Table 24.

**Gesture frequency and proportion to turns by situation.**

<table>
<thead>
<tr>
<th></th>
<th># Gestures</th>
<th># Turns</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobby (A)</td>
<td>32</td>
<td>81</td>
<td>.40</td>
</tr>
<tr>
<td>Therapy (B)</td>
<td>52</td>
<td>222</td>
<td>.23</td>
</tr>
<tr>
<td>Cafeteria (C)</td>
<td>29</td>
<td>101</td>
<td>.29</td>
</tr>
<tr>
<td>Home (D)</td>
<td>126</td>
<td>222</td>
<td>.57</td>
</tr>
<tr>
<td>Therapy (E)</td>
<td>20</td>
<td>42</td>
<td>.47</td>
</tr>
<tr>
<td>Cafeteria (F)</td>
<td>64</td>
<td>136</td>
<td>.47</td>
</tr>
<tr>
<td>OT (G)</td>
<td>20</td>
<td>60</td>
<td>.33</td>
</tr>
<tr>
<td>Barrier (H)</td>
<td>5</td>
<td>16</td>
<td>.31</td>
</tr>
<tr>
<td>PICA (I)</td>
<td>6</td>
<td>42</td>
<td>.14</td>
</tr>
</tbody>
</table>

enjoyable for DC with high speaking partner solidarity, comfort ratings, and shared information. For example, one speaking partner (setting D) was a close friend of DC who had shared AA experiences. Speaking partners in F, though new acquaintances, were close to DC’s age and both exhibited a disability. In addition, they were hospital volunteers as DC had been at one time. Such shared information, solidarity and comfort might encourage greater freedom to use a multichannel "wide open" approach to communication. Speech therapy setting E was also a very spontaneous interaction rather than a typical treatment session. The session focused on a disagreement between DC and her therapist, with DC initiating the
argument and finally walking out of the session. The situation could be described as overwhelmingly negative; DC wanted strongly to communicate her dissatisfaction to her therapist, and used every channel at her disposal. Thus, strong motivation to interact characterized all three situations with a higher proportion of gestural communication.

There were five situations with a lower frequency of gesture including the PICA evaluation, the barrier activity, two therapy sessions (B, G), and one lunch with strangers. The strangers (setting C), both employees of the hospital, received low solidarity and comfort ratings; both speaking partners were "new mothers" in their late twenties. One of the speaking partners later noted in interview that she was uncomfortable speaking with DC [Lamination, 9-28-92]. DC maintained a polite but relatively passive role during this conversation.

The barrier and PICA sessions were highly structured situations which did not encourage the kind of interactive communication typical of the more natural social contexts. Similarly, the therapy sessions were clearly "task oriented" with the therapists maintaining control of the content and flow of the session. DC had no strong need to convey information other than to perform the tasks at hand. The tone of both evaluation and therapy sessions was neutral. Interestingly, during
an interview the speech-language pathologist noted DC's selective use of gesture:

"I mean the first time I noticed the gesturing I was very surprised ...(we were) in the cafeteria and she gestured to me "come see"...(we were) in the cafeteria and she gestured to me "come see"... and I went and she explained to me something with a gesture...()...I walked away and it like stunned me...like she never did that with me. If only she did that in therapy. 

[Interview,12-12-92;C58].

Apparenty, the structured, asymmetrical format of the therapy and evaluation sessions limited the appearance of meaningful gestures. During all of the "low gesture" interactions, DC did not exert the communicative effort characteristic of the more active interactions in her home (D), during the argument with her therapist (E), and with the volunteers (F). DC maintained a relatively passive role which was reflected in the lower incidence of communicative gestures. For example, a lamination group member observed of one "low gesture" situation (C):

"...she just looks alot less comfortable,- like she is alot less wanting to communicate in this situation than she was in the one with her friend."

[Lamination,9-28-92;5].
DC's passivity versus activity during these interactions was reflected in her initiation of speaking topics. For example, during the "high gesture" situations (D, E and F), DC initiated a higher proportion of topics. In the home setting (D) she initiated 22 out of the 43 topics raised (.51). In the cafeteria with the volunteers DC initiated 15 out of the 33 topics raised (.46). DC initiated 4 out of the total of 9 topics discussed (.44) during therapy argument E. These figures are in marked contrast to the situations which showed a lower proportion of gestures. For example, during treatment session B, DC initiated none of the 21 topics (.00). During the cafeteria sequence C, DC initiated only 2 of the 37 topics (.05) (and these two were directed at the investigator before she left the group and after she returned to the group). During OT, DC initiated 2 of the 9 topics (.18). Thus, DC appeared to marshall communicative energy and compensatory gestures to communicate during highly spontaneous and socially motivating interactions. When the context dictated a more passive role, DC reduced her gestural activity.

Another level of analysis involved judging the success of gestures. Success in using gestures was judged from the audience reaction during and immediately following the speaking turn in which the gesture was produced.
Listener reactions were coded as (+) if the meaning was clearly grasped, (-) if the listener demonstrated a lack of understanding and (?) if the listener's response was unclear. A total of 230 gestures of the 343 gestures used by DC were judged successful (.67).

Interestingly, gestural signs, such as Amer-Ind, appeared to represent a subgroup of meaningful gestures which met with limited success for DC. She used only 27 signs to substitute for words, and only 8 of these (30%) were judged successful in conveying her message. It might be recalled that her speech-language pathologists had specifically trained gestural signs and were disappointed by her poor carry-over of signs to conversation. Although the speech-language pathologists believed that signs were useful in conveying information, the limited sample of signs used by DC in conversation suggest that they were not terribly successful in conveying information. In fact, research has reported that the transparency of Amer-Ind signs is far less than often believed (Daniloff, Lloyd & Fristoe, 1983). Perhaps since the signs did not always succeed in "getting the message across", widespread usage was not highly reinforced.

Moreover, it should be noted that success of a gesture did not imply success of the utterance or turn as a whole as the following example demonstrates.
DC has been practicing placing her right hand on the kitchen counter during kitchen activities to relax the tone in her arm. The occupational therapist has asked DC to describe what happens to her right hand while she is working at the kitchen counter at home. The interchange proceeded as follows.

DC: Is is here.. isy

[Points down to hip]

OT: Oh you have to think about your hip. OK.

[Video,4-22-92;DC,G6;34]

The OT understood the pointing gesture, but apparently did not grasp the intended meaning of the utterance which probably was something like "my hand falls down here by my hip".

At times gesture and verbal appeared to compete for the listener's attentions. The following interchange between DC and her friend demonstrate this;

DC: is talk talk

[signs walk]

O: You want to talk to him?

DC: Yeah

O: You want me to bring him to you?

DC: No isy
[points to chair as she stands to walk to chair]

[Video,4-3-92;DC,D9;78]

Her friend understood DC’s wish to talk to the baby, but did not understand that she wanted to move to another location ("walk" sign) so that she could do so more comfortably.

In order to further analyze gesture, variation by situation was investigated. Table 25 presents the proportions of successful gestures compared to the gesture attempts for each speaking situation studied. Situations H and I have been excluded since the inherent constraints on speaking partner/examiner responses prevented judgements of success.

It is interesting to note that situation B, the typical therapy session, had a higher proportion of successful gesture, yet this was the situation with the lowest frequency of gesture use. The lower frequency of gesture is not unexpected, since, as noted previously, the therapy session was very task oriented and did not require a great deal of meaningful spontaneous communication by DC. Yet, when communication was required it largely centered around known topics which were established by the therapist, probably enhancing the speech pathologist’s ability to interpret responses.
Table 25.

Proportion of Gesture Successes to Number of Gesture Tries by Situation.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Successes</th>
<th>Tries</th>
<th>Proportion</th>
<th>Adjusted Prop.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobby A</td>
<td>22</td>
<td>32</td>
<td>.69</td>
<td>.60</td>
</tr>
<tr>
<td>Therapy B</td>
<td>39</td>
<td>52</td>
<td>.75</td>
<td></td>
</tr>
<tr>
<td>Cafeteria C</td>
<td>17</td>
<td>29</td>
<td>.59</td>
<td>.44</td>
</tr>
<tr>
<td>Home D</td>
<td>87</td>
<td>126</td>
<td>.69</td>
<td></td>
</tr>
<tr>
<td>Therapy E</td>
<td>12</td>
<td>20</td>
<td>.60</td>
<td></td>
</tr>
<tr>
<td>Cafeteria F</td>
<td>43</td>
<td>64</td>
<td>.67</td>
<td>.64</td>
</tr>
<tr>
<td>OT G</td>
<td>10</td>
<td>20</td>
<td>.50</td>
<td></td>
</tr>
</tbody>
</table>

* Adjusted proportion reflects the success rate with strangers by removing portions with the investigator speaking with DC.

The lower proportion of successful gestures in settings C and G was partially illuminated by undertaking another level of analysis. The success of a turn can be judged partly by the listener's discourse response. Therefore, the listener's response to each of DC's turns was analyzed as sustaining, clarifying or terminating. Sustaining responses were those that maintained the flow of conversation. Imposing a request for clarification occurred when a speaking partner alerted DC that information was not clearly understood. Termination was judged when the speaking partner closed the interaction or shifted the topic. Of particular note were the low percentages of "sustaining" responses for turns involving
gestures by the speaking partners in settings C and G. The lowest proportion of sustaining responses occurred for Sample C in which the two "strangers" (hospital employees) sustained only 15% of the gesture loaded turns. These "strangers" were only 44% successful in interpreting gestures. Furthermore, this situation represented the second lowest frequency of gesture use.

The second speaking partner with a lower proportion of sustaining responses to turns with gestures was the occupational therapist (Sample G). She sustained only 31% of DC's gestural turns. The OT also represented one of the lowest success rates for gesture interpretation (.50). Possibly, certain individuals are less successful in receiving gesturally conveyed information. Moreover, a high failure rate could be quite punishing to the aphasic individual; perception of this failure situation could certainly influence the frequency of occurrence of this behavior with "poor gesture receivers".

By contrast, the higher gesture success sessions were characterized by a greater proportion of sustaining responses by conversation partners. For example, in Sample D, DC's friend performed sustaining responses 60% of the time to DC's gesture loaded turns. Moreover, the friend was 69% successful in gesture interpretation. Finally, DC used gesture most often in this setting; of the 222 turns DC used 126 gestures.
Not surprisingly meaningful gestures were more successful when they were combined with verbal referents or related verbalizations. That is, 78% of gestures which added information to the verbal flow were successful, compared to a 56% success rate for gestures which substituted for speech. For example, simultaneously pointing to her mouth and saying "talk" was more likely to convey the intent than using the deictic gesture alone.

Combining gestures with the discourse markers 'is' and 'isy' was an important method of directing the speaking partner's attention to the gestural channel. Thus, 'is' and 'isy' verbally enveloped the gestural information, and alerted the listener to "look" for information being transmitted visually. While most human communication relies on coverbal channels to add information to the speech stream, we do not expect the information burden to be carried by nonverbal means (notable exceptions include deaf cultures). Thus, gestures produced in silence might be overlooked in oral cultures. Our finely tuned auditory system seems to be on a constant vigil for speech-like signals (Fodor, 1983); yet, the visual system of most speaking persons is less adapted to and does not expect to receive and process a rapid flow of symbolic gestural information. Visual communication might be wasted without some form of verbal marker, and DC cannot
afford to waste communicative effort. Thus, 'is' and 'isy' paired with gesture creates a "whole" utterance which resides both in the verbal and visual domains. In fact, only 1 turn out of all 864 utterances was characterized by gesture produced in silence; all others were produced in conjunction with speech or introduced by vocal output. DC seems to have adapted a visually received system to fit into the flow of a verbal exchange.

In summary, DC used meaningful gestures primarily to convey information. Situational patterns of gesture usage revealed that this strategy was employed most often in conversations involving a strong desire to convey information and interact with the speaking partner. Gesture was used least often in traditional therapy and evaluation, or in public situations with strangers. Moreover, the frequency and distribution of meaningful gestures confirm that this strategy played an important compensatory role in DC’s interactive communication system.

Writing as a Compensatory Strategy

Writing has been identified in the literature as a possible compensatory strategy for aphasic and verbally apraxic patients. Additionally, speech-language pathologists participating in interviews and lamination groups frequently listed writing as a "known"
compensatory strategy [Lamination groups 9-30-92 and 10-21-92; Interview 9-28-92]. Writing can serve as a self-cue to verbal production (such as writing the first sound or syllable), as a clue to the target word, or as an alternative when verbal production fails. Therefore, writing as a possible compensatory strategy to convey information was studied. Nineteen (19) instances of writing during conversational interactions were identified in 922 turns of the videotaped samples. (Note that the barrier activity and PICA are included here). Writing met the definitional requirement of compensatory strategy since it was a systematic and purposeful method of conveying information in the face of a communicative barrier. Furthermore it met the "novelty" criteria for a compensatory strategy since it is a behavior which does not normally occur as part of spontaneous conversation. The speech-language pathologists who worked with DC further supported that writing was not only a compensatory strategy, but one which they specifically targeted in therapy:

"I know we did writing..um which I was using certainly as a form of compensatory (strategy)..she used it herself..if she couldn’t get words out she would write it down."

[Interview, 9-28-92; 1].

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However, writing did not appear to be the channel of choice for DC. Writing demonstrated a circumscribed pattern of occurrence as demonstrated in Figure 4. In fact, her speech-language pathologist was puzzled by DC's writing:

"I noticed that she was able to come in and explain some relatively abstract things to me putting some key words down on her memo pad...which is interesting because when you set up the communication setting and she comes in the room, she doesn't pull it out as her tool at the onset of communication like I would think she would...()...You usually have to cue her 'well, get your pad'"

[Interview, 12-12-92; 38].

The speech pathology assistant concurred that DC used writing, but it was not always her preferred method:

"She's initiated using her own little kind of uh board that you kind of pull up..()...She did that on her own and she can use that for communication and she'll use that here but I don't know how much she uses that outside of here...()...I can't say that I've seen her really pull it out and use it for communication elsewhere though"

[Interview, 12-12-92; 4].
Figure 4. Writing by Situation: Proportion to DC's Turns.
Participant observations revealed a similar pattern. For example, during an AA meeting and during a visit with acquaintances at AA, DC did not use writing except once when the investigator suggested writing and a friend provided paper and a pencil [Observation,7-29-91;20]. Additional notes taken during this visit highlight the frustration felt by the investigator. After watching DC repeatedly fail to convey an idea the investigator wrote:

"I couldn't understand either and was wondering why she didn't try to write but decided not to interfere with her choice of channels."

[Observation,7-29-91,21].

After observing DC in numerous settings it became apparent that she used writing only to repair breakdowns in verbal communication. In fact, of the 19 instances of writing, all except one were used in a repair sequence. The exception occurred when she had been directed to write information by the speech-language pathologist. The use of writing as a repair strategy was noted by an informant while observing a videotape:

"well...she's using writing...I think what is interesting is watching and thinking about this ...(how long she'll try verbal before she uses the written which is obviously SO MUCH of a better modality."

[Lamination,9-28-92;3].
This was confirmed by DC herself in the following exchange with her speech pathologist.

SLP: ..Now Monica told me you don't like to do alot of writing at home.

DC: _____No Isy. Is__________ is..

[pts to self] [pts to mouth]

SLP: [ talking.

DC: Yeah, Yeah.

[Video,1-22-92;DC,B8;50]

Consequently, writing served as a compensatory strategy which, if used at all, was used primarily in a "last ditch effort" to repair communication breakdowns.

In addition, writing as a repair strategy was limited by setting and speaking partner. All instances of writing occurred when DC was seated at a table. However, she never used writing while seated at a meal. These observations are interesting since DC carried a small magic slate with her at all times, and was very adept at using it. Yet, she never used it while eating, seated in an easy chair or seated in the lobby in spite of numerous communicative breakdowns.

In natural conversation she used this strategy only with her friend, with the speech pathologist and with the volunteer ladies. She did not use writing with strangers with whom she shared little solidarity or positive comfort rating.
The data drawn from the videotapes was substantiated during several participant observations. For example, DC used writing at home with the investigator (sitting at a table) to repair breakdowns, but did not take her slate out to repair breakdowns or convey information in a Chinese restaurant during the same visit [Observation, 6-10-92;7]. It would appear that DC discriminated based on appropriateness and ease of use. Thus, writing while eating lunch would be socially and physically intrusive and might call more attention; writing while sitting at the table at home was easy and carried no threat of social stigma.

Furthermore, DC appeared more likely to introduce the writing strategy during enjoyable, social interactions in which she felt comfortable and wanted to communicate. For example, the home setting (D) and the cafeteria setting with the volunteers (F) appeared to be the "most fun" and "most communicative" settings [Laminations, 9-28-92 and 9-30-92; Interview, 7-29-92]. In describing setting F one interviewee noted:

"It is alot more down home...it is..I'd probably be more comfortable in this situation too..you know you think about it too..she's using the writing here where she didn’t with the professionals who teach you to use it..."

[Lamination,9-28-92;8].
In fact, settings D and F accounted for 13 out of 19 (68%) of the writing repairs.

In support of the contention that DC used writing when she wanted to communicate, the natural communication situations were examined. It was found that 75% of writing turns contained new information, 56% involved topics initiated by DC and all involved topic content rated as "interesting" or "very interesting" to DC. Moreover, 38% of the writing turns involved material with a high emotional load (compare this to 16% of 'is/isy' turns). This pattern certainly agrees with the observations of Grimshaw (1980) that:

"the greater the value assigned by S [the speaker] to successful communication, the more likely s/he will be to attempt to remediate nonsuccesses by recycling, repeating and clarifying previous information which S believes may have been misunderstood." (p.30).

During the structured evaluation situations (H, barrier and I, PICA), DC demonstrated an interesting pattern of writing. Writing constituted a high proportion of her turns during the barrier activity in which she was expected to convey new information to the speaking partner through any channel available. Conversely, the verbal subtests of the PICA required the examiner to ignore all nonverbal communication; DC attempted to comply with the implied expectations by responding in the appropriate channel for each subtest.
These data would suggest that DC communicated with writing when she had something new or important to convey, and when she felt it situationally appropriate to resort to this mode. Writing was a novel compensatory strategy employed by DC to repair communication failures. The compensatory strategy appeared when DC judged it situationally appropriate and when her motivation to communicate was strong.

**Minor Compensatory Strategies**

There were several behaviors which were considered potential compensatory strategies. However, due to the few instances during DC’s videotapes, these behaviors were not analyzed in depth. These compensatory strategies included reiterative utterances, circumlocution, serialization and tactile cues.

Review of the videotapes revealed ten (10) instances of word repetition or reiteration. DC’s reiterative utterances were clearly purposeful. In other words the reiterative utterances were not attempts to self correct or verify the listeners understanding. Rather, the goal of the repetitions was to express magnitude -- to convey information through reiteration. An example follows:

DC was having lunch with two ladies in the hospital cafeteria. I had left them alone to go get lunch and stopped to talk to some friends.
at another table. The ladies were wondering what was taking me so long.
O: She must have gotten lost!
DC: Yeah... is talk talk talk... isy.

[points to other table]
[Video, 4-22-92; DC, F6; 61]

The repeated use of the word "talk" conveys the idea that I have been talking a lot or for a long time. Similarly, "Is tired, tired isy" was used on one occasion to express the magnitude of DC's fatigue [Video, 4-7-92; DC, D6; 48]. Meaningful uses of reiterative utterances or "reduplication" have been noted in the literature as well (Kearns & Simmons, 1983; Hand, Tonkovich & Aitchison, 1979). Repetition provides a means to convey information beyond the specific lexical intent of the word itself.

Another minor compensatory strategy used by DC was contrastive utterances. DC used contrasting or opposite words to substitute for the unavailable target word. For example, DC was attempting to say "night" and substituted the phrase "not morning". This strategy occurred on only two (2) videotaped occasions. The strategy might be considered the nonfluent aphasic patient's attempt at a circumlocutory strategy or "go" strategy. One lamination group member described teaching circumlocution as a compensatory strategy as follows:

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"I get them to describe what they mean if they can’t come out with the word as a way to get their point across..."

[Lamination, 9-30-92; 1].

Similarly DC adds verbal information in the form of opposites to assist the listener in guessing the targeted intent.

Another compensatory strategy was serialization. That is, DC used counting or serial speech to aid in word retrieval. For example:

"is 4..5..6 is bed" [increased emphasis and loudness on 6]

[Video, 4-22-92; DC, F1; 5]

The number series assisted DC in saying that she went to bed at 6 o’clock. Reverting to an easier, more automatic speaking task allowed DC to compensate for her inability to volitionally utter the number six. Her speech-language pathologist noted on reading an excerpt from a participant observation,

"now that I read this I have to say she did use that...not alot...not like ‘is’ or whatever...but she did use it...like trying to rehearse something or come out with something in the sequence. Not alot, but it did occur."

[Interview, 9-28-92; 12].

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In fact, serialization as a compensatory strategy or self-cue occurred only five (5) times during the videotaped conversations.

**Tactile self-cues** to articulatory placement have been touted as a form of facilitative strategy used by patients with apraxia of speech. Both of DC’s speech-language pathologists reported teaching DC strategies to enhance verbal production including tactile self-cues (such as placing her hand to feel aspirated air for plosives, or feeling lips together for bilabials). Both therapists reported that this strategy for facilitating verbal production was one of DC’s trained compensatory strategies. However, there were only two (2) instances of tactile self-cues during the 864 turns videotaped, and both of these instances occurred in speech therapy during verbal therapy tasks. While both were successful in eliciting the spoken target, this strategy did not appear to be of major importance to DC’s natural communicative success.

**Trained versus Untrained Compensatory Strategies**

Several strategies appeared to emerge naturally within DC’s communication system. For example, ‘is’ and ‘isy’ emerged as novel devices to regulate discourse. ‘I don’t know’, deictic gestures and some nondeictic gestures were premorbid behaviors which were recast to fulfill expanded communicative functions. In contrast, writing, gestural
signing, tactile self-cues and requests for help were compensations targeted in therapy by the speech-language pathologists. Table 26 and Figure 5 compare the proportions of trained and untrained strategies to total compensatory strategies used by DC across situations. Trained strategies included those listed by the speech-language pathologists (see Table 12 in Chapter 4). Natural strategies were compensatory strategies not listed by the speech-language pathologists, and assumed to have been acquired through means other than direct training. Remarkably, there was a preponderance of

Table 26.

<table>
<thead>
<tr>
<th>Situation</th>
<th># Trained</th>
<th># Natural</th>
<th>Trained/Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobby A</td>
<td>4</td>
<td>118</td>
<td>.03</td>
</tr>
<tr>
<td>Therapy B</td>
<td>43</td>
<td>152</td>
<td>.22</td>
</tr>
<tr>
<td>Cafeteria C</td>
<td>10</td>
<td>130</td>
<td>.07</td>
</tr>
<tr>
<td>Home D</td>
<td>46</td>
<td>436</td>
<td>.10</td>
</tr>
<tr>
<td>Therapy E</td>
<td>12</td>
<td>69</td>
<td>.15</td>
</tr>
<tr>
<td>Cafeteria F</td>
<td>32</td>
<td>287</td>
<td>.10</td>
</tr>
<tr>
<td>OT G</td>
<td>6</td>
<td>86</td>
<td>.07</td>
</tr>
<tr>
<td>Barrier H</td>
<td>3</td>
<td>10</td>
<td>.23</td>
</tr>
<tr>
<td>PICA I</td>
<td>2</td>
<td>11</td>
<td>.15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>158</strong></td>
<td><strong>1299</strong></td>
<td><strong>.11</strong></td>
</tr>
</tbody>
</table>
Figure 5. Trained vs. Untrained Strategies for DC by Situation.
natural strategies for this aphasic subject. Natural strategies represented 89% of DC's total compensatory strategies.

To further understand the pattern of strategy usage relative to treatment, the distribution of each trained strategy was viewed across situations. Specifically, a proportion of the number of each trained strategy used in each situation to the total number of each strategy was computed for each situation. The results are presented in Table 27 and Figure 6. It is interesting that writing and signing occurred most in settings D and F -- the settings in which DC felt most comfortable and socially accepted. Not surprisingly, requests for help and tactile self-cues occurred most frequently within therapy. Thus, trained strategies were not utilized equally across all settings. Moreover, trained strategies constituted a minority of DC's compensatory strategies overall.

In summary, microanalysis revealed a total of 17 compensatory strategies for DC. Based on this analysis and triangulated evidence from informants and participant observation, systematic usage patterns were identified. The compensatory strategies demonstrated clear functional significance for conveying information and/or contributing to social interaction. Moreover, the preponderance of strategies appeared to emerge naturally.
to overcome communication barriers after the onset of aphasia.

Table 27.

<table>
<thead>
<tr>
<th></th>
<th>Write</th>
<th>Help</th>
<th>Sign</th>
<th>Self Cue</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobby A</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Therapy B</td>
<td>2</td>
<td>33</td>
<td>6</td>
<td>2</td>
<td>43</td>
</tr>
<tr>
<td>Cafeteria C</td>
<td>0</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Home D</td>
<td>7</td>
<td>18</td>
<td>21</td>
<td>0</td>
<td>46</td>
</tr>
<tr>
<td>Therapy E</td>
<td>1</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Cafeteria F</td>
<td>6</td>
<td>8</td>
<td>18</td>
<td>0</td>
<td>32</td>
</tr>
<tr>
<td>OT G</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Barrier H</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>PICA I</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19</strong></td>
<td><strong>74</strong></td>
<td><strong>63</strong></td>
<td><strong>2</strong></td>
<td><strong>158</strong></td>
</tr>
</tbody>
</table>
Figure 6. DC's Trained Strategies by Situation: Proportions to Totals of Each.
AN ETHNOGRAPHIC INVESTIGATION
OF COMPENSATORY STRATEGIES
IN APHASIA

Volume 2

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in
The Department of Communication Sciences and Disorders

by
Nina Newlin Simmons
B.A., Louisiana State University, 1969
M.S., Tulane University, 1975
May 1993
Description of NN Compensatory Strategies

Like DC, NN utilized compensatory strategies to convey information and engage in social interaction. However, NN's language and motor speech resources were far more limited than those of DC resulting in greater dependence on regulatory strategies to limit her responsibility for message transmission while continuing to "fit in" socially. In addition, NN showed a smaller and less complex inventory of strategies. A total of seven (7) different compensatory strategies were identified for NN. The following sections address each of these compensatory strategies employed by NN.

Reiterative 'Yes' and 'No'

NN frequently uttered repetitions of 'yes' or 'no' in fluently articulated sequences such as 'yes yes yes'. The frequent occurrence of this rather exaggerated form of affirmation or denial suggested that it might serve as a compensatory strategy. Review of the videotape samples of spontaneous conversations revealed a total of 239 "runs" of 'yes' or 'no' over 723 turns. A run consisted of more than one 'yes' or 'no' uttered in series. A total of 607 individual occurrences of 'yes' or 'no' comprised these runs amounting to 25% of her total words produced.
Typically NN uttered runs of yes/no in a rapid "breathless" sequence paired with accentuating head nods, notable gaze attention to the speaking partner and an emphatic gesture. The utterances carried an enthusiastic tone as though NN was imminently interested in what the speaking partner had just said. Also, NN often shook a pointed finger towards the speaking partner while uttering the string as a further means of accentuating her interest in the speaker's statement. Frequently the 'yes' sequences overlapped with the end of a speaker's utterance as though she couldn't wait to reward the utterance. For example:

O: Frank went to his house?
M: Yes Yes yes!
   (points to O)
O: Oh, OK, that's why.
M: [Yes yes yes yes.

[Video,6/18/92;MM,C1;2]

Her use of repeated 'yes' or 'no' appeared to be a strategic behavior designed to display "exaggerated interest" in what the speaking partner had to say. In addition, the discourse device shifted the communication load to the other person by encouraging them to continue to talk topically. An interviewee agreed:
"well I feel like she's pulling you in .. she's keeping you with her by doing that."

[Lamination, 10-2-92; 7].

In fact, NN recast a natural form of agreement or denial to serve an alternative purpose -- to shift the communication burden and simultaneously encourage the speaking partner to continue the interaction. In this way NN could contribute politely and socially, albeit less informatively to the interaction.

It is notable that NN produced isolated 'yes' and 'no' also. There were a total of 189 instances of "lone" 'yes' or 'no' utterances during the videotaped situations. Thus, it appeared that NN was able to simply affirm or deny a statement with a single 'yes' or 'no' when deemed appropriate. The contrast between a single utterance and reiterated utterance further highlighted functional differences. The single utterance of 'yes' or 'no' served a simple semantic goal -- to affirm or deny; reiterative 'yes/nos' were used strategically to regulate interaction as well as communicate meaning. For example in the following interchange the goal of 'yes' is transactional rather than interactional; NN and her husband exchange information about a plan to attend mass.

O: Well, look in the booklet.

N: Yes
O: Find out if anyone has a five or five-thirty or six.
N: Yes
O: I might be busy and we may not be able to go until then.
N: Awright.

[Video,6-20-92;MM,D3,39;86]

In this simple exchange of information, NN had no need to exert communicative effort with a reiterative 'yes' or to encourage her partner to continue talking. The strategic behavior was replaced by the simple affirmation. This might be compared to the following example:

O: Oh her daughter is getting married?
NN: Yes yes yes
(Shakes pointed finger at O)
O: So they had a party?
NN: Yes yes yes, very nice.
O: Yea, I bet probably it goes in waves doesn’t it...like everybody’s daughter is getting married.

[Video,6-22-92;NN,F6;43]

The information exchanged in this sample is typical "social chit-chat". There would have been no negative consequences if the speaking partner failed to learn about the party; the interaction served a primary purpose.
of social affiliation. Thus, the reiterative 'yes' communicated meaning, but also served a significant function in maintaining the social interaction and encouraging the speaking partner to talk.

In order to further determine patterns of occurrence and functional significance, yes/no runs were examined by speech act category. The utterances were used to respond to three different speech act types of the speaking partner. First NN used yes/no runs to agree or disagree with statements or constatives (Bach & Harnish, 1979) performed by the speaking partner. Second, she used yes/no runs to respond to questions (directives) posed by the speaking partner. Finally, NN used yes/no runs to confirm or reject the speaking partner's guesses or interpretations of NN's preceding turn (suggestives). The frequency of yes/no runs and the proportion to total yes/no runs for each speaking partner speech act are presented in Table 28.

Table 28.
Yes/No Runs in Response to Three Speech Act Categories.

<table>
<thead>
<tr>
<th></th>
<th># Runs</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statements</td>
<td>60</td>
<td>.25</td>
</tr>
<tr>
<td>Questions</td>
<td>32</td>
<td>.13</td>
</tr>
<tr>
<td>Guesses</td>
<td>147</td>
<td>.62</td>
</tr>
<tr>
<td>Total</td>
<td>239</td>
<td>1.00</td>
</tr>
</tbody>
</table>
It is interesting that NN used 62%, the majority of yes/no runs, in repair sequences; that is, she attempted to confirm or reject the speaking partner’s guess or interpretation of what she had attempted to communicate while simultaneously employing a device to keep up the flow. Thus, it appeared that NN was attempting to encourage "other-repair" of her own utterances, and promote the continuation of the interchange in spite of a communicative breakdown. An interviewee noted on observing NN’s ‘yes yes yes’ response to him on videotape:

"OK so that’s a big YES...()... she really signals to me that I was right. I think she was trying to give me a reward (laughs)"

[Lamination, 10-2-92; 15].

Further examination of these data revealed an interesting distribution in listener responses to turns with yes/no runs. Of the 60 turns in which yes/no runs agreed or disagreed with the speaking partner’s statement, 83% resulted in a sustaining response by the listener. Similarly, of the turns used to respond to a question, 78% resulted in sustaining responses by the listener. By comparison, only 40% of the yes/no turns confirming or rejecting the partner’s repair attempt were sustained. This apparently poorer response to NN’s
enthusiastic and encouraging utterances at first seemed unfortunate. However, further examination revealed that many of the "failed" repairs represented repeated attempts of the speaking partner to guess a single intent. For example:

NN is describing a picture to the clinician.
The clinician cannot see the picture.
SLP: Somebody is in the hospital?
NN: No, No...the uh ahntide...uh...yes
    (shakes hand)    (points)
SLP: The outside?
NN: Yes yes yes.......the uh hospital.
    (points at SLP)
SLP: The outside of the hospital?
NN: Yes yes yes.
SLP: Oh. Is that what it's a picture of?
NN: Yes, yes...very nice.
SLP: (looks at picture) Oh yea, city hospital
    OK.

[Video,6-15-92;MM,G4;26]

The above example includes several requests for clarification (in the form of interpretive questions or guesses) until finally the negotiation succeeds. The use of an exaggerated interest strategy appears to have succeeded in encouraging the speaking partner to "keep at it" and continue guessing. In fact, as the clinician
participant in this interaction, I felt quite reinforced by NN's responses to my attempts to guess and NN's final congratulations of my "very nice" performance. As a speaking partner I felt attended to, liked and complimented by NN's interest. NN's behavior not only makes the partner "feel good" about an otherwise burdensome and inefficient means of exchanging information, but also forges a social bond. A similar impression was presented by another speaking partner:

"...she also reinforced, like that one time with a big YES, like I had guessed it and like a payoff for me. I think there were alot of 'yes', alot of 'you are getting there' words and that helps alot"

[Lamination,10-2-92;35].

The function and evolution of this compensatory strategy is highlighted through examination of situational variation. Table 29 presents frequencies of individual instances of yes/no within runs and proportions to total words by situation in ascending order from lowest to highest proportion; Figure 7 graphically depicts situational variation in the proportion of yes/no within runs to words uttered by NN. The barrier activity and two early recovery videotapes are included for purposes of comparison.
Table 29.

Proportion of Yes/No Occurrences within Runs to Total Words for Each Situation.

<table>
<thead>
<tr>
<th>Situation</th>
<th># yes-no/total words</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Clinician 11/90 Conversation</td>
<td>26/580 = .04</td>
</tr>
<tr>
<td>B - Clinician 1/91 Conversation</td>
<td>6/158 = .04</td>
</tr>
<tr>
<td>J - Clinician 8/92 PICA</td>
<td>5/117 = .04</td>
</tr>
<tr>
<td>I - Stranger 8/92 Barrier Activity</td>
<td>13/116 = .11</td>
</tr>
<tr>
<td>F - Clinician 6/92 Conversation</td>
<td>44/227 = .19</td>
</tr>
<tr>
<td>E - Husband 6/92 Conversation</td>
<td>78/363 = .21</td>
</tr>
<tr>
<td>D1 - Husband 6/92 Conversation</td>
<td>33/153 = .22</td>
</tr>
<tr>
<td>G - Clinician 6/92 PACE Therapy</td>
<td>113/504 = .22</td>
</tr>
<tr>
<td>D3 - Husband 6/92 Conversation</td>
<td>117/517 = .23</td>
</tr>
<tr>
<td>C - Friend 6/92 Conversation</td>
<td>43/132 = .33</td>
</tr>
<tr>
<td>H - Stranger 8/92 Conversation</td>
<td>98/281 = .35</td>
</tr>
<tr>
<td>D2 - Sister 6/92 Conversation</td>
<td>81/230 = .35</td>
</tr>
</tbody>
</table>
Figure 7. Yes & No by Situation: Proportion to RN's Words.
The first and most obvious variation exists for early recovery transcripts (A, 11/90 and B, 1/91). During the first two years of NN’s disease, she demonstrated very few runs of yes/no; in fact, yes/no constituted only 4% of her words produced. This of course, is not surprising since during the early transcripts NN had no need to shift the burden of communication to the speaking partner or establish more than the "normal" bond of solidarity and politeness. She retained relatively good lexical access and grammatical form (e.g. mean length utterance for the 1991 transcript was 15.8 words) and she was experiencing very few communication breakdowns. In fact, all instances of runs during these early transcripts were in response to questions (3 runs) or to agree or disagree with the partner’s statement (10 runs). Furthermore, there were relatively few turns with greater than 2 'yes' in a series, whereas runs of 3, 4, 5 and even 6 'yes' were found in more recent samples. It appears that a relatively natural behavior grew in frequency, and became exaggerated in manner over time to be recast as a compensatory strategy -- a strategy particularly suited to carry on repair sequences. That is, as her speech began to fail, a normal behavior was transformed to help NN keep her partner interested in pursuing the difficult work of negotiating meaning.
Situation J, the PICA evaluation, evidenced minimal 'yes/no' runs; this finding is not unexpected since standardized tests typically do not provide patients an opportunity to engage in discourse or shift the communication burden. It might also be noted that situation I, the barrier activity, was at the lower end of the occurrence continuum for yes/no runs. It is probable that a contrived activity such as this, designed to elicit new information visible only to the aphasic speaker, did not truly conform to natural communication situations. First, it did not allow the aphasic speaker to opt out of communicating new information, nor did it allow her to shift this burden to the speaking partner. In other words, the speaking task by definition required the aphasic speaker to dispense of strategies that might force the speaking partner to provide the content. Furthermore, the activity did not allow the speaking partner to ask questions or guess until the speaking partner finally chose from the multiple choice responses. This eliminated the guess-confirm/reject sequences so typical of NN’s natural conversations.

The somewhat lower occurrence rate of yes/no runs during conversations with her husband (D1, D3, E) and her speech-language pathologist (F,G) could be related to several factors. First, the husband-wife interactions represented a markedly different affective tone than the
interactions with her sister, her friend and the stranger. During interactions with the latter three NN was effervescent, attentive, and nonverbally interactive; with her husband she tended to be more emotionally muted. One lamination observer compared his own conversation with the husband’s conversation:

"she’s much more passive with her family (husband) than with me" and "he doesn’t work as hard..he’s not initiating alot"

[Lamination,10-2-92;25,27].

And finally:

"before she was much more animated -- like with me and with her sister..giving alot of signals and initiating more..but with her husband she initiated conversation but it was in a different way"

[Lamination,10-2-92;30].

This alteration in interactive style and use of compensatory strategies with her spouse is not unexpected given the often routine interactions typical of husbands and wives. However, it does emphasize the bias towards using "exaggerated interest" as a strategy outside of the home situation. Apparently, NN marshalled her compensatory strategy for communicating with "others" outside of her nuclear family in order to interact socially.
Also there existed in NN’s relationship with her husband an apparent power asymmetry (as reported by her sister and observed on tapes) with the husband exerting a great deal of control over NN. For example, one lamination group member noted:

"Just his tone of voice...everything...like he’s in control"

[Lamination,10-2-92;30].

Perhaps this power asymmetry contributed to the lower occurrence of a social control/regulatory device which might stage NN as adversarial. The lower occurrence with the clinician could also relate to the power differential. As noted previously there exists an asymmetry within treatment sessions with the control clearly residing in the hands of the clinician.

The highest occurrences of yes/no runs were found in situations C, H and D2. All three of these situations represented natural interactions with someone other than NN’s spouse or speech-language pathologist. These situations were lively and social, with NN approaching the negotiation of talk with gusto.

Thus, reiterative yes/no was a strategic behavior for encouraging the speaking partner to retain the communication load while maintaining the flow of the social interaction. This compensatory strategy was used most often in highly social settings during repair.
sequences or to affirm statements and questions. The compensation appeared to evolve out of a "normal", existing behavior within NN's communication repertoire emerging as a spontaneous social control strategy.

Positive Descriptors' as Compensatory Strategies

In addition to strings of 'yes' or 'no', NN frequently used descriptors such as 'really', 'nice', 'very nice' and 'wonderful' to express agreement with the speaking partner. One of NN's conversational partner's noted:

"most of the words that she says are general...not that substantial...they're more expressions -- really, nice, uhuh, lovely...just kind of little expressions like that..."

[Interview,10-2-92;21].

NN's husband also noted her use of these words at social gatherings:

"people will ask her something and she'll say 'wonderful' or uh 'very nice' 'lovely' or uh words that she knows she can still say and you know not really get into a lot of details"

[Interview,8-18-92;2].

The frequency of these utterances targeted them as possible compensatory strategies. Therefore, analysis was conducted to determine a pattern of occurrence and functional significance.
A total of 210 instances of 'really', 'nice' or 'wonderful' were found out of 723 turns in NN's video transcripts. Data from early transcripts (A, B) and the barrier activity and evaluation (I, J) were not included.

As with the yes/no runs, the positive descriptors 'really', 'nice' and 'wonderful' typically were uttered fluently and articulately. They conveyed a positive tone and high attention to the speaking partner. While the usual function of these words in the context in which they were uttered would be to affirm, their purpose went beyond the semantic intent to affirm. They were "recast" to perform a regulatory function within the discourse. The words played a major role in shifting the burden of message transmission back to the speaking partner. In fact, when asked if 'really', 'wonderful' and 'nice' were compensatory, one interviewee said:

"Oh yea..Oh yea..cause they take the place of alot of words that we use and its her keeping in the conversation and its for giving the listener responsibility."

[Lamination, 10-2-92; 32].

The following interaction demonstrates NN's use of these expressions:

O: Been to Paris?
N: Yea...uh...really.
O: Oh, I was just talkin to my sister about Europe. that...and we said ya know we’ve never been to Europe 
N: Very Nice 
O: She said we should go take a trip to Europe. 
N: oh...really nice. 
O: So you recommend Paris huh? 
N: Very nice!

[Video,8/4/92;NN,H4;32]
This interaction demonstrates the success of these utterances in keeping the speaking partner talking. In fact, this compensatory strategy usually was successful. Not surprisingly, 81% of NN’s positive descriptor turns resulted in sustaining responses by the listener. This might be compared to a 57% overall rate of sustaining responses during the taped sessions. In other words the listener usually continued to talk topically after NN uttered ‘nice’, really’ or ‘wonderful’. One interviewee noted

"(she is) very reactive...the other person’s doing all the talking"

[Lamination,10-2-92;21].
Thus, the preponderance of sustaining responses support the role of these positive markers in shifting the message transmission burden to the partner who then "does all the talking".
The distribution of these positive markers by situation also tends to support their role in shifting the communicative burden while affiliating with the speaking partner. Table 30 presents the frequency of 'really', 'nice' and 'wonderful', and their proportion to turns by situation.

Similar to the usage patterns of yes/no, these words occurred often in the situations with her friend (C) and her sister (D2), while situations involving routine conversations with the spouse (E, D1) or structured activities which force NN to convey information (G, I) showed lower proportions of the discourse strategy.

Interestingly, the evolution of these words into compensatory usage was similar to that of 'yes' and 'no' runs. During the early recovery videotapes (A and B), these words were never used to affirm and convey interest in the speaking partner. However, each appeared in their normal lexical usage on several occasions during the early tapes. The following examples demonstrate the usage patterns of these words as modifiers rather than to affirm statements during early samples.

"I took a course years ago and I really enjoyed that..."
[Video,11-12-90;NN,A6;30]

"She's uh marrying a nice boy...uh nice MAN!"
[Video,1-8-91;NN,B2;8]
Table 30.

Frequencies of positive Descriptors and Proportion to Turns for Each Situation.

<table>
<thead>
<tr>
<th># Descriptors/ # Turns</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 - Husband</td>
<td>4/60</td>
</tr>
<tr>
<td>I - Barrier</td>
<td>5/31</td>
</tr>
<tr>
<td>E - Husband</td>
<td>19/108</td>
</tr>
<tr>
<td>G - SLP -Tx</td>
<td>33/146</td>
</tr>
<tr>
<td>D3 - Husband</td>
<td>36/121</td>
</tr>
<tr>
<td>H - Stranger</td>
<td>29/96</td>
</tr>
<tr>
<td>F - SLP -Convers.</td>
<td>21/58</td>
</tr>
<tr>
<td>C - Friend</td>
<td>19/44</td>
</tr>
<tr>
<td>D2 - Sister</td>
<td>49/90</td>
</tr>
</tbody>
</table>

Since the purpose of the positive descriptors appeared similar to that of 'yes/no' runs, the data for these were collapsed into a category of "exaggerated interest markers". Figure 8 represents graphically the proportions of interest markers to total words across situations. Again it was apparent that situations with her sister (D2), friend (C) and stranger (H) stood out as different from the others in the higher proportion of exaggerated interest markers. On the other end of the continuum were situations involving routine conversation with her husband (D1, D3, E), speech therapy (F, G), barrier activities (I) and evaluation (J). This distribution further reinforces NN's use of interest markers.
Figure 8. Total Interest Markers by Situation: Proportion to NN's Words.
markers as a means of being social. NN's husband observed the use of the exaggerated interest strategy in "fitting in" during a party:

"we stayed pretty much together a lot of times so that when people came up and wanted to talk you know, I would in effect be the interpreter...()...then she just makes her comments you know 'wonderful', or 'very nice' or you know, with a big smile and everything else and people say 'hey everything is all right'"

[Interview, 8-18-92; 25].

Thus, NN exerts a degree of social control by opting out of message transmission and substituting polite, positive affirmations of the speaking partner's conversational contributions. Similar to 'yes/no' runs, 'really', 'nice' and 'wonderful' emerge as compensatory strategies with a clear function in NN's discourse. In spite of her limited ability to contribute substantive information, these words allow NN to participate in the dialogue and encourage the speaking partner to continue talking.

**Avoidance as a Compensatory Strategy**

In addition to using exaggerated interest words to shift the burden of message transmission, NN also tended to avoid talking at times. This behavior was markedly different from NN's outgoing premorbid personality.
She felt that in situations with unfamiliar people and groups of people, the most appropriate thing to do was to avoid getting into communicative trouble. The following example typifies NN's avoidance of communication in public situations.

NN is telling about going to a party.

O: A party?
N: Yes yes yes yes....uh not uh not uh tawding...tawding
O: Talking?
N: Yes
O: So you don't talk?
N: [ no
(shakes hand)

[Video, 6-22-92; NN, F; 35]

At other times avoidance worked in concert with the exaggerated interest strategies to allow NN to be polite, interested and animated without being forced to transmit information. Both NN and her husband were aware of the exaggerated interest strategy paired with avoiding content as demonstrated in the following interchange.

NN and her husband had gone to a party. Her husband asked NN if she talked to anyone at the party. She replies that she talked very little.
O: You talked just a little bit?
N: Yes
O: Mostly uh uh - "really" "wonderful"...

N: Yes yes

(points to O)

O: "All the time" and "good for me"!

N: Really.

(they laugh)

[Video, 6-21-92; NN, E; 19]

Similarly her husband reported that:

"...at family dinners or something like that
she may not say anything during the whole meal"

[Interview, 8-18-92; 2].

The investigator noted the difference in NN's interactive behavior when she was alone with a conversational partner versus sitting in a group at the cafeteria:

"I was struck by the difference in her behavior here...she was quiet and almost withdrawn, though still sweet and polite..."

[Observation, 8-4-92; 1].

Thus, similar to DC, NN preferred to avoid communication trouble with acquaintances or strangers in public when conveying information was not critical.

**Gesture as a Compensatory Strategy**

Like DC, NN used gestures frequently during interactions. The gestures were used to overcome barriers imposed by NN's severe aphasia and were employed in a purposeful systematic manner. Moreover, the
frequency of gesture was dramatically increased and the function of certain gestures was altered (recast) as NN’s aphasia progressed. Thus, gestures were considered a compensatory strategy.

In fact, 645 gestures were counted over the 723 videotaped turns studied. Gestural turns often contained several gestures with a range of 1 to 7 gestures per gesture turn. Examination of the videotapes revealed that her gestures fell into two major categories, including regulatory gestures and meaningful gestures. Regulatory gestures were those which served to control the interaction or served a primarily interactive role. Meaningful gestures were those which conveyed content or served a primary role in message transmission.

**Regulatory gestures**

Regulatory gestures predominated in the gestural system for this aphasic individual. NN used 426 regulatory gestures during 723 videotaped turns studied. Furthermore, there were several subsets of regulatory gestures which were used systematically throughout the samples.

For example, NN demonstrated a pattern of gestural behavior associated with the introduction of information content. Although one of NN’s strategies was to avoid carrying the information load, when she wanted to communicate information she typically used an initiation
gesture which held her place and signaled coming verbal content -- the gestural equivalent of DC's 'is'. During the 723 turns, NN displayed 124 initiation gestures. The initiation gesture typically, though not invariably, involved raising her right hand upward or pointing upward. Often the initiation gesture would accompany the verbal placeholder 'uh'. This behavior held her turn by alerting the speaking partner to give her time to process. It also served to "point to" coming information in a manner similar to the 'is' marker of DC.

O: I like your hair cut. It looks good.
M: Uh...very nice. ___ Uh...Neena. uh _________.
   (finger up)  (points to table)
O: These are Nina's things?

[Video,6-20-92;NN,D2]

NN affirms the speaking partner's compliment, then alerts her to a topic shift and new information with the 'uh' plus gesture. A lamination interviewee related the following after observing her gestures and body movement:

O: It can be perceived as a strategy to 'give me more time, I want to say something' ya know, 'I want to get some idea across'...I mean automatically when a person is typing you stop and wait, but verbally you don't know how much time to give somebody"
I: So that's like a signal?
O: Yea. She really does signal.

[Lamination, 10-2-92; 8]

Frequently the initiation gesture would "give way" to a second gesture -- an emphasis gesture. This gesture marked the important content of the utterance. For example, NN would raise her finger at the beginning of an idea, then while verbalizing she would punctuate the key word with a forward movement of the raised finger as follows:

O: Were you there all day?

N: Uh uh .. two tahk...tik tahk [types word] [pts up] [jabs forward with finger]

[Video, 6-15-92, NN, G8; 60]

An interviewee noted of emphasis gestures:

"(they) are kind of part of the sentence like drawing a line (under it)"

[Lamination, 10-2-92; 24].

Thus, emphasis gestures which marked or "underlined" important content helped the listener allocate attention when a key word was attempted. There were 59 emphasis gestures over NN's 723 turns.

Interestingly of the total initiation and emphasis signals, 87% of these gestures introduced new information into the discourse. This might be compared dramatically to NN's total of 40% percent new information across all 723 turns. This certainly supports the role of
initiation and emphasis gestures in introducing then highlighting NN's important contributions to the conversation.

In addition to the initiation and emphasis markers on important content, NN used accentuation gestures to affirm the listeners statement or guess. These affirmation gestures often accompanied yes/no runs, 'really' and 'nice' -- the exaggerated interest devices. Affirmation gestures involved a hand movement towards the speaking partner, often combined with finger shaking when extra emphasis was desired.

NN is explaining a recent celebration.

O: Oh your friend.

N: the uh.. daughter of.. uh is marry ______.  
[pts up] [extends hand outwards]

O: Oh her daughter is getting married?

N: Yes yes yes.

[pts and shakes finger towards O]

[Video,6-22-92;NN,F6;42]

There were a total of 76 affirmation gestures. As might be expected 83% of the affirmation markers were associated with old information. In other words, these gestures usually occurred when NN was agreeing with what had gone before in the conversation.

The affirmation gesture paired with 'yes/no' runs, 'really', 'nice' and 'wonderful' constituted a powerful
incentive to the speaking partner to remain active in the interaction. For example, one conversational participant with NN noted of these gestures and verbalizations:

"well that pulls me in and makes me want to stay with her and to talk to her some more, that she has alot of interest on her part and physically it's almost like someone is reaching out and touching you, you know, I mean reaching out like that."

[Lamination, 10-2-92; 16]

Another frequently used regulatory gesture signaled NN's desire to shift the turn to the speaking partner. There were 88 of these turn shifting gestures over 723 turns. This was usually indicated by pointing towards the listener or extending her hand palm up towards the listener. Unlike the affirmation or emphasis gestures, this motion was typically "held" still. The gestural signal was accompanied by steady gaze and forward body lean to reinforce the message. Intonation also assisted to convey the intent to shift roles. The intent was to have the speaking partner answer a question, fill in, guess or take over the existing topic.

N: Yea uh wus wuk bwiswick____.

[pts up] [pts at O continuing into his turn]

O: Brisket?
N: Yes yes yes, very nice.

[pts and shakes finger towards O]

[Video, 6-21-92; NN, C10; 76]

On occasion this gesture was exaggerated in a 'plea for help'. The coverbal cues surrounding the shift of turn gesture and the magnitude of the gesture further "forced" the speaking partner to help out by providing the sought after word(s). One observer noted

"there's a certain look that she gets that makes you feel like you're gonna help her out some more..this certain childlike expression she does like (demonstrates leaning forward, wide eyed, mouth slightly open and hand extended)...like 'please help me'"

[Interview, 10-2-92; 33].

Within the counted turn shifting gestures, there were 29 instances of requests for help. One interviewee observed himself on tape when NN requested help gesturally:

"this is like charades here (laughs)..she goes like [gestures hand out palm up] ..'more'..I started to say part of the word I think and she's saying like come on ...stretch it out"

[Lamination, 10-2-92; 15].

The final type of regulatory gesture observed was a termination signal manifested by "hand clasping". There were 79 examples of hand clasping over the 723 turns
studied. This peculiar motion was performed in a systematic pattern to mark the end of a proposition or topic sequence, or to mark a pause within NN's discourse at which time she needed to regroup or shift to a new idea. Of the 79 hand clasping gestures, 68 (86%) occurred in conjunction with old information at the end of a topic sequence. Of those not paired with old information, 6 marked the end of an utterance with new information and 5 marked a shift in orientation during an utterance. Thus, hand clasping served a "pre-closing" function for topics or signaled that an idea was being abandoned. Following is an example of NN's hand clasping termination gesture.

O: We're talking about French huh?
N: Yes yes yes uh *haman* .... uh awright

[pts to her ring]

[sits back] uh *really*.

[clasps hands]

[Video,8-4-92;NN,H5;38]

In the above segment NN wished to convey to her speaking partner that her husband spoke French, but failing to get this idea across, she sat back in her chair and clasped her hands indicating that she had abandoned her attempt and the field was open. This gesture lacked the direct control of the more obvious "turn shifting" gesture described earlier. Rather the
subtle hand clasping movement gave the listener the freedom to continue on topic, introduce a new topic, or wait for NN to continue.

In order to further verify the systematicity of these regulatory gestures, each situation was analyzed independently. Figure 9 presents the relative proportions of regulatory gestures to words uttered for each situation. Note that early recovery videos (A and B) are included, as well as barrier activity (I) and PICA testing (J) for purposes of comparison.

It is interesting that the situations comprising the highest proportions of regulatory gestures were the PACE activity (G) and the conversation with a stranger (H). These situations involved speaking partners who were less familiar to NN and involved the transmission of more information unknown to the speaking partner. In these situations, perhaps NN needed more regulatory gestures to alert her less familiar speaking partners to her discourse intentions.

Situations I (barrier activity) and J (PICA) were notable for the lower proportions of regulatory gestures employed. As noted with DC's 'is/isy' results, compensations designed for social intercourse were not used frequently during structured language evaluation situations, in spite of the need to transmit new information.
The early recovery videos (A and B) are included for purposes of comparison over time even though the quality of regulatory gestures was different during this early stage. The gestures observed during these early tapes were very subtle, conforming to natural timing and punctuation gestures observed among normal speakers. Again a natural communication behavior apparently expanded in frequency, quality, and functional significance to gain a prominent position within NN’s compensatory strategy repertoire.

**Meaningful gestures**

In addition to the regulatory gestures, NN did employ meaningful gestures to convey information when verbal means failed. NN produced a total of 219 meaningful gestures during the 723 turns studied. As defined earlier, meaningful gestures consisted of deictic pointing movements which referred directly to physical or temporal context, and nondeictic gestures which were not recoverable directly from the physical or temporal context.

NN’s deictic gestures reflected her considerable dependence on context for message transmission. For example:

NN: uh abrom ...the uh abrum...the uh

(pts towards door) (pts towards door)

O: The study? the back room?
Nondeictic gestures were typically naturally occurring meaningful movements such as sweeping her right hand outward palm down in an expansive "magnitude" gesture, clenching her fist or holding up fingers for numbers. Interestingly, in spite of extensive training in Amer-Ind signs, she used signs on only 9 occasions and only two of these were to convey information. In other words, seven (7) of the signs produced occurred after the speech therapy assistant asked her "what else she used to communicate":

NN: Yes yes yes...Lina uh Lina the um [signs pray and sleep] good?
O: Like sleeping?
N: Yes yes [pts. to O]
O: You use gestures?
N: Yes yes
O: What's another one you use if you can get em?
N: [signs pray]
O: Pray?
N: Yes yes yes yes. [signs hot] haht haht
O: Hat?
N: No no

[Video, 8-4-92; NN, H11; 85]

Thus, NN proceeded to demonstrate several signs taught her by the speech-language pathologist. It is interesting that NN quickly related a series of seven (7) signs to the speech assistant, yet very rarely used these to supplement her severely limited verbal inventory. Her husband agreed:

"the gestures that you gave her... those, she hasn’t gone into those, and uh uh she hasn’t used those with me and uh I haven’t seen her use those with any of the kids"

[Interview, 8-18-92; 10].

One clue to the failure to use signs might rest with the success of the two signs which she did employ. On both occasions where NN used a sign within the interaction to communicate an idea, the speaking partner failed to comprehend the intended meaning. Gestural signs appeared to be of limited usefulness as a compensatory strategy for NN.

Thus, NN used both regulatory and meaningful gestures. Regulatory gestures maintained the floor, marked information content, shifted orientation and affirmed
speaking partner's utterances. Meaningful gestures conveyed information, primarily through referential pointing or natural gestures; gestural signs were rarely observed.

**Contextualization Cues as Compensatory Strategies**

As previously mentioned the nonverbal and suprasegmental "contextualization cues" which enfold an utterance can convey a great deal of information to the speaking partner about how to interpret a message. NN employed contextualization cues extremely effectively to supplement communication. Body language, intonation, facial expression, head nods and gaze not only assisted in the transactional aspect of communication, but also contributed to her social control. For example, an interview participant remarked:

"I think socially in terms of ...we didn't talk about like intonation before...but sometimes when you talk about strategies even if they only have one word, they use intonation to get across whether its a question or how they feel about it or you know. She uses facial expression and I think she does use body posture and eye contact and kind of.. uh she appears to be interested that 'I want to
communicate' so that kind of makes me feel like I will work with her."

[Lamination,10-2-92;8].

Later this same informant noted:

"She seemed very receptive and friendly and makes you feel like she's really interested in communicating like she's really gonna try...you know... just alot of that energy"

[Lamination,10-2-92;9].

Thus, the combination of strategies -- exaggerated interest markers, regulatory gestures and contextualization cues, conspired to promote social interaction in spite of a seriously weakened language system.

'All the Time' as a Compensatory Strategy

NN used the phrase "all the time" 46 times over the 723 videotaped turns. The phrase was uttered fluently and articulately. In order to determine if this phrase constituted a compensatory strategy, patterns and purpose were sought. Analysis suggested that 'all the time' was a semantically driven marker used to express "magnitude". Samples could be variously interpreted to express meanings such as always, alot or everyone. Thus, a premorbid phrase was recast to fulfill a category of meanings. For example:

0: Is it one fan or...
N: No no no...all the time.
[points to C] [sweeping gesture]
O: Ok...so there's alot of them.

[Video,6-15-92;NN,G6;47]
O: Is that what you're saying? Wash the porch?
N: yea, yea....all the time.

[sweeping gesture]
O: all of it!
N: yes.

[Video,6-20-92;NN,D2;14]
This phrase did not appear in the two early transcripts (A and B). Apparently, the device developed over time as NN's speech and language deteriorated; thus, one phrase emerged to signify several related meanings. As can be seen in the above examples, listeners generally understood the intent. The success of the phrase was probably increased by frequently pairing it with a sweeping limb gesture which accentuated the idea of magnitude or expansiveness.

Computer as a Compensatory Strategy

In December, 1992 NN's sister gave her a "purse size" spell-check computer to assist her in communicating words that she could not verbally produce. Letters typed into the keyboard were displayed on an LED readout. NN expressed interest in using the device to augment her failing speech. Therefore, the clinician incorporated
computer use into weekly treatment sessions to build this compensatory strategy. Computer usage clearly fit the definition of compensatory strategy as a novel behavior designed to overcome a communication barrier. Therefore, videotapes were analyzed in a search for systematic patterns of usage.

Observation of videotaped interactions revealed that out of 723 turns, NN used the computer on 37 occasions. When the barrier activity I is included in these data, the number of occurrences jumps to 52 occasions out of 754 turns. NN used the computer to repair communication breakdowns in 28 out of 37 turns (.76) (data from the barrier activity I is excluded here since the format prevented normal repair sequences).

Surprisingly, computer usage as a strategy occurred in only four (4) of the nine (9) situations studied (Table 31). She did not use the computer while conversing with her friend (C), her husband (D1, D3 and E) or her sister (D2). When asked if his wife used her computer outside of the home, NN’s husband said she:

"...carries it with her and uses it with her mother and sisters".

When asked if she used it with others he said:

"I can’t say that I know that...()...whether she’s ever used it in a store or grocery or
shopping or something like that I don't know if she has."

[Interview,8-18-92;9].

When asked if she used her computer in the grocery, with strangers or with acquaintances, NN got a "sheepish" look and shrugged her shoulders and said "not really"
[Interview, 10-26-92;2]. Use of this strategy appeared limited by situation.

There are several observations that are pertinent to this unusual distribution of the computer compensatory strategy. First, the speech pathologist was present for two of the sessions in which computer use occurred (F and G), and the other two sessions occurred in the speech

Table 31.

Frequency of NN's Computer Use Compared to Turns by Situation.

<table>
<thead>
<tr>
<th>Situation</th>
<th># Tries/Turns</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>F - Clinician</td>
<td>2/ 58</td>
<td>= .03</td>
</tr>
<tr>
<td>G - PACE</td>
<td>18/146</td>
<td>= .12</td>
</tr>
<tr>
<td>H - Stranger</td>
<td>17/ 96</td>
<td>= .18</td>
</tr>
<tr>
<td>I - Barrier</td>
<td>15/ 31</td>
<td>= .48</td>
</tr>
</tbody>
</table>

clinic (H and I). Thus, all computer use sessions could have been associated in some way with speech-language therapy by NN. It has been suggested that behaviors learned and reinforced in therapy become "tied" to the
therapy setting and might not generalize to other situations. Perhaps this situation-specific form of learning applied here.

A related possibility was "expectation". The expectations and underlying goals inherent in a situation or speaking partner can influence the use of a strategy. Perhaps NN felt that "speech therapists" expected her to use all strategies trained in therapy, and altered her behavior to fulfill these expectations. Conversely, during videotaped conversations her husband and sister did not request her to use the computer and seemed to expect a verbal exchange. For example, one lamination interviewee observed a conversation with her husband and sister, and stated:

"when she does try to get an idea across she's doing it all verbally...()...so she's not looking for that (computer) and there may have been something that since this is her family that they have set up a certain habit of their method of communication"

[Lamination,10-2-92;21].

Similarly:

"..in the way he wants her to pick up her cup with her right hand...he wants her to get her words out verbally...expecting her to..()...I wonder why she doesn't go to something else!"
All this time and she’s not getting any help and I wonder why she doesn’t try writing or something..."

[Lamination, 10-2-92; 28].

Perhaps NN’s husband’s expectation that she should talk, combined with a power differential in his favor, collaborate to eliminate the computer alternative as an option here. This is supported by the following observation:

"I think um she’s no longer deciding her strategies..he’s deciding for her..like expecting her to do all this talking"

[Lamination, 10-2-92; 30]

The familiarity of speaking partners also appeared to influence choice of the computer strategy. All four sessions in which computer usage occurred involved a speaking partner who did not have intimate or in-depth knowledge of NN’s day to day activities. While new information was transmitted during all videotaped sessions, it is very possible that the there was a heavier burden placed on NN in sessions F, G, H and I due to a reduced amount of shared background knowledge. That is, the speaking partners had far less background experience and knowledge to call upon to help them guess what NN tried to communicate. For example, the two exchanges which follow were each coded as "new"
information, yet the first appears to require far less "guesswork".

O: ...so evidently it'll be just me and Paul and Tom, ya know, playin golf.
N: yes, alright. Maybe uh Tom come...Becky...the uh...is good for me.
O: Oh in other words when we go over
N: [yes]
O: I drop you off at Tommy and Becky's
N: [holds hand out palm up as in question]
O: and you stay with Cheryl and Becky
N: [yes]
O: while we're playing golf
N: yes... alright?
   [hand out palm up]
   [Video,6-20-92;NN,D1,2;6]
O: Do you work?
N: No no no
   [hand out & nodding]
O: Did you used to work?
N: Yea uh uh I all the time uh uh (types on C)
   [holds finger up]
O: That's not teacher? that's teacher? You're a teacher?
N: [Yes yes yes yes yes all the time.]
[sweeps hand]
[Video,8-4-92;NN,H1;7]

In the first situation, NN is introducing the "new" idea that she will visit Becky while her husband plays golf; there has been no prior mention of this in the discourse. However, NN's husband shares with her the knowledge that Becky is Tom's wife, Becky will be a golf widow too, and that NN likes to visit her. In the second interchange, the speaking partner is a stranger to NN and is trying to find out unknown information in a typical "what do you do" social exchange.

Furthermore two of the computer situations required the communication of totally new information to the speaking partner as part of the format of the sessions. Session G entailed a PACE activity (Davis & Wilcox, 1985) which involves communicating unknown information to the speaking partner through whatever means are available. Similarly, the barrier activity (I) required that NN transmit information about a picture hidden from the speaking partner.

In fact, all computer turns involved the transmission of new information, either initially or as a self-repair attempt. NN apparently used the computer strategy more when she was required to provide information which was unknown to the partner. She was less likely to use the
computer when her speaking partners could guess the topic and content of her verbal utterances. A comment by NN’s husband supports this suggestion. When the clinician asked him to comment on the absence of the computer from the home videos he stated:

"yea, well...hmmmmm.......I guess she just didn’t really have to tell me anything you know...we were just going over routine things. When she uses it is when I come home from work and she wants to tell me about something that has happened and I have no idea what she is talking about - that’s difficult!"

[Interview,7-28-92;1].

On another occasion her husband intimated that the computer was used for new information and then, only as a last resort repair strategy:

"When she wants to change topics and goes to something that we haven’t been talking about or that hasn’t just happened and you can’t understand the word...()...I mean it’s pure D guessing you know. It’s..that’s where ‘hey what is the subject?’ or ‘get the machine’ and punch out the one word that gives me the clue as to what is the subject you’re talking about"

[Interview,8-18-92;26].

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The success of the computer strategy was judged through listener responses to turns in which the computer was used. While 65% of her computer turns ultimately resulted in comprehension of the intent by the speaking partner, 83% of NN’s computer turns elicited requests for clarification from the speaking partner. In other words, the computer did not automatically result in transmission of information without some "work" by the speaking partner in the form of guessing. Thus, time and energy efficiency could have been important influences on computer usage as a compensatory strategy. As one conversation partner noted:

"well it (typing) requires the other person to kind of be patient"

[Lamination,10-2-92;7].

This interviewee later said:

"I’m willing to sit and spend the time, but if you were in a store or were waiting on this person you might get a little frustrated...()...you may not take the time"

[Lamination,10-2-92;12].

Therefore, use of the computer strategy was an imposition on the speaking partner. Since NN had numerous strategies designed to maintain social affiliation and alliance with speaking partners, she obviously was a sensitive conversational participant and avoided imposing
her computer typing strategy unless expectations or need demanded.

Furthermore, the stigma associated with computer typing versus standard verbal communication could affect this strategy across situations. For example,

"anytime people have to use all these strategies...()...they have to stop and type or write, they might be embarrassed by that...it takes a certain strength or something...()...so like what it takes to be pointed at or looked at or whatever"

[Interview, 10-2-92;6].

Relatedly, the investigator made the following field notes after speaking with NN:

"I asked if she used her computer (at the luncheon) and she shrugged and shook her hand in a no gesture with a wrinkled nose and brow looking almost apologetic. I asked how she felt about using the computer in such situations and she showed me the word "weird" on her word list."

[Observation, 10-9-92;1]

Thus, while computer typing was a relatively effective compensation for NN, it extracted a price in efficiency and social suitability. NN did use her computer to transmit new information which could not be gleaned by
the speaking partner from context or prior knowledge. With family members she apparently resorted to the strategy primarily as a last resort, and she did not utilize the computer in public situations.

**Communication Book and Word Lists as a Strategy**

In January, 1992, NN’s husband noted that the most difficult communication situations occurred when NN attempted to tell about a nonroutine event about which he was not familiar, such as a trip to the dentist or a luncheon with a friend. He stated that he often was unable to ascertain WHAT they were talking about. Therefore, the speech-language pathologist introduced a "communication book" to NN to assist her in establishing topic during conversations. This was a pocket size photo album in which NN was to place "memorabilia", such as theater ticket stubs, match book covers or receipts, as a record of activities. She was instructed to point to the "topic clue" when she wished to tell someone about an event. While NN and her family expressed enthusiasm and placed relevant materials in the book, NN never used the book on videotape or in participant observation situations. Her husband substantiated that she did not use this item to assist in establishing topic at home [Interview, 8-18-92;19].

In addition to this communication book, NN was given "word lists" of frequently used words divided into
categories such as question words, people, action words or feeling words. Again NN did not use these lists during videotaped conversations. The only instance of word list usage during participant observation occurred with the investigator present, immediately following a therapy session.

The failure of communication books or boards with aphasic individuals seems to be common, as noted by a lamination group member:

"it just seems like people are reluctant to pull the thing out, flip through it and point to it"

[Lamination,9-30-92;1].

Others noted that communication books or picture boards are not natural and tend to draw attention to the speaker [Lamination,9-30-92;3]. As with DC’s communication board, this alternative compensation introduced by the speech-language pathologist did not prove to be a viable strategy for NN at this stage in her impairment. Other strategies seemed more suited to her communicative needs.

**Trained versus Untrained Compensatory Strategies**

Similar to DC, compensatory strategies appeared to emerge naturally within NN’s communication system. For example, ‘yes/no’ runs and regulatory gestures evolved from normal communicative behaviors into strategic compensations as NN’s illness progressed. Premorbid utterances such as
'very nice' and 'all the time' were recast to fulfill communicative functions which NN's weakened language system could no longer perform. Other compensatory behaviors were specifically taught during speech therapy. For example, the speech-language pathologist listed gestural signing, computer writing and a communication book as trained compensations. Table 32 presents the frequencies of trained and natural strategies and proportion of trained strategies to totals. Figure 10 compares the proportions of trained and untrained

Table 32.

<table>
<thead>
<tr>
<th>Situation</th>
<th># Trained</th>
<th># Natural</th>
<th>Trained/Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>C - Friend</td>
<td>0</td>
<td>49</td>
<td>0%</td>
</tr>
<tr>
<td>D1 - Husband</td>
<td>0</td>
<td>48</td>
<td>0%</td>
</tr>
<tr>
<td>D2 - Sister</td>
<td>1</td>
<td>136</td>
<td>1%</td>
</tr>
<tr>
<td>D3 - Husband</td>
<td>0</td>
<td>210</td>
<td>0%</td>
</tr>
<tr>
<td>E - Husband</td>
<td>0</td>
<td>141</td>
<td>0%</td>
</tr>
<tr>
<td>F - SLP -Convers.</td>
<td>2</td>
<td>105</td>
<td>2%</td>
</tr>
<tr>
<td>G - SLP -Tx</td>
<td>18</td>
<td>267</td>
<td>6%</td>
</tr>
<tr>
<td>H - Stranger</td>
<td>25</td>
<td>175</td>
<td>14%</td>
</tr>
<tr>
<td>I - Barrier</td>
<td>15</td>
<td>32</td>
<td>32%</td>
</tr>
<tr>
<td>J - PICA</td>
<td>0</td>
<td>13</td>
<td>0%</td>
</tr>
<tr>
<td>Totals</td>
<td>61</td>
<td>1176</td>
<td>5%</td>
</tr>
</tbody>
</table>
strategies to total compensatory strategies used by NN across situations. Like DC, NN demonstrated a preponderance of natural strategies. Natural strategies represented 95% of her compensatory behaviors overall.

In addition each trained strategy was viewed across situations to determine generalization patterns for this subject. Specifically a proportion of the number of each trained strategy used in each situation to the total number of each strategy was computed for each situation. Table 33 and Figure 11 display the results. As with DC, trained strategies demonstrated a circumscribed pattern of occurrence. Computer printing was displayed only with the speech pathologist or in the speech clinic with an unfamiliar speaking partner. Signing occurred rarely; the large percentage of signs used in situation H (unfamiliar partner in the speech clinic) was attributable primarily to NN's demonstration of what she had learned in therapy in response to a direct query by her speaking partner. Again, trained strategies were not utilized equally across all settings and trained compensations occurred far less frequently than natural strategies.

Summary

This chapter presented an operational definition of compensatory strategy derived from the ethnographic data. Based on this definition a variety of compensatory
strategies were identified for each subject. These strategies were used primarily to convey information and/or to regulate interactions. Most of the compensatory strategies emerged spontaneously within the subject’s communication system; others were specifically taught by the speech-language pathologist. Finally, the communication context influenced the usage patterns of compensatory strategies for both subjects. Tables 34 and 35 present a summary of the proportions of compensatory strategies for each subject across settings.

Table 33.
Frequencies of each Trained Strategy by Situation for NN.

<table>
<thead>
<tr>
<th></th>
<th>Computer</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>C - Friend</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>D1 - Husband</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>D2 - Sister</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>D3 - Husband</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E - Husband</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>F - SLP -Convers.</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>G - SLP -Tx</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>H - Stranger</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>I - Barrier</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>J - PICA</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>52</td>
<td>9</td>
</tr>
</tbody>
</table>
Figure 11. NN's Trained Strategies by Situation: Proportion to Totals of Each.
### Compensation Strategy Summary: Proportions* by Situation for DC.

<table>
<thead>
<tr>
<th>Situation</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is</td>
<td>.12</td>
<td>.07</td>
<td>.28</td>
<td>.22</td>
<td>.18</td>
<td>.26</td>
<td>.11</td>
<td>.10</td>
<td>.10</td>
</tr>
<tr>
<td>Isy</td>
<td>.07</td>
<td>.04</td>
<td>.08</td>
<td>.10</td>
<td>.08</td>
<td>.06</td>
<td>.09</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Is me</td>
<td>.09</td>
<td>.02</td>
<td>.08</td>
<td>.05</td>
<td>.05</td>
<td>.07</td>
<td>.02</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Is good</td>
<td>.11</td>
<td>.04</td>
<td>.04</td>
<td>.07</td>
<td>.05</td>
<td>.16</td>
<td>.13</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I don’t know</td>
<td>.19</td>
<td>.17</td>
<td>.18</td>
<td>.18</td>
<td>.21</td>
<td>.16</td>
<td>.15</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Slow down</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>.01</td>
<td>0</td>
<td>.01</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Repeat</td>
<td>.01</td>
<td>.05</td>
<td>.02</td>
<td>.07</td>
<td>.12</td>
<td>.04</td>
<td>.05</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Gaze</td>
<td>0</td>
<td>.10</td>
<td>.03</td>
<td>.01</td>
<td>0</td>
<td>.02</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Give up</td>
<td>.04</td>
<td>0</td>
<td>.03</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Gesture</td>
<td>.40</td>
<td>.23</td>
<td>.29</td>
<td>.57</td>
<td>.47</td>
<td>.47</td>
<td>.33</td>
<td>.31</td>
<td>.14</td>
</tr>
<tr>
<td>Write</td>
<td>0</td>
<td>.01</td>
<td>0</td>
<td>.03</td>
<td>.02</td>
<td>.04</td>
<td>0</td>
<td>.19</td>
<td>NA</td>
</tr>
</tbody>
</table>

*Proportions are measured relative to the number of strategies to turns with the exception of 'is' and 'isy' which are measured in proportion to words uttered.
Table 35.

**Compensatory Strategy Summary: Proportions* by Situation for NN.**

<table>
<thead>
<tr>
<th>Situation</th>
<th>C</th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td>.33</td>
<td>.22</td>
<td>.35</td>
<td>.23</td>
<td>.21</td>
<td>.19</td>
<td>.22</td>
<td>.35</td>
<td>.11</td>
<td>.04</td>
</tr>
<tr>
<td>Nice...</td>
<td>.43</td>
<td>.07</td>
<td>.54</td>
<td>.30</td>
<td>.18</td>
<td>.36</td>
<td>.23</td>
<td>.30</td>
<td>.16</td>
<td>0</td>
</tr>
<tr>
<td>Reg. Gest</td>
<td>.09</td>
<td>.10</td>
<td>.17</td>
<td>.12</td>
<td>.15</td>
<td>.18</td>
<td>.26</td>
<td>.25</td>
<td>.05</td>
<td>0</td>
</tr>
<tr>
<td>Mean. Gest</td>
<td>.07</td>
<td>.20</td>
<td>.20</td>
<td>.43</td>
<td>.31</td>
<td>.38</td>
<td>.28</td>
<td>.40</td>
<td>.55</td>
<td>.28</td>
</tr>
<tr>
<td>All..time</td>
<td>.02</td>
<td>.02</td>
<td>.02</td>
<td>.12</td>
<td>.01</td>
<td>.09</td>
<td>.10</td>
<td>.08</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Computer</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Comm. Book</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Proportions are measured relative to the number of strategies to turns with the exception of yes/no and regulatory gestures which are measured in proportion to words uttered.
Chapter 6

RESULTS: ORGANIZING THEMES

The final stage of ethnographic investigation is the identification of organizing themes derived from the data. As the data were analyzed several concepts repeatedly surfaced giving rise to universal themes which tied compensatory strategies and their usage patterns into a unified picture. The universal themes identified in this investigation centered upon the following key ideas: the systematicity and meaningfulness of behavior, the drive for economy of effort, the satisfaction of dual goals of communication, the flexibility of compensations, and the primacy of social influences. These underlying concepts and their relevance to compensatory strategies will be discussed in this chapter.

Systematicity and Meaningfulness of Behavior

One significant finding of this investigation was that much behavior initially considered meaningless, perseverative or nonpurposeful was, in fact, systematic, purposeful and compensatory. For example, DC's repeated utterances such as 'is', 'isy', 'is me', 'I don't know',

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'is good', and NN's repeated use of 'yes', 'nice', 'really', and 'all the time' might have been interpreted as aphasic stereotypes or automatisms since they were produced fluently and frequently. The aphasia literature suggests that such "meaningless" productions are symptoms of a disordered language system (Alajouanine, 1956; Blanken, Dittman, Christian Haas, & Wallesch, 1988; Critchley, 1970; Code, 1982; Goodglass & Kaplan, 1983; Jackson, 1874; Poeck, de Bleser & von Keyserlingk, 1984; Van Lancker, 1987). Furthermore, it has been suggested that recovery should be associated with replacement of these utterances by propositional content (Alajouanine, 1956; Blanken, 1991). The repeated implication has been that automatic utterances have some "pathological basis" and no propositional value other than that associated with emotional or prosodic overlay (Blanken, Dittman, et. al., 1988). Clinicians also frequently discount such utterances as verbal fillers or "throw away" expressions of little functional significance.

Interestingly, these studies entirely overlook the possibility that there is a pragmatic functional significance beyond "propositionality". Results of this investigation suggested that, at least for some aphasic individuals, there appears to be a class of utterances similar to the automatic and stereotypic productions described frequently in the literature, but the
utterances are purposeful, systematic and compensatory. One lone study supports this finding. McElduff and Drummond (1991) suggested that automatic speech could be used purposefully by aphasie speakers. The purpose identified in the current study suggests that these utterances are not "informative" or propositional in a strict message transmission sense, but they are definitely purposeful in a regulatory or interactive sense. Stereotypic utterances such as 'is good' or 'I don't know' represent the attempt of a system with limited access to words to perform a variety of regulatory and communicative functions. In fact, some stereotypic utterances appear very similar to the discourse devices used in normal conversation.

The unexpected findings of systematicity and meaningfulness of seemingly insignificant behaviors carried beyond the stereotypic utterances. For example, NN's regulatory gestures were initially discounted as timing motions contributing to the pace of speech. However, microanalysis revealed several subcategories of gesture, each with a systematic pattern and specific function in NN's discourse. Repeatedly, the investigator was surprised by the meaningful patterns which emerged from analysis of what appeared to be random or nonpurposeful behavior. Thus, careful, data-driven analysis of conversation suggested that apparently
meaningless or stereotypic features of aphasic communication were important strategic interactional devices.

Economy of Effort

Another recurring theme involved "economy of effort". The basic drive for conservation of energy is a vital force throughout the natural world and is reflected in language and speech (Lindblom, 1983). Economy of effort constituted a significant influence on compensatory strategy utilization by DC and NN. Unlike the efficient, automatic, smooth process that we are accustomed to, communication for these two aphasic subjects was very hard work. Therefore, the aphasic speakers developed and apportioned their use of compensatory strategies in the interest of promoting efficiency and energy conservation. For example, both subjects used strategies to avoid communication at times. The aphasic subjects appeared to expend energy coincident with the anticipated "reward", such as friendship or completion of business. One speech-language pathologist observed:

"No one wants to be spending hours in a taxing, energy consuming situation and that’s what interaction is to her. Maybe that’s why she ignores others in the hall...to schedule energy
use at important times and ease through the rest of the day on automatic mode...(laughs) that is what most of us try to do."

[Interview,12-12-91;64]

Certain strategies required greater energy expenditure than others. For example, DC's writing and NN's computer were invariably associated with multiple repair sequences. After one participant observation the investigator noted:

I was struck by how communicative DC was, but also how writing actually created more questions in my mind -- it added more concepts needing clarification than a passive role.

[Observation,3-30-92;3]

Similarly heavy utilization of gesture combined with other verbal and nonverbal strategies expended more effort than most "normal" speakers experience. DC's gestures predominated during situations when she "pulled out the stops" on compensatory strategy usage; that is, she employed all modes during highly motivated and enthusiastic efforts to communicate. NN used minimal compensatory strategies with her spouse; most of us are familiar with this need to "gear down" and conserve energy at home.

In addition to the extra effort caused by added time and repair sequences, cognitive or attentional demands
consume energy. In fact, "processing" or cognitive energy depends on the nature of the task with certain mental operations requiring greater processing capacity (Kahneman, 1973). Thus, conserving energy does not refer only to physical or temporal demands; rather, humans strive to conserve energy or attentional resources by limiting cognitive demands. Cognitive demands are reduced when automatic processing occurs. Automatic processing, frequently seen with overlearned or natural behaviors, results in rapid, efficient performance with minimal cognitive effort (McLaughlin, Rossman & Mcleod, 1983). In contrast, controlled processing requires considerable attention and intrudes on the ability to perform other tasks simultaneously (Shiffrin & Schneider, 1977). It appears that compensatory strategies form a continuum from relatively automatic behaviors such as contextualization cues and discourse markers to relatively controlled, conscious behaviors such as writing and gestural signs. Perhaps existing conversational behaviors which are altered to overcome language barriers are more easily "automated"; conversely, novel behaviors introduced into communication such as computer printing, writing or word lists are at the "controlled" end of the attentional continuum. Furthermore, the more controlled behaviors would be expected to demand more attention or more cognitive
energy. When the cognitive demands of communication become heavy, this competes with the demands of maintaining the flow of conversation. Thus, at times the aphasic subjects might have been forced to choose (albeit at a low level of awareness) between allocating attention to "high energy" compensatory strategies to the detriment of the interactive flow, or sacrificing potentially successful strategies in the interest of maintaining the discourse.

The data suggest that both subjects were sensitive to energy demands and conserved their efforts for important or motivating situations. Communicative effort was expended when social or transactional rewards were apparent. In fact, the drive to conserve their own energy served in tandem with the drive not to impose on others; thus, speaking partners, as well as the subjects themselves, could be spared the agony of laboring through difficult communicative exchanges unnecessarily.

**Dual Goals of Conversation**

An additional repeated theme was the role of compensatory strategies to fulfill dual goals of conversation. Throughout this investigation it was apparent that compensatory strategies were designed not
only to transmit information, but also to interact socially.

Strategies for transmitting information predominated in descriptions of compensatory strategies by speech-language pathologists interviewed and in the literature. In this investigation the compensatory strategies which served most forthrightly to transmit information included DC's writing and meaningful gestures and NN's meaningful gestures, computer and communication book. These compensatory strategies were overtly transactional. They served a specific purpose of transmitting propositions when verbal expression failed. For example, information is conveyed predominately through writing and gesture in the following sample:

DC is explaining that her medication makes her tired.
O: Drugs will make you do that.
DC: Yea, oh man, isy. Is is is [writes bed] isy.
Is is bed______ bed...is nu [writes noon].

[signs sleep]

[Video,4-7-92;DC,D6;53]

In addition to these overt informational strategies, there were compensatory strategies which more covertly facilitated information exchange. For example, DC's 'isy' and 'isy' verbalizations directed attention to
information and isolated propositions which the listener needed to interpret independently. Since agrammatic patients lack the syntactic ability to construct sentences, they tend to produce utterances such as "Touro...walk...eat...home"; this might be understood as either "I came to Touro to walk and eat lunch. I went home" or "I came to Touro to walk. I ate lunch at home". DC overcame this problem by isolating propositions with her discourse markers as in: "Is Touro, is walk...is eat isy. Is home isy". Thus, the discourse markers carve out "Touro, walk and eat" as one unit and "home" as a separate unit for interpretation. DC combined the normal propensity for interpreting meaning based on "linearisation" or the order of the words (Brown & Yule, 1983; Ochs, 1979) with a compensatory strategy for marking separate propositional units. Similarly, NN used nonverbal discourse devices (regulatory gestures) which alerted the speaking partner to coming information, emphasized the important elements within the utterance, then indicated a terminal juncture. Thus, both subjects used overtly transactional strategies such as graphic communication, and covertly transactional strategies such as devices to mark and regulate information flow.

However, although the speech-language pathologists and the aphasia literature biased towards a definition of communication as "transmitting messages", both aphasis
subjects demonstrated a marked sensitivity to the social, interactive role of communication. It was clear that the aphasic subjects, like most of us, considered a broader purpose for communication than simply conveying information. As one informant commented:

"People ask me 'what do you like to do?'..I like to TALK..alot. I like to joke, I like to laugh"

[Interview,12-12-91;17].

Talk is a means to fun and relationships, not just exchanging information. Communication has a social goal -- to relate to another human being. The framework for this social affiliation is the flow of discourse. Like normal participants in interaction who employ devices to promote an orderly social activity in which utterances fit together and flow from speaker to speaker without overlaps, undue silences or confusion (Lee, 1987), the aphasic subjects managed interactive discourse in the best way they could -- by adapting compensatory discourse devices which contributed to the orderly flow of conversation. Thus, one key purpose of compensatory strategies identified for these two subjects was to maintain the flow of discourse and social interaction.

In fact, many of the compensatory strategies identified for NN and DC subserved primarily social interaction. For example, numerous compensatory
strategies for regulating interaction were discussed in the preceding chapter. These behaviors were not specifically "informational", rather they represented attempts to contribute to the progress of social interaction and discourse. DC employed 'is' to initiate and draw the listener's attention to content and 'isy' to terminate propositions. DC used the phrase 'I don't know' to mark an end to her contribution to talk and shift communicative burden back to the speaking partner. She used the phrase 'is me' to topicalize herself within the discourse. NN, with her inability to add a great deal of substantive content to a conversation, tended to marshal compensatory strategies to encourage the speaking partner to continue talking topically. She enthusiastically reinforced the speaking partner with words like 'yes yes', 'really', and 'nice'. The flattered speaking partner then "bought in" to the overall strategic plan to interact versus exchange information. In this way, both parties carried a reasonable load of work while still enjoying a social exchange. All of these compensatory strategies served to regulate and organize the discourse while maintaining an orderly conversational flow.

These discourse devices employed by the aphasic subjects to regulate the flow of conversation are similar to those described for normal speakers. Goffman (1976)
described "bracket markers" which "voice the fact that a
task episode has terminated or is about to begin." (p.
291). Shiffrin (1987) describes "discourse markers" as
"elements which bracket units of talk" (p. 31). She
described these markers as "sequentially dependent"
because they mark the beginning of one unit and the end
of another. For example, Shiffrin demonstrated that "oh"
serves to mark a shift in speaker orientation during
conversation. Kovarsky (1989) found that "okay" was used
by speech-language pathologists during therapy sessions
to mark transitions from one activity to another.

Discourse markers have been defined as "members of a
functional class of devices which provide contextual
coordinates for ongoing talk" (Shiffrin, 1987, p. 41).
Among normal speakers, discourse devises are often
"regular" words which appear to "have taken on a life of
their own" (Brown & Levinson, 1978, p. 277). These
markers have structural properties such that they serve
some functional use in context, but may or may not have
immediately specifiable literary or dictionary meaning
(Brown & Levinson, 1978). Typical discourse markers in
American English are "oh", "okay", "now", "well", "you
know", "I mean" and "so". Clearly, many of the
compensatory utterances described in Chapter 5 conform to
the definition of discourse markers. For example, the
utterances 'is', 'isy', 'is me', 'is good', 'I don't
know', 'yes/no' runs, and 'really/nice' have transcended literal or syntactic functions in order to serve as interactive signposts.

Discourse markers discussed in the literature have been largely verbal devices. However, NN resorted to many nonverbal compensatory strategies for regulating the flow of discourse in the face of her severely limited verbal repertoire. While these nonverbal devices were not verbal or linguistic, they were, nevertheless, boundary markers in discourse. Certainly, gestural and suprasegmental brackets can serve as discourse devices to mark units of social interaction (Shiffrin, 1987). For example, NN used an initiation gesture to mark coming content and hold her place, an emphasis gesture to alert the listener to key concepts, and a hand clasping termination gesture to mark a shift in orientation. She also used a gesture to shift the talk back to the listener, then exaggerated interest markers combined with contextualization cues to encourage the listener to retain the turn. These nonverbal strategies fulfilled functions similar to DC's verbal discourse markers. Thus, both subjects demonstrated a rich variety of behaviors designed to promote the interactive aspect of conversation.

It was apparent that both aphasic subjects adopted compensatory strategies for both interactional and
transactional ends. In fact, several of NN and DC's strategies served both ends at once -- economy of effort at its best. For example, DC's 'is' strategy was a form of compensatory syntax while simultaneously holding her place and regulating the flow of the interactive discourse. NN's "interest markers" kept the interaction going while conveying the semantic message of agreement.

The existence of both message transmission and social goals of communication is far from a novel idea. References to the dual purposes of talk are numerous in the sociolinguistic and discourse literature. Watzlawick, Beavin and Jackson (1967) and Oller (1979) talk about the "factive" and the "emotive" aspects of communication. Factive or cognitive aspects of language convey information about facts; emotive or affective aspects of language convey attitudes and feelings and help instruct the listener concerning interpretation of the factively coded information (Oller, 1979; Vigil & Oller, 1976). Dabbs (1985) contrasts "social" communication which deals with social relationships, from "intellectual" conversation which deals with theoretical or practical information. Brown and Yule (1983) distinguish "transactional" communication as that which we use to convey factual or propositional information, and "interactional" communication as that which we use to
establish and maintain social relationships. They suggest that:

"It is clearly the case that a great deal of everyday human interaction is characterized by the primarily interpersonal rather than the primarily transactional use of language." (p. 3)

It is interesting that these theoretical assumptions have shown little influence on beliefs and practices in aphasiology. As discussed earlier, speech-language pathologists tended to teach and report primarily "message transmission" strategies. Yet, in spite of this overwhelming bias towards the transactional goal of communication in the literature and among the speech-language pathologists interviewed, the aphasic subjects heavily utilized compensatory strategies to subserve social, interactional goals. Furthermore, like normal speakers, their strategies often subserved both transactional and interactional functions in the pursuit of enjoyable, social conversation.

Flexibility of Compensatory Strategies

Not only were compensatory strategies designed for dual purposes of communication, but also strategies were contextually flexible. This directly refutes Davis and Wilcox's (1985) assumption that verbal compensatory strategies "... are not typically influenced by.
contextual variables." (p. 65). The usage patterns of compensatory strategies demonstrated clear evidence that the subjects varied verbal and nonverbal strategies to suit the context and purpose of communication. Moreover, the specific functions of the strategies were elucidated by analyzing this flexible usage pattern.

For example, similar to normal speakers, NN and DC employed discourse devices optionally to suit the interactive situation (Brown & Levinson, 1978). Normal discourse devices are far less prevalent in writing or in formal or planned discourse. In fact, the reader might have found it somewhat difficult to read some transcribed interview samples in this manuscript because of the frequent use of discourse devices such as "ya know", "I mean" and "well" by the normal speakers. Out of the social context, these markers lose most of their organizational power. Similarly, DC and NN adopted utterances or phrases which "took on a life of their own" during "talk", but lost their functional significance outside of the context of social interaction. Moreover, the utterances demonstrated systematic and purposeful patterns of usage which were contextually dependent, and unique to each individual. Usage of compensatory strategies was gleaned only by careful analysis of a variety of situations and contexts. For example, DC's 'is' marker appeared to be a "highly social" means of
organizing discourse; the markers were used very little during "nonsocial" contexts such as treatment and evaluation. Recall that the rate of occurrence of 'is' for high social contexts was 28%, 26% and 22% versus 7% in therapy and 10% in the barrier and evaluation situations. Thus, although the 'is' marker signaled message transmission, it was a dynamic and interactive strategy. When message transmission was less socially dynamic, as in evaluation, the strategy was forsaken.

NN's "interest markers" were her strongest means of remaining social while assisting with the flow of conversation. These compensatory devices predominated with friends and "outside" social interactions but were used minimally during speech pathology evaluation sessions or spouse conversations. By contrast, NN employed regulatory gestures most frequently when information transmission was desired or required.

Primarily transactional compensatory strategies such as writing or computer printing also demonstrated a pattern of usage supporting the "context dependency" of strategies. For example, writing for DC occurred only with high solidarity partners, only when the physical setting allowed writing to "look" appropriate, and only when her drive to interact was high. NN did not use her computer strategy in public or with casual acquaintances; she used it only as a last resort at home with her
husband, usually at his suggestion. She used her computer more often with speech therapy staff.

Finally the physical context paired with social norms influenced strategy use. For example, DC used writing only while seated at a table -- the customary manner of writing in our culture. Both subjects used deictic gestures primarily when the context was rich with referential opportunities. Thus, context was an immensely powerful determinant of compensatory strategies, and both subjects adjusted their compensatory strategies to suit the context and social/cultural environment.

Primacy of Socialization

Perhaps the overriding feature of compensatory strategy usage was the everpresent influence of social factors. Both DC and NN employed compensatory strategies in flexible and purposeful patterns to meet socialization needs. Their utilization of compensatory strategies reflected drives and social motivations typical of "normal" conversants. Normal speakers in conversation strive to fulfill social expectations and fit in with others in their culture. As Tannen (1986) suggests, people are concerned with the ideas they are expressing but:
"they're also, - even more - concerned with the effect their words will have on those they're talking to. They want to maintain comraderie, to avoid imposing, and to give (or at least appear to give) the other person some choice in the matter being discussed." (p.7).

The attitude that information is all that counts in talk:

"ignores the fact that people are emotionally involved with each other and that talking is the major way we establish, maintain, monitor and adjust our relationships....In other words, how we say what we say communicates social meanings." (Tannen, 1986, p.16)

Similarly, Brown and Levinson (1978):

"... believe that patterns of message construction, or ways of putting things, or simply language usage, are part of the very stuff that social relationships are made of." (p. 60).

Likewise, the aphasic subjects tailored their communication to conform, as much as possible, to cultural expectations and social norms.

In order for their social interactions to "run smoothly", the aphasic subjects adopted compensatory strategies to fulfill certain global rules of conversation. For example, participants must conform to "cooperative principles" by saying enough, but not too much, in an appropriate manner (Grice, 1975). Much of the complexity of social conversation relates to attempts to avoid potentially embarrassing or annoying situations (Sacks, 1987). Thus, conversational participants must be polite and endeavor to promote an acceptable social identity (Lakoff, 1973; Goffman, 1967; Brown & Levinson, 1978).
"Failure to sustain the many minor norms important in the etiquette of face-to-face communication can have a very pervasive effect upon the defaulter’s acceptability in social situations." (Goffman, 1963, p.129).

Moreover, the way people present themselves through conversation varies depending on the audience and the image they wish to convey (Bell, 1984; Goffman, 1959). Speakers wish to present themselves in particular ways to affiliate with others and at the same time maintain control and independence. Furthermore, the way one projects an image in conversation has an effect on the quality and content of the communication. For example, one might speak with more precise articulation and more complete grammatical form during a job interview than while talking about a ballgame with the ‘guys’ at a bar. Similarly, aphasie patients would be expected to tailor their limited communication to suit the situation. DC and NN clearly demonstrated patterns of compensatory strategies consistent with this suggestion. These modifications to accommodate the primacy of socialization can be identified by attending to three explanatory mechanisms: politeness, avoidance of stigma and awareness of interactional power.

Politeness

Both subjects were exquisitely sensitive to rules of politeness in conversation (Lakoff, 1973; Brown & Levinson, 1978). Both DC and NN frequently avoided
"imposing" on the speaking partner. The aphasic subjects, like normal speakers, appeared to respect the autonomy of others through nonimposition (Lakoff, 1973). Hence, DC rarely directly "requested help" with people other than speech-language pathologists. She appeared sensitive to the burden on the listener of fulfilling a role as the "helper". Both subjects used avoidance or giving up as a method of not imposing on speaking partners. Informants described communication with the subjects as "hard work".

"Its hard work you know it's really hard work to listen and to figure out and to you know be guessing"

[Interview,8-18-92;26]

"I have had a very hard time understanding functional information...very hard...very hard!"

[Interview,12-12-91;38]

The subjects appeared to recognize this burden to the listener and gaged the amount of effort to extract from the partner based on the importance of communicating content, the social constraints of the situation and the comfort level with the speaking partner. Thus, the aphasic subjects assumed pragmatically that they should not impose on strangers in public by expecting them to exert major effort to understand "social chit chat" --
the social consequences were not worth the communicative rewards. For this reason, both subjects showed a pattern of avoiding communication with strangers or in public situations which did not require speaking.

Yet, when imposition was less important such as with highly familiar people, or when message transmission was very important, the subjects employed compensatory strategies which maintained and continued the interactions. As reported in the results, during one visit with her best friend, DC labored through nine (9) turns before the information was transmitted. She resorted to writing, gestural sign and requests for help. DC and her friend shared strong mutual trust; DC knew there was little risk of losing face or having her friend withdraw because of the imposition. With strangers, however, DC readily discontinued repair attempts so as not to impose. Similarly, NN and her husband experienced a repair cycle which spanned eleven turns; contrast this with NN’s avoidance of propositional utterances at social gatherings.

In addition to "nonimposition", the subjects demonstrated compensatory strategies which contributed to affiliation or "positive" politeness (Brown & Levinson, 1978). NN was masterful at aligning herself with her speaking partners by using exaggerated interest devices. In spite of her grossly limited language resources, she
employed stereotypic politeness markers such as 'yes, yes yes', 'very nice' and 'really' to express attention to and alliance with her partner. A similar though less frequent affiliation strategy was DC's phrase 'is good' as a means of showing approval and relating to her speaking partner. These strategies are not unlike the methods that normal speakers use to affiliate during conversation:

"Politeness is often expressed by showing interest in another person and exaggerating this interest through exaggerated intonation and emphatic use of words such as 'for sure, really, exactly, absolutely' " (Brown & Levinson, 1978, p. 111).

Another means of establishing "positive" politeness is through the tone and suprasegmental characteristics of an utterance. Labov and Fanshel (1977) noted that the syntactic form of an utterance can influence it's tone. For example, "sit" might be considered more harsh than "could you sit down". Because of her agrammatism and word retrieval deficits, DC was unable to vary her syntactic form in the interest of politeness. However, the discourse markers 'is' and 'isy' maintained the verbal flow while a "sentence-like" impression was created by affixing appropriate intonational contours such as 'is is sit isy' rather than 'sit'. This not only produced a softer, less abrupt tone, it also adjusted utterances to a more expected sound frame. Thus, 'is' and 'isy' created a "modified" syntax and allowed DC to
modulate her tone to conform to "polite" and more natural sounding patterns.

Both subjects utilized contextualization cues both to convey positive politeness and to respect the autonomy of others. Thus, smiles, forward body lean, head nodding and gaze demonstrated interest in the speaking partner and encouraged interaction. Similarly, lack of eye contact and body posture signaled social distancing when subjects felt that interaction should be avoided.

Clearly many of the aphasic subjects' actions were based on polite friendliness and polite formality in social interactions. They chose compensatory strategies to meet such ends and their choices were rational and contextually flexible.

**Avoidance of stigma**

In addition to approval and nonimposition behaviors, the aphasic subjects avoided projecting a negative image. This no doubt related to the potent social influence of stigma. As Goffman (1963) points out, society devises norms of social identity and social interaction in order to allow its members to deal with anticipated others without special attention or thought. Differences or variants from the norm create negative reactions from "normal" members of a social system. This recognition and fear of physical or behavioral differences is a natural force which assists living beings in remaining
alert to threats within the environment. Unfortunately this adaptive social behavior creates the framework for stigma and social prejudice. Stigma is defined as "an undesired differentness from what is anticipated" within a social system (Goffman, 1963, p. 5). The consequences of stigma are loss of social approval and disempowerment.

Many of the informants in this investigation believed that some compensatory strategies used by the aphasic individuals constituted stigmatizing behaviors. For example, when describing "public" use of writing and gestural signs, speech-language pathologists remarked:

"I’d have a very strong urge to do it for them, you know to NOT let them go ahead and use the compensatory thing...it is sort of funny ..it is a great THEORY...and it certainly allows people to communicate when they couldn’t otherwise, and to probably get across a whole lot more ideas...()...but in practice its just sort of like the social stigma almost, like the handicap..the feeling of being handicapped which is..I would imagine...that’s how they feel..."

[Interview;9-28-92;2]

"Also there is the issue of adult pride. She wants to maintain her dignity and fulfill other peoples expectations. None of us were raised..."
to be a failure so why should we...yet she has constant communication failures"

[Interview, 12/12/91; 64]

Another informant made the following comments about the public's reactions to "novel communication modes" such as gestural signs, writing or drawing.

If I wasn't a speech pathologist...and I hate to say this...but if I wasn't, I would say 'God what a weirdo'. Yesterday I was in the gift shop and this guy came in..very well dressed and all and he looked normal -- that's often the worst when they look normal, and he starts saying loudly 'three dollars ..only in America' and repeated it several times. My first reaction was that it was a joke but the clerks didn't laugh so I began to think something was WRONG with him and I got sort of SCARED. I felt a quick flash of fear...()...I thought he was normal but he is abnormal..I had to consciously think not to think like that...()...The fear must come from a lack of understanding"

[Interview; 2-7-91; 45]

This reaction of "fear" at an unusual or unexpected behavior was mentioned repeatedly by interviewees. For example, a coworker of DC noted that she felt like
acquaintances were fearful or apprehensive when they interacted with DC.

O: Oh (sighs), they're afraid...something like fear.
I: Yea? fear of..?
V: Of not being able to communicate maybe or embarrassment...I don’t know.

[Interview,12-10-91;11]

I think that its kind of one of those things that people are afraid of someone being different.

[Interview;12-12-91;23]

The affective messages conveyed by listeners exert a powerful influence on the aphasic speaker. Even normal speakers and second language learners are more influenced by the affective reaction of their speaking partner(s) than their success in conveying information (Walzlawick, Beavin & Jackson, 1967; Vigil & Oiler, 1976). Thus, negative or unexpected reactions to aphasic compensatory strategies are extremely important in establishing usage patterns.

Moreover, negative reactions need not be overt. Subtle messages such as a brief startled look, a hesitation in responding, or "style shifting" transmits the idea that a difference has been identified. In fact, "style shifting" was observed frequently among the
speaking partners of the aphasic subjects. Several unfamiliar speaking partners "overaccommodated" to the aphasic partner by simplifying their speech into "foreigner" or "child talk" consisting of slow, overarticulated speech, exaggerated intonation and greater loudness (Ferguson, Debose, & Charles, 1977; Coupland, Coupland, Giles & Henwood, 1988). For example, describing a receptionist's reaction to DC, an interviewee observed:

"she exaggerates and makes her pitch go high and slows way down and pauses...sounds like she is talking to a kid".

[Interview, 12-12-91; 27]

Field notes from an interview showed that even the investigator felt strange when the interviewee demonstrated a simplified register she used with DC:

O: OK too I go ALOOOOOOT SLOOOOWWWEEER [mimics slow dragged out rate] and I make gestures more maybe.

Field Notes: It is interesting that this style switch makes ME uncomfortable..the abnormal flow marks something?"

[Notes on Interview, 12-10-91; 10].

Perhaps what it marks is a mutual recognition of a "difference" -- a stigmatizing trait.
The aphasic individual can also "mark" him/herself for negative reactions. Informants frequently noted that the attitude of the aphasic conversant greatly influenced their comfort. For example:

"Well certainly if someone is communicating with me using a compensatory strategy...not as a speech pathologist...()...then if they're comfortable with it, I'd usually be comfortable with it. When they're not comfortable with it ...NO."

[Interview, 9-28-92; 2]

"People pick up a lot on nonverbals and frustration is communicated to others and they in turn get nervous and uncomfortable. If she would say nonverbally 'stay with me, I'll get it, it's OK' others might accept better but if she starts shaking her head and looks panicky and frustrated it maybe gives them the idea she is incapable."

[Interview, 12-12-91; 27]

"They feel bad about being aphasic and that comes across"

[Interview, 12-12-91; 31]

Thus, the aphasic speaker's attitude can project an image of "incompetence" which labels him/her a failure or different, hence someone to be avoided.
Goffman (1963) suggested that the visibility and obtrusiveness of traits associated with stigma have a significant impact on the reactions of others. The more obvious a "difference", then the more likely a negative reaction might ensue. Hence, obvious or novel compensatory strategies such as writing, signing or computer systems are more likely to call attention and elicit reactions from others.

Furthermore, stigma tends to be associated with less familiar situations and speaking partners.

"The area of stigma management might be seen as something that pertains mainly to public life, to contact between strangers or mere acquaintances, to one end of a continuum whose other pole is intimacy." (Goffman, 1963, p.51).

Conversely, there is less tendency for familiar people to react negatively to a stigmatizing trait (Goffman, 1963). The result of course is that the stigmatized individual will tend to seek out familiar "accepting" situations and avoid potentially rejecting situations. When new situations do arise,

"because of the great rewards in being considered normal, almost all persons who are in a position to pass will do so on some occasion by intent." (Goffman, 1963. p. 74).

This of course, further explains 'avoidance' strategies of both subjects in this study. It also explains their restraint in using "visible" or overt strategies such as gestural signs or computer printing in unfamiliar circumstances or with unfamiliar speaking partners.
partners; they prefer to "pass for normal". Recall also that DC tended to limit her 'requests for help' or 'requests to slow down' to speech pathologists and "high" solidarity and familiarity partners. Doing otherwise might promote a stigmatized image of "handicapped" or "a drag" with people who have no social investment in the relationship.

On the other hand, the highest frequency compensatory strategies for both subjects tended to be far less visible and obtrusive. For example, gaze is a natural method of shifting a speaking turn (Kendon, 1967); DC exaggerated this behavior in appropriate situations to subtly request help from her speaking partner. NN's utterance of 'yes', 'nice' and 'really' passed for exaggerated "backchannel" responses which appear normal and natural (Duncan, 1973). Similarly, both DC's 'is/isy' markers and NN's regulatory gestures acted at an almost subliminal level for the speaking partner. This was demonstrated clearly with comments on the 'is/isy' pattern as follows:

"you tend to ignore that"

[Lamination,9-30-92;16]

"Once you said to look for something I knew that I heard that all the time. It's like you ignore what you don't need from that and focus
on the information...you try to get something from it so you ignore the pattern."

[Lamination,9-28-92;9]

"I never focused on it, I mean she has done it from the beginning...()...but I always ignored it...you know you just try to get the meat..."

[Lamination,9-28-92;9]

I thought how well she communicated and how I NEVER noticed any 'is is' productions even though I meant to. Are they still there or are they so much a part, that the listener doesn't even register them?

[Observation,6-10-92;9]

In fact, original videotape transcriptions for the two subjects failed to include most instances of DC's 'is/isy' or NN's regulatory gestures further substantiating their "covert" characteristic.

Similarly the predominance of deictic and natural gestures in the gestural repertoire of both subjects suggests a strong bias towards natural strategies. Whether these are used more because they are cognitively and physically easier, or whether they are used because they "fit in" better cannot be gleaned from this study. However, these "natural" gestures were far less stigmatizing, less obvious and more successful, than the trained gestural signs.
In fact, there was an overwhelming preponderance of "natural" compensatory strategies for both aphasic subjects. As previously discussed, natural strategies represented 89% of DC's strategies and 95% of NN's strategies. Figure 12 presents the percentage of trained and natural compensatory strategies to total strategies for each subject. It is significant that both subjects demonstrated a functional preference for natural strategies.

**Influence of Power**

Another important influence on compensatory strategies was the social concept of power. Power is the degree to which one can impose one's own plans and evaluations onto another (Brown & Levinson, 1978). One informant commented on the markedly different distribution of compensatory strategies in the two "cafeteria" videotapes of DC:

"You know I think it has as much to do with how you perceive your social standing or your power in the situation as it does to do with her inability to communicate verbally. I think with (cafeteria C) she perceived that she was different from them and here she feels more the same as them."..."I mean maybe it is an
Figure 12. Trained vs. Natural Strategies: Proportions to Total by Subject.
Power, status and control exert strong influences on our social interactions (Bell, 1984). The aphasic subjects demonstrated this normal need for status, autonomy, and freedom from external control. Like all of us, they constantly balanced this need for control with an appreciation of the status of their speaking partners and a desire for acceptance by others.

Results of compensatory strategy analysis demonstrated this influence of power differentials on strategy choice for both subjects. Interactions between NN and her husband showed a marked asymmetry with the power resting on the side of her husband. Moreover, the husband-wife interactions showed a markedly different distribution of compensatory strategies. One informant observed a protracted verbal repair sequence between NN and her husband and noted:

"I think this is a situation.. with her husband ..where there's other things affecting...that she's not deciding but I think that uh, she's no longer deciding her own strategies...he's
deciding for her...I almost think that...like expecting her to do all this talking."

[Lamination, 10-2-92;30]

Thus, her husband's expectations combined with his emotional "authority" and her desire for acceptance subtly altered NN's choice of compensatory strategies.

Similarly, DC dispensed with many of her compensatory strategies in situations in which the power differential rested on the side of speaking partners. For example, she limited her "slow down" requests to speaking partners with whom she had established a bond of solidarity. A request to "slow down" is a rather direct command which might threaten the interaction if uttered to a "higher status" speaking partner. More subtle maneuvers which mimic "normal" comprehension repairs were used when control rested with the speaking partner.

The drive for autonomy and positive image is related to status and power distribution in relationships. Subjects attempted to maintain "face" in order not to lose status and position. For example, DC's 'I don't know' utterance maintained, as much as possible, her image as a competent speaking partner. DC opted out of responding at times with this verbalization similar to the way 'I don't know' is used by normal speakers. For DC however, it was often a subtle means of avoiding failure and saving face while remaining in control of her
side of the exchange. If she were to pursue the turn and be forced to abandon it in communication failure, she would have placed herself in a communicatively "weak" position, exposed her incompetence and weakened her status. Similarly, the use of the term "is me" as a disclaimer allows DC to control her image and status in the conversation. As Coupland, Coupland et. al. (1988) suggest, when disclaimers are:

"accomplished in convincing ways for the audience present, then the speaker has a reasonable chance of controlling his or her image in others' perceptions." (p. 24).

Thus, the influences of desire for acceptance, drive for autonomy, and need to exchange information were woven into a complex pattern which dictated the ebb and flow of conversation. In fact, these variables were intricately interrelated. For example, people in a society tend to be polite and not impose to affiliate with others and also to avoid threats to their own autonomy; not imposing and avoiding power conflicts conserves energy and well being. Thus, the subjects participated in this ongoing socialization process, in part, by adjusting their compensatory strategies accordingly.

Not only were social variables interrelated, but also the interactional and transactional aspects of communication were interdependent. For all of us, information exchange requires that an adequate, appropriate social scaffold is erected. That is, the way
we present ourselves in conversation actually influences the effectiveness of message transmission. Watzlawick, Beaven and Jackson (1967) contend that:

"...messages concerning the abstract aspects of interpersonal realities are probably much more important to the success of communicative exchanges than the factively coded messages themselves. If the self in relationship to others is satisfactorily defined, and if the significant others in interactional relationships confirm ones definition of self and others, communication concerning factive information can take place. Otherwise, relationship struggles ensue." (p. 27).

Thus, the aphasic subjects attempted to present images which conformed to expectations of speaking partners, promoted social affiliation and at the same time protected their personal dignity and autonomy. Like normal speakers, their socially sensitive behaviors paved the way for exchange of information. Thus, politeness, avoidance of stigma and power constituted significant influences on compensatory strategy usage and demonstrated the primacy of the drive for socialization.

Summary

Compensatory strategies were motivated by the desire to affiliate with and be accepted by other human beings, the desire to maintain autonomy and control, the need to conserve energy resources, and the desire to exchange information. Within any given context and at any given
moment, the subjects and their speaking partners adjusted to a complex matrix of these influences on their conversation. Thus, context was a critical factor in compensatory strategy usage.

Many contexts involved minimal exchange of important information. The goal in such circumstances was purely social, supporting Tannen's (1986) proposition that "from day to day there often isn't any significant news to talk about" (p.19). We often use conversation simply for personal and emotional contact. During these situations DC and NN employed an array of socially appropriate compensatory strategies which promoted the social ends of conversation and maintained the flow of discourse. They avoided stigmatizing, exhausting behaviors which did not contribute to social affiliation, but they freely employed discourse devices to maintain the social interaction. Thus, the effort needed to maintain the interaction was justified by social reward.

Conversely, a strong "need" or "desire" to communicate information often took precedence. Subjects were more willing to sacrifice energy or risk rejection when the rewards for communication were great. For example, informants observed that DC demonstrated a greater drive to convey information to her speaking partner during the home (D) session with her friend. Here the proportion of gestural communication was high. She did not 'give up'
after communication breakdowns; rather, this was one of the situations in which she repaired with writing. Perhaps the drive to communicate information led her to exert greater communicative effort and use more overt strategies such as gesture and writing. Similarly, NN exhibited more regulatory gestures and resorted to computer printing when she wanted to convey new information.

Both subjects avoided interactions entirely when the rewards were not coincident with the effort. Thus, when a greater value was associated with communication, subjects were likely to exert more effort in employing the appropriate compensatory strategies. This is in agreement with Grimshaw (1980) who observed that speakers tend to work harder to insure successful communication when the communication is judged significant to the speaker.

The synergistic relationship of interaction and transaction was apparent throughout this investigation. Subjects appeared to automatically judge the most appropriate behaviors for the context and goals of exchanges, and balance this with internal motivations. Both subjects varied deployment of compensatory strategies to suit contexts and purposes of communication. NN and DC relied heavily on socially driven discourse devices in the interest of promoting the
flow of interaction. They judiciously avoided using stigmatizing strategies such as gestural signs or graphics with strangers or in public situations. They both politely avoided imposing multiple repair sequences unless the communicative return was judged worthy. They both implemented discourse devices to sacrifice meaning transmission in favor of social acceptance when the situation warranted, then reverted to the more difficult work of transmitting meaning when desired. Their compensatory strategies were purposefully and flexibly deployed to interact and exchange information. Moreover, both subjects' systematic use of compensatory strategies reflected the synergistic relationship between interaction and transaction; that is, they realized the need to establish a social relationship before messages could be exchanged.
Chapter 7

CONCLUSION: SUMMARY AND IMPLICATIONS

A varied array of compensatory strategies was uncovered for both subjects studied in this investigation based on the definition of compensatory strategy set forth. Compensatory strategies were systematic, purposeful and contextually flexible. Many strategies were unique to the subject reflecting their individual personalities. Moreover, compensatory strategies were found to be naturally acquired and/or externally imposed through treatment.

Compensatory Strategies: An Expanded Definition

The definition of compensatory strategy drawn from the data of this investigation represents the first clear definition with specific criteria for identification of aphasic compensatory strategies available in the literature. The most significant feature of this definition is that it promotes an expanded view of compensatory strategies.

First, the definition encouraged consideration of both transactional and interactional behaviors as compensatory strategies. The compensatory strategies listed by
speech-language pathologists interviewed, and included in the original proposal for this investigation were generally readily observable, frequently trained "message transmission" behaviors such as writing, signing or circumlocution. In fact, the communication disorders literature in general seems to bias towards "message transmission" as the primary area of interest. For example, traditional aphasia tests focus entirely on linguistic meaning and form. Communicative "success" is often defined as "getting the idea across" (Davis & Wilcox, 1985). And, while there has been a shift towards more "functional" and ecologically valid management of aphasia, functional is often defined in terms of things like ordering in a restaurant or giving an address to a taxi driver. In contrast, the findings of this study showed that for these two subjects the majority of compensatory strategies were less obvious, naturally occurring behaviors which promoted social interaction and contributed to the flow or organization of discourse. Message transmission per se, was not the overriding priority for these aphasic subjects in the natural conversations sampled.

Related to the goals achieved by compensatory strategies is the fact that strategies fulfill specific communicative functions. The specific functions of compensatory strategies included conveying information or
feeling, repairing communication breakdowns and regulating discourse. These functions were realized when a communicative barrier was created by aphasia. Based on the aphasic individual's goals, compensatory strategies were chosen to overcome the communicative barriers. Strategy choices fell on a continuum ranging from complete avoidance of interaction to exhaustive attempts to communicate or interact (Faerch & Kasper, 1984; Tarone, 1980). Thus, avoidance and achievement constituted opposite ends of the continuum of strategy choices. Furthermore, achievement behaviors tended to span a continuum from relatively independent strategies such as using pointing gestures, to strategies which obliged the speaking partner to assist in overcoming the barrier to communication. The specific functions of individual compensatory strategies ultimately contributed to the overall transactional and interactive goals of communication.

Another characteristic of compensatory strategies captured in the definition relates to the dimension of naturalness. That is, compensatory strategies were acquired both through direct training and through natural processes. Recall that the compensatory strategies of these two aphasic subjects were either novel behaviors incorporated into the communicative process, or normal behaviors which increased in frequency, became
exaggerated or were recast to fulfill a new function. Novel behaviors, often targeted in therapy, tended to be the most visible or overt compensatory strategies, such as using a computer, note pad or word list, and were designed primarily for message transmission. Other compensatory strategies appeared to be outgrowths of existing behaviors within the subject's communication system. For example, NN's progressive disorder provided a mechanism for observing the transformation of normal behaviors into compensatory strategies. Thus, at least some compensatory strategies are natural outgrowths of communication behaviors which are restructured to overcome communication barriers.

The fact that many compensatory strategies were developed spontaneously to meet communicative needs is not surprising. Even though informants and much of the aphasia literature did not emphasize spontaneity, recommendations for speech pathologists to look to the aphasic speaker to discover useful strategies were offered years ago (Berman & Peelle, 1967; Whitney, 1975). Indeed, such spontaneity is well documented in other populations. For example, "normal" speakers employ spontaneous strategies in communication such as paraphrasing, simplifying structure or restating (Brown & Yule, 1983). Second language learners create their own communication strategies to negotiate difficult
communication situations (Tarone, 1980; Faerch & Kasper, 1984) and deaf children have been observed to spontaneously develop their own communicative signs prior to training (Goldin-Meadow & Feldman, 1977).

Aphasic patients obviously create compensatory strategies to perform specific functions within their discourse. Although these behaviors can be natural and spontaneous, these powerful compensations should not be overlooked or misinterpreted in our enthusiastic pursuit of "deficit" patterns and treatment options.

Another interesting feature of compensatory strategies observed in this investigation relates to automaticity. As mentioned in the discussion of conservation of effort, many of the strategies demonstrated by the subjects were employed in a relatively automatic fashion (e.g. 'is/isy', regulatory gestures, interest markers), while others appeared to require more deliberate effort (writing, computer, signs). The current investigation would suggest that compensatory strategies fall on a continuum from relatively automatic, unconscious behaviors to relatively controlled, conscious behaviors. Some compensatory strategies appear to be developed or learned, incorporated into a somewhat automatic repertoire of contextually sensitive behaviors, and later emerge within the flow of conversation at a low level of awareness. Moreover, natural behaviors which are
outgrowths of existing conversational behaviors seem to easily fall into the class of relatively automatic strategies. Thus, neither DC nor NN appeared to consciously choose many of their strategies during the stream of conversation. For example, verbal productions such as 'I don't know' or 'wonderful' were produced fluently, with no apparent articulatory effort throughout the subjects' discourse suggesting a relatively automatic level of processing. Alternatively, other compensatory strategies (e.g. NN's communication book or computer) appeared to require a certain amount of deliberate effort and conscious choice.

Interestingly there appears to be some debate in the literature as to the automaticity or consciousness of communication strategies. For example, Faerch and Kasper (1984) contend that "potential consciousness" is one characteristic of communication strategies used by second language learners. Tarone (1977) suggested that communication strategies are conscious attempts to overcome a communication crisis. Conversely, Goody (1978) proposed "while verbal strategies are considered 'rational', this is meant to imply that there is a means-end relationship making the strategy goal oriented. This is not meant to imply that strategies are a result of conscious deliberation." (p.8). The current investigation would suggest that compensatory strategies
range from relatively automatic to relatively deliberate and controlled behaviors.

Many compensatory strategies observed for these two subjects were idiosyncratic. That is, each subject developed a unique repertoire of compensations that served her individual communicative needs. It appears that no predetermined check-list of potential compensations could have captured the variety of behaviors found in this investigation. Similar findings for one chronic aphasic patient were reported by Hand, Tonkovich and Aitchison (1979) who found a peculiar pattern of syntactic compensations including the phrases "this is" and "it was" to replace verbs and prepositions. Thus, aphasic subjects must be studied as individuals with potentially unique methods of compensating for language deficits.

Finally, the definition of compensatory strategies promotes consideration of contextual flexibility and systematicity of usage. A few authors have alluded to this possibility. Behrmann and Penn (1984) found individual differences in their subjects' use of nonverbal communication. They hypothesized that fluent and nonfluent patients exhibit different "sensitivity" to the social context possibly related to the site of lesion and associated deficits. Cicone, Wapner, et. al. (1979) raised the possibility that the communication partner can
influence the interaction since people feel compelled to assist nonfluent patients by offering a contextual framework which promotes use of gesture. The current investigation offers authentic data to substantiate suggestions that context influences compensatory strategies. Thus, compensatory strategies can no longer be considered static behaviors which the aphasic individual accesses any time communicative difficulty is encountered. Rather, compensatory strategies are optionally deployed in a goal-oriented manner to suit the situation, speaking partner and goals or desires of the aphasic speaker. Furthermore, context cannot be considered a simple dichotomy between clinical contexts and natural contexts, or familiar and unfamiliar speaking partners. As this investigation shows, natural contexts vary according to a number of interrelated factors which significantly influence the utilization of compensatory strategies.

Implications for Aphasia Research and Management

Judging Effectiveness of Compensatory Strategies

Once compensatory strategies were operationally defined and identified, interest shifted to judgements of the effectiveness or success of strategies. This proved
to be a somewhat more difficult area to investigate since success can be judged from several perspectives.

Traditionally speech-language pathologists have determined effectiveness based on some preconceived idea of successful and efficient message transmission. For example, Blomert (1990) suggested that "... communicative effectiveness should be interpreted in terms of the adequacy in bringing across a given message." Holland (1982) defined successful functional communication "as getting messages across in a variety of ways..." (p. 50). During this project success in message transmission was judged for certain compensatory strategies for both NN and DC, and a potential effect of success on frequency was suggested. For example, it was conjectured that DC’s 'gaze solicitation' strategy was partially limited by its poor success rate among nonspeech-language pathologists. Similarly both DC’s and NN’s use of gestural signs suggested the potential influence of failure on frequency. While both subjects met considerable success in transmitting messages with graphic strategies, the success exerted a price in energy consumption. That is, several clarification sequences were usually needed to "hone in" on the exact intent. Thus, efficiency as well as effectiveness seemed to be a factor in evaluating success in message transmission. Perhaps these compensatory strategies were not effective or efficient
enough in natural settings to override their negative characteristics (e.g. stigmatizing traits, energy consumption) resulting in an additional reason for limited usage.

Another approach for judging effectiveness involved observing and evaluating success based on the conversational flow, turn taking, collaboration in sustaining talk, and maintenance of the relationship. From this perspective simply transmitting a message was not enough to meet the social goals of communication. For example, a turn might be judged effective if the listener responded in a friendly manner and continued talking topically. Thus, success or failure of the interaction becomes the focal point (Milroy & Perkins, 1992). Norris and Hoffman (1990) suggested that sustaining a line of talk is a positive consequence in conversation. Thus, NN's high frequency of sustaining responses to 'exaggerated interest markers' suggested that this compensatory strategy was effective in managing the flow of interpersonal discourse.

Another dimension of success related to the appropriateness of communication behaviors in context. Penn (1988) used a measure of pragmatic appropriateness to judge aphasic communication; interestingly her definition of appropriateness as "behaviors which neither distracted from nor penalized the conversational flow"
(p. 184) appeared to derive from an interactional perspective. Others might judge appropriateness based on norms for a given behavior or associated social penalty (Milton, Prutting & Binder, 1984). Unfortunately, appropriateness must be defined in terms of expectancies of a given behavior for a particular person, place or time (Brown & Yule, 1983); therefore, it is difficult to make generalizations about appropriateness across settings and speakers. However, these aphasic subjects appeared to make distinctions regarding appropriateness based on avoidance of certain compensatory strategies in public or new communication situations.

While the aforementioned effectiveness measures can be judged by observers, each participant within a conversation might individually judge success based on realization of his/her own goals (e.g. to be liked and accepted, to get an idea across) and own perceived workload. For example, NN felt that her "interest markers" were successful based on her stated goal of maintaining the flow of conversation while avoiding "talking". NN related that her computer strategy was effective in conveying information, but she considered the behavior "weird".

The speaking partners of aphasic patients might judge effectiveness based, at least in part, on their perceived burden or enjoyment of the interaction. Unfortunately it
was sometimes difficult to assess a participant’s feelings based on observed behaviors because politeness rules obliged participants to maintain the flow when the aphasic partner signaled this intention. Perhaps the only way to arrive at a truly socially valid appreciation of the success of strategies is to ask each participant how they perceived a given exchange. For example, one of DC’s speaking partner’s felt that writing was time consuming and tiring; yet, the speaking partner politely continued the conversation after writing turns. Penn and Beecham (1992) studied discourse and compensatory strategies of a multilingual aphasic using culturally matched nonprofessional volunteers as conversational partners and sought feedback from the partners regarding the subjects effectiveness in conversation. Perhaps such social validation using culturally matched, nonprofessional conversation partners is one method of determining success of compensatory strategies. On the other hand, it is important that careful analysis is conducted to seek functions of such strategies which might escape superficial judgement to avoid eliminating potentially important strategic behaviors.

Another problem encountered in judging effectiveness of compensatory strategies arose when a turn included several different strategies. For example, the following utterance included ‘is good’, ‘is’, and two gestures.
Is job, is____ isy. Is good, is_______.

[raises hand with palm down]  [extends hand palm up]

[Video,1-22-92;DC,C14;52]

The speaking partner requested clarification suggesting difficulty understanding DC's message. According to the scoring system adopted in this investigation the utterance did not succeed in transmitting information or sustaining the flow of conversation. Thus, using a whole utterance score for message transmission and sustaining responses might require that all compensatory strategies "fail" if the utterance fails. However, subjective analysis suggested that DC's 'is' strategy was a highly effective covert means of organizing and promoting discourse. The lesson, of course, is that compensatory strategies must be judged relative to the intended goal of the strategy and their individual appropriateness in context.

Thus, effectiveness or success can be judged from a variety of perspectives. Moreover, success might differ somewhat for each participant within the interaction. Furthermore, the goals of the conversation (e.g. primarily interactional versus primarily transactional) affect evaluations of effectiveness. Different types of compensatory strategies might require different evaluation methods. Although judgements of effectiveness
are somewhat complicated, it is important that speech-language pathologists appreciate the perspectives on success since aphasic communicators are unlikely to use strategies that they consider ineffective. Furthermore, time and resources could easily be wasted in training compensatory strategies which are judged effective only from the speech-language pathologist's perspective.

**Implications for Aphasia Evaluation**

A major finding of this investigation was that compensatory strategies are potentially context dependent. These aphasic subjects clearly evidenced sensitivity to their environment and, like normal speakers, made accommodations to suit their audience (Bell, 1984; Giles, Taylor & Bourhis, 1973). In fact, many highly significant compensatory strategies were not readily apparent during speech therapy, objective testing or barrier activities designed to elicit a "spontaneous language sample". Speech therapy, in spite of the therapists' attempts to simulate more natural interaction, could not possibly capture the multiple social influences found to affect compensatory strategy usage. Holland (1977) has been urging speech-language pathologists to use more contexts and more natural communication to evaluate and treat aphasic patients for over a decade. She noted:

"a clinical picture of an aphasic's language and communication is far from the total story,
and one about which only minimal generalization is possible" (p.175).

This recommendation is strongly supported by the findings of the current research.

In an attempt to capture more realistic and varied communication contexts, some clinicians and researchers have suggested methods for varying context in order to sample context dependent communication patterns. For example, McElduff and Drummond (1991) used picture description, subject-examiner dyads, subject-familiar adult dyads and subject-examiner-familiar adult triads in an attempt to sample multiple speaking partners. Simmons (1988a) and Coelho (1991) used "simulated" natural environments as one method of sampling varied contexts. The current investigation included a "barrier activity" with an unfamiliar speaking partner to represent a relatively popular means of obtaining a "spontaneous" language sample. Several authors have suggested using such referential communication tasks to assess the speed and effectiveness of communication rather than "well-formedness" (Clark & Wilkes-Gibbs, 1986; Busch & Brookshire, 1985; Busch, Brookshire & Nicholas 1988; Brown, Anderson, Shillicock & Yule, 1984; Damico & Schweitzer, 1991; Feyereisen, 1991). Results of the current investigation suggest that referential language tasks or "barrier" activities do indeed encourage the aphasic speaker to transmit new information to the
speaking partner. However, these activities did not duplicate the conversational patterns of natural communication.

During natural communication the aphasic speaker had a far greater choice of strategies than available within the barrier task. For example, numerous modes of opting out of conveying information demonstrated by DC and NN (e.g. "I don't know", avoidance, giving up, shifting turns, politeness markers) were limited by the barrier task. Conversational discourse devices were minimally employed. Also, gestures were reduced, possibly in part because the subjects hands were occupied with pictures. In other words, barrier tasks sample the accuracy, efficiency and success of transactional communication, but they fail to inform the speech-language pathologist about appropriateness, success or efficiency of natural interactional communication.

Traditional "objective" aphasia tests also failed to sample many compensatory strategies. Obviously, some compensatory strategies were not "testable" using traditional language evaluation methods since the strategies promote social interaction rather than information exchange. For example, DC rarely used 'is' and never used 'isy' during the Porch Index of Communicative Ability (Porch, 1981). Moreover, traditional tests usually focus on linguistic competence
and provide less opportunity for patients to resort to alternative measures for achieving communicative ends. The fact that traditional testing does not always readily reveal compensatory strategies has been alluded to often in the literature. For example, Penn (1987) found that two chronic aphasic patients improved in their communication ability through compensation in spite of static test scores over a five year period. Carlomagno, Losanno, Emanuelli and Casadio (1991) measured aphasic communication before and after PACE therapy and found that their aphasic subjects did not improve on language tests, but did show more efficient communicative strategies. Apparently aphasic patients make adjustments in their communicative patterns which are not captured on traditional linguistic assessments (Wilcox, 1983; Wilcox & Davis, 1978).

Objective tests, barrier tasks and many other evaluation situations are "contrived" (Damico, 1991). Thus, the subjects, as well as other participants, knew that "talking" and exchanging information was the goal. Real situations representing social chit chat, eating, or conducting business revealed different communicative patterns. Therefore, it seems that the form and content of language can be sampled through contrived activities and objective tests, but the aphasic individual's
flexible use of communication to meet varied social needs is overlooked through such measures.

In addition to the inadequacy of objective tests, the reports of family members and aphasic patients were not reliable sources of information on compensatory strategy usage. Reports did not always coincide with observations of actual compensatory strategy patterns. Milroy (1987) has noted this mismatch between "what speakers claim when they are directly questioned, and what they actually do, as evidenced by their linguistic behavior in naturally occurring conversation." (p.149). Thus, reports of others might not be a reliable means of evaluating generalized usage of compensatory strategies.

Finally, the perspective of the evaluator influenced the interpretation of assessments. In order to develop a broader, more ecologically valid perspective, speech-language pathologists must view the behaviors of their aphasic patients from a socially sensitive perspective -- looking for explanations for behavior rather than judging behavior based on preconceived notions of appropriateness. For example, DC’s speech-language pathologist reported:

"She got more verbal...so that really improved and I think her pragmatics improved...I mean
she would interact a little more with strangers and all."

[Interview, 7-29-92;7]

DC's therapist viewed her avoidance of strangers as a failure to communicate. Her subsequent increase in interactiveness was attributed to improved pragmatics. This investigation might suggest that DC's pragmatics were perfectly intact early on, and dictated that she avoid strangers in order to spare herself and others social embarrassment and exhaustion. Perhaps the improvement in verbal communication allowed DC to be more interactive without risking social rejection.

Appreciation of the complexity and variety of an aphasic patient's communication system can be improved by broadening our evaluations to include samples of "real life" interactional communication and applying descriptive assessment methods (Brinton & Fujiki, 1992; Damico, 1992; Damico, Secord & Wiig, 1992; Kovarsky, 1992). Evaluating aphasic communication relative to energy efficiency and social appropriateness as well as effectiveness of meaning transfer will promote a more realistic view of functionality (Damico, Secord & Wiig, 1992). Furthermore, recognition of the influence of multiple variables on communication and development of a social perspective will surely enhance our understanding...
of aphasic communication, and improve our ability to intervene in a meaningful and effective manner.

Implications for Treatment of Aphasia

The results of this investigation suggest a number of interesting implications relative to treatment of aphasic language disorders. First, the limited usage of several "trained" strategies by the subjects raises a question about the efficacy of training some message transmission compensations. As noted, there have been numerous advocates of training nonverbal communication systems such as gestural signs, communication boards or drawing for aphasic individuals (Reviews in Kraat, 1990, in Rao, 1986 and in Chapter 2). However, like NN and DC, aphasic patients frequently fail to use these for functional communication across contexts. Arguments have raged regarding the cause of this failure. Some have suggested that an underlying pervasive linguistic or symbolic disorder precludes use of any symbol system (Coelho & Duffy, 1990). Others have argued for an underlying motor selection problem in gestural failure (Kimura, 1976, 1987). Finally, some have blamed the problem on inadequate training to promote generalization to untrained contexts (Coelho & Duffy, 1985; Kraat, 1990). In the present investigation both subjects were taught a large repertoire of gestural signs. Treatment records suggested that both subjects acquired signs in structured
training and practiced carry-over during PACE activities; families and staff were included in treatment to help with generalization. However, although signs were learned by both subjects, they were limited in frequency and by situation. The actual success of strategies was also limited. In fact, only 30% of DC's and 0% of NN's substitute signs were successful in conveying a message in context. Thus, one might wonder if limited usage related to inadequate training for carry-over, poor success, pervasive symbolic disorder or motor problems. The concept of a situational usage pattern, however, would tend to refute the "failure to generalize" hypothesis since signs were generalized to some situations and not others. For example, DC used more gestural signs when her desire to convey information and/or when her affiliation with speaking partners was greater. One of the lowest use of gestural signs occurred during her regular speech therapy session. There were apparently influences other than situation-specific learning, motor ability or symbolic disorder. The results suggest that these influences are contextually driven relative to the desire to communicate and anticipated reward.

The results of this investigation should not encourage speech-language pathologists to abandon all attempts to train message transmission strategies. For example, the
30% of successful manual signs used by DC did convey information which otherwise might have failed. Nor should the findings be interpreted as censorship of speech pathology practices. Years of experience have suggested that many of our didactic methods for facilitating language recovery are appropriate. However, clinicians must be clear about their goals and expectations if they expect patients to profit from treatment in a generalized way. We must expect that aphasic patients will use strategies in some situations and not others. The results suggest that evaluation and training must be administered with full cognizance of social influences on usage. Moreover, such training should not discourage natural interactive strategies. Thus, traditional methods need not be abandoned, rather additional treatment methods which extend into the social domain are needed.

Recognition and appreciation of the wide range of interactive compensatory strategies adopted, often spontaneously, by aphasic communicators is another consideration raised by this investigation. Well conceived and appropriately deployed interactive compensatory strategies can markedly improve a severe aphasic's ability to interact socially. Conversely, an aphasic individual, matched in severity, who lacks such interactive compensations might be far more functionally
limited. Focusing on the patient's ability to manage an interaction could influence our judgement of functional severity and influence choice of treatment candidates and treatment methods. Furthermore, Weniger and Sarno (1990) hypothesized that:

"more functional success is to be achieved by shaping the spontaneously occurring strategies of a patient than by introducing new means of expression." (p. 303)

They suggest that the future will probably witness more interest in what Jackson (1874) referred to as a patient's "positive" symptoms. The current ethnographic findings would support this prediction.

Another area of interest relative to aphasia management relates to the context of speech-language therapy. As observed in other teacher-student or therapist-client interactions (Kovarsky, 1989; Prutting, Bagshaw, et al. 1978; Ulichny & Watson-Gegeo, 1989), an asymmetrical distribution of control within therapy limits the conversational role of the aphasic and actually constrains the patient's "power" in negotiating meaning. Although asymmetrical control might be theoretically motivated to some extent since it relates to the therapist's desire to mediate and manipulate the patient's behavior in order to promote recovery, such approaches result in a discrepancy between the treatment context and more natural communication situations. For example, both subjects demonstrated markedly
reduced topic initiation in treatment as compared to other settings and altered their patterns of compensatory strategy usage within the treatment context. In addition, numerous studies have documented limited speech act variety within speech-language therapy (Armstrong, 1989; Gurland, Chwat & Wollner 1982; Ripich & Panagos, 1985; Wilcox & Davis, 1977). Thus, conversational experiences for developing and practicing compensatory strategies are often lacking in the treatment context.

Another aspect of treatment which could influence compensatory strategy training was a set of built-in expectancies. Patients were sensitive to the expectations and established norms within therapy. They recognized that certain modes of communicating were expected and accepted. Since most people strive to be accepted and liked, it was not surprising that these subjects attempted to comply with the therapist’s expectations. Thus, when therapy tasks designed to promote writing were introduced, DC used writing. Similarly, during a PACE activity introduced to build multimodality information exchange, NN freely used her computer. The behaviors were expected by the therapist and verbally reinforced. However, these communication methods might not be expected or readily accepted outside of therapy. Recall observations of informants that NN’s husband appeared to expect verbal communication and
subtly discourage alternatives. Thus, feedback obtained outside of therapy could effectively limit the use of "negatively received" compensatory strategies. In fact, Vigil and Oller (1976), in studying second language learning, stated that "affective feedback" (information transmitted about the social relationship) generally outweighs feedback about receipt of propositional information. Furthermore, they found that "unexpected feedback" is most likely to produce radical changes in a speaker's system. As noted in Chapter 6, use of novel strategies resulted in some "negative reactions". Patients might not expect these negative reactions if the same behaviors have been reinforced in therapy. Thus, the combination of negative and unexpected affective feedback signals trouble in the social realm of the interaction. In this way patients learn that certain compensatory strategies are stigmatizing in certain situations. In pragmatically intact individuals, strategy use might interact with context and expectations to specifically inhibit generalization. Therefore, awareness of the powerful role of expectancy and affective feedback on generalization of compensatory strategies is important for effective treatment.

Finally, discourse in individuals with aphasia, as in normal speakers, is a creative, evolutionary process which evolves out of the interaction and is shaped by the
social organization of conversational participation (Schegloff, 1981). Treatment which views aphasic communication as static responses to predetermined stimuli fails to appreciate the flexible and adaptive process, and is destined to result in poorly generalized improvement in communication.

The results of this study suggest that generalization of trained compensatory strategies is influenced by social and contextual factors. Traditional language therapy sessions do not provide patients with practice in adapting their strategies to varied contexts, responding to natural consequences, and using language in a dynamic way. Furthermore, feedback regarding the appropriateness of compensatory strategies obtained in natural settings might counteract any positive feedback received in language therapy. Also, interactive strategies which occur less frequently in traditional treatment could be important elements of a patient’s communication system; speech-language pathologists need to be aware of these strategies and how they influence a patient’s communicative performance. Finally, if we are to assume that compensatory strategies can be taught or enhanced, then it is apparent that we must build a technology of interactive treatment which addresses contextual variables and social influences.
Future Directions in Treatment

Methods of incorporating natural conversational parameters into aphasia therapy as well as sensitivity to the need to observe aphasic communicators in natural contexts are obviously needed. Observing aphasic speakers in natural contexts will increase the speech-language pathologist’s awareness of the patient’s communicative personality and successful interactive strategies. Based on an appreciation of these conversational behaviors, existing strategies might be reinforced and additional strategies introduced. The focus of treatment can be shifted from the word or sentence level to the level of social discourse. Furthermore, compensatory strategies introduced by the clinician could be adapted, as much as possible, to suit the dynamic, rapid give and take of conversation. For example, writing might be taught as a "repair" to be introduced only after the verbal flow has been disrupted by a breakdown, rather than expecting writing to be executed prior to speaking as a facilitator. In order to insure that compensatory strategies are effective, efficient and appropriate, a clear recognition of the difference between facilitating verbal expression and compensating through alternative means is required. Thus, knowledge of what works in natural conversation appears to be critical to effective management.
In the future, aphasia treatment must be conducted with a bias towards the patient's perspective rather than the speech-language pathologist's. This, of course, requires increased awareness of our own attitudes and social behaviors, and appreciation of the effect of our attitudes on management. For example, several informants, as well as the investigator, initially viewed avoidance of interaction and giving up as a problematic behavior which might be overcome by teaching strategies which help to get ideas across such as signing and writing. However, the data suggested that avoidance might be a "positive" behavior demonstrating social and pragmatic sensitivity, and that strategies such as signing and writing might counteract the desire to interact due to the stigma and imposition. Recognition of this encourages acceptance of avoidance as a natural and appropriate behavior given the circumstances. Hence, the goal of speech-language therapy might be to encourage interaction by developing communicative behaviors which make aphasic patients comfortable and confident with others. Thus, methods that focus on empowerment rather than impairment might help aphasic speakers.

Methods for empowering and improving communicative confidence are in short supply in the aphasia literature. One area of focus in developing a methodology might be to target the therapy milieu. For example, control exerted...
by the therapist and adherence to a one sided perspective, could result in the aphasic patient's internalization of powerlessness and inadequacy regarding communicative ability. In a study of schooling, Ulichny and Watson-Gegeo (1989) refer to this power differential as the "dominant interpretive framework" since teachers not only control the form and content of discourse but also influence the interpretation of meaning. Gumperz (1982) refers to the power differential as "gatekeeping". Such asymmetries can project an impression that the "powerless" participant is inadequate. Scrutiny of the therapy milieu might help eliminate those therapy methods which project subtle messages that the aphasic patient is "powerless" and "inadequate" as a communicator.

Another method of promoting communication confidence is to adopt approaches which involve participation in scaffolded natural conversation in which the therapist keeps the difficulty level at the edge of the patient's ability (Damico, 1992; Vygotsky, 1962). Thus, strategies which promote conversation and build towards greater overall communication can be created by the patient and reinforced indirectly within a natural framework. In addition, a focus on the interaction rather than the aphasic speaker can enrich intervention (Green, 1984). Methods such as conversation coaching might be adapted (Holland, 1988; Penn & Beecham, 1992) or approaches can
be borrowed from the augmentative communication, childhood communication disorders and second language learning literature relative to training natural and interactional strategies which enhance communication (e.g. Blackstone, 1991; Damico, 1992; Garrett, Beukelman & Low-Morrow, 1989; Labarca & Khanji, 1986).

Incorporation of speaking partners into the framework of treatment can build a familiar community of social communication partners and situations which reduces the potential of rejection. For example, Blackstone (1991) suggests creating a circle of partners that are trained in strategies for AAC users. Incorporating communication partners into therapy builds psychosocial well-being as well as communication competence in aphasia and provides another potentially appropriate method (Green, 1984; Lyon, 1992).

Compensatory strategy usage and training appear to be far more complex than this investigator expected. Choice of strategies to incorporate into treatment and methods must consider potential social repercussions and contextual influences. Strategies taught or reinforced in therapy are unlikely to generalize if the social punishment outweighs the rewards of implementation. Moreover, if a strategy appears to be worthy of training, then the goal must be to develop, as much as possible, an automatic, efficient behavior which does not compete with
the attentional requirements of maintaining a cooperative
social interaction. Finally, speech-language
pathologists should expect that aphasic individuals will
continue to prefer and utilize natural, covert
compensations far more than more cumbersome and overt
strategies such as writing, signing or drawing, and that
some compensations will sacrifice message transmission in
favor of social interaction. Thus, evaluation and
treatment must incorporate natural parameters in order to
encourage the development of socially useful
transactional and interactional communication
compensations.

Towards a Socially Driven Model of Aphasic Communication

The definition of compensatory strategies, the data on
compensatory strategy use, the recurring themes and the
implications for management direct us to accept a more
social conscious theory of aphasic communication.
Moreover, models of language and language recovery in
aphasia must take into account the powerful influence of
social context on communication. We are reminded, of
Hymes' (1972) warning that "a model of language must
design it with a face toward communicative conduct and
social life" (p. 278).
Communication as a Collaborative Process

Throughout this investigation it was apparent that the compensatory strategies of the aphasic subjects could not be considered independently of their speaking partners. Negotiation of meaning and social bonding required ongoing mutual problem solving. This agrees with current models of communication which focus on conversation as a cooperative negotiation in which both partners collaborate to achieve mutual understanding (Clark & Schaefer, 1989; Clark & Wilkes-Gibbs, 1986). Moreover, collaboration requires that each participant remain sensitive to the pragmatic rules of cooperation, and design their communication for the speaking partner (Bell, 1984; Giles, Taylor & Bourhis, 1973). Hence, compensatory strategies of the aphasic speakers were influenced by the speaking partners, and strategies adopted by the speaking partners were influenced by the aphasic subjects' behavior. One informant noted that he felt like he and the aphasic subject were "teaching" each other compensatory strategies as the conversation unfolded [Interview, 10-2-92].

Both aphasic subjects adopted compensatory strategies which relied on the speaking partner's acceptance of a more active role in the interaction, either through active repair via guessing or through "doing all the talking" while the aphasic speaker backchanneled and
acknowledged contributions. The speaking partners appeared to "buy in" to the aphasic partner's strategies by accepting less information, carrying the burden of information transmission and guessing. Similar patterns have been reported in the literature (Feyereisen, 1991; Linebaugh, Kryzer, Oden & Myers, 1982; Lubinski, Duchan & Weitzner-Lin, 1980; Milroy & Perkins, 1992). Attempts to analyze compensatory strategies free of the interactive context would have been very misleading. Thus, a collaborative model of conversation is particularly relevant in analysis of aphasic communication (Clark & Schaefer, 1989; Clark & Wilkes-Gibbs, 1986).

Expansion of Linguistic Models

Linguistic and psycholinguistic models of language prevail within aphasiology. Yet, studying language or communication stripped of social influences can be deceptive. For example, Blanken (1991) attempted to explain the source of aphasic automatisms based on a linguistic model. He noted that automatisms generally do not appear to be present in writing and "Since they are not available to graphic processes, they must be generated on a level of speech processing which is only subject to the processing of oral output..." (p.124). Blanken uses this observation to strengthen his argument about the source of these utterances within a model of language. However, the present investigation raises a
question as to whether some "so-called" automatisms (such as 'is', 'isy', 'yes yes yes') should be compared to written expression at all since they are functionally distinct from "spoken words" in the traditional sense of propositional speech. The function of utterances such as 'is' and 'is good' in DC's speech was to regulate the flow of social discourse -- a function absent in writing. Thus, models of language might be enriched and expanded through the study of socially driven regulatory behaviors.

Perhaps one of the major implications of this study, is the need to broaden the scope of the communication problem of aphasia and situate the study and management of aphasia firmly within a sociocultural framework. Future work might be directed towards expanding our theories and models of aphasic communication, and building a technology of socially driven aphasia management.

Implications of Ethnographic Methodology

The current investigation highlights the potent force of ethnographic methodology for uncovering unexpected findings and exposing explanations. An interesting result of this investigation relates to the investigator's surprise at the findings. My original
bias led me to expect that compensatory strategies would be overt message transmission behaviors such as gestures and writing. Moreover, I expected the trained strategies to be highly visible in treatment, but relatively unused outside of treatment -- a pattern which was not substantiated. In fact, the initial months of data collection were accompanied by feelings of marked discomfort because the data were heading in a strange and unexpected direction. Maxwell's (1990) suggestion that "in the process of reducing the notes and generating the thick description, the ethnographer discovers what the study was really about" (p. 9) was remarkably accurate.

Thus, the process of discovery frees the investigator to embrace insights and develop explanations for unexpected findings. For example, the fact that aphasic stereotypic utterances have generally been considered meaningless might have resulted in ignoring such behaviors using traditional definitions of compensatory strategy. Allowing the data to guide the definition and taxonomy provided a more open-minded method. Similarly, Prizant and Duchan (1981) discovered that apparently meaningless echolalia fulfilled specific functions for autistic children. They noted that:

"an important aspect of the research was to determine if a categorical system representing the variety of uses of echolalia could be derived from the tapes. Therefore, the classification was not developed on an a priori basis."(p.243)."
Discovery grounded in the data, rather than driven by accepted theories paves the way for significant findings.

Another important feature of ethnographic methodology for the current investigation was its broad focus and emphasis on viewing wholes. One of the most important findings was the flexibility of compensatory strategies to vary with context and motivation. Furthermore, the interaction of an array of strategies to achieve transactional as well as interactional goals was revealed. For example, qualitative study revealed that DC's 'is/isy' strategies interacted with gesture to fulfill several conversational functions. Control of multiple contextual variables dictated by traditional scientific research would have precluded observation of these significant patterns. In contrast, ethnography offered a sophisticated method of describing and linking social structure and behavior patterns in a science of social communication.

The ethnographic goal of explanation, as well as description, provided significant insights into the subjects' behavior. The methodology forced consideration of complicated social factors, as well as linguistic and cognitive factors, revealing multiple layers of meaning. For example, when DC interacted with strangers she communicated primarily through verbal modes in order to appear normal and not impose upon her partner; when a
communication breakdown ensued she tended to politely
give up and release the speaking partner from the
difficult work of guessing. She followed the rule of
"not imposing". NN, on the other hand, used her
vivacious personality, high attention and 'exaggerated
interest markers' to charm the speaking partner into
carrying the burden of message transmission and
continuing the interchange. She was following the rule
of positive politeness in which speakers seek and give
approval to promote affiliation and strengthen social
ties. Contrast these two compensatory discourse
behaviors with that of a man who participated in the
early phase of this study. This man showed little
patience with his inability to convey information. Often
when he encountered a communication breakdown with a new
acquaintance he would announce rather bombastically "I
can't talk, I can't talk". This strategy typically
stopped the conversation. The investigator's initial
impression was that this was a "bad" strategy since it
terminated interaction. However, ethnography attempts to
seek reasons not judgements. Further analysis suggested
that perhaps this patient's motives were directed at
distancing himself from others as a means of exerting
control. In fact, the impression created during these
exchanges was that this man had "taken charge"; his erect
and dominant body posture reinforced the impression that
he was taking control. Tannen (1990) has suggested that men often demonstrate different conversational styles of interaction, often preferring social distancing and establishment of power, while women prefer social bonding and affiliation. Perhaps, recognition of such social motives through ethnographic investigation might help speech-language pathologists gain a broader appreciation of the interaction of personality, society and communication.

Ethnographic methodology can improve the quality of aphasia research and management. Traditional scientific research has informed and influenced evaluation and treatment methods in aphasia for decades. Students quickly learn that standard aphasia tests should be objective, valid and reliable. Aphasiologists have been cautioned to control variables within treatment, and objectively and reliably score treatment responses based on operationally defined targets. Perhaps it is time that our evaluation and treatment approaches incorporate some of the philosophy of qualitative approaches to the study of communication behavior. Where quantitative approaches view the affects of operationally defined variables on objectively quantified behaviors (such as looking at the effect of different test stimuli on verbal responses), qualitative approaches seek explanations of behavior within the broad perspective of culture. In
treatment and evaluation both approaches are needed. Currently most therapists gather quantitative data from objective tests and treatment responses, then interpret the data based on "clinical judgement and intuition". Qualitative approaches would train clinicians in more rigorous methods of describing and interpreting behavior, and build awareness of the variables which influence our clinical judgments.

Ethnographic research has much to offer the field of communication disorders. The influence of complex and interacting variables on communication can be observed. Explanations for communicative behavior can be derived from rigorous qualitative analysis. New or expanded theories and models of communication can be discovered. Finally, qualitative methods provide much needed approaches for improving effectiveness and sensitivity in managing communication disorders.

Directions for Future Research

Numerous issues arose in the course of this investigation which suggested potential research agendas.

1. First, the remarkable collection of interactive and regulatory strategies demonstrated by these two subjects paired with the paucity of information in the literature on such strategies suggests that this area
needs further investigation. Do other aphasic subjects demonstrate a preponderance of interactive compensations? Continued research must address this question.

2. While this investigation provided an authentic description of compensatory strategies used by two aphasic subjects, research targeting other subjects might elucidate interesting behavior patterns related to subject variables such as aphasia type, aphasia severity, gender and age. In this way subject variables might be studied in conjunction with contextual variables to determine internal and external influences on compensatory strategy usage.

3. Since communication is a collaborative process, the behavior of the speaking partner can be a significant influence on communication. For example, speaking partners can influence the aphasic speaker's choice of strategies or adopt strategies themselves such as slowing rate or guessing. Research into the behaviors adopted by speaking partners to help aphasic patients compensate would expand considerably our understanding of, and management of communication.

4. Similar research directed at other patient populations such as individuals with traumatic brain injury, right hemisphere brain damage, and dementia would be very interesting. Data on the type and evolution of compensatory strategies associated with different
diagnostic groups would contribute significantly to management of neuropathologies of communication.

5. Examination of perspectives on "success" of compensatory strategies and development of methods for judging success within a social framework is critical to an adequate understanding of treatment efficacy. Researchers will need to develop measures of treatment efficacy which capture the perspectives of conversational participants.

6. Results of this investigation suggest that a technology of socially driven evaluation and treatment of aphasia is needed. Moreover, research which examines the effects of such treatment in promoting enhanced communication is necessary.

Concluding Statements

Conversational participants collaborate in an organized and ordered interactive sequence to achieve mutual understanding of the topic and fulfill social needs. While this unfolding problem solving effort is both complex and time consuming to describe, it occurs rather effortlessly in normal conversation. Speakers conform to politeness dictates, follow turn-taking rules, adhere to relevance requirements, and so forth in an automatic and easy flow which escapes direct awareness.
Adjustments and solutions to difficulties appear rapid and automatic suggesting that the behaviors are below conscious level. Moreover, there are a huge variety of options for weaving an ordered interaction in conversation (Button & Lee, 1987). With aphasic speakers, behaviors emerge which "fill the gap" to achieve these interactional ends of social conversation. The person with aphasia desires to maintain autonomy, control and dignity in the face of others. Aphasic communicators, like all of us, seek to retain a positive identity and project this image to others. Aphasic individuals adopt compensatory strategies which fulfill these desires and help them relate to other people through communication. Thus, an overwhelming finding of this study was the very strong influence of social factors on strategy acquisition and use by aphasic subjects. Aphasiologists must learn to help individuals with aphasia deal with the dilemma of communicating in a social world full of norms, expectations and attitudes. Open minded evaluation of what aphasic patients are doing in natural situations should be combined with creative, socially informed treatment. Hence a technology of management must be developed which deals, not only with developing ways to get an idea across, but also with building the aphasic patient's self image and confidence as a communicator. Above all, as Lyon (personal
communication, 1992) has suggested, the greatest goal for aphasic individuals is to "forget that they are aphasic". In other words, to view themselves as individuals -- as human beings. While language therapy is important in helping to regain the ability to communicate, communication specialists must recognize that there is a far bigger issue at stake -- the personal identity of the individual within a social system. Thus, a more important goal is the development and acceptance of a self with aphasia.
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Appendix A

Sample of Condensed and Expanded Field Notes

Condensed Field Notes

Participant Observation of DC
5-24-91; 2:15 P.M.
Speech Pathologist A’s Office


Expanded Field Notes

Participant Observation DC
5-24-91; 2:15 P.M.
Speech Pathologist A’s Office

D started trying to communicate something by saying NO NO more loudly and gesticulating with her left hand. A moved closer to her on the left and looked puzzled (wrinkled forehead, frown, attention). A asked if she wanted to write. D nodded yes and said NO NO. A placed a tablet and a pen on the table while D reached for a glasses case in her wheelchair which held a pencil.

T: Is body language important?
A moved closer to her on the left and looked puzzled (wrinkled forehead, frown, attention). A asked if she wanted to write. D nodded yes and said NO NO. A placed a tablet and a pen on the table while D reached for a glasses case in her wheelchair which held a pencil.

T: Cued to write
D pointed to her right hand which was resting on the table near the pad. A asked if she was trying to ask if she could keep her hand there. A continued by saying that was OK but Rachael preferred for her to keep her hand in her lap. D kept saying NO NO and lifting her R hand and pointing to it with her left hand which now held a pen. A finally said "Oh you mean you used to write with your right hand. Yes that’s right. it is hard to switch."

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T: Is this typical of all SLPs, all speaking partners, or only A?

M: Watch for monologues

T: Clue & Guess sequences

T: Time consuming and difficult multiple guess

M: Ask A how she felt about the guess sequences

P: Initially uncomfortable

I notice that A uses sort of a parallel talk mode where she just says what she thinks and what she assumes D is trying to say and monologues allowing D to backchannel. D begins to write and clearly spells GIRL ETC then crosses out NE then writes LAST NIGHT. A guesses that D said another word last night to a friend. A writes No, OK and HI and says well "that makes No, OK, HI and another word". I am surprised that A still knew the topic after all the intervening guessing. I was lost! A explains that they are going to work on some speech... "moving your mouth and tongue and try some other things to see where we need to begin therapy" A realizes she doesn’t have gloves and excuses herself to get them. She leaves D and I alone. I comment on how it finally stopped raining. We both stare out of the window, then she points to the clouds. I have no idea what she wants to say but I say "yea, there are some dark clouds, hope that doesn’t mean more rain". She says No No and points again to the clouds. I have a feeling that she isn’t disagreeing... I’m not sure how I get this... maybe because she uses a quieter voice and is not looking at me but looking out the window as she says ‘no no’. 

T: How does this get communicated? Is this typical?
Appendix B

Sample of Transcribed Videorecording

Videorecording
6-22-92; 9:45 A.M.
NN’s Home with SLP
Excerpt from D, pp. 1

<table>
<thead>
<tr>
<th>NN</th>
<th>SLP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is uh, is uh mat..is uh, yes, uh all the time is not good [G--]</td>
<td>1. O.K. So tell me about the week.</td>
</tr>
<tr>
<td>2. Yes yes yes</td>
<td>2. Oh you didn’t feel like you did good this week?</td>
</tr>
<tr>
<td>4. Yes</td>
<td>4. To talk?</td>
</tr>
<tr>
<td>5. Yes yes yes yes [fist]</td>
<td>5. Yea. You were in situations where you needed to talk?</td>
</tr>
<tr>
<td>6. [ and the cose .. [hand to chest] not you.</td>
<td>6. So yea, that puts you in a bad..</td>
</tr>
<tr>
<td>7. The uh (computer: C) the uh [G/] [G/] ab ha [points here and there]</td>
<td>7. The clothes?</td>
</tr>
<tr>
<td>8. No, the uh clothes is [G-&gt;] not____. [G--&gt;]</td>
<td>8. The outside?</td>
</tr>
</tbody>
</table>
Appendix C

Key to Transcription Conventions

Discourse fragments and interview quotes are included throughout this manuscript. Below each quote a square bracket [] encloses a reference code that indicates the source of the fragment.

1. The first entry within the brackets refers to the data collection source as follows:

   Observation: Field notes from participant observations.
   Video: Transcription from videotapes
   Interview: Transcription from interviews.
   Lamination: Transcription from lamination sessions.

2. The second entry within the brackets is the actual date of the participant observation, video session, interview or lamination session.

3. The third entry for observations, interviews, and lamination refers to the page number of the transcript or field notes from which the fragment was extracted. For videotape transcripts a more complicated referencing system identifies in the following order: the subject, the transcript code, the page number and the initial turn number of the excerpt.

   **Transcription Key**

   [ ] Overlapping utterance

   .. Silence or pause. The magnitude of the pause is represented by the number of ...s.

   added letters Audibly lengthened phonemes as in ‘caaat’

   ( ) Parentheses surround a behavioral description as in (sigh).

   [ ] Behavior in brackets occurs during underlined portion of utterance.

   XX Unintelligible fragment

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pt.  
Abbreviation for pointing gesture

...()...  
Indicates that a portion of the transcript has been deleted from the quote.

CAPITALS  
Increased loudness or emphasis relative to surrounding talk.

I  
Reference to investigator

O  
Reference to speaking partner of aphasic subject. More than one speaking partner is indicated by numbers as in O1, O2.

[]  
Broad phonetic transcriptions are inserted in brackets to clarify productions of verbal compensations where appropriate.
Appendix D

Descriptions of Videorecorded Situations

DC Situations

A 1-22-92. Lobby of a speech pathology clinic within an acute care hospital. DC was seated in a row of upholstered waiting area chairs; each speaking partner was seated next to her. Her first speaking partner was a man whom she had never met. Her second speaking partner was a female hospital secretary. The third speaking partner was the investigator. The activity was casual conversation.

B 1-22-92. Speech therapy room with DC’s second speech-language pathologist. DC was seated across a table from her therapist. The activity was language therapy.

C 1-22-92. Hospital cafeteria. DC was seated at a table with two female strangers; the strangers were employees of the hospital; both were aged in their late 20’s and had recently had a baby. All were eating lunch and engaging in casual conversation. The investigator was present briefly at the beginning and end of the video session.

D 4-03-92. DC’s apartment. A friend of DC and the friend’s one year old child were visiting. DC was seated in an easy chair and then at a table. The activity involved conversation, having coffee, looking for the cat and holding the baby. The investigator was present at the end of the session.

E 4-06-92. Speech therapy room with DC’s second speech-language pathologist. DC was seated across the table from the therapist. The activity began with language therapy but switched to an argument between DC and her therapist.

F 4-22-92. Hospital cafeteria. DC was seated across the table from two female strangers; the strangers were hospital volunteers. One had a voice disorder, the other had her hand in a brace. Both were aged in their early 60’s. The volunteers were eating lunch; DC was not eating. They were engaging in casual conversation. The investigator was present briefly at the beginning and end of the video session.

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G  4-22-92. **Occupational therapy.** DC's occupational therapist was working on maintaining relaxed tone in DC's right arm while engaging in functional kitchen activities. DC was seated on an exercise mat, at a table and then standing at a counter.

H  7-31-92. **Barrier activity.** DC was seated at a table across from a young female stranger in a conference room in the hospital speech pathology department. The activity involved instructions to communicate the contents of a picture or array of pictures not visible to the speaking partner. The speaking partner was not allowed to ask questions or provide feedback to DC.

I  7-31-92. **Speech therapy room** with the investigator administering the *Porch Index of Communicative Ability* (Porch, 1981).

**NN Situations**

A  11-12-90. **Speech therapy room** at the hospital with the speech-language pathologist. NN was seated facing the SLP across the corner of a table. Activity was conversation.

B  1-08-91. **Speech therapy room** at the hospital with the speech-language pathologist. NN was seated facing the SLP across the corner of a table. Activity was conversation.

C  6-28-92. **NN's home.** A female friend of NN was visiting with her. They were seated at a table preparing to look at something. The activity was conversation.

D1  6-20-92. **NN's home.** NN and her husband were seated at a table eating breakfast and engaging in casual conversation.

D2  6-20-92. **NN's home.** NN's sister was visiting to bring groceries. NN was seated in a chair while her sister was putting food away. NN and her sister were discussing food preparation and dieting. NN's husband was present.

D3  6-20-92. **NN's home.** NN and her husband were seated at a table. They were drinking coffee and engaging in conversation. The last portion of the session included an argument between NN and her husband.

E  6-21-92. **NN's home.** NN and her husband were seated at a table eating breakfast and engaging in casual conversation.
F  6-22-92. *Speech therapy in NN's home.* NN was seated at a table across from the therapist. The activity focused on discussing NN's home program.

G  6-15-92. *Speech therapy in NN's home.* NN was seated at a table across from the therapist. The activity was PACE therapy.

H  8-04-92. *Conference room* in the hospital speech pathology department. NN was seated face to face with a male stranger; the stranger, an employee of the department, was approximately 40 years old. The activity was conversation.

I  8-04-92. *Barrier activity.* NN was seated at a table across from a male stranger in the speech pathology group room. The activity involved instructions to communicate the contents of a picture or array of pictures not visible to the speaking partner. The speaking partner was not allowed to ask questions or provide feedback to NN.

Appendix E

Sample of Transcribed Ethnographic Interview

Interview
12-12-91; 11:05 A.M.
Speech Pathologist B in her office
Excerpt from page 60.

<table>
<thead>
<tr>
<th>Informant</th>
<th>Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uh uh..oh boy, its hard for me to answer cause I really haven’t observed her. But with other patients...I mean my thinking is...I would assume they would respond by being leery of it and they would shorten the interaction and try to close it. They don’t know how to respond and they don’t know where she’s coming from. Again it depends on the kind of feedback D would give them or the aphasic patient. I think if she came back and gave an um appropriate pragmatic response with facial expression and a laugh and a warm opening it kind of opens the interaction and almost invites them and it might continue for a few more turns, but I think if she gives the flat, no response or eye contact then they’re going to close the interaction real quick.</td>
<td>You mention gesture and writing and that sort of thing. In your experience how do other people respond to that who are not familiar? Hmm, cause they...</td>
</tr>
</tbody>
</table>

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Umm What are some strategies that you find you use with her..describe what you do..like she uses gesture or writing.</td>
</tr>
</tbody>
</table>

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## Appendix F

### Strategy Identification Form

<table>
<thead>
<tr>
<th>SUBJECT:</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meets Criteria</td>
<td></td>
</tr>
<tr>
<td>Notes</td>
<td></td>
</tr>
<tr>
<td>Frequent</td>
<td></td>
</tr>
<tr>
<td>Exag.</td>
<td></td>
</tr>
<tr>
<td>Recast</td>
<td></td>
</tr>
<tr>
<td>Novel</td>
<td></td>
</tr>
<tr>
<td>Systematic</td>
<td></td>
</tr>
<tr>
<td>Goal</td>
<td></td>
</tr>
<tr>
<td>Overcomes Barrier</td>
<td></td>
</tr>
<tr>
<td>Behavior</td>
<td></td>
</tr>
<tr>
<td>Turn #</td>
<td></td>
</tr>
</tbody>
</table>
Appendix G

Definitions of Coding Categories

**Discourse Categories**

**Speech Acts:** Based on work by Austin (1962) and Searle (1976) speech act theory was developed to study how language is used. Thus, speech acts are categories which describe the functions of utterances. The classification system used in this study derives from Bach and Harnish (1979). The Bach and Harnish system divides utterances into one of four general categories including: constatives, directives, commissives and acknowledgements. The classification of the speech act is derived from the form and content of the utterance as well as the context (both situational and linguistic).

**Constatives (C):** "An expression of a belief, together with the expression of an intention that the hearer form (or continue to hold) a like belief." (Bach & Harnish, 1979, p. 42). This category includes assertives, predictives, retrodictives, descriptives, ascriptives, informatives, confirmatives, concessives, retractives, assentives, dissentives, disputatives, responsives, suggestives and suppositives.

**Directives (D):** "Express the speaker’s attitude toward some prospective action by the hearer.... and express the speaker’s intention that his utterance or the attitude it expresses be taken as (a) reason for the hearer to act". (Bach & Harnish, 1979, p 47). This category includes requestives, questions, requirements, prohibitives, permissives, and advisories.

**Commissives (CM):** "Acts of obligating oneself or of proposing to obligate oneself to do something specified in the propositional content, which may also specify conditions under which the deed is to be done or does not have to be done." (Bach & Harnish, 1979, p. 50) This category contains promises and offers.

**Acknowledgements (A):** "Express, perfunctorily if not genuinely, certain feelings toward the hearer." (Bach & Harnish, 1979, p 51). This category includes apologies, condolences, congratulations, greetings, thanks, bids, acceptances, and rejections.
the utterance, the particular compensatory strategy being coded. The initiator is either the aphasic subject (A) or other person (O). For example, if the aphasic subject is experiencing a word finding failure and the conversation partner says "write the word for me", then the compensatory strategy of writing is coded as OTHER initiated.

Discourse Tempo: The overall rate or temporal pace of the conversation. Discourse was rated as fast (+), slow (-) or normal (0).

Discourse Key: The affective tone of the utterance being coded. The signalling of key may be nonverbal as in smiling or frowning and/or verbal through intonation or word choice (Coulthard, 1977; Hymes 1972). Codes include positive (+), negative (-) or neutral (0) affective tone. For example, the utterance "I need my tablet" said in a demanding and angry tone of voice would be coded as "negative".

Discourse Goal: The apparent purpose or function of the particular compensatory strategy being coded (Hymes, 1972). A particular strategy might serve several ends at one time; all would be coded. The following ends were included: facilitating verbal production (V), conveying feeling (F), conveying information (I), regulating discourse (R), and repairing a breakdown (RP). For example, the aphasic subject says "Where is...uh...[puts finger to lip and positions lower lip against teeth] fffred?". The compensatory strategy of "tactile cueing" would serve the goal of facilitating verbal production.

Discourse Spontaneity: The degree to which the interaction reflects naturally occurring, unplanned conversation versus routinized or ritualized interaction. This category is coded for each utterance according to the following: very spontaneous (2) (such as the natural give and take of conversation), planned (1) (such as giving a prepared explanation or speech, retelling a story, describing a picture) or routinized (0) (such as automatic, serial or rote expressions or interactions). For example, a conventional greeting sequence would be considered routinized discourse; repeating a modeled sentence after another person would be considered planned; talking about a recent event would be spontaneous.

Accompanying modes: Communication modes used by the aphasic subject in addition to the modality of the compensatory strategy being scored. Modalities include verbal (V), gestural (G), written (W). In addition
notation of exaggerated gaze, intonation, facial expression or body language are made.

Setting Categories

Physical Factors: Notation of actual placement of the aphasic subject within the setting such as "sitting at a table", "walking", "sitting on sofa". Relevant dimensions considered were whether subject was sitting, standing or walking, at a table or not, facing other people or not, or performing an activity (eating, painting, shopping).

Setting Formality: The degree to which the setting dictates that the conversants follow prescribed or strict rules, ceremony or forms of interaction. This category included very formal settings (2) (such as a traditional wedding ceremony), moderate formality (1) (such as a job interview) and informal (0) (such as a family meal at home).

Setting Familiarity: The aphasic subject's prior experience or intimacy with the setting in question. This category was coded according to four levels of magnitude with the highest familiarity considered ones own home (1), the next level involved settings with frequent contact (2) (such as the speech clinic, or neighbor's home), the third level included settings where the subject had previously been but not frequently or regularly (3), and the fourth level included settings which were new to the subject (4).

Number of People: The actual number of listeners involved in the interaction with the aphasic subject. For example, in a conversation involving the aphasic subject and two friends, the number of people (audience) would be two (2).

Setting Distractibility: The degree of distractions in the environment. Distractions could be considered visual (such as constant movement of people in the immediate area) or auditory (such as noise from a radio or other conversations). This category was coded as high distractibility (2), moderate distractibility (1) and low distractibility (0).

Predictability: The degree to which the participants are able to anticipate the discourse requirements of the setting. The setting is scored as very predictable (2), somewhat predictable (1) or unpredictable (0). For example, an initial visit of an American to a Japanese tea service might be considered unpredictable since the participant would not know what behaviors are expected.
**Presence of Investigator:** The physical presence of the investigator during the utterance is coded. This category was scored as present (+) or absent (-).

**Presence of Speech-language Pathologist (SLP):** The physical presence of the subject’s speech therapist during the turn was coded as present (+) or absent (-).

**Location:** Notation of actual place in which the conversation took place such as school, home or clinic.

---

**Speaking Partner Categories**

**Partner familiarity:** The aphasic subject’s prior experience or intimacy with the speaking partner. This category was coded according to four levels of magnitude with the highest familiarity considered one’s own nuclear family (1), the next level involved people with whom the aphasic subject had frequent contact (2) (such as close friends, therapists, business partners), the third level included acquaintances who the subject had met but did not interact with frequently or regularly (3) (such as a store clerk at a familiar grocery), and the fourth level included strangers to the subject (4).

**Roles:** The prevailing role that the speaking partner is playing in the activity in which the coded utterance occurs. Codes included the following: therapist role (Tx), social role (S), paid service provider role (SV) (i.e. store clerk, receptionist), parent/helper role (H) (nonpaid person taking care of subject’s needs) and child role (C) (being taken care of by subject). For example, if the speech therapist was invited to join the aphasic subject and her friends for lunch, the therapists role might be coded as "social". A friend who works with the subject on assigned therapy home activities would be coded as assuming a "therapist role".

**Power:** The distribution of authority, status, influence or control between the speaking partner and the aphasic subject. A rating of power takes into account not only the role of the speaking partner relative to the aphasic subject, but also features such as status, gender, education or socioeconomic background. This category is coded as (+) if the balance of power is distributed in favor of the speaking partner, (-) if the balance of power is distributed in favor of the aphasic subject and (0) if the balance of power is equal.

**Knowledge of aphasia:** The speaking partner’s familiarity, training and experience with the disorder of aphasia. This category was coded according to four levels of
magnitude with the highest level considered those individuals with formal training and experience in aphasia (1) (such as speech pathologists, neuropsychologists); the next level involved people with frequent direct exposure to aphasia (2) (such as close family members who have lived with an aphasic individual); the third level included people who have had direct exposure to aphasia or aphasic individuals without formal training or regular association (3) (such as a receptionist in a rehabilitation center), and the fourth level included individuals with no knowledge of aphasia (4).

**Gender:** The gender of the speaking partner, coded as male (M) or female (F).

**Age:** The age of the speaking partner coded by decade.

**Occupation:** The occupation of the speaking partner.

**Comfort:** A general subjective impression of how "at ease" the speaking partner appears in the interaction. This category is rated based on the speaking partner's observable behavior as either "appears to feel comfortable with the aphasic person" (+) or "appears to feel uncomfortable with the aphasic person" (-).

**Solidarity:** An existing unity of opinion, purpose or interest between the speaking partner and the aphasic subject. This category is coded as (+) for presence of solidarity, and (-) for absence of solidarity/unknown. For example, if an aphasic subject meets a stranger it is likely that there exists no solidarity; upon learning that they both have aphasia a bond of solidarity might be achieved.

**Topic Categories**

Topic is defined as the discourse subject on which the attention of the participants is concentrated. The coding of topic categories adheres to Brown and Yule's "pretheoretical notion of 'topic' as 'what is being talked/written about'" (1983, p. 73). Topic shift refers to a change in the subject of discussion or what is being talked about.

**Old/ New Information:** Information in an utterance that is considered old or given information is that which is known to the hearer and speaker through situational context or preceding discourse. New information refers to information which is not known to the speaking partner. Shared information which has not been introduced or recoverable from context is considered new.
Coding of this category refers to the general content of the utterance rather than individual linguistic elements of the utterance.

**Topic introduction:** The individual in an exchange who has initiated, introduced or selected the topic of the turn being coded. The category is coded as (A) if the aphasic subject initiates the topic, and (O) if a speaking partner initiates the topic.

**Interest:** The level of the aphasic subject's interest in the topic of a turn. This category is coded based on observable behavior of the subject as well as known biographical and personal information. Interest level is rated as high (2), moderate (1) or low (0).

**Technicality:** This aspect of content or topic complexity refers to the degree of scientific or specialized knowledge required to converse on the given topic. Topic technicality is rated as high (2), moderate (1) or low (0). A turn is rated based on the technicality of the exchange in which it is embedded. That is, the rating refers to the topic at hand; thus, the aphasic subject need not use technical content to be considered interacting in highly technical content. In the following example the "topic technicality" of utterance B would be high, since it is a response to a highly technical explanation:

A: (points to MRI scan): Your MRI shows an area of decreased density in the left frontal area.
B: Wha? Is good? is what?

**Abstractness:** An aspect of content or topic complexity which refers to the degree to which the topic reflects a focus on concrete versus abstract ideas. Topic abstractness is rated as high (2), moderate (1) or low (0). Highly abstract refers to symbolic representations which are far removed from the actual objects or ideas which they represent (such as mathematical formulas); moderately abstract topic focuses on discussion of feelings or inferential ideas (such as talking about a friend who feels sad); low abstractness refers to an exchange focused on concrete objects or people, or referring to ideas represented clearly within the physical context. A turn is rated based on the exchange in which it is embedded. That is, the rating refers to the topic at hand; thus, the aphasic subject need not use abstract content to be considered interacting in highly abstract content. For example, utterance B below would be rated as "moderate abstractness" since it involves an inference about an absent person. Utterance C & D would
be rated as "low abstractness" since they refer to a concrete, contextually relevant item.

A: I hear Betty has been really depressed.
B: Oh.... is bad!
C: Coffee? (points to coffee pot on counter)
D: Yes, thank you.

**Propositional Complexity:** An aspect of content complexity which refers to the amount of information included in the specific utterance being coded. Amount of information is scored using the concept of "content units" (Yorkston & Beukelman, 1980). Each content unit of the utterance is counted; the total content units for the utterance is considered the propositional complexity. Each content unit consists of a piece of information such as a noun phrase (the man), verb phrase (is sitting), prepositional phrase (on the sofa), adjective or adverb (quietly). Particles are considered as part of the verb (e.g. put on, reach out) and are not scored as a separate content unit. Conjunctions, deictic adjectives (this, that) and intensifiers (very, really) are not counted. Affirmation or negation are considered as content units. Automatic expressions such as "I don't know" are considered one content unit. Propositional complexity is coded only for the aphasic subject's actual utterances, not for the speaking partner or the subject's probable intended sentence. Moreover, credit is given for content units regardless of whether the listener is able to determine the intent of the utterance. For example the following utterance includes four content units:

\[
\text{What? Man.. not home?}
\]

1 2 3 4

**Structural complexity:** This aspect of form refers to the syntactic structure of the utterance being coded. Utterances demonstrating high structural complexity (2) are those with embedded clauses, passive constructions or other difficult syntactic constructions. Moderate structural complexity (1) refers to the type of sentence structures which comprise most casual conversation such as simple sentences. Low structural complexity (0) refers to simplified or telegraphic utterances. Structural complexity is coded only for the aphasic subject's actual utterances, not for the speaking partner or the subject's probable intended sentence.

**Emotional load:** The emotions which the aphasic subject associates with the topic. Emotional load is coded as positive (+) if the topic is generally associated with "good feelings" (joy, happiness) for the aphasic subject.
It is coded as negative (-) if the topic is associated in general with "bad feelings" (anger, sadness) for the aphasic subject. It is coded as neutral (0) if the topic evokes no strong feelings or the affective load is not known. Unlike Discourse Key, emotional load is scored based on biographical and personal knowledge about the aphasic subject as well as observable behavior. This information is gained through participant observation and interviews.

For example, the following exchange is observed; it is known that the aphasic subject is very upset with her speech therapist.

Friend: How was your speech therapist today?
Subject: Fine (said in a neutral tone).

While discourse key would be coded neutral, the emotional load of the topic "speech therapist" would be coded as negative.

**Listener Reaction**

**Discourse Consequences:** Discourse consequences of the aphasic subject's turn are judged based on the listener's response following the coded turn. Adapted from the work of Norris and Hoffman (1990), consequences are coded as sustaining (S), clarifying (C) or terminating (T). Sustaining responses are those which maintain the give and take of conversation — sustain the flow. Sustaining responses include responses such as semantically contingent remarks, sharing personal reactions to what the subject says, repeating or restating what the subject says and acknowledging message receipt. Clarification responses on the part of the listener signal a complete or partial communication failure. Clarification responses include requests for repetition, correcting or modeling, requests for more information, repeating what the subject said in a question form, guessing or posing a question which attempts to interpret, and providing prompts or cues to get more information. Termination consists of actually terminating the conversation, giving up due to failure or changing the topic.

**Listener Mood:** A global subjective impression of the listener's affective reaction to the subject's coded turn is judged as positive (+), negative (-) or neutral (0) based on the combination of a listener's verbal and nonverbal behaviors following the aphasic subject's coded turn.
Success

Effectiveness: A judgement of whether the coded compensatory strategy achieved its ends or goals (see definition above). Effectiveness is coded as (+) if the goal is achieved or (-) if the goal is not achieved. For example, if the goal of the strategy "tactile cue" is to facilitate verbal production of [p], and the patient does not produce the [p], then a (-) not achieved is coded for this strategy.

Efficiency: Scored based on an impression of the time required for the compensatory strategy to meet the intended goal. This category is coded as efficient (+) or not efficient (-). For example, if the goal of "writing" is to convey a piece of information and it requires 45 seconds for the speaking partner to comprehend the information, then the strategy is coded "not efficient".

Appropriateness: Scored based on an impression of the degree to which the compensatory strategy conforms to norms of expected behavior within the coded situation. This category is coded as appropriate (+) or not appropriate (-). For example, 'writing' a response to a store clerk's question would be scored as 'inappropriate' because the normal mode of responding is verbal.
## Appendix H

### Behavioral Coding Form

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>STRATEGY</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invest.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predict.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distract.</td>
<td></td>
<td></td>
</tr>
<tr>
<td># People</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Familiar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spont.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goals</td>
<td></td>
<td></td>
</tr>
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VITA

Nina Newlin Simmons, born in New Orleans in 1947, obtained a Bachelor of Arts degree in Speech Pathology from Louisiana State University in Baton Rouge, Louisiana in 1969, and a Master of Science in Speech Pathology and Audiology from Tulane University in 1975. After graduating from Tulane, she served for over 7 years as the Head of Speech Pathology at the Louisiana Rehabilitation Institute in New Orleans, for one year as a Research Speech Pathologist at the New Orleans Veterans Administration Hospital, and in 1983 moved to Touro Infirmary in New Orleans where she held various positions including Director of Speech Pathology and Program Manager of Brain Injury Rehabilitation over an eight year period. Ms. Simmons also taught classes at LSU Medical Center in New Orleans and published articles and chapters related to her specialty in Neuropathologies of Communication.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Nina Newlin Simmons

Major Field: Communication Disorders

Title of Dissertation: An Ethnographic Investigation of Compensatory Strategies in Aphasia

Approved:

Jack S. James
Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Hugh W. Burton

J. Daniel

John A. Phillips

Paul G. Hoff

William Spoon

Date of Examination: 3/29/93