This is to certify that the

thesis entitled

THE UTILITY OF NATURAL CONTEXT AND SOCIAL LEARNING THEORY WITHIN CONVENTIONAL NONFLUENT APHASIA TREATMENT

presented by

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has been accepted towards fulfillment
of the requirements for

M.A. degree in Audiology & Speech Sciences

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Date April 10, 1997

THE UTILITY OF NATURAL CONTEXT AND SOCIAL LEARNING THEORY WITHIN CONVENTIONAL NONFLUENT APHASIA TREATMENT

By

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of Audiology and Speech Sciences

1997

ABSTRACT

THE UTILITY OF NATURAL CONTEXT AND SOCIAL LEARNING THEORY WITHIN CONVENTIONAL NONFLUENT APHASIA TREATMENT

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The present study examined the effects of a treatment protocol, which addressed natural contexts and Bandura's (1977) Social Learning Theory, on mildly aphasic individuals who demonstrate a desire for further improvement in their communication skills.

Two mild nonfluent aphasic individuals, and their significant others, served as subjects. Each aphasic subject was given the treatment protocol in a single-subject multiple-baseline format. Two conventional rule-based systems (CIUs & utterance accuracy) were used to assess the aphasic subjects' verbal production. One system (CETI) was used to assess perception of their functional communication skills.

The results indicated that both aphasic subjects improved their CIU production and utterance accuracy during treatment, but that minimal improvements were identified in perception of their functional abilities (CETI ratings). Therefore, it was found that this study provides preliminary evidence in favor of further improving mild aphasic behavior using a theoretically grounded treatment protocol that embraced principles of natural conversation.

ACKNOWLEDGEMENTS

I would like to thank my academic and thesis advisor, Dr. Janet Patterson, for her continued support and "excitement" throughout my program and in the completion of this research project. I also extend my appreciation to Drs. Ida Stockman and Peter LaPine for serving as members on my thesis committee and to Dr. Michael Casby for providing me with extensive exposure into single-subject experimental designs.

A sincere thanks is given to my research assistant, Laurie Priestap, for her invaluable support and furtherance in this project.

My appreciation is extended to Phyllis Gaulden, CCC-SLP of Sparrow Hospital for her assistance in this project's human resources.

A final, and special, thanks is given to my subjects and their families for recognizing an opportunity to help others by participating in this research project.

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CHAPTER I

INTRODUCTION

Tens-of-thousands of American individuals a year are afflicted with language impairments due to cerebrovascular accidents (CVA) (Brody, 1992). Those individuals fortunate enough to retain some of their ability to understand language may, however, incur serious expressive problems known as nonfluent aphasia. Nonfluent aphasia is an acquired neurological impairment that leads to the reduction or dysfunction of the expressive language modality, with relatively intact receptive abilities (Brookshire, 1992; Chapey, 1994; Davis, 1993; Eisenson, 1984). By convention, the communication impairment is characterized by an observably labored attempt at expressing information. Clinically, the impairment is noted by word finding problems, significant pauses between words, telegraphic sentences, distorted sounds, and a flat melodic contour as well as other individual linguistic differences (Sarno, 1991).

Therapy approaches used to remediate this expressive deficit have generally depended on the clinician's training in rehabilitating the behavior and on the aphasia classification of the individual. For that reason, more than one treatment program has been used in clinical settings. Currently, treatment tasks include such methods as stimulation-facilitation therapy (Schuell, Jenkins, & Jimenez-Pabon, 1964), language processing therapy (Martin, 1975), and

functional communication therapy (Aten, Caligiuri, & Holland, 1982). In each of these three approaches, the targeted impaired system (language) is manipulated differently because of the clinician's diagnosis and/or prognosis. For instance, the benefit of functional communication therapy may be greater for mild aphasics rather than for severe aphasics because this therapy technique provides language stimulation in the form of communicative rules and compensatory strategies; here, the level of stimulation is unpractical for the severe population.

The existence of individual variances in aphasia classifications has also made it difficult for clinicians to create treatment plans that ultimately enhance overall communicative effectiveness (i.e., functional communication) for a portion of the same disordered population. Consequently, the application of a single treatment program to individuals sharing the same classification is unusual. Taking this and the confinements of therapy approaches (above) into account, it is easy to see that plans to rehabilitate disordered language abilities (e.g., aphasia) require considerable attention to several diverse factors, none of which could be more important than agreeing on the impairment's inception.

Holistically, aphasia has been observed following both focal and diffuse sites of brain damage, despite the variance of the resulting language impairments. For example, impaired language pragmatics are more frequently observed in individuals with diffuse brain damage (e.g., closed head injury, dementia) than in individuals with focal brain damage (e.g., CVA). The term aphasia could be used for either of the deficits in the above example, yet the

treatment methods and prognoses would vary significantly because of the different sites of brain damage contributing differing influences on the language functioning.

Conceptual Framework

The purpose of nonfluent aphasia treatment is to increase an impaired person's probability of communicating his or her needs and wants in natural environments with maximum efficiency and accuracy. Several conditions should be considered when discussing the purpose of nonfluent aphasia treatment. First, the stimulation of language during treatment must be through natural channels. Second, the responses from the aphasic individual must be at his or her highest expressive level. Third, opportunities for generalizing targeted responses must be given. Finally, the overall treatment goal must be achieved within a reasonable time. These conditions, when mutually applied, generally increase the probability of a beneficial program. In spite of this though, the researcher cannot complete his or her experimental purpose without considering the characteristics of the population under investigation.

Research has illustrated that individuals with nonfluent aphasia symptoms manifest two major patterns in their communication abilities (Goodglass & Kaplan, 1983; Kertesz, 1982). One major pattern is that the aphasics demonstrate fragmented sentences with regularly reduced syntactic

complexity. For example, an aphasic may say "Girl is... is... uh... girl is... eating." In this example the aphasic is producing a broken speech pattern that demonstrates more effort than is usually required to communicate simple information.

The second major pattern is when aphasics demonstrate problems with auditory comprehension of grammatically lengthy or complex material. That is, communication material that contains more than three grammatical arguments per utterance or requires complex cognitive processing is not likely to be comprehended by the aphasic; for example, "Point to (the picture)... the boy was chased by the black dog."

These major patterns of nonfluent aphasia provide the clinician with a foundation for starting language rehabilitation. Traditionally, nonfluent aphasia treatment has focused on linguistic stimulus-response exercises. In stimulation-response therapy, the aphasics are presented with a stimulus and are expected to respond with the targeted form of linguistic output. The goal of this therapy is to increase the person's language abilities by targeting deficient linguistic modalities within the symbol system through "strong, controlled, and intensive auditory stimulation" (Duffy, 1994, p. 148). One major weakness in this kind of language rehabilitation is the lack of context in language processing during conversation. Stimulus-response therapy, instead, isolates the treatment stimuli into a unidimensional environment without relative function. For example, a picture of a dog without any background is not useful in describing what the dog

is doing or about to do. Such stimuli are not common in natural conversation, and can therefore be limited in stimulating the complex language processing centers that perpetuate and maintain everyday interactions.

In addition to the stimuli being unidimensional, the interactional format in which the stimuli are administered is not representative of natural conversation, in that one communicator regularly assigns another communicator turn-taking responsibilities. In natural conversation, turn-taking responsibility is jointly assumed. These deviations from natural communication may affect generalization abilities and overall functional gain of the individual while in treatment. In order to meet the ultimate clinical goal of maximizing the individual's ability to communicate in a reasonable time, treatment, then, needs to target not only content variables but also contextual variables of communication.

General Statement of the Problem

Clinical researchers have increasingly examined the role of pragmatics in improving functional communication within aphasia treatment (Aten et al., 1982; Davis & Wilcox, 1981; Glosser, Wiener, & Kaplan, 1988; Murray & Holland, 1995; Records, 1994). The inclusion of pragmatics in treatment has been thought of as improving the aphasic's language function more readily by acknowledging the importance of both verbal and nonverbal communication, and emphasizing

clinical environments more related to natural language processing which provide opportunities for retention of targeted behavior. However, research has provided minimal documentation as to the success of using a contextual program with elements from learning theory introduced to aid functional processing (i.e., generalization). Aphasiology is therefore limited in demonstrating the collective usefulness of scripted natural environments and learning theory in nonfluent aphasia treatment settings.

Research Hypothesis

Given the advantages and disadvantages of current nonfluent aphasia treatment, the use of natural context and learning theory within treatment programs may be the next logical step in improving an impaired person's verbal production clinically (i.e., learn the targeted behavior) and functionally (i.e., generalize the targeted behavior). Thompson (1994) identified the need to target generalization within current treatment programs because "although aphasiologists have historically assumed that generalization is a natural and expected outcome of treatment (e.g., Schuell et al., 1964), this has turned out to be an erroneous assumption" (p. 408). Thus, clinical treatment must establish and administer objectives that are fundamentally linked to the treatment's overall goal (i.e., communicate in conversation) to reasonably warrant speech therapy services. In this capacity, the current investigation was founded on the idea that

the use of a treatment protocol that applies variables from learning theory to a naturally occurring environment would improve the verbal production of nonfluent aphasics.

CHAPTER II

REVIEW AND RATIONALE

The positive influence of naturalistic context in treatment with persons demonstrating aphasia symptoms is well supported (Davis & Wilcox, 1981; Glosser et al., 1988; Green, 1984; Hough & Pierce, 1994; Lojek-Osiejuk, 1996; Murray & Holland, 1995; Perkins & Lesser, 1993; Records, 1994). The ultimate goal to aphasia treatment has been to increase the individual's ability to communicate in natural conversations, yet it has not historically followed the objectives and structure of natural conversations. In short, past treatment programs have acontextually isolated language behaviors into linguistic variables from which treatment objectives and goals were established. For instance, confrontational naming tasks require aphasic individuals to name stimuli using one particular medium (e.g., vocal) without the assistance of other natural compensatory strategies (e.g., circumlocution).

Two examples of such treatment programs are Base-10 programmed stimulation (LaPointe, 1977) and Schuell's stimulation approach (Schuell et al., 1964). In Base-10 programmed stimulation, tasks are hierarchically arranged and input/output modalities are specified before the initiation of treatment. A similar setup can be found in Schuell's approach. In both, the context is intentionally limited and the clinician is merely listening to the aphasic's

targeted words rather than ideas. One could immediately argue the functional gain in the utility of this form of language rehabilitation with most disordered populations.

For that reason, the rest of this chapter will discuss three considerations of aphasic language rehabilitation (communicative, cognitive, and transfer and maintenance considerations) that fundamentally increase the probability of improving an aphasic's deficient verbal performance.

Communicative Considerations

Implementation of aphasia treatment is influenced by the researcher or clinician's view of the disorder. Past investigators have defined aphasia as a language deficit, a cognitive deficit, or both (Goodglass & Blumstein, 1973; Martin, 1975; Schuell et al., 1964). Ensuing treatment models appropriately targeted that outlook (LaPointe, 1977; Schuell et al., 1964). But more contemporary investigators view aphasia differently, namely, as a communication impairment with certain linguistic, cognitive, and social failures (Davis & Wilcox, 1981; Holland, 1980; Perkins & Lesser, 1993). In Davis and Wilcox's (1981) PACE program, for example, aphasics use multi-modality reinforcement and expression during therapy tasks in order to improve their effectiveness in exchanging verbal messages.

The strategy behind a more contemporary view of aphasia invites re-examination of therapy plans in attaining the ultimate goal in treatment; again, communicating in natural conversation. In addition, it proposes further examination of how language and communication are centrally bound, that is, to what extent language is influenced by communication, and communication is influenced by language.

Interestingly enough, language has long been viewed for its communicative function in addition to its linguistic parts. In 1973, Halliday described language as an interactive tool used for affecting the environment to complete certain purposes; setting-up interpersonal relationships, adjusting or adapting to the behavior of others, attaining needs and wants, examining and managing environments, and exchanging information. Following this logic, a breakdown in exchanging verbal messages, then, is more directly related to communicative concerns than to isolated linguistic concerns, in that these message breakdowns are fundamentally linked to the environment (naturalistic context) where the interaction is taking place. Clinically, this means that the improvement of overall communication skills in treatment is more likely to occur when providing natural interaction backgrounds. Aphasia programs would be advised to incorporate communicative variables (which include the purposes of language), as well as linguistic variables, in order to increase an aphasic's overall language skills.

Some recent treatment programs that have focused on language as an interactive model with natural context include *Promoting Aphasics' Communicative Effectiveness* (PACE) (Davis & Wilcox, 1981), and *Functional Communication Treatment* (FCT) (Aten et al., 1982). Other programs, used for assessing aphasia in natural context, are Prutting & Kirchner's (1987) *Pragmatic Profile*, Holland's (1980) *Communicative Abilities in Daily Living*, and the *Edinburgh Functional Communication Profile* (Wirz, Skinner, & Dean, 1990). The commonality among these treatment and evaluative programs is their inclusion of naturalistic context and Grice's (1975) cooperative principles (informative, truthful, relevant, orderly) within the theoretical framework. To illustrate, Holland's (1980) *Communicative Abilities in Daily Living* requires an aphasic to participate in several speaker/listener interactions (e.g., role-playing situations, natural discourse) with the clinician. The findings from these interactions are meant to represent the aphasic's overall communicative abilities by virtue of the interaction's use of natural contexts, social conventions, and speech acts.

One important implication of the above-mentioned assessment and treatment programs is that an individual's use of language is highly regulated by the purposes of it. This may explain why aphasics are frequently observed as communicating better than they can necessarily talk (Holland, 1979; Wilcox, 1983). Again, it could be said that a person's language processing skills are more often related to the communicative function than to the linguistic parts. This rationale fades dramatically from the isolated, didactic treatment of language

elements, and quickly emphasizes the need for total communicative process treatment (Green, 1984).

Li, Kitselman, Dusatko, and Spinelli (1988) provide empirical evidence supporting the use of naturalistic context within therapy. Their study compared traditional stimulation treatment to PACE treatment for a subject who demonstrated word-finding problems as a part of her aphasia classification. Through an ABCBC single-subject, time-series design, they found a greater improvement in naming tasks (i.e., confrontation naming and picture description tasks) with PACE treatment than with traditional treatment. This suggested that the use of naturally occurring environments during stimulation provided the subject with more language channels from which communicative success was readily achieved. Li et al. concluded that the application of PACE to naming disorders encouraged the use of compensatory strengths (e.g. gestures) to communicate.

A recent study published by Murray and Holland (1995) provides additional evidence supporting natural aspects of communication in treatment. These investigators looked at the functional utility of two different treatment plans by examining the language recovery data of acutely aphasic individuals from an earlier study by Holland, Swindell, and Fromm (1983). The first treatment plan was conversational treatment (CT), which simply consisted of any conversational participation by the aphasic. The second treatment plan was conversation combined with traditional, didactic treatment (CDT). This plan

involved the use of stimulus-response methods for language treatment following the conversational segment.

In their analysis, Murray and Holland wanted to "determine if there were any linguistic and/or pragmatic differences in the expressive language skills of aphasic patients receiving either CT or CDT therapy regimens,..." (p. 398). They found that while all of the subjects in the study demonstrated improvement in their linguistic and pragmatic skills, the subjects receiving only conversational treatment showed greatest gains on (at least) most of the study's linguistic and pragmatic measures. As a result, Murray and Holland concluded that 15 minutes of conversational treatment was as effective as 45 minutes of conversational treatment combined with traditional, didactic stimulation. Murray and Holland contended two explanations for their findings; one, the role of fatigue in the combined treatment protocol as negatively affecting expression; and two, the basic theoretical underpinnings between the treatments that actually target and increase communicative competence efficiently.

In summary, this section points out that contemporary researchers view an aphasic's impaired system (language) by its communicative function in addition to its linguistic components. While this is important to know for building a treatment plan, it is also important to recognize the roles that cognition and generalization play in eliminating confounding issues directly or indirectly related to the impaired system and derived therapy services.

Cognitive Considerations

Developments in understanding cognitive processing have been attributed to several disciplines; some of which include clinical aphasiology (Armus et al., 1989; Lojek-Osiejuk, 1996; McNeil, Odell, & Tseng, 1991; Records, 1994; Tseng, McNeil, & Milenkovic, 1993; Wilcox, Davis, & Leonard, 1978; Williams, Li, Volpe, & Ritterman, 1994), child language development (Bruner, 1983; Macnamara, 1972; Nelson, 1986; Snow & Goldfield, 1983), and adult cognitive psychology (Galambos & Rips, 1982; Shatz, 1977, 1983). In aphasiology, one of the first observations noted in relation to cognitive functioning was an apparent inconsistency of aphasic language behaviors across situations (Holland, 1975). This observation signified the possibility of other factors (e.g., cognitive), aside from known linguistic limits, affecting aphasic behavior. It was therefore questioned to what degree does an aphasic's linguistic limits cease to be the only factor affecting overall communicative performance?

Following Holland's lead, several studies investigated probable cognitive factors contributing to an aphasic's overall communication abilities (Boller, Cole, Vrtunski, Patterson, & Kim, 1979; Waller & Darley, 1978; Wilcox et al., 1978; Zurif, Caramazza, Foldi, & Gardner, 1979). In 1978, Wilcox and her colleagues compared performances of utterance comprehension in aphasic subjects during testing situations and natural settings. It was observed that the subjects had better comprehension scores in natural context than compared to testing

situations that included minimal context. Wilcox et al. determined that the aphasic subjects benefited from the extralinguistic context of the natural settings; thus, demonstrating evidence of other communicative factors, besides only linguistic, that affected the aphasic behavior.

Developments in understanding the role of cognition in disordered communication established that inconsistent speech behaviors of aphasics across situations were secondary to various linguistic and nonlinguistic constraints, and were to be expected (Glosser et al., 1988). In other words, the cognitive correlates (e.g., contextual cues) of the aphasic's present communicative demand, in addition to his or her linguistic limits (aphasia), dictated his or her ability to appropriately respond. Recent research methodology has, accordingly, concentrated on developing means to mediate these linguistic and cognitive constraints to further improve treatment outcomes.

Most recently, Records (1994) conducted a study similar to Wilcox et al.'s (1978) investigation. Records assessed the comprehension abilities of aphasics with the use of multiple-channel context. Using three experimental conditions (visual-only, auditory-only, and audio-visual), she studied the use of a visual source in context to facilitate picture identification. Records' results identified patterned increases in the task performance of the aphasic individuals (who initially demonstrated low comprehension scores) when visual information was given to assist comprehension of ambiguous auditory information. She relates the experience of ambiguity in some incoming messages to an increase in the

aphasics' use of visual information to aid comprehension. It was thought that the aphasic subjects primarily used auditory information to comprehend the incoming message unless there was ambiguity that could easily be cleared up through visual channels. For that reason, Records concluded that the aphasics' overall comprehension increased because of an opportunity to use multiple channeling of information, rather than only aural channeling. Again, this evidence demonstrates the potential role of a reinforcing context in aiding an aphasic's ability to completely understand incoming material or to adequately form expressions.

Other investigations (Glosser et al., 1988; Williams et al., 1994) have similarly reported the impact of situations on aphasic verbalizations. Each of these studies demonstrated that individuals with aphasia reacted to the familiarity and naturalness of the stimuli. For instance, when limitations to the visual input were given to an aphasic (Glosser et al., 1988) or the topic being discussed was unfamiliar to the aphasic (Williams et al., 1994), the resulting verbalizations demonstrated barriers that were more related to cognitive complexity (i.e., abstractness) and lack of multi-channel reinforcement, than to the linguistic adequacy of the aphasic(s). Clearly, one could deduct from this evidence an interactive role between linguistic and cognitive factors during disordered communication.

The structuring of cognitive models following these and other experimental developments led researchers to evaluate script (or schema)

environments during treatment protocols in an attempt to simultaneously lighten cognitive loads and improve disordered language behaviors (Armus et al., 1989; Lojek-Osiejuk, 1996; Williams et al., 1994). Scripts, described by Schank and Abelson (1977), are mental representations of conventional or commonly practiced sequences of actions that include variations in participants and objects (e.g., doing laundry).

A study by Armus, Brookshire, and Nicholas (1989) first described the potential of using scripted contexts within aphasia therapy. These investigators suggested that mild and moderate aphasics' knowledge of scripted behavior of common situations is not significantly different than that of non-brain-damaged subjects. Individuals demonstrating aphasia symptoms were able to discriminate, judge, and sequence scripts of common situations (e.g. eating at restaurants) as well as non-brain-damaged individuals. The use of script knowledge in treatment, then, could contribute to contextual aphasia therapy by providing a realistic and frequently occurring systematic environment into language rehabilitation, which would relieve some of the receptive and expressive informational load needed in conversation.

Empirical evidence supporting scripts in treatment activities was provided by Lojek-Osiejuk (1996). In examining the discourse produced by mild-to-moderate aphasics during scripted tasks, Lojek-Osiejuk (1996) suggested that monitoring the cognitive difficulty given by a clinician during discourse activities was needed. Her results demonstrated that aphasics successfully

produced discourse in tasks of simple knowledge (e.g., scripts). However, decreases in performance were noted when the aphasic subjects were required to answer more abstract questions (e.g., similarities/differences), even when asked for only one-word answers. Subsequently, Lojek-Osiejuk concluded that an increase in cognitive processing during the activity resulted in an increase in observed aphasia.

The previously cited studies have shown that attention to the amount of processing required from each dimension of treatment stimuli (which can occur unknowingly) is important when discerning an appropriate treatment method for an aphasic individual. By this, it is meant that the clinician's use of a rehabilitative tool (i.e., activity, worksheet, etc.) must not only be sensitive to the language limits that it is targeting, but also the level of cognitive processing associated with the communicative demand. To achieve this, therapy protocols generally need to highlight cognitive considerations within their foundation. In doing so, the researcher not only dissolves more confounding variables that may otherwise be uncontested, but also acknowledges both linguistic and nonlinguistic parameters (e.g., Davis & Wilcox, 1981) as opposed to only acknowledging linguistic parameters (e.g., Schuell et al., 1964) within the protocol.

To conclude, the amalgamation of these cognitive considerations with the previously mentioned communicative considerations is instrumental in guiding therapy decisions for adult neurogenic communication disorders. Yet, the need

for transferring and maintaining clinical improvements to an aphasic's home environment necessitates the final inclusion of generalization considerations.

Transfer and Maintenance Considerations

As noted from the last two sections, some important conditions contributing to a well-founded aphasia treatment technique include the use of natural communicating channels, opportunities for mental practice and verbal production, and relief from heavy informational loads. However, the challenge in creating a treatment program that includes these conditions is not simple.

The initial challenge of using natural communicating channels within the therapy session is difficult to meet in clinical settings. Clinicians, typically, do not engage in natural interaction while conducting treatment, in that they are artificially enforcing speaker and listener opportunities during tasks (i.e., stimulus-response therapy). Moreover, those opportunities regularly given are out of a subject's usual contextual environment. That is, the stimulus material does not let the aphasic use his or her strengths (e.g., gestures) when attempting to communicate. Instead, the aphasic is required to verbally respond with a particular, targeted word or phrase with little attention focused toward his or her pragmatics (i.e., communicative effectiveness).

A second challenge is the clinician's use of natural communicating channels within treatment programs to provide opportunities for the adequate

use of rehearsal methods. Often, the clinician's program is established to target language behaviors without the opportunity to "interactively" generalize the linguistic behavior, or even without simply supplying predictive schemata, which reduce the information load and give rise to learning opportunities. Lucariello and Nelson (1985) point out that normal developing children learn and recall language more readily through structured, contextual events than "context-independent hierarchical taxonomic categories..." (p. 281). Their findings suggest that access to long term memory in verbal performance is enhanced through semantic relations rather than through complementary lists of linguistic structures. In the presence of these elements, it is reasonable to infer that aphasics will be aided in treatment because the rehabilitation setting reflects original learning environment. In addition, the aphasics are rehabilitating language skills that they learned through these structured, contextual events as younger individuals. Thus, access and building of language processing skills needed for conversation should occur more efficiently and effectively for the aphasics through more naturally occurring learning modalities.

One theoretical framework of learning addresses these variables (natural communicating channels, mental practice, verbal production, and informational loads) involved in contributing to well-founded aphasia therapy technique. This theory is Social Learning Theory (Bandura, 1977).

I. Social Learning Theory

Bandura (1977) described Social Learning Theory in an attempt to provide a framework that would logically predict human thought and behavior. Specifically, he believed that Social Learning Theory offered an explanation of human learning "in terms of a continuous reciprocal interaction of personal and environmental determinants" (Bandura, 1977, p. 11). It would appear that Social Learning Theory assumes a capacity for human selectivity in determining the behavioral advantage of the stimuli (Fey, 1986). As a result, an individual does not simply react to a stimulus, but actively processes the "reciprocal" interpretation of the foreseen outcome; that is, he or she figures out what is going to happen. Bandura (1977) stated that an interaction between the components of his framework would provide a predictable outcome that was directly related to the observed behavior. From this, the demonstration of individual variability within behavior is seemingly contained by addressing elementary motives experienced by most, if not all, humans. It therefore seems reasonable to transfer this general behavior format into clinical aphasiology treatment environments to increase the possibility of learning influences.

Fundamentally, Social Learning Theory involves four components: attention, retention, motivation, and motor reproduction. In the following paragraphs, each component is briefly defined and a clinical aphasiology example is presented.

Attention is one's awareness toward a particular stimulus. Clinically, this means that an individual must recognize the objective of a stimulus and treatment task without excessive redirection from the clinician. For example, a clinician might infer attention on the part of an aphasic by noting that he or she maintains a consistent response format (i.e., head nod yes/no to clinical stimuli) without being repeatedly instructed to perform in this particular manner.

Retention is the person's ability to "rehearse and retain experiences mentally" (Fey, 1986). Bandura (1977) described retention as an abstract modeling process in which "observers extract the common attributes exemplified in diverse modeled responses and formulate rules for generating behavior with similar structural characteristics" (p. 41). Therefore, the individual uses stored relationships to increase his or her efficiency in conveying information. This process enables an individual to readily communicate his ideas to the listener(s). An example of retention is when an aphasic generalizes, and at times improves, communication objectives from past feedback experiences into current experiences that are similar.

Motivation is a desire that causes a person to perform an act. Within the Social Learning Theory, motivation was expressed as both internal and external. The combination of internal and external motivation within treatment lends to an individual's success in attaining his or her goal (e.g., functional communication). The individual must learn "to anticipate which types of acts, linguistic and otherwise, are likely to have the desirable effect in a given circumstance" (Fey,

p. 12). In short, a clinician can manipulate motivation by instituting anticipatory conditions (i.e., external motivation) associated with agreed-upon treatment outcomes (i.e., internal motivation).

The final component to Social Learning Theory is motor reproduction. Motor reproduction is the transformation of attention, retention, and motivation into speech acts. That is, the individual is presented with an opportunity to convert mental representations into verbal utterances (e.g., agent-action-object, "He hit ball.").

Within speech and language literature, Social Learning Theory has had little application. One proponent, Fey (1986), described the foundation of Social Learning Theory in his appraisal of child language development. Fey compared the influence of theoretical foundations on the creation of treatment procedures for Social Learning Theory and three other learning foundations (operant learning theory, interactionist view, and transformational generative grammar), and suggested that the inclusion of any learning theory into treatment depends on the clinician and speech services given. Fey's implications of Social Learning Theory suggested that its use was explicit only to the learning variable(s) of treatment, and that no theoretical basis existed for its use in identifying goals for disordered language behaviors. That is, he believed that the selection of verbal goals and objectives for the child should be established before the use of learning variables within treatment. This does not, howbeit, take away from this model's use in providing speech pathology with a model for generalization.

Social Learning Theory in aphasia therapy activities offers a naturally occurring process for generalization. For example, this is demonstrated within the frameworks of the aforementioned pragmatic treatment designs (PACE and FCT). Although neither specifically note the inclusion of a learning model within their respective frameworks, examination of their designs show that both methods allow opportunities for the aphasics to fully utilize their receptive and expressive capacities during speech acts. Moreover, these naturally occurring opportunities evince attention, retention, motor reproduction, and motivation variables during the implementation of the treatments. Specifically, the use of context, conversational roles, and speech-act forces (all of which generate from naturalness) in these treatments delineates limited or ample inclusionary boundaries of the Social Learning Theory components.

In all, the increased use of naturalness in contemporary treatment models has initiated an opportunity to target both communicative strengths and learning during therapy. In addition, it has served to aid in planning functional goals and providing functional outcomes more readily to clinicians in clinical settings where functional communication was targeted. Davis and Wilcox (1981), as well as other researchers, fade from the traditional stimulation-facilitation aphasia treatment by incorporating more natural aspects of communication into their treatment/evaluative formats. For instance, PACE (Davis & Wilcox, 1981) uses language in context by having a structured face-to-face interaction between the aphasic and clinician while allowing the use of multiple channels to convey

messages. Davis and Wilcox determined that the use of language in context contributed towards Speech Act Theory (Searle, 1969), while their face-to-face interaction regarded role-complementarity (Rosenfeld, 1978). Also, their use of multiple communication channels reasoned with Chester and Egolf's (1974) study in recognizing the importance of nonverbal communication in aphasia treatment. Evidently, Davis and Wilcox's (1981) PACE program was not randomly assembled but, instead, theoretically based to fit a more naturally occurring communicative interaction. Likewise, any future therapy developments away from the traditional, didactic treatments toward a more natural interaction must be theoretically based and supported with both empirical data and functional feedback from the aphasic and his or her primary caretaker(s). Taken together, these points of reference demonstrate both practical and ethical value.

Ecological Validity

A treatment's application to real world environments has recently become the main determiner in an experiment's ability to transfer to clinical settings. This "reality check" tool used within empirical experiments is called ecological validity. Ecological validity is the positive demonstration of a treatment's methodology to functionally impact an aphasic's impaired communication (Horner, Loverso, & Rothi, 1994; Robertson-Tchabo & Arenberg, 1987). Horner

et al. (1994; Robertson-Tchabo & Arenberg, 1987) have outlined two major factors in describing ecological validity. First, an experimental protocol must consider all of the variables related to the aphasic individuals themselves. By this, it is meant that a researcher needs to think about the whole aphasic individual and the clinical environments in which a protocol might be administered. In short, "to warrant the expenditure of time, effort, and finances inherent in aphasia treatment, clinicians are advised to consider the aphasic person's communication behavior in the context of his or her needs, environment, and caretakers and loved ones" (Horner et al., 1994, p. 143).

Second, the methodology within the experimental protocol must encourage the success of its specific tasks (Horner et al., 1994; Robertson-Tchabo & Arenberg, 1987). That is, the actual tasks given during treatment must emphasize positive generalization of the targeted language area into the aphasic's everyday communicative environments. To accomplish this, researchers and clinicians alike need to refrain from using task-specific items of treatment which do not empirically demonstrate functional increases in the aphasics' behavior (i.e., increases in word-finding percentage which show minimal or no improvement in aphasic's ability to communicate needs/wants). Alternatively, the use of language tasks in treatment must become more natural and interactively progressive, insofar as such tasks are less dependent on absolute settings.

Not surprisingly, ecological validity has played a major role in the clinical investment of treatment programs. Given its internal and external factors, which assist in determining a program's "functional value", ecological validity fundamentally challenges a treatment's overall proficiency. It examines and accounts for comprehensive support (empirical and functional) in its clinical application, and important efficacy concerns (i.e., effectiveness, efficiency, and effects) that are intrinsic to speech pathology services. Endorsements for either aspect are, ultimately, indicated by objective data collected during treatment and the functional performance opinions (of progress) from individuals within the aphasic's immediate communicative environment. A demonstration of gain can provide clinicians with a treatment method that maintains ecologically relevant tasks and eliminates stimuli which are context-isolated, and for the most part, irrelevant to the aphasic's usual communicative environment.

Purpose of the Study

In light of this review of the literature, there appears to be minimal evidence demonstrating the effectiveness of using natural context and learning theory variables within nonfluent aphasia therapy to promote acquisition and generalization of a targeted behavior. Several researchers within child language disorders have recognized the value of natural context and/or learning variables in treatment (Fey, 1986; Lucariello & Nelson, 1985; Nelson, 1993). Yet,

recognition of such elements in aphasia treatment has been minimally tested. Therefore, one purpose of this study is to examine the success of a novel treatment program (based on models of communication, cognition, and learning) in positively augmenting mild nonfluent aphasic behavior. A second purpose to this study is to assess the functional efficacy of such a treatment protocol by comparing the experimental findings with the performance opinions of the subject and his or her significant other.

CHAPTER III

METHODOLOGY

Subjects

Subject 1 (B.P.) was a 60 year-old female who evidenced a left-hemisphere cerebrovascular accident eight months before this study. She was described by the referring speech-language pathologist as demonstrating mild nonfluent behaviors with cognitive capabilities clearly adequate for activities of daily living. Subject 2 (R.L.) was a 63 year-old male who evidenced a left-hemisphere cerebrovascular accident three years before this study. He, too, was described by the referring speech-language pathologist as demonstrating mild nonfluent behaviors with adequate cognitive capabilities for activities of daily living. Diagnosis was confirmed by the experimenter and a second speech-language pathologist who holds Certificate of Clinical Competence.

Each aphasic subject met two pre-experimental linguistic criteria: (1) receptive, (2) expressive. For receptive abilities, portions (Commands and Complex Ideational Material subtests) of the *Boston Diagnostic Aphasia Examination* (BDAE) (Goodglass & Kaplan, 1983) were administered (see Appendix A). B.P. scored 80% and 75% on Commands (BDAE) and Complex

Ideational Material (BDAE), respectively. R.L. scored 80% and 94% on Commands (BDAE) and Complex Ideational Material (BDAE), respectively.

For expressive abilities, the measure selected to reflect performance was Nicholas and Brookshire's (1993) correct information unit (CIU). A CIU is a word that not only is intelligible in context, but also accurate, relevant, and informative in regards to the stimulus (Nicholas & Brookshire, 1993). The experimenter followed the procedure given by Nicholas and Brookshire (1993) to identify CIUs (see Appendix B). B.P.'s level of CIU production per utterance was 5.8 during her language sample. R.L.'s level of CIU production per utterance was 6.0 during his language sample.

The *Apraxia Battery for Adults* (ABA) (Dabul, 1986) was given to B.P. and R.L. to rule-out severe or moderate apraxia of speech. Both aphasic subjects demonstrated mild apraxic behaviors.

Neither aphasic subject had speech services simultaneously with this project. Table 1 shows the aphasic subjects' pre-experimental demographic characteristics, illustrating homogeneity between aphasic subjects.

The "significant other" of each aphasic subject was included in this study to provide perceptual feedback about the aphasic's functional performance before and after the experimental treatment. The significant others had reportedly been associated with their aphasic individual for at least one year prior to the CVA. The significant other subject for B.P. was her husband (E.P.). The significant other subject for R.L. was his wife (G.L.).

Table 1. Pre-experimental Demographic Characteristics of Aphasic Subjects

	B.P.	R.L.
Age	60	63
Education	HS graduate	HS graduate
Handedness	Right	Right
Insult	CVA	CVA
Language Classification	Mild Nonfluent	Mild Nonfluent
Post-Onset Duration	8 months	3 years
BDAE Scores		
Commands	80%	80%
Complex Ideational	75%	94%
CIU Level	5.8	6.0
Apraxia (ABA)	Mild	Mild

The aphasic subjects and their significant others were monolingual speakers of English and had at least graduated from high school. They reported no history of cognitive or language impairments (prior to their CVA for the aphasics), and demonstrated adequate visual and auditory functioning for daily activities. All subjects were currently living in their respective homes.

Materials

The materials for the experimental paradigm consisted of a subject profile form (see Appendix C), question and statement format sheet (see Appendix D), data form (see Appendix E), Panasonic RQ-L315 SLE mini cassette recorder, Hitachi VM-5400A VHS video camera/recorder with an ATUS ATR35s microphone, and necessary ingredients and utensils to carry out the treatment activity. The *Communicative Effectiveness Index* (CETI) (Lomas, Pickard, Bester, Elbard, Finlayson, & Zoghaib, 1989) assessed ecological concerns (see Appendix F).

Procedure

I. Experimental Paradigm

A. Setting

The treatment procedure took place at the subject's residence, and consisted of five sessions a week for three weeks. Each session was in the

subject's kitchen and involved meal preparation. The sessions required about 45 minutes each and consisted of completing all activity segments described in the treatment protocol. Three individuals were present during the sessions, but only the subject and experimenter were interacting. A research assistant (discussed below) was present to video-record the subjects' verbal performances. The experimenter attempted to keep unexpected separations from the subject during experimental interaction under two minutes; if separations were longer, the experimental protocol was extended accordingly.

B. Experimental Assistance

The research assistant was an undergraduate student from the Department of Audiology and Speech Sciences at Michigan State University who was trained by the experimenter before observing subjects in sessions. Training began with instruction about the purpose of the study and the manner in which data were to be collected [accuracy of the subjects' utterances (1 or 2)]. After instruction, the research assistant scored simulated treatment sessions carried out by the experimenter and a non-neurologically impaired volunteer. Three simulated treatment sessions were videotaped and lasted approximately two and a half minutes each. The research assistant and experimenter independently coded the videotaped sessions, and resultant scores were compared for item-to-item agreement. Training of video simulated sessions continued until the research assistant and experimenter had at least 95% agreement on two consecutive videos. Once criterion was met, the research assistant scored one

live treatment session between the experimenter and the non-neurologically impaired volunteer. This session was videotaped and later coded by the experimenter; if coding agreement was at least 90% between the experimenter and research assistant, then the research assistant would have been judged as successfully completing training, as demonstrated by competent independent coding of the non-neurologically impaired volunteer's utterance performance. If coding agreement were less than 90%, then the training program would have been repeated.

C. Baseline Procedure

For baseline procedures, the experimenter visited the subject's home to collect language samples from which his or her level of CIU production per utterance was calculated. Baseline sessions required approximately 15 minutes each, and were conversations between the experimenter and subject. The interaction was typical of natural conversation rather than a manner typical of directed instruction. The experimenter and subject conversed without topic restriction. The conversations were video-recorded for data analysis of CIU production following the session. The establishment of baseline stability was attained before initiating the treatment protocol. The criterion set for baseline stability was less than 0.50 CIU per utterance increase over three consecutive sessions. If baseline CIUs increased over 0.50, then baseline sessions were continued until stability was established. When baseline CIUs were stable, the experimental protocol began within one week.

D. Treatment Procedure

Treatment sessions began after baseline. The treatment protocol described in this section was followed during each session. Each treatment session contained five segments, (greeting, language sample, instruction, activity, and activity-performance feedback) and required approximately 45 minutes.

Segment One. During the initial segment, the examiner used a typical form of greeting such as "Hi, how are you?" or "Hello, good to see you." It was expected that a minimum of two conversational turns would follow, during which the examiner and subject alternated in ritual greeting format. The segment required less than a minute.

Segment Two. The second segment, language sample, began with the examiner asking an open-ended question such as, "What did you do this morning?" The subject was expected to respond verbally and describe various events that occurred throughout his or her day. The purpose of this segment was to engage the subject in undirected conversation. During this segment, the examiner interacted with the subject in a manner typical of conversation. The examiner indicated any inadequate communications by using a phrase such as "I don't understand." No corrective feedback was provided. This segment was allotted approximately ten minutes.

Segment Three. The third segment was instruction, during which the examiner explained the nature of the activity for the session, the role of the subject as both speaker and listener, and the expected response type.

Instructions always concluded with examiner saying, "As we do this activity, remember to speak as often as you wish." This segment required about one minute. The subject was asked to indicate understanding of expectations with a yes/no response.

Segment Four. The fourth segment was the activity, which for all sessions was making pasta. This activity was characterized by a common procedure using sequential steps to reach a familiar outcome. Within the framework of the task, the order of the steps and the specific ingredients may have varied, however the generally accepted schema for the activity remained constant. That is, variations in task completion depended on the subjects' own experience in performing the task and the specific ingredients. One subject, for example, may have wanted to add butter to the boiling water, while the other may not have wanted to add it.

During this 20-minute activity segment, the examiner and subject were engaged in conversation. Again, as in baseline and the second segment, the interaction between the subject and examiner was in a manner typical of conversation. Both persons participated equally in speaker and listener roles, and they were not restricted to speaking about topics that were relevant only to the activity.

Conversational opportunities during the activity arose naturally or were prompted by the examiner. In naturally arising conversational opportunities, the subject initiated comments or responded appropriately to the examiner. The

examiner responded in a manner appropriate to the situation. If a pause of longer than 15 seconds occurred, the examiner prompted the conversation by asking a question requiring an obligatory response, or making a statement suggesting a customary, but not obligatory, response. An obligatory response is a required response from the listener that is necessary in order to continue the conversation. A customary response is one in which it is conventional, but not required, for the listener to respond to the speaker. In other words, the speaker does not require a response from the listener in order to continue the interaction, yet an acknowledgment of understanding is typical. The examiner asked or stated as many utterances as needed to continue the conversation. The order of presentation for questions and statements was randomized with no more than two consecutive questions or statements occurring at any point. Four orders were prepared prior to the start of this study (see Appendix D). The examiner randomly selected one order before each session. During the interaction, the examiner made reference to this "index-card-size" printout of the selected order. The content of the questions and sentences was spontaneously sensitive to the experimental context.

Each utterance the subject made during this segment was scored off-line on two parameters: syntactic structure and time of delivery. The scoring system was as follows:

(1) = Adequate - syntactic structure of at least noun and verb within 10 seconds of experimenter's prior utterance (e.g. "Noodles boil." or "Noodles boil now.").
(2) = Inadequate - one or no syntactic element, or syntactic element(s) other than noun or verb, or any utterance requiring 10 seconds or more to produce following experimenter's prior utterance (e.g. Gesture, "Boil.", or "The.").

A score of 1 was an appropriate communication exchange, and a score of 2 was considered an inadequate communication exchange. Adequate utterances (1) containing more advanced syntactic structures than outlined above were segmented according to Lund and Duchan (1988). The following is Lund and Duchan's (1988) guidelines for segmenting utterances:

- The end of an utterance is indicated by a definite pause preceded by a drop in pitch or rise in pitch.
- The end of a sentence is the end of the utterance. Two or more sentences may be said in one breath without a pause, but each one will be treated as a separate utterance for syntax analysis.
- A group of words, such as a noun phrase, that can't be further divided without losing the essential meaning is an utterance, even though it may not be a sentence.
- A sentence with two independent clauses joined by a coordinating conjunction is counted as one utterance. If the sentence contains more than two independent compound clauses, it is segmented so that the third clause, beginning with the conjunction, is a separate utterance.
- Sentences with subordinate or relative clauses are always counted as single utterances.

During the activity segment, on-line feedback was given immediately after each utterance produced by the subject. If the examiner judged the utterance to be appropriate, the feedback was supportive and appropriate to the subject's utterance, and served to maintain conversation. The use of this kind of feedback is natural in social context, and does not make specific comment on the exchange. Therefore, the feedback was not in the form of statements like "Good

sentence!" If the examiner judged the utterance to be an inadequate, the feedback requested clarification.

The prepared pasta meals from this activity were identified as consumable by the subject prior to treatment sessions, and were eaten by the subject and experimenter or research assistant following the conclusion of segment five.

The activity in this segment was a reflection of improving impaired verbal behavior with a treatment plan based on communicative, cognitive, and transfer and maintenance considerations. The specific natural activity (cooking pasta) chosen for the current study was required in order to facilitate retrieval of learned information that would otherwise be minimal in settings such as sitting on a couch and talking. Hence, the aspects of the current project's activity were thought to be central to the use of scripts and the design of the instituted learning theory, namely, Social Learning Theory.

Segment Five. The final segment of each session was debriefing (or off-line reinforcement) in which the experimenter, research assistant, and subject reviewed some, or all, of the subject's adequate and inadequate communications from the videotape of the current session's activity. The experimenter debriefed the subject about his/her performance during the session's activity and provided suggestions to increase the appropriate behavior during future conversations. Debriefing took approximately five minutes.

II. Ecological Validity

Horner et al., (1994) describe ecological validity as "the socio-communicative impact of our treatment by virtue of favorable changes in the individual's aphasia" (p. 143). In short, they warn contemporary clinicians to consider functionally communicative aspects in a subject's overall treatment plan in addition to linguistic variables. They have identified two major factors that increase the probability of functional success of treatment. The first factor is the ethical and humanistic value of the treatment outcome. This refers to the expenditure of the subject's time, effort, and finances towards the treatment, considering statistical and functional outcome. The second factor is the treatment's methodological value for demonstrating generalization of target behavior to natural circumstances. Horner et al. believe that "the challenge of understanding and effecting generalization will take, we predict, an increasingly dominant place in our clinical research in the future" (p. 143).

With that in mind, the present study examined ecological validity by including administration of the CETI (see Appendix F) to the aphasic and significant other subjects. The CETI is a questionnaire developed by Lomas et al. (1989), to evaluate the perception of change in a person's functional communication abilities. It was administered to these subjects to examine their impressions of the aphasic subjects' performance prior to and at the endpoint of treatment. This tool allowed the researcher to examine perceived change in

functional abilities by using direct, credible feedback from the aphasic subject's own communicative environment.

III. Experimental Design

A single-subject multiple-baseline across subjects design (McReynolds & Kearns, 1983) was used to investigate the effectiveness of a treatment protocol that utilizes instruction, natural on-line feedback, and off-line reinforcement in natural contexts. The dependent variables in the experimental paradigm were CIU levels during baseline and treatment language samples, and percentage of inadequate communications to total utterances in segment four of treatment. The experimental design of this study probed the utility of the treatment protocol to increase the aphasics' production of CIUs across time. Data collected from two subjects demonstrated controlled findings by replicating the dependent variable across subjects.

A. Dependent variables

Two dependent variables were measured during the experimental protocol: level of CIU production per utterance in (baseline and treatment) language samples and the percentage of inadequate communications in segment four of treatment. One dependent variable, percent change of response, was measured from the CETI.

B. Data acquisition and preparation

Experimental. Baseline CIU data were collected via videotape recorder, during several 20-minute visits between the experimenter and the aphasic subject. The CIU analysis of baseline videotaped interactions was done by the experimenter after each visit. Baseline data collection began simultaneously for both aphasic subjects. For subject 1 (B.P.), baseline data points were collected until baseline stability was reached; then the treatment portion of this study began. For subject 2 (R.L.), the collection of baseline data points extended into the treatment phase of B.P., continuing until B.P. showed an increase in CIUs per utterance of at least 1.0. At that time, the treatment portion for R.L. began.

During treatment sessions, segment two was audiotaped and segment four was videotaped for later analysis by the experimenter and research assistant. Following each session, the subjects' audiotaped language samples (segment two) were orthographically transcribed by the experimenter, and the level of CIU production per utterance was calculated according to Nicholas and Brookshire's (1993) procedures (see Appendix B). The data for segment four, representing the accuracy of each utterance (see Appendix E), were coded by the research assistant on a data sheet after each treatment session. The notation for accuracy of utterance on the data sheet was either 1 or 2. The data were prepared by totaling the subjects' responses and inadequate communications; percentage of inadequate communications was calculated from those totals.

After completing calculation, the experimenter noted the performance levels in graphic form for future visual inspection.

Several reliabilities were examined in data collection methods. Reliability in transcription was determined by having the research assistant transcribe 10% of samples; reliability greater than 95% was considered acceptable. Reliability of CIU coding was both inter- and intra-judge. Intrajudge reliability was completed by recoding 10% of the language sample a week later, and interjudge reliability was completed by a certified speech-language pathologist trained in identifying CIUs. Reliability greater than 90% would be considered acceptable. If reliabilities were less than criterion, then transcription/coding was re-analyzed for item-to-item agreement. For utterance accuracy data (segment four), the experimenter reviewed the videotape of the experimental session and coded 10% of the subject's utterances for accuracy of communication, and compared results to those of the research assistant. If agreement was greater than or equal to 90%, then the data was subjected to further analysis. If agreement fell below 90%, then the research assistant and experimenter repeated the training protocol. After achieving training confidence criteria, the session data was recoded by both the experimenter and research assistant, and subjected to item-by-item analysis for agreement.

Ecological. CETI responses were collected from the subjects and significant others prior to the first baseline session and after the last treatment session. The subjects and their significant others were asked to complete the

CETI questionnaire by reading the statements and marking, with an X, the location on the visual analogue scale (VAS) below the statement that best represents the current opinion of the aphasic's performance. Percentages were figured according to CETI instructions (Lomas et al., 1989).

C. Data analysis techniques

The data sets collected during this study were examined by visual inspection of graphed data points, and means comparison. The data included for analyses were: mean level of CIUs in baseline and segment two, mean utterance accuracy level in segment four, and CETI results (Table 2).

1. Experimental Data (CIUs and Utterance Accuracy)

{A.} Graph visual inspection between phases (baseline and treatment) identified the trend, level, and slope of the data set across time and conditions (Kazdin, 1984; McReynolds & Kearns, 1983). The trend of a data set indicates three possible directions (positive, negative, or no change) that the subjects' behavior might take. The establishment of a desired direction within a study is usually inferred, if not highlighted, in the methodology section. For the current study, there were two different directions that were interpreted as successful. A positive trend (increase in behavior) between phases in the CIU level of segment two was desired. A negative trend (decrease in behavior) in the percentage of inadequate communications of segment four was desired.

The slope of the data set determined the strength at which the trends occur. McReynolds and Kearns (1983) express two general kinds of slopes: (a)

Table 2. Experimental and Ecological Dependent Variables.

Subject 1 (B.P.)

Session #	CIU	Accuracy	CETI
1	C_1	—	$CETI_1$
.	.	A_1	
.	.	.	
.	.	.	
15	C_{15}	A_{10}	$CETI_2$

Subject 2 (R.L.)

Session #	CIU	Accuracy	CETI
1	C_1	—	$CETI_1$
.	.	A_1	
.	.	.	
.	.	.	
15	C_{15}	A_8	$CETI_2$

C - CIU level in baseline and treatment

A - Accuracy of utterance in treatment

CETI - Communication Effectiveness Index

pronounced, and (b) gentle. A pronounced slope suggests that the independent variable used during treatment results in a more readily changing behavior than does a gentle slope. A pronounced slope for the aforementioned trends was desired for the current study.

Lastly, the level of the subjects' functioning between phases contributed to the overall interpretation of the data set. Generally, desired levels within a data set are relative to the content and design of the study. For example, a subject producing accurate names to objects with a baseline level of 80% and increasing 10% during treatment may be judged as successful, while another subject who increased 10% from only 20% baseline functioning may not be determined successful. The criterion set for the above mentioned example determines success by the endpoint data versus percentage of increase. The validity of assigning a variable (e.g., endpoint datum, percentage of increase, etc.) to indicate success differs depending on the researcher's experimental goal and the study's functional relevance. For the current study, success was determined by increases between phases in the CIU endpoint data levels across subjects, and an endpoint-to-endpoint decrease in the percentage of inadequate communications. Specific values for these data levels are not given by virtue of the experimental design (unequal number treatment sessions between subjects). Also, the experimenter believes that success cannot be determined for any specific amount of increase (no matter how great) if direct performance feedback from the subjects indicates no perceived functional improvement in targeted behavior.

{B.} The *t* test was used to compare means of the experimental data set. The *t* test, according to Rosenthal and Rosnow (1991), identifies statistical significance by testing two components (size of effect x size of study) within the researcher's identified comparison. Several comparisons were evaluated using the *t* test (go to Table 3). First, the mean values of each subject's performance were compared. That is, for each subject, the initial mean CIU baseline performance and the final mean CIU endpoint data following treatment were compared for the statistical effect between the two points. As well, the subjects' initial and final treatment session performances for message accuracy were compared. The statistical outcomes allowed for the examination of the relationship between the use of the experimental treatment and the original level of functioning.

Next, the mean CIU values of the subjects' baseline functioning were compared. Across subjects, the mean CIU baseline performance was compared to determine if any statistical significant difference exists. Again, the statistical outcome would reveal a relationship between the tested variables, specifically, the utility of the methodological screening in assuring pre-experimental homogeneity between subjects.

Finally, the endpoint mean values were compared across subjects to identify the relative performance change. Relative performance change in endpoint mean values was cited because of the differing "size of study" (number of treatment sessions) between subjects. Nonetheless, any statistical effect in this

Table 3. Experimental Treatment Protocol Data Comparisons for *t* test Analysis.

Comparison 1	
B.P.-C_1 vs. B.P.-C_{15}	R.L.-C_1 vs. R.L.-C_{15}
B.P.-A_1 vs. B.P.-A_{10}	R.L.-A_1 vs. R.L.-A_8
Comparison 2	
B.P.-C_1 vs. R.L.-C_1	
B.P.-A_1 vs. R.L.-A_1	
Comparison 3	
(relative)	
B.P.-C_{15} vs. R.L.-C_{15}	
B.P.-A_{10} vs. R.L.-A_8	

C - CIU level in baseline and treatment

A - Accuracy of utterance in treatment

comparison symbolized the treatment's strength in uniformly changing the dependent variable in both subjects. As one could infer, a highly desirable effect within experimental treatment projects using single-subject designs is a nonsignificant effect across subjects in that the researcher, then, has support to recant any speculation of individual (or personal) influences associated with the endpoint performance. Table 3 illustrates these comparisons.

2) Ecological Data (CETI)

{A.} Visual inspection of CETI results was used to identify the perception of change in the aphasic subjects' behavior between the initial and final sessions. Two sets of comparisons were made [calculated according to CETI directions (Lomas et al., 1989)]; the first comparison set was the aphasic subject's perception of change in his or her performance, and the second comparison set was the significant other's perception of the aphasic subject's change in performance. Table 4 shows these two sets of comparisons using CETI data.

3) Additional Observation (CIU and CETI)

{A.} Lastly, the change in CIU and CETI results for each aphasic subject were compared. Three comparisons were highlighted to demonstrate further evidence of pre-experimental homogeneity and possible endpoint tendencies, and the relatedness of noted experimental changes to reported functional changes in the aphasic's verbal performance following treatment. Table 5 shows these comparisons.

Table 4. Ecological Data Comparisons Among Aphasic and Significant Other Subjects.

Set 1 - Aphasics

Comparison 1	Comparison 2
B.P.-$CETI_1$ vs. R.L.-$CETI_1$	B.P.-$CETI_1$ vs. B.P.-$CETI_2$
B.P.-$CETI_2$ vs. R.L.-$CETI_2$	R.L.-$CETI_1$ vs. R.L.-$CETI_2$

Set 2 - Significant Others

Comparison 1	Comparison 2
E.P.-$CETI_1$ vs. G.L.-$CETI_1$	E.P.-$CETI_1$ vs. E.P.-$CETI_2$
E.P.-$CETI_2$ vs. G.L.-$CETI_2$	G.L.-$CETI_1$ vs. G.L.-$CETI_2$

CETI - Communication Effectiveness Index

Table 5. Comparisons Between CIU and CETI Scores for Additional Insight.

Comparison 1
B.P.-C_1 vs. B.P.-$CETI_1$
R.L.-C_1 vs. R.L.-$CETI_1$
Comparison 2
B.P.-C_{15} vs. B.P.-$CETI_2$
R.L.-C_{15} vs. R.L.-$CETI_2$
Comparison 3
B.P.-ΔC vs. B.P.-$\Delta CETI$
R.L.-ΔC vs. R.L.-$\Delta CETI$

C - CIU level in baseline and treatment

CETI - Communication Effectiveness Index

Experimental Null Hypotheses

The experimental null hypotheses were as follows:

(a) There will be no significant difference between the aphasic subjects' baseline and endpoint CIU performance.

(b) There will be no difference between the subjects' initial CETI scores and their final CETI scores.

(c) There will be no difference between B.P.'s and R.L.'s initial CETI scores; also, there will be no difference between B.P.'s and R.L.'s final CETI scores.

(d) There will be no difference between the subjects' initial CETI scores and the aphasics' baseline CIU level, and their final CETI scores and the aphasics' endpoint CIU level, respectively.

For the current study, the experimenter identified success by rejection of null hypotheses (a), (b), and (d), and acceptance of null hypothesis (c).

CHAPTER IV

RESULTS

Reliability

I. Pre-Experimental Scoring Confidence (Research Assistant Training)

Training for the research assistant consisted of scoring subject responses during simulated treatment sessions (video first, then live) between the experimenter and a non-neurologically impaired volunteer. Specifically, the responses scored were all of the volunteer's utterances during the simulated experimental treatment activity. Confidence for the video sessions was set at two consecutive trials with 95% or greater agreement. The research assistant scored one live treatment session between the experimenter and non-neurologically impaired volunteer once the video criterion was met. Scoring agreement for the live session was set at greater than or equal to 90%. If scoring agreement was less than 90% on the live session, then the training program was repeated. Point-to-point reliability between the research assistant and experimenter was calculated with the following formula:

$$[\text{Total Agreements}/(\text{Total Agreements} + \text{Total Disagreements})] \times 100$$

Confidence levels for the research assistant's scoring were achieved following eleven video trials and two live trials (Figure 1). During the training period, one discussion with the research assistant (following trial 7) occurred to review procedures for utterance identification.

II. Experimental Scoring Confidence

Interjudge reliability for orthographic transcription was assessed by having the research assistant transcribe 10% of the language samples for comparison to the experimenter's transcription. Confidence was maintained if agreement was greater than or equal to 95%. Point-to-point reliability and agreement between the experimenter and research assistant for both aphasic subjects was 99% (B.P. = 99%; R.L. = 98%). The few disagreements noted were derived from interference due to background noise, taping problems, or lack of topic familiarity by the listener.

Both inter- and intra-judge reliability for coding CIU data were calculated. For intrajudge assessment, the experimenter scored 10% of the CIU data a week following the initial scoring. Accepted criteria for scoring CIUs was set at 90% or greater agreement. Reliability for both aphasic subjects was 96% (B.P. = 99%; R.L. = 93%). Disagreements derived from the subjects' repetitions, repairs, and fillers. Specifically speaking, some utterance opportunities were difficult to consistently score because of the subjects' ability to repair, or their use of unnecessary repetitions and/or fillers.

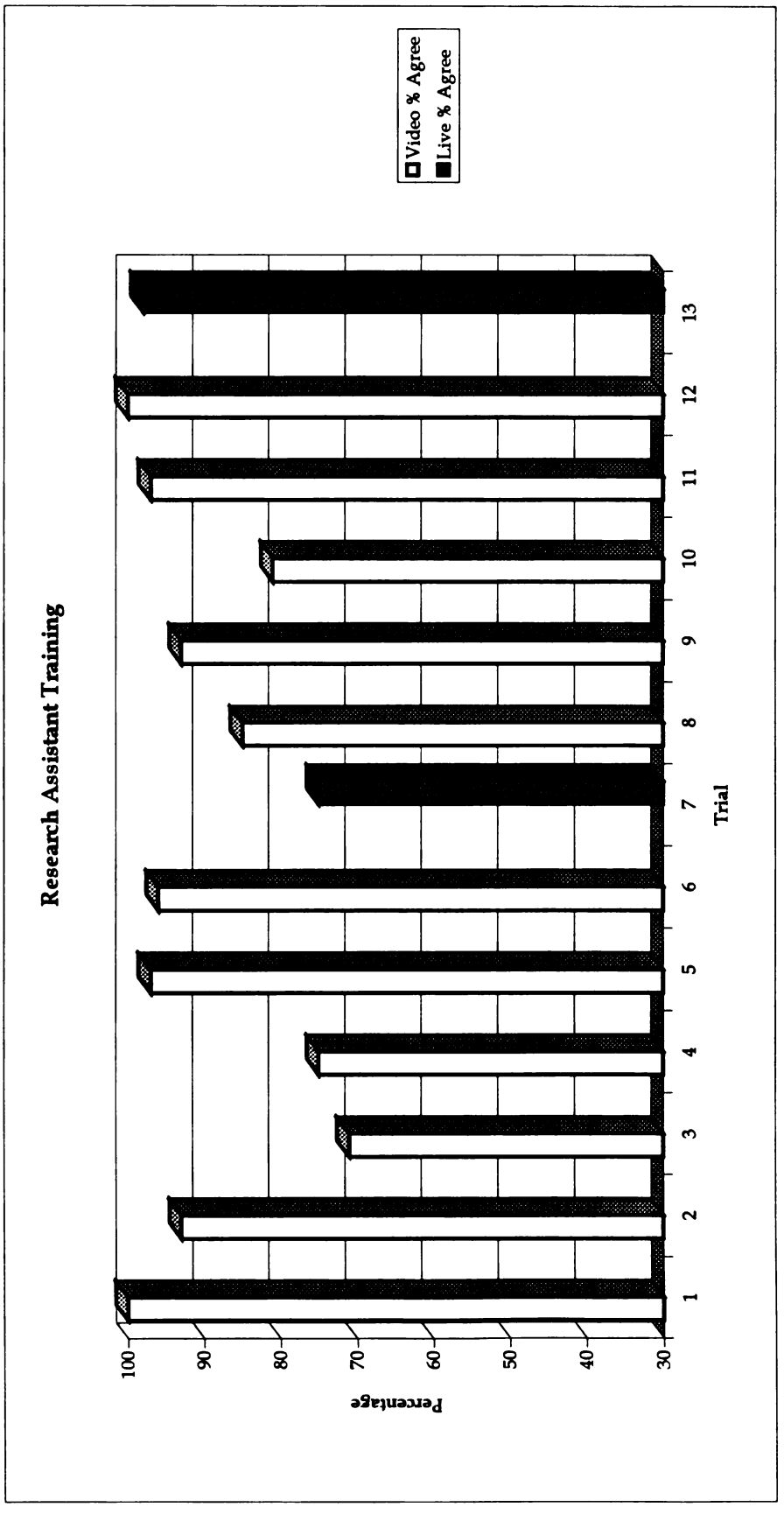


Figure 1. Performance data of research assistant during training

For interjudge assessment, 10% of the experimenter's CIU scores were compared to those scored by a certified speech-language pathologist trained in identifying CIUs. Reliability criteria for this assessment were set at 90% or greater agreement, and were found to be 96%.

To assess interjudge reliability of the research assistant's scoring of treatment (segment four), 10% of the data were subjected to rescoring by the experimenter. A percentage at, or exceeding, 90% was desired; agreement averaged 92% (B.P. = 93%; R.L. = 90%). Clarification of disagreements revealed that the utterance boundaries had some variance. Not unlike the CIU reliability segment, the utterances were, at times, contaminated with repairs, repetitions, and fillers.

Experimental Data

The experimental design in this investigation (single-subject multiple-baseline across subjects design) was implemented to assess the effectiveness of the treatment protocol and its applicability to everyday clinical environments. This design is unique in its ability to provide the experimenter with data analysis that is, so to speak, self-contained. By this, it is meant that the experimenter can infer conclusions from the graphic illustrations of the data set by visually comparing actual performance scores, as opposed to other methodological designs which subject mass data sets to numerous statistical analyses before

some discernment can be produced. Consequently, the individual performances observed in single-subject designs can be readily accounted for and compared with other replicated performances. For the current study, the verbal outputs of both mild nonfluent aphasics were assessed to determine whether increases in performance were observed.

I. Visual Inspection

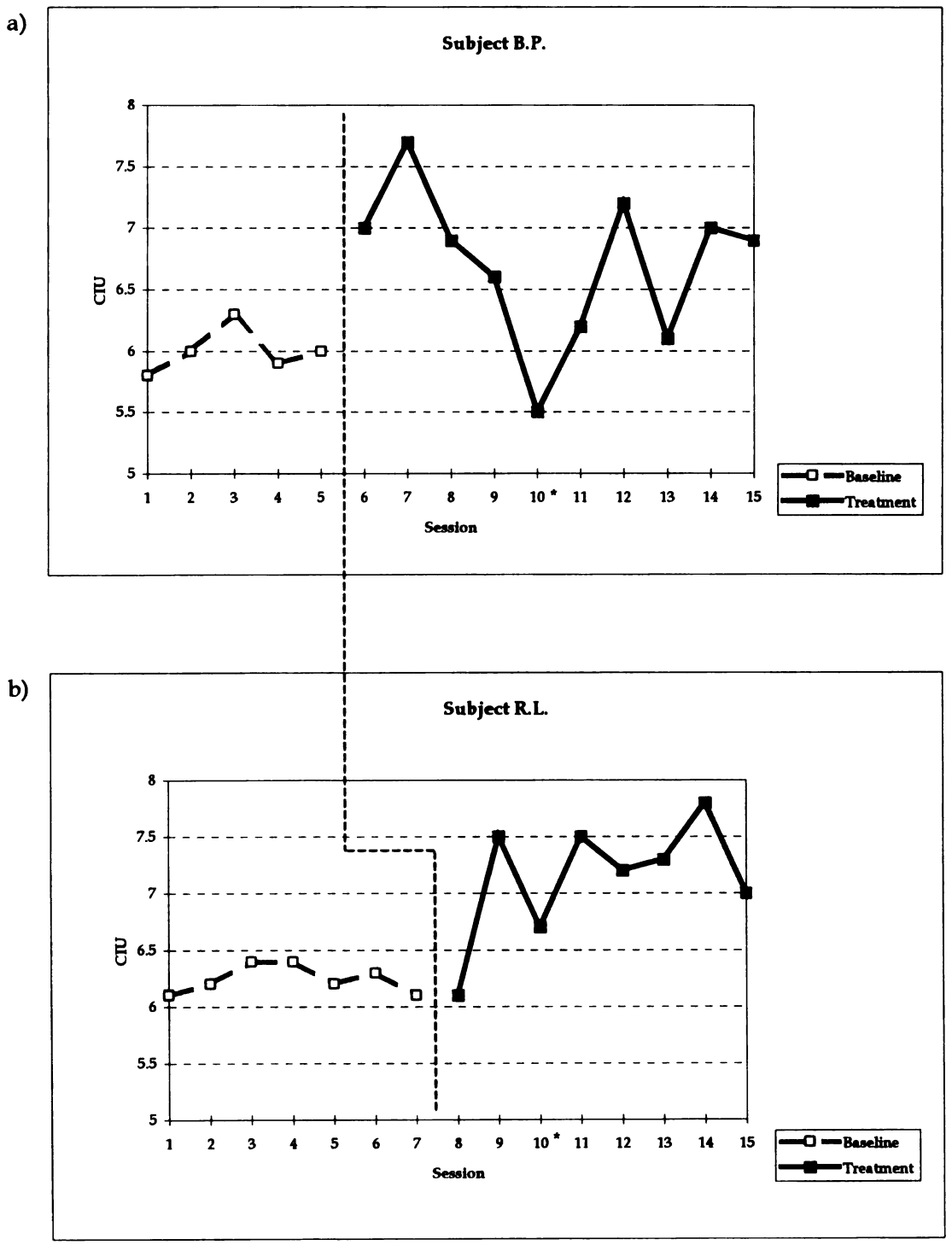
A. Using Experimental Impressions

Graph visual inspection of CIU (baseline and segment two) and utterance accuracy (segment four) performances were completed to determine experimental effects. With graph visual inspection, the experimenter identified the trend, slope, and level of the data set (Kazdin, 1984; McReynolds & Kearns, 1983).

Figure 2a displays B.P.'s CIU data collected during baseline and treatment sessions. For B.P., a ***positive*** trend was found in the CIU data when phases were compared. The slope of her CIU data was judged as ***gentle***. The overall level of B.P.'s CIU data demonstrated an ***increase*** (1.1 CIU) from the initial baseline observation to the endpoint of treatment. B.P. evinced well over half (70%) of her treatment scores above the baseline scores.

From this data set, B.P.'s treatment scores did not depict a visually patterned increase when compared to her baseline scores. In fact, one could even refrain from making any conclusions about the treatment's ability to improve her

Figure 2. Experimental CIU data for aphasic subjects



targeted behavior by simply looking at her overall performance variance. However, an experimental note should be highlighted; one discontinuation was recorded with B.P. during this project. Following session 10, B.P. discontinued treatment for two weeks due to medication problems. During the actual treatment sessions leading up to and directly following session 10, the experimenter did not observe obvious reductions in her performance or behavior; regardless, the treatment data for B.P. during sessions 9 through 11 may have been influenced by the medication problems. When asked about her absence, B.P. only replied that the medication was giving her headaches and nausea, and that, currently, she was feeling better. With that in mind, one can see that 86% (6/7) of B.P.'s treatment scores were above all baseline scores when treatment sessions 9 through 11 were excluded.

Figure 2b displays R.L.'s CIU data collected during baseline and treatment sessions. For R.L., a ***positive*** trend was found in his CIU data when phases were compared, and a ***gentle*** slope was observed in this positive trend. The overall level of R.L.'s CIU data also demonstrated an ***increase*** (0.9 CIU) from the initial baseline observation to the final treatment observation. R.L. attained only one treatment data point below the baseline level. Thus, improvement was clearly illustrated.

Unlike B.P., R.L. did not miss a session during the experimental period, and did not report any extraneous conflicts affecting his performance. Yet, due to the experimental design, R.L. did discontinue experimental sessions that were

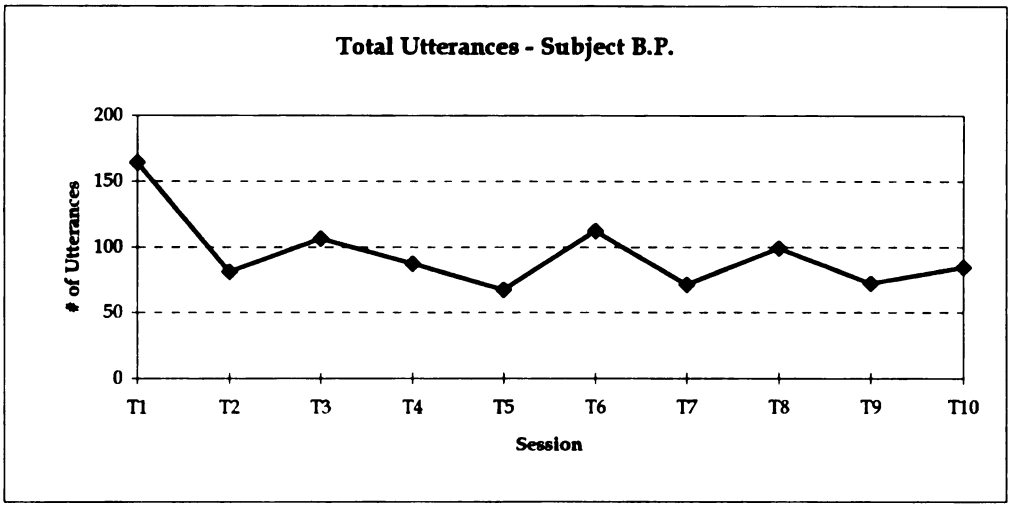
coinciding with B.P.'s absence. The experimental design of the current study asserted that both subjects were to receive the experimental sessions simultaneously in order to maintain control of the resultant findings. In other words, while the conditions between subjects may have been different (e.g., baseline and treatment), the administration of the experimental sessions were to be given at the same time for both subjects to show controlled replication.

Next, the treatment data (segment four) for both subjects were displayed (Figures 3 & 4). The experimental utility of these data was accountability for the subject's total experimental performance. For instance, if a subject's performance on one measurement had significantly decreased, was there also a decrease in the other measures? In short, do the behaviors show consistency throughout the experimental segments, or does the subject acquire some sort of preference toward a particular segment. Also, and more importantly, does this treatment protocol assist in the improvement of other communicative aspects in the subjects' expressive performance (i.e., lowering the percentage of inadequate communications)? The following data demonstrated decreased performance error in both subjects' utterances during the treatment period.

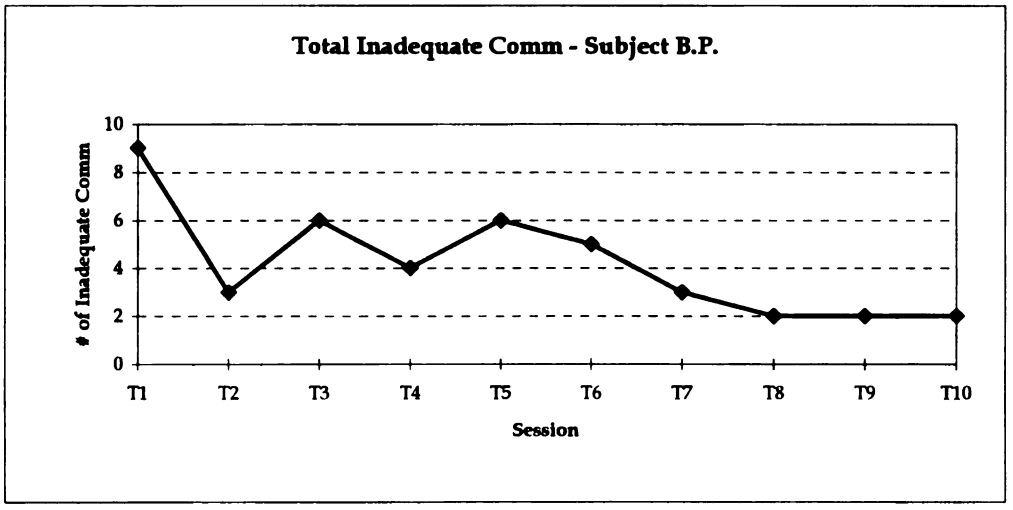
Figures 3a-c show the utterance accuracy data points for subject B.P. In each of the three categories, she demonstrated a ***negative*** trend, and a ***gentle*** slope. Her overall level in the percentage of inadequate communications indicated a ***decrease*** (2.6%) from the initial to the final treatment sessions.

Figure 3. The treatment session data for B.P.

a)



b)



c)

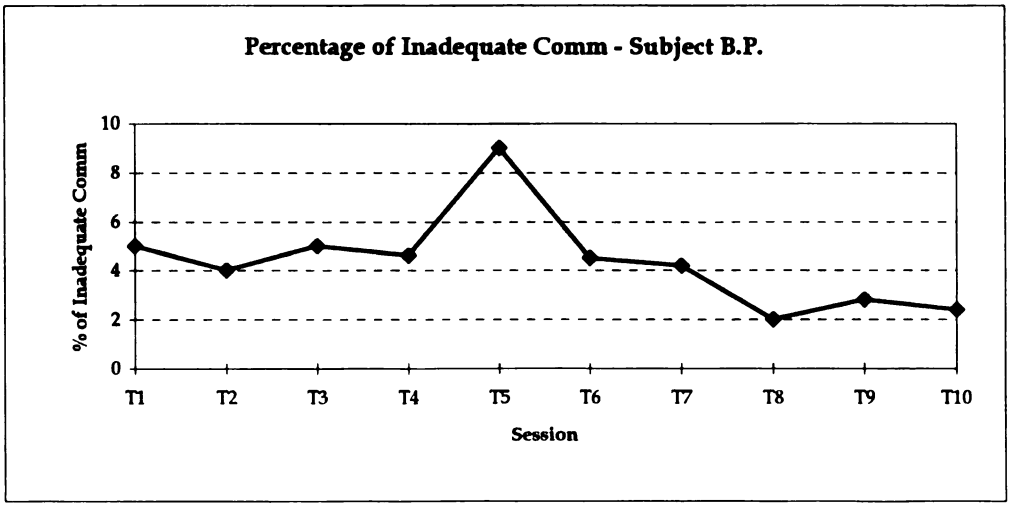
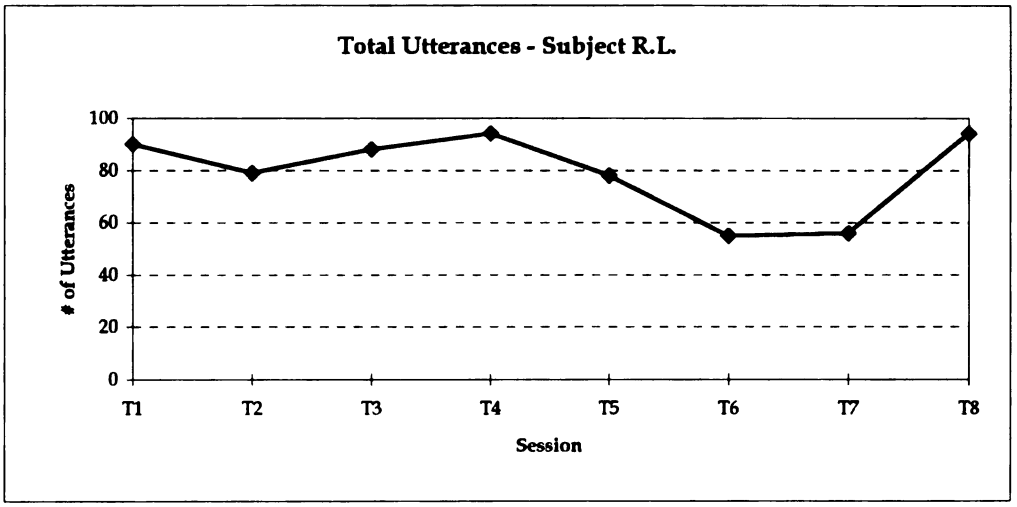
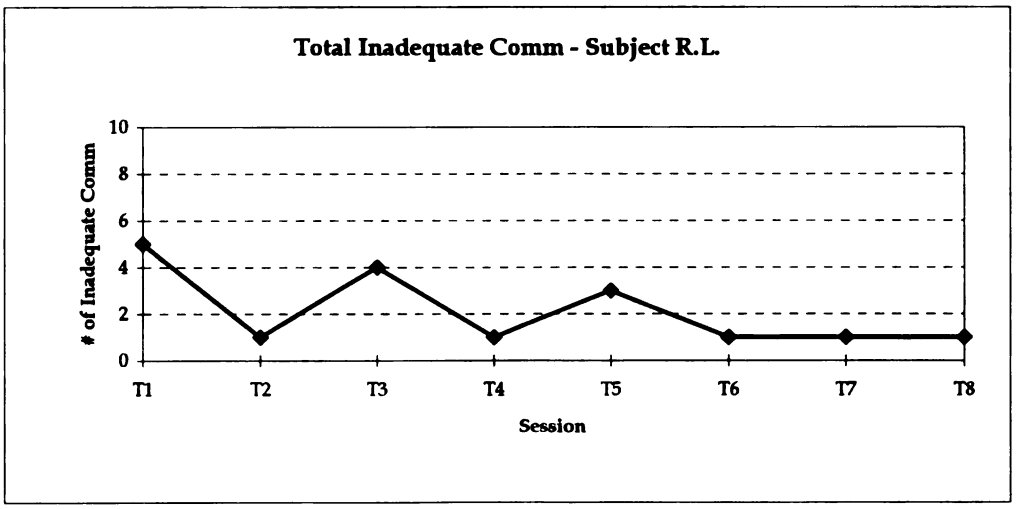


Figure 4. The treatment session data for R.L.

a)



b)



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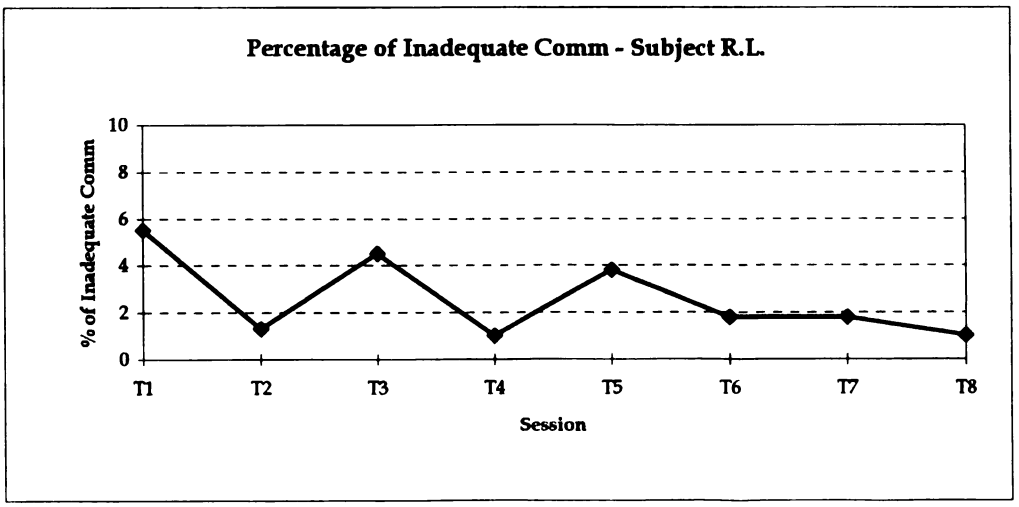


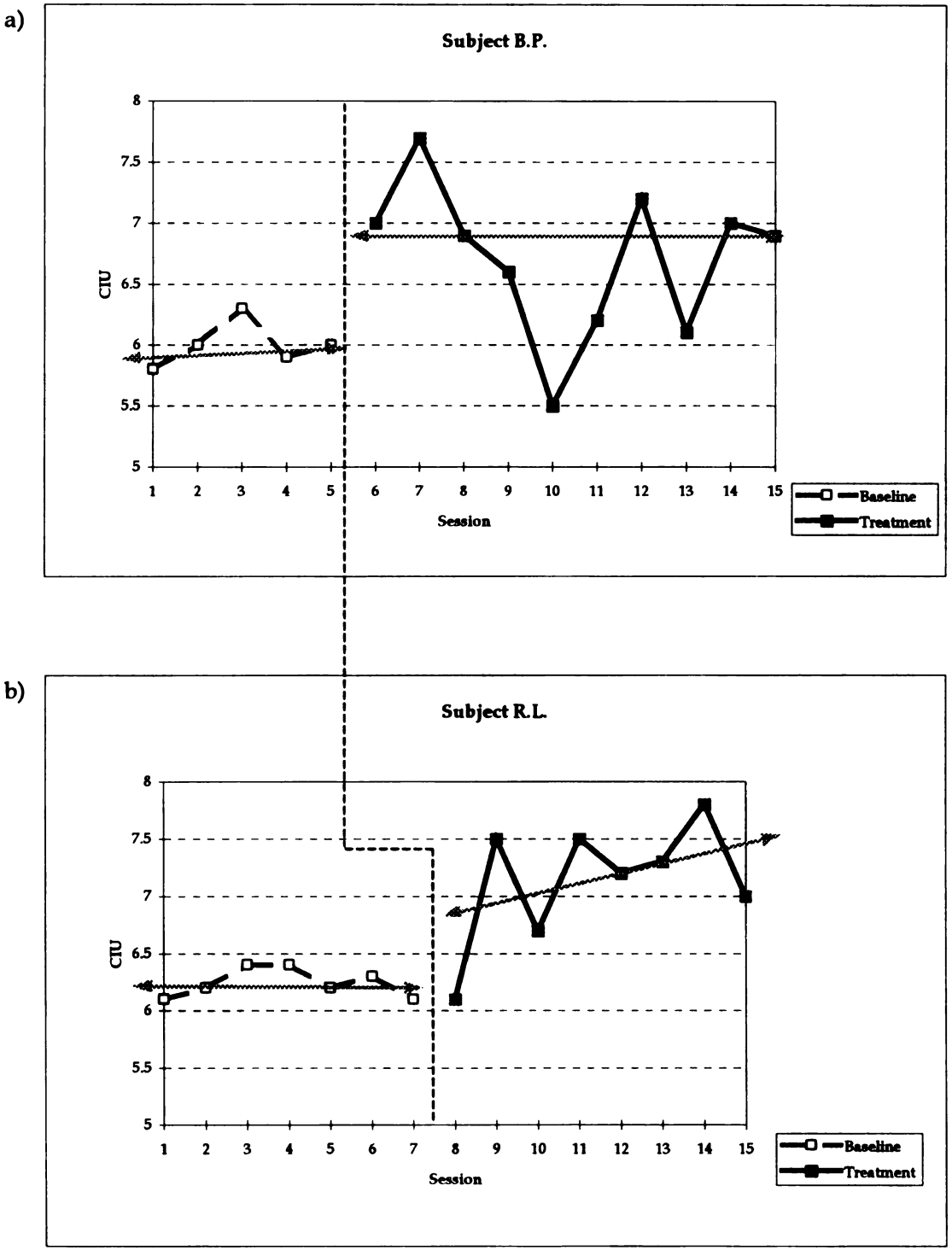
Figures 4a-c show the utterance accuracy data points for subject R.L. His results were similar to B.P.'s. In each of the three categories, he demonstrated a ***negative*** trend, and a ***gentle*** slope. His overall level in the percentage of inadequate communications indicated a ***decrease*** (4.5%) from the initial to final treatment sessions.

B. Using Statistical Inference

Using White's (1971) Split-Middle technique (recently discussed in Kazdin, 1984), the experimenter was able to statistically examine and describe the slope and level behaviors of the same plotted data, and further reveal possible experimental tendencies. The arrowed lines displayed on the data sets (see Figure 5) are called celeration lines (short for a*cceleration* or d*eceleration*), and are derived from White's protocol. The statistical ratios determined for the celeration lines in White's technique are calculated by dividing the greater number by the lesser number. So, the point of reference begins at 1.000 and increases without a ceiling reference.

To maintain consistency across subjects, the CIU ratios were figured with five session intervals, and the treatment data ratios were figured with eight session intervals. These reference intervals were established from the largest common number of sessions available between both subjects. For example, if subject 1 had five baseline sessions and subject 2 had seven, then the reference interval for both would be five since each subject shares five baseline sessions.

Figure 5. Experimental CIU data for aphasic subjects with split-middle lines



Figures 5a,b display both aphasic subjects' CIU data collected during baseline and treatment with split-middle lines. For B.P. (Figure 5a), the change of level between the celeration lines for these baseline and treatment sessions was a 1.150 increase. The slope of her treatment CIU data was 1.000. For R.L. (Figure 5b), the change of level between the celeration lines for the baseline and treatment sessions was a 1.088 increase. The slope of his treatment CIU data was observed as 1.103.

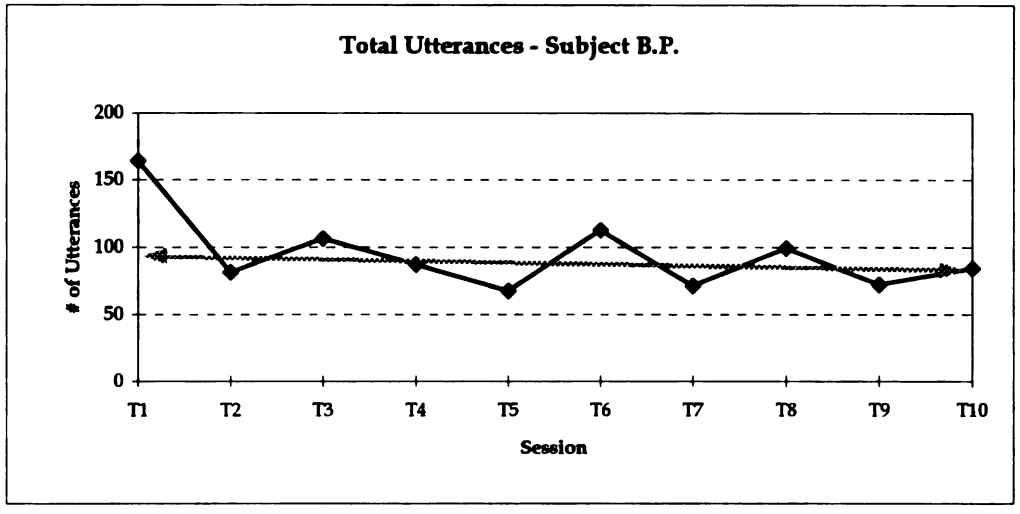
The treatment data for B.P. (Figure 6) and R.L. (Figure 7) were also subjected to split-middle analysis. In this analysis, all slopes for both aphasic subjects were noted as ***decreasing***. For B.P., a slope of 1.188 in the total utterances per session was observed; a slope of 3.200 was noted in her total number of inadequate communications; and, a slope of 2.083 was noted for her percentage of inadequate communications. For R.L., a slope of 1.682 was demonstrated in the total utterances per session; a slope of 4.750 was noted in his total number of inadequate communications; and, slope of 2.692 was noted for his percentage of inadequate communications.

II. Means Comparison

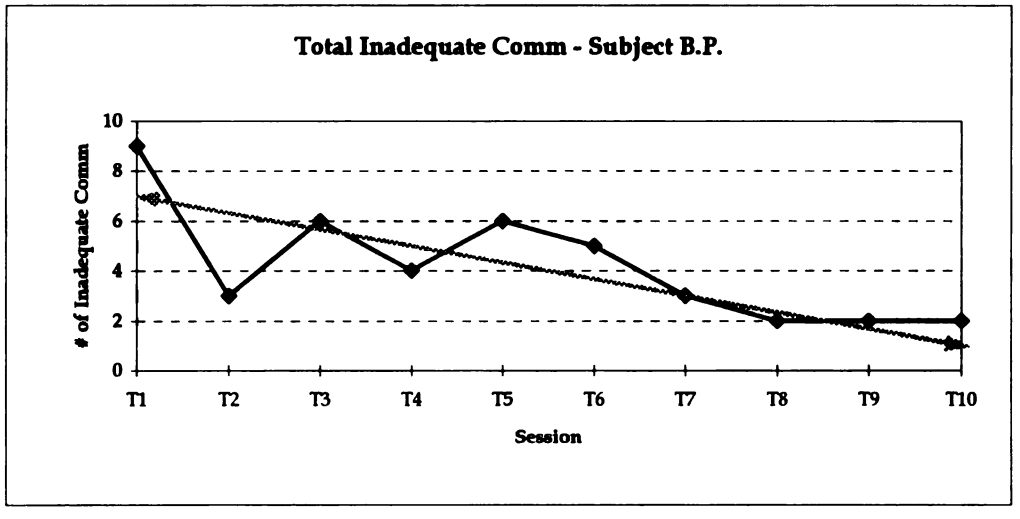
A *t* test of means was used to determine statistical effects among the experimental data points. The targeted comparisons were displayed in the methodology chapter (see Table 3). The experimenter desired significant statistical outcomes from both aphasic subjects in Comparison 1. For B.P. in

Figure 6. The treatment session data for B.P. with split-middle lines.

a)



b)



c)

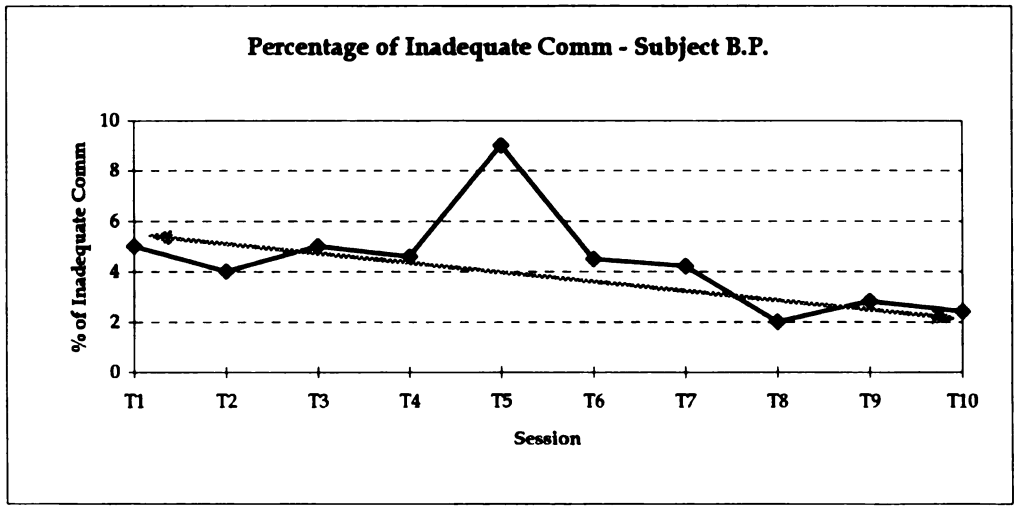
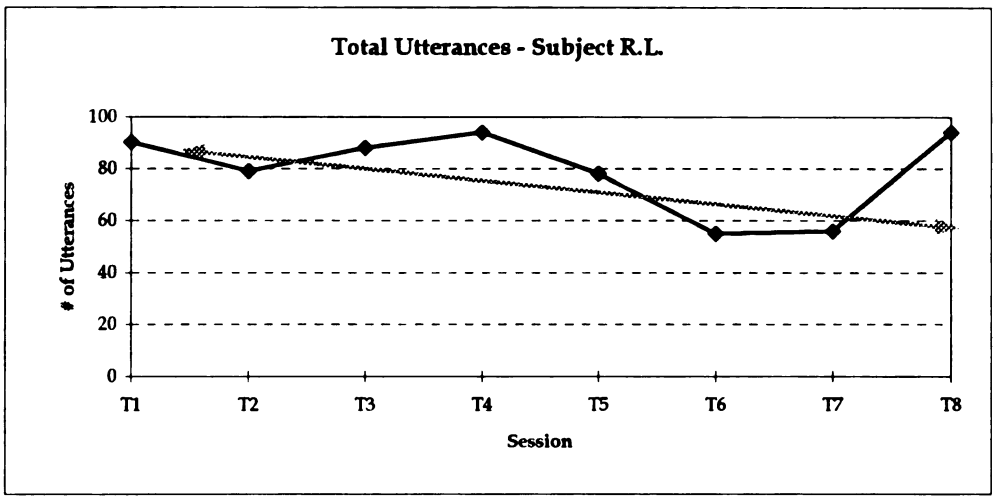
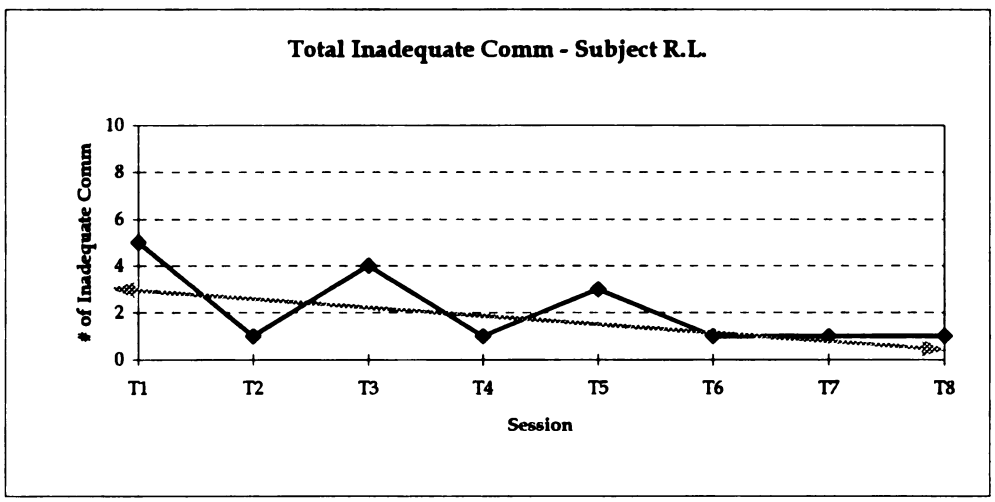


Figure 7. The treatment session data for R.L. with split-middle lines.

a)



b)



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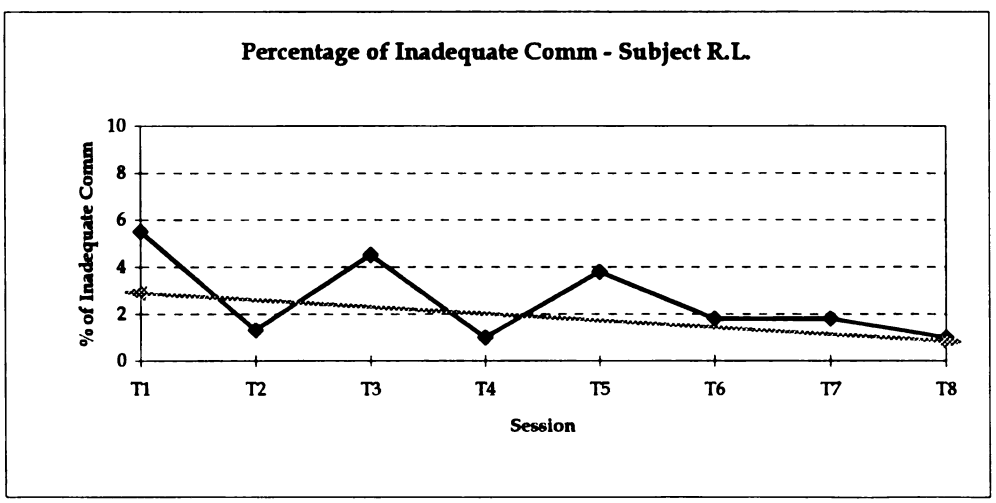


Comparison 1, CIU effects were nonsignificant (t = -1.90, df = 51, p = 0.062), and utterance accuracy effects were also nonsignificant (t = 1.27, df = 228, p = 0.21). For R.L. in Comparison 1, CIU and utterance accuracy effects were nonsignificant [(t = -1.86, df = 96, p = 0.065) & (t = 1.69, df = 122, p = 0.093), respectively].

In Comparison 2, the experimenter desired nonsignificant statistical outcomes. CIU mean differences were nonsignificant (t = -.71, df = 230, p = 0.48). Utterance accuracy differences, likewise, were nonsignificant (t = -0.02, df = 182, p = 0.98).

Finally, for Comparison 3, the experimenter desired "relative" nonsignificant statistical outcomes. The term "relative" denoted the unequal number of treatment sessions between the two subjects compared, specifically, that B.P. had more treatment sessions than R.L. The findings indicated that CIU effects were nonsignificant (t = -0.14, df = 89, p = 0.89), and that utterance accuracy effects were also nonsignificant (t = 0.66, df = 142, p = 0.51).

Ecological Data

I. Visual Inspection

Graph visual inspection of CETI percentages among aphasic and significant other subjects was used to illustrate changes in perception of the aphasics' functional communication performance. CETI comparisons, outlined in the methodology chapter (see Table 4), were displayed with the attained data

percentages for each of the sixteen questions. Visual comparisons of the sixteen data percentages from the subjects, rather than one mean calculated from all sixteen data percentages, were appropriate considering the potential limits of amassing questions with different psychometric origins. That is, the current study had speculative concerns about the representation of the individual questions as a group (e.g., a mean); therefore, experimental accuracy in portraying effects for this section required visual inspection of each CETI percentage score.

For Set 1: Comparison 1, CETI percentages from aphasic subjects B.P. and R.L. prior to their first baseline session were graphed (Figure 8), and showed similar baseline perception of performance between aphasic subjects. This demonstration was important in further establishing pre-experimental homogeneity between aphasic subjects. CETI percentages from these aphasic subjects following their final treatment session (Figure 9) also showed similar perception of performance. Set 1: Comparison 2 probed each aphasic subject's change of performance perception from his or her initial baseline session to his or her final treatment session (Figures 10a,b). These comparisons showed minimal improvement (increase in percentage) for either aphasic subject.

The second set of comparisons for the CETI data examined the perception of each aphasic subject's significant other (E.P. & G.L.) with regard to their respective aphasic partner's (B.P. & R.L.) performance. Set 2: Comparison 1 examined E.P.'s and G.L.'s performance perception of aphasic subjects B.P. and

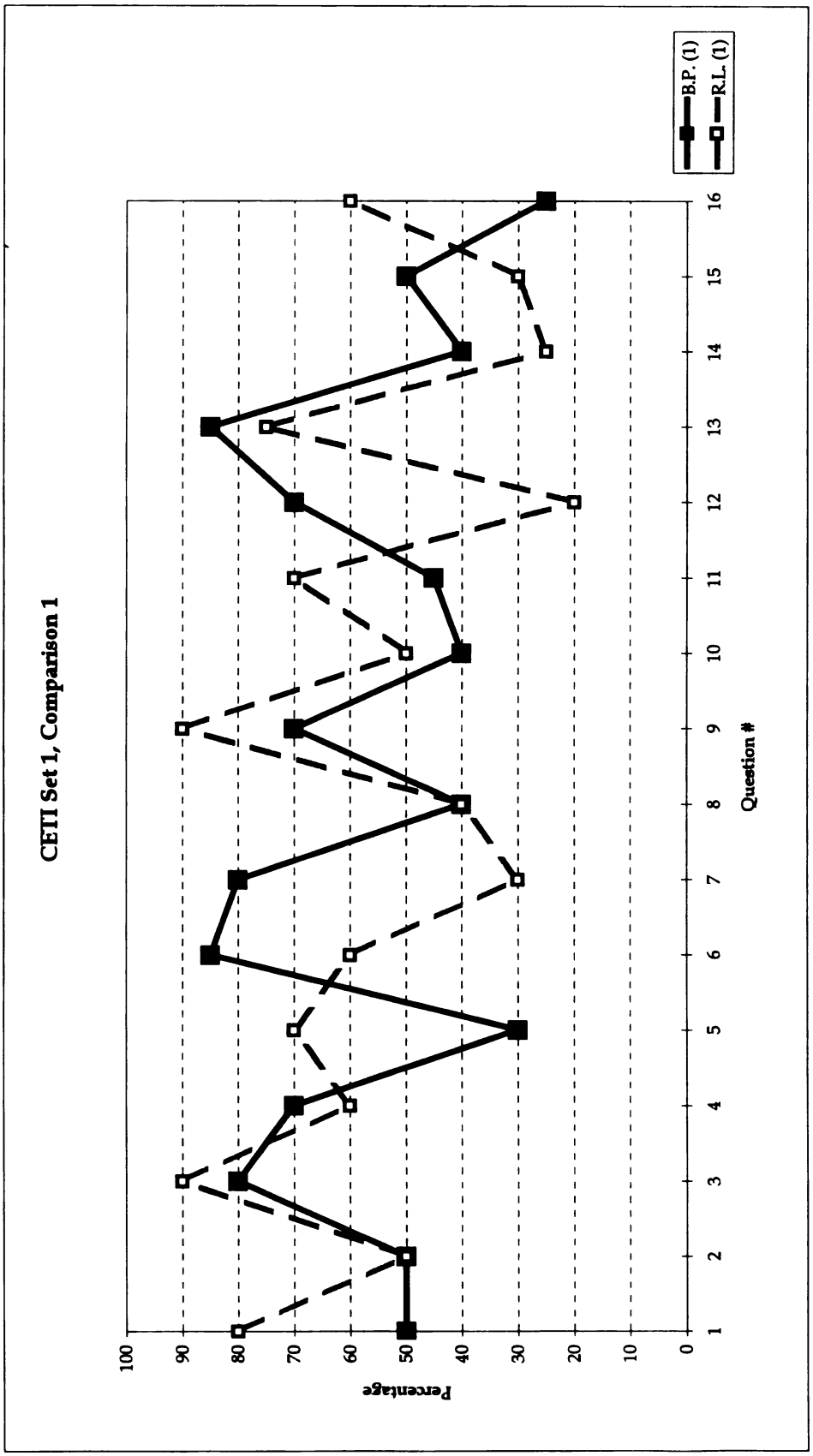


Figure 8. CETI data from aphasic subjects B.P. and R.L. prior to the initiation of experimental protocol.

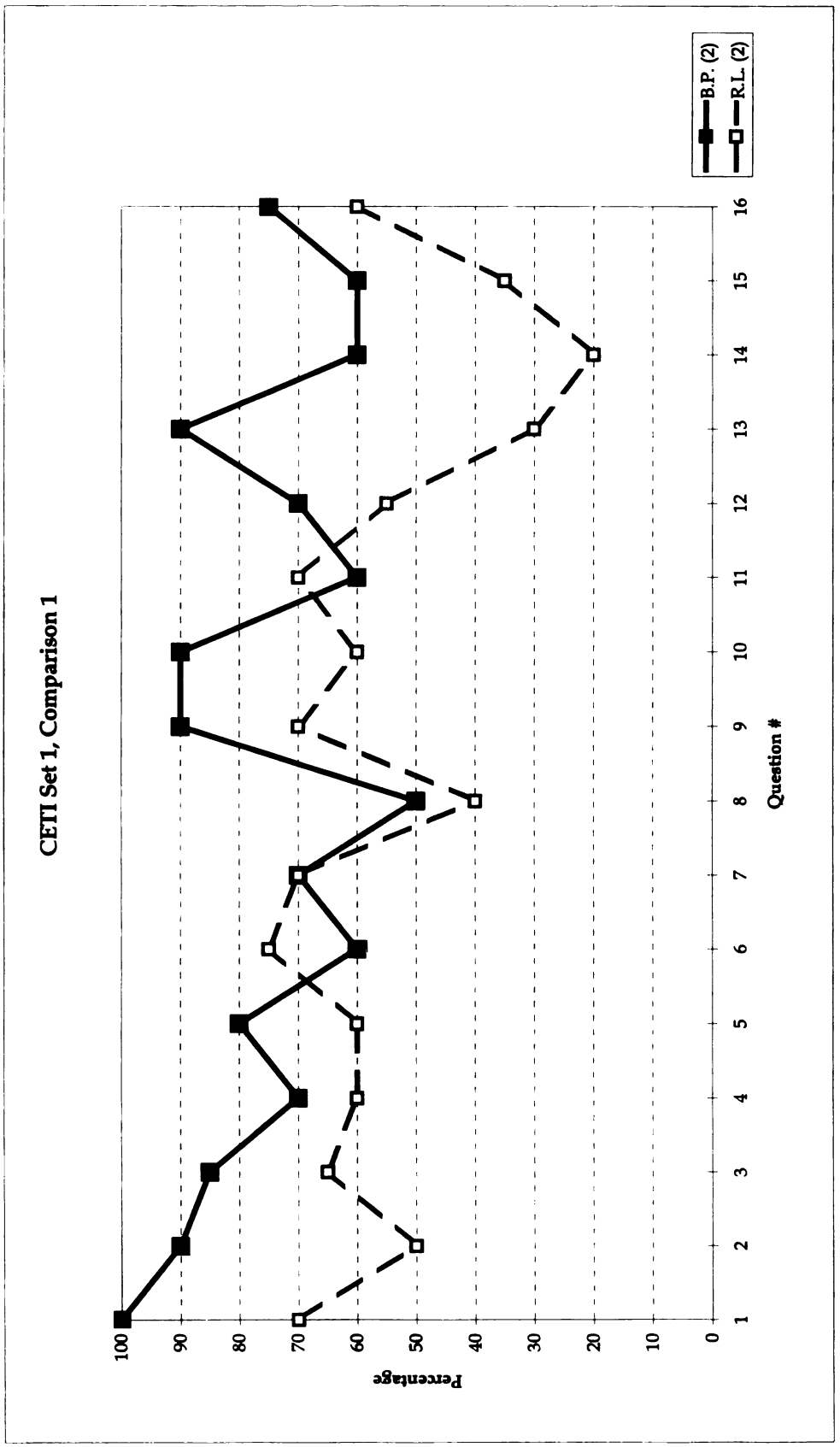
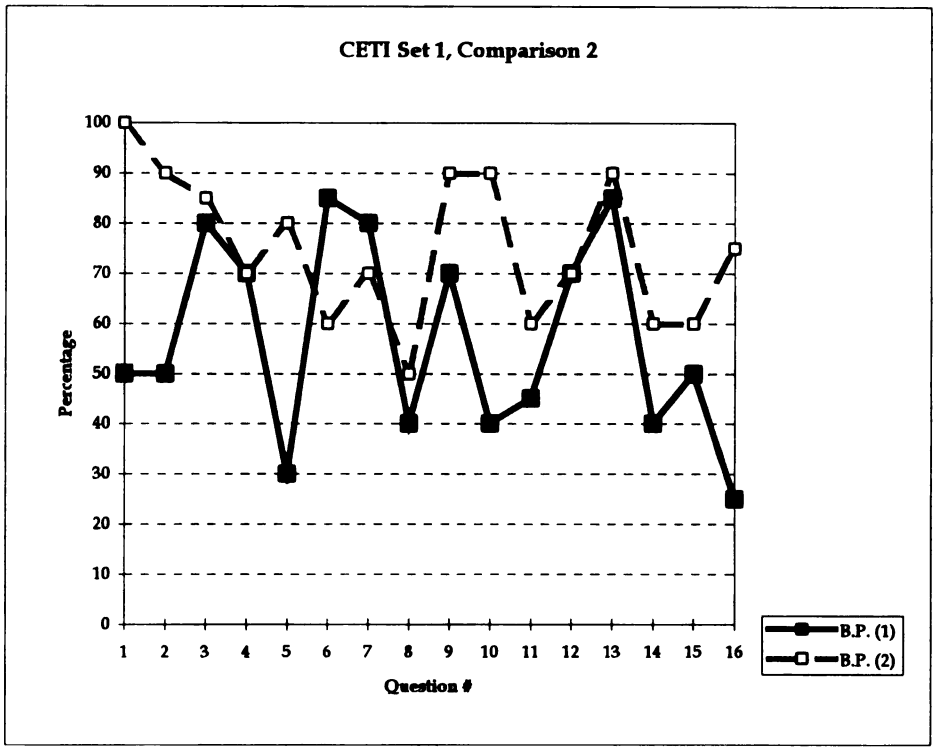


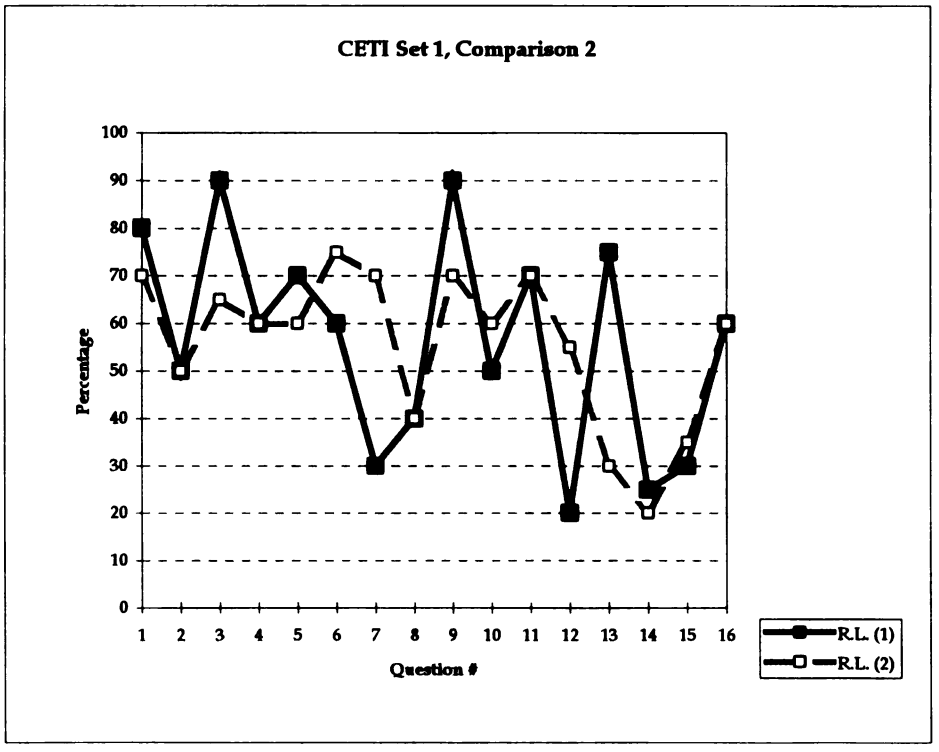
Figure 9. CETI data from aphasic subjects B.P. and R.L. following treatment.

Figure 10. CETI data differentiation between first perception (1) and second perception (2) by B.P. (a) and R.L. (b).

a)



b)



R.L., respectively, before and after the experiment. For their initial perception (Figure 11), the relationship of the individual CETI scores between significant others indicated minimal similarity. The experimenter, nonetheless, still inferred pre-experimental homogeneity from the lack of complete asymmetry. For instance, there were nine perceptions between the significant others that had 20% or less of a difference, and only one perception with greater than a 60% difference. The overall effect, therefore, was not characterized by gross variation among one another's perceptions. Their perception following the experiment showed a relationship similar to their initial perception (Figure 12). For Set 2: Comparison 2, CETI percentages of the significant others' perception of change between their respective aphasic spouse's performance before the initial baseline session and following their final treatment session were graphed (Figures 13a,b). These comparisons showed no change. In fact, for both cases, a decrease in CETI percentages was observed; thus, questioning the integrity of the experimental protocol in functionally improving an aphasic's communicative ability, or the significant other's ability to judge change over time, or even the error represented from the significant others' unrealistic expectations of treatment.

Additional Observation

One final set of comparisons (see Table 5), regarding the aphasics' performance in experimental and functional tasks, was examined. Unlike the

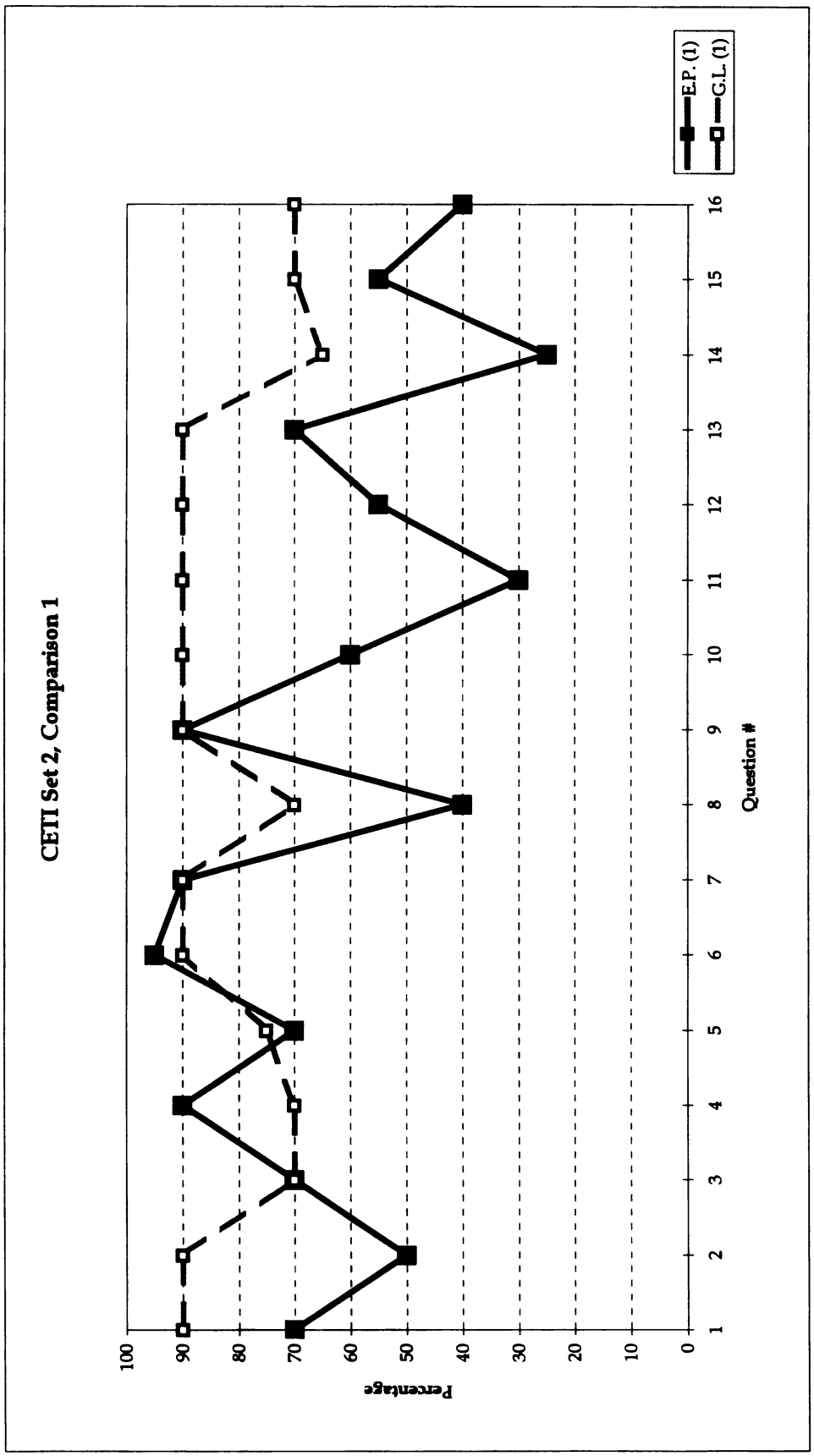


Figure 11. CETI data from significant others E.P. and G.L. before the initiation of experimental protocol.

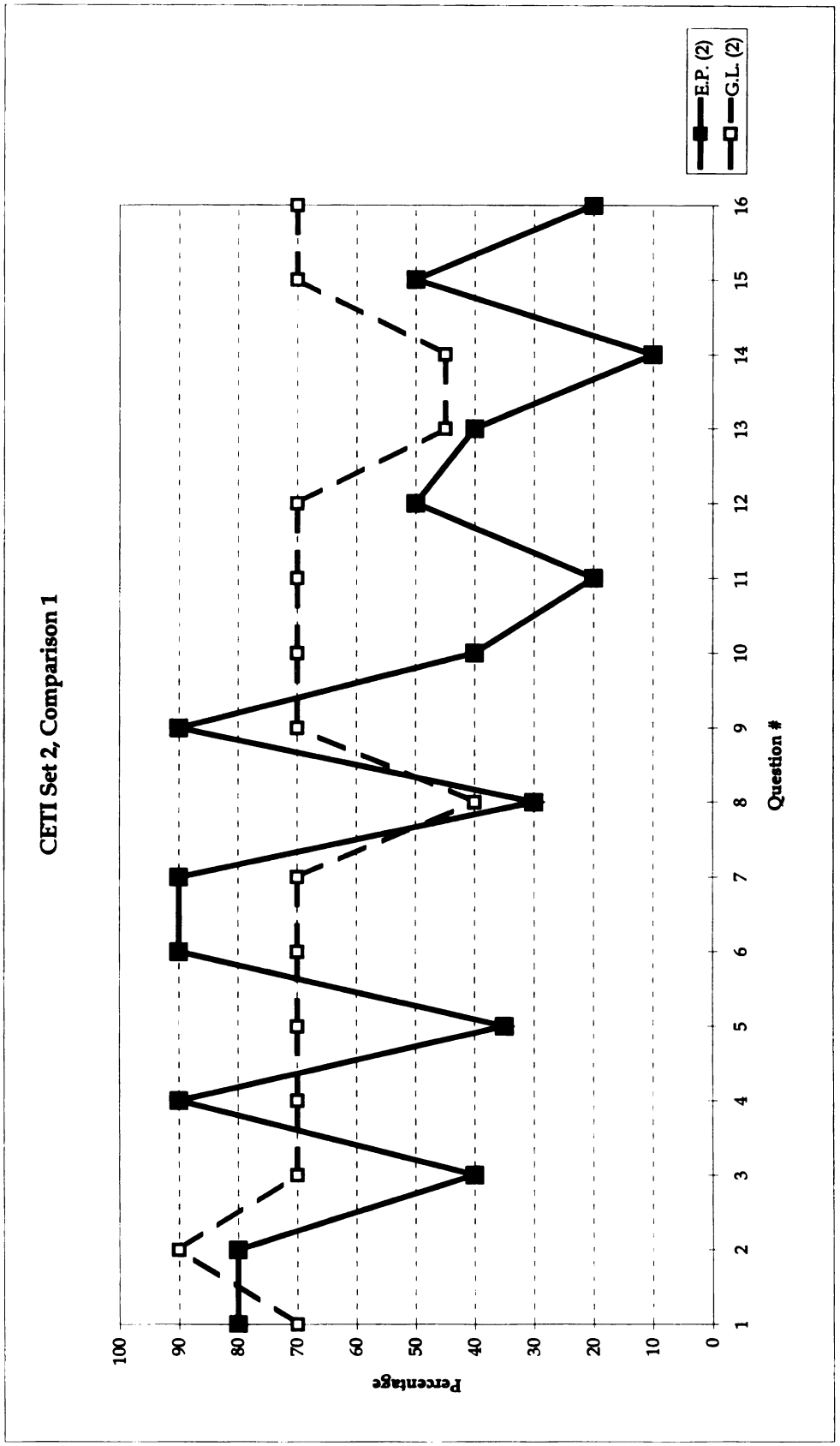
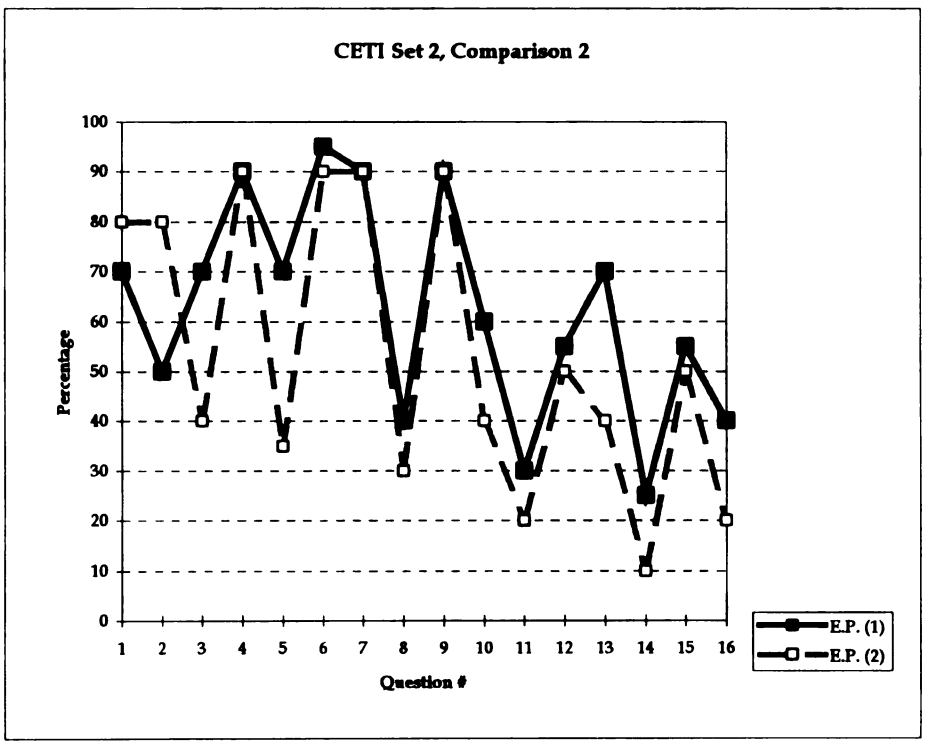


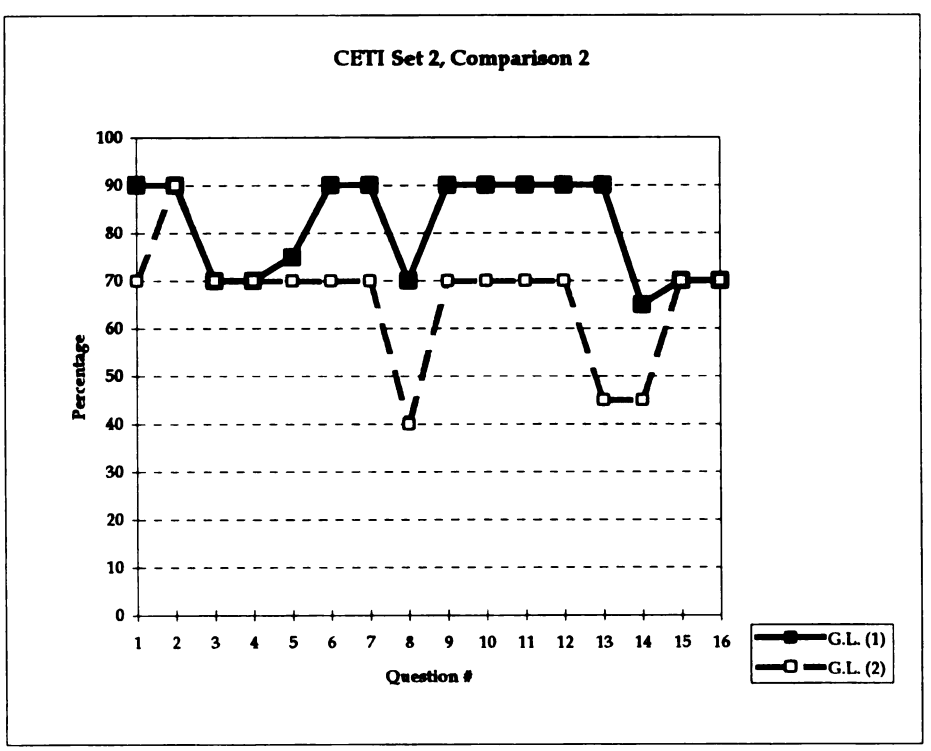
Figure 12. CETI data from significant others E.P. and G.L. following treatment.

Figure 13. CETI data differentiation between first perception (1) and second perception (2) by E.P. (a) and G.L. (b).

a)



b)



previous comparisons, the variables (CIU & CETI) being compared in this section were derived from different methodologies. While the small number of data points and differing methodology make statistical comparison inappropriate, information from these comparisons adds to interpretation of the overall data set. For the purposes of this section, a CETI mean was figured from the sixteen questions in an attempt to limit the immensity of the data presentation. A CETI mean was easier to compare than all sixteen individual percentages.

Comparison 1 targeted baseline functioning of both experimental data (CIU) and ecological data (CETI). For this comparison, B.P.'s CIU level was 5.8, and her CETI mean was 56.9%. R.L.'s CIU level was 6.1, and his CETI mean was 56.3%. It was inferred, again, from this comparison that pre-experimental homogeneity had been achieved.

Comparison 2 targeted endpoint functioning of both CIU and CETI. For B.P., her CIU level and CETI mean were 6.9 and 75%, respectively. For R.L., his CIU level and CETI mean were 7.0 and 55.6%, respectively.

Comparison 3 targeted the change in CIU level and CETI mean for both aphasic subjects from the initial observation to the final observation. B.P. demonstrated an increase of 1.1 in her CIU level with an 18.1% increase in her CETI mean. R.L. demonstrated an increase of 0.9 in his CIU level with a 0.7% decrease in his CETI mean.

CHAPTER V

DISCUSSION

This study examined the verbal performance behaviors of two mild nonfluent aphasics during a treatment protocol which incorporated natural context and variables from Social Learning Theory (Bandura, 1977). The underlying theoretical principles of this protocol were patterned from elements of the "ultimate" clinical goal, that is, communication in conversation. In consideration of this and in response to documented evidence of variation among aphasics (Glosser et al., 1988; Holland, 1975), the current study attempted to examine and account for individual clinical performances. Therefore, a single-subject empirical format was used to demonstrate experimental effects by replicating the dependent behavior across subjects. The experimenter proposed that the aphasic individuals would demonstrate improved verbal performance abilities (both experimental and functional) when provided with the experimental treatment protocol. The results, in large part, were equivocal.

Experimental Goals

The improvement of expressive abilities in nonfluent aphasics is generally determined by targeting their grammatical behavior (Fink, Martin, Schwartz,

Saffron, & Myers, 1992; Glosser et al., 1988; Williams et al., 1994). For the current investigation, correct information units (CIUs) (Nicholas & Brookshire, 1993) were used to identify increases or decreases in verbal production. Other measures used to show experimental effects in this study were utterance accuracy and CETI (Lomas et al., 1989) percentages.

One goal of the current study was to determine whether the aphasic subjects were able to improve their respective verbal performance (increase their CIU production and utterance accuracy level) upon the initiation of the experimental treatment. Another goal was to determine whether these same subjects were able to improve their perceived functional communication abilities (CETI percentages) from the beginning of the experiment to the termination of the treatment paradigm. Overall, the purpose of the current study was to evaluate and show the treatment's ability to improve different facets of aphasic communication.

As expected, changes in verbal performances by the aphasic subjects moved in desirable directions. In general, the findings derived from these effects suggested profitable implications for the use of the current study's treatment protocol with mild nonfluent aphasic individuals. The outcomes of both CIU production and utterance accuracy for the aphasic subjects demonstrated improvement in performance during implementation of the treatment paradigm. For CIU production, performance levels in both aphasic subjects demonstrated increased levels (e.g., 5.8 to 6.9 CIUs per utterance for B.P.) during treatment.

These improvements were noted in relation with the aphasic subjects' established baseline stability. Therefore, the CIU outcomes illustrated that a controlled (and positive) influence had occurred overall, and that the use of instruction, on-line feedback, and off-line reinforcement in natural contexts were beneficial in positively augmenting the aphasic subjects' CIU production.

Outcomes in the aphasic subjects' utterance accuracy performances across the treatment period also suggested a positive influence in the administration of treatment. In both cases, the aphasic subjects showed gradual increases (improvements) in their utterance accuracy during treatment (e.g., 94.4% to 99.0% for R.L.). The main effect in their performances was clearly depicted, but because there were no means of experimental control (e.g., baseline data to compare with treatment data), this finding was limited in suggesting any empirical conclusions. In other words, who's to say that these findings would not have occurred anyway? Yet, these findings, albeit experimentally uncontrolled, did provide potential evidence toward using of the treatment protocol with mild nonfluent aphasics.

Despite the positive outcomes found in verbal performance behavior, conclusions were moderated when the investigator compared experimental performance levels with the feedback (i.e., regarding functional communicative abilities) received from both aphasic subjects and their significant others. For each aphasic subject, visual analysis of functional feedback ratings (i.e., CETI scores) indicated little, if any, improvement in the opinions of their respective

functional communication abilities over the time of the experiment. Initial opinions taken from the subjects documented the pre-experimental homogeneity well, but the final measures collected were weak in demonstrating the treatment's ability to improve opinions of the aphasic subjects' functional communication. In short, the overall interpretation of these data points suggested that improvements in functional communication were minimal when compared to the experimental verbal performances.

Notwithstanding, it remains possible that the proposed treatment protocol positively influenced the overall communicative abilities of the aphasic subjects. This observation was derived from the fact that the overall communicative abilities of individuals are not exclusively based on perceptions (e.g., CETI ratings), but also on actual performances. The aphasic subjects in the current study demonstrated improved CIU and utterance accuracy functioning, while demonstrating minimal or no gain in CETI ratings. The lack of improvement demonstrated in the CETI findings did not diminish the importance of the noted improvements in these verbal performances. Instead, the CETI data assisted in the interpretation of the verbal performances. The CETI findings, admittedly, suggested that either some genuine shortcomings existed in the current treatment protocol's ability to develop the aphasic subject's perceived functional communication skills, or that perceptual limits associated with identifying change of performance in the CETI were inherent; the latter being a weaker

argument than the former with respect to documentation of CETI's empirical support.

A closer look at each experimental hypothesis further summarized specific effects. In regards to the experimental hypotheses, the investigator noted that the aphasic subjects demonstrated improvements in their targeted verbal behaviors, but not their perceived functional abilities. These conclusions were derived from the current study's methodological design which explicated the aphasic subjects' individual performance and variance; by far, succeeding any other speculation through statistics. The following is a detailed examination of each experimental null hypothesis (refer to page 52).

Experimental hypothesis (a). When examining the difference between the baseline and endpoint CIU performance among aphasic subjects, the statistical result revealed evidence in favor of accepting the experimental null. This conclusion, which was undesirable, suggested that any improvements demonstrated by the aphasics were no more attributable to the experimental circumstances than chance. This same evidence, however, was noteworthy.

The merit of any conclusions derived from the use of inferential statistics in the current study's data analysis was questionable. A case in point, how could "serially dependent" data points be analyzed in a format that assumes independence in data acquisition (McReynolds & Kearns, 1983)? The empirical strength, then, was determined to be visual analysis of individual data points. Contrary to the resolved statistical findings, visual analysis of this comparison

demonstrated notable performance improvements in the aphasic subjects during the experimental protocol, specifically, that performance improvements were dependent on the treatment condition. These experimental improvements (increases) were seen with respect to the initiation of treatment, whereas baseline performances remained experimentally invariable.

In both aphasic subjects, the CIU data during the treatment phase were generally characterized by gradual increases in the number of CIUs per utterance. Sudden increases following the second treatment session were of particular interest, however (refer to Figure 2). Both aphasic subjects showed increases at, or above, 7.5 CIUs per utterance in only two treatment sessions, this compared to their baseline level of near 6.0 CIUs per utterance. Perhaps this evidence, gathered in natural language samples, was reminiscent of the aphasic subject's ability to generalize successful communication with the experimenter upon initiation of treatment, which used an activity of daily living (also natural). This is a likely attribute considering the experimenter's role in assisting the aphasic with his or her utterance strings. That is to say, the experimenter, who played an active role in communicating during the activity segment of the current treatment protocol, had opportunities to either assist the aphasic subject in finishing an utterance string or visually/aurally indicate comprehension of the utterance when it was inferred that the meaning of the utterance was already exchanged (scored as a 1 in this segment) and that the aphasic subject was just having difficulty with the last word or two. Both subjects were noted as

demonstrating fewer communication breakdowns, and in turn fewer episodes of frustration, because of this kind of approach to communication.

Overall, the characterization of the findings in this hypothesis was consistent with studies by Kearns and Yedor (1991) and Li et al. (1988). In both, visual analysis of data in single-subject designs revealed notable increases in verbal performance for the aphasic subjects during the implementation of a "natural context" treatment. Kearns and Yedor (1991) found criterion performance achieved quicker with response elaboration training (RET) than with convergent treatment (CT) methods. In addition, the authors noted that RET was contributing to the production of novel content words in the aphasics' speech. Li et al. (1988) showed evidence in support of PACE (Davis & Wilcox, 1981) therapy to improve aphasic naming and description tasks. Specifically, they observed a positive stairstep effect in the data during the administration of PACE, while such an effect was absent during traditional therapy.

Experimental hypothesis (b). Visual analysis revealed no difference between the subjects' initial and final CETI scores. The outcome of this hypothesis, accept the null, was undesirable. The experimenter desired a visually positive difference in these variables to demonstrate the treatment's ability to improve perception of functional communication. Effects across aphasic and significant other subjects demonstrated that the use of the experimental treatment protocol was not influential in improving the perception of the aphasic subjects' functional communication skills.

Visual comparison of the aphasic subjects' (B.P. & R.L.) responses (refer to Figure 10), for instance, did not suggest any conclusive patterns of change. Changes from the original perception in B.P.'s CETI percentages occurred in several questions, however only three questions were similar to changes in R.L.'s scores. That is, thirteen of sixteen pairs of CETI responses for these subjects moved in the opposite direction. Clearly, this evidence indicated that the aphasic subjects, themselves, did not perceive a consistent change (positive or negative) in their functional communication, or the benefit of treatment.

Visual comparison of the significant other subjects' (E.P. & G.L.) responses (refer to Figure 13) did provide a similar pattern of direction in change, but the strength at which this pattern occurred was weak. It was noted that only two questions between these subjects shared a similar pattern and differed from the original perception by more than 20%. The remaining questions (fourteen of sixteen) showed a similar pattern of direction in change, but demonstrated an agreed difference of less than 20% from the original perceptions. In other words, while perception scores of change among each individual significant other may have been 10%, 20%, 40%, or more from the original perception, the collective perceptions of change between both significant others (which showed a similar direction) did not demonstrate a strong tendency in their shared direction from the original perceptions. Not unlike the aphasic subjects' evidence, this evidence also provided the investigator with inconclusive feedback in relation to the treatment protocol's functional utility.

Experimental hypothesis (c). With reference to the difference between the aphasic subjects' initial CETI scores (refer to Figure 8), visual analysis revealed tendencies in favor of accepting the experimental null. This outcome was desirable because it showed pre-experimental homogeneity in CETI scoring for the aphasic subjects' functional performance. Further examination revealed that only four of the sixteen ratings by each aphasic subject differed more than 40% from one another. Obviously, this finding failed to confirm an imparity in the aphasic subjects' initial perceptions. The overall effects of this analysis, instead, were characterized by relatively uniform perceptions of functional abilities.

When examining the difference between the aphasic subjects' final CETI scores (refer to Figure 9), visual analysis showed evidence also in favor of accepting the experimental null. This outcome was desirable by virtue of its accountability for experimental influences improving the targeted performance as opposed to undesired personal influences. The final CETI ratings from each aphasic subject were collectively inferred as similar since eleven of their sixteen ratings differed only by 25% or less. This indicated that there was minimal or no personal variance in noted experimental performances; further demonstrating the current study's ability to control for personal nuances.

Experimental hypothesis (d). With one exception, visual analysis of the difference between the subjects' initial CETI scores and the aphasic subjects' baseline CIU level, and their final CETI scores and the aphasic subjects' endpoint CIU level, respectively, (refer to page 77) pointed to rejecting the null, which was

desirable. The one exception existed with respect to R.L.'s final CETI scores. His final CETI scores, both his own and spouse's, demonstrated that he had not perceptually improved from his initial functional communicative performance. In fact, the evidence suggested that he was even perceived as functioning slightly below his original level. The experimenter, in spite of this, was not convinced that R.L. had regressed functionally. From R.L.'s verbal performance data collected during treatment and from his communicative abilities observed by the experimenter outside the study, it was clearly demonstrated that he had not lost his original skills in functionally communicating with others.

The remaining data in this hypothesis indicated preliminary support of an acquired improvement in the aphasic subjects' communication abilities due to the experimental protocol. The evidence showed that both aphasic subjects improved their respective CIU production over the treatment period, with ceiling productions approaching 8.0 CIUs per utterance. The CIU production data also showed that 70% of B.P.'s scores were above her baseline functioning, and that 90% of R.L.'s scores were above his baseline functioning.

The functional value of these CIU improvements, however, was assumed minimal. The functional perceptions (i.e., CETI data) received from both the aphasic and significant other subjects revealed minimal-to-no improvement in the aphasic subjects' functional performance. Thereby, it was determined that the attained CIU improvements in the current study were functionally trivial. In general, this hypothesis provided evidence for increased verbal production, but

for these mildly aphasic subjects, an improvement in functional communication skills was not seen.

Experimental Notes

There were three notable issues in the current study that were not part of the experimental goals: (1) the research assistant's training, (2) the use of CIUs in clinical environments, and (3) the current treatment's applicability to contemporary speech pathology services. These issues were presented in this section to further highlight the overall value of the experimental protocol. Specifically, this section discusses other non-experimental variables that contribute to the overall interpretation of the treatment protocol's effectiveness.

Findings from the research assistant's training indicated that the system used for identifying utterance boundaries in the current study was both effective and efficient in segmenting connected speech. For instance, it was noted that a minimal amount of training trials was needed to acquire criterion agreement for the defined utterance boundaries. Moreover, the accuracy in identifying utterance boundaries was not affected by the speaker's rate of speech. During the experiment it was also found that these boundaries were reliable across interjudge assessment. This evidence suggests that this procedure can be applied to dynamic therapy settings with profitable implications.

On a similar note, the use of CIUs in clinical environments was also believed to be effective and efficient for clinicians observing verbal performance. In the current study, several factors contributed to this conclusion. For one, the use of CIUs required a minimal amount of instruction and practice from the experimenter before he was comfortable using them. This was also later demonstrated by the intra- and inter-judge reliability scores throughout the experiment; neither reliability measure required point-to-point reviews.

Secondly, when using CIUs, it was noted that significant amounts of verbal data (over a hundred utterance strings) could be readily accounted for within a moderate time frame (e.g., forty-five minutes). Exposure to large samples like this can eliminate some of the chance findings often found in small samples, and provide speech-language pathologists with representations that are closer to an aphasic's "true" performance abilities. Given time constraints in faster-paced clinical settings, though, the experimenter educed that the utility of CIUs in "non-research" speech therapy services may rest in less frequent language sample probes rather than language samples taken everyday or every other day.

Lastly, it was believed that CIUs symbolized changes in the natural verbal performances of mild nonfluent aphasic individuals. Without question, CIUs in the current study accurately embodied the aphasic subjects' dynamic and contextual verbal productions. Not only from its empirical background, but also from high intra- and inter-judge reliabilities in coding these dynamic verbal

productions were CIUs acknowledged for their collective representation. This finding was similar to Nicholas and Brookshire's (1993) outcomes, in that they found that CIUs were able to represent complex and variable connected speech in aphasic individuals. Overall, CIUs were "naturally" accountable for aphasic speech. This is currently important because there are only a few other assessment instruments that give methodological attention to dynamic and contextual variables in communication (see Chapter II), and even fewer that can be efficiently applied without a significant amount of instruction or practice. As a result, the use of CIUs in clinical settings is believed to be beneficial in accurately portraying natural verbal production performances of nonfluent aphasic individuals. Moreover, it is felt that its use is fittingly pertinent in assessing or monitoring natural verbal functioning.

With respect to the current treatment's applicability to contemporary speech pathology services, there were three considerations examined. First, does the current study's kind of conversational treatment improve the communication abilities of mild nonfluent aphasics? If yes, to what extent? Second, what can a certified speech-language pathologist do to help the disordered individual that requires his or her qualified services when using the provision of this type of conversational treatment? Finally, does the current study's findings warrant these services payable by third-party payors, or by private pay?

For the first consideration, the data in the current study have shown that the use of this kind of conversational treatment with mild nonfluent aphasic

individuals resulted in an improved verbal performance; both an increase in CIU production and utterance accuracy. It was presumed that these findings were attributable to the stimulation of conversational skills by the use of an activity of daily living. Specifically, that the activity provided immediate, natural feedback and that it instilled a sense of reality in performance. Data related to the aphasic subjects' functional communication abilities, howbeit, were not as encouraging. Improvements in perception of their functional communication skills following the end of the treatment were nonsignificant. For the aphasic and significant other subjects alike, the ratings suggested that the treatment protocol under investigation was not improving the aphasic subjects' functional skills. Overall, then, the current study's conversational treatment program was noted as improving the aphasic subjects' targeted verbal performances, but these gains were limited in their functional utility.

Upon examining the next consideration, it was felt that a certified speech-language pathologist could greatly assist an aphasic individual during this kind of treatment, whereas family members or other laypersons could not. First, and foremost, certified speech-language pathologists can determine communicative and cognitive limits of the aphasics, and manipulate treatment to control both positive (e.g., progress) and negative (e.g., frustration) influences. In addition, certified speech-language pathologists are trained to design specific communicative goals related to the impairment observed, and provide continual counseling of therapy goals and objectives when needed. All of this contributes

to building and maintaining a much-needed rapport between the services rendered and the impaired individual's expectations. It is interesting to note, in light of this, that the mildly aphasic individuals in the current study demonstrated improvements during this "natural" treatment protocol (established under the direction of a certified speech-language pathologist), when for a year or years these same individuals were involved in many conversations with their family members and reported (per aphasic subject and significant other) that their speech had not improved since last receiving speech therapy services.

The final consideration, payment for services, grouped the two previous considerations together, and weighed their aggregate utility. To sum, it was first noted that the current treatment protocol positively influenced the aphasic subjects' targeted verbal performances, but not their perceived functional communication. Next, it was determined that speech-language pathologists offer more skill in carrying out such a treatment protocol effectively than laypersons. Taken together, it is determined that payment for services will have to be private pay until modifications are made to the current study's treatment protocol to further develop and show greater improvements in targeted and functional behaviors. Recognition of private pay for the current treatment program was derived from the treatment's documented capability to improve verbal productions in mild nonfluent aphasic individuals, who may otherwise

demonstrate minor difficulties in their functional abilities but express a desire in further improvement.

CHAPTER VI

SUMMARY

This chapter provides a general examination of the experimental outcomes and their relationship to theoretical and clinical applications in past, present, and possibly future models. Subsequently, the overall conclusions of the current study's findings, theoretical and clinical implications of these findings, and some suggestions for future research will be presented. The focus of this resultant discourse aims to provide an accumulative understanding in administering an effective treatment plan to those aphasic individuals who have minimally demonstrated progress, or have otherwise plateaued, using traditional methods.

Conclusions

The current study examined the experimental and functional effects of the outlined treatment protocol on aphasic communication. The findings suggest that the inclusion of "natural" context variables and variables from Social Learning Theory (Bandura, 1977) within treatment methodologies improve disordered language abilities, specifically, those abilities of aphasic individuals. Two favorable findings contributed to this claim. For one, the aphasics' verbal

production improved an average of 1.0 CIUs per utterance from baseline to the end of treatment. Also, it was found that the utterance accuracy of both aphasic subjects improved to over 97% during treatment.

These desired effects show the treatment protocol's ability to systematically improve several facets of aphasic speech simultaneously. In a manner of speaking, the protocol is able to stimulate complex and contextual language processing centers and improve the targeted function without such a concentrated effort as to perpetuate its own limits. In other words, there are not any inherent limitations in the protocol that are associated with the complex communicative system. The protocol simply allows for increased stimulation of variable communicative demands by enforcing ever-changing meaning (i.e., natural context). For the impaired population investigated in the current study, this effect means that speech therapy services must consider the communicative, cognitive, and generalization limits of the employed treatment, and maintain a progressive therapy plan that innately regards fluctuating communicative demands.

One important influence abraded some of the overall practical use of the investigated treatment protocol, at least from a functional standpoint. The CETI data accumulated did not demonstrate a strong tendency for or correlation of a perceived functional change for either of the aphasic subjects. The evidence suggested that perception of the aphasic subjects' functional communication abilities following treatment were similar to perceptions prior to the experiment.

Although this evidence discloses a functional weakness, it remains possible that the current study's treatment protocol can improve functional communication with either additional emphasis on variables affecting functional communication (future research) or by merely providing additional amounts of treatment sessions. Tentatively, it is believed that further manipulation of the activity's cognitive demand will tap into more of the aphasic's impaired verbal production while minimizing other detrimental behaviors (e.g., frustration). During the current investigation, for example, it was felt that the activity's overall demand was, at times, too light for the impaired subjects. Mostly, they were already prepared for such demands. As a possible solution, it is believed that the amount of "noise" (e.g., required response delays, radio in background, inconsistent facial expressions) given by the clinician during the activity of daily living would compel the aphasic to use more language processing faculties; thus, placing increased demand on the impaired expression. This is only valuable if the "noise" were to be increased or decreased according to the noted experimental progress and other pre-determined observations.

All of these effects, however, were thought to be specifically attributable to the current study's treatment methodology rather than the simple addition of natural context and Social Learning Theory to a basic treatment methodology. Several measures were taken to increase the current methodology's accountability. The design was first related to current thinking in clinical models for mildly nonfluent aphasic individuals. As such, the current treatment

protocol targeted models of communication, cognition, and generalization (see Chapter II), in addition to their specific functional meaning. These three primary variables respectively contributed to the program's success by: (1) targeting the impaired system, (2) surveying and manipulating unavoidable stresses, and (3) incorporating reciprocal benefits from given determinants. The underlying functional value of these variables assisted in interpreting their later relevance to clinical environments where speech therapy services are becoming evermore contingent on the importance and availability of resources, and positive interfacing with the referral base.

The design of the current methodology was next related to several theoretical models of normal and aphasic communication. In this instance, the current treatment protocol targeted models of stimulation, contextual language processing, and learning (again see Chapter II). These models were all well supported empirically from their originators, but the current study's data closed an important tie between treatment plans and theory by showing a predictable pattern from its theoretical conception. Both aphasic subjects, for example, were predicted to improve their verbal production during the current treatment protocol, which was theoretically based to do the same; and both subjects did. Even the functional shortcoming was predicted by virtue of its moderate relationship with verbal production (CIU performance). It was assumed that a functional limitation would be noted if improvements in the number of CIUs averaged less than one or two; and it did. From both CETI and CIU foundations,

it can be easily assumed that functional improvements are just not well perceived when impaired speakers increase their CIU production per utterance only minimally.

By and large, the current study's methodology anticipated several possible clinical and theoretical confounding relationships, and in turn posed firmly based solutions within its framework. For that reason, it was not surprising to find the eventual evidence demonstrating an effective clinical method. The data simply showed the applicability of theoretical foundations in clinical settings.

Implications

The lack of functional support to the improved CIU productions argues against an interactive process in which functional reality is mutually inclusive with improved objective observations. That is, with respect to the limited objective findings, the current study's results are equivocal in showing a relationship between the empirical and functional performances. The data in the current study highlight limited CIU improvements without a notable emergence in improved functional perception. It is quite clear from this that CIUs (objective data) and CETI ratings (surveyed perceptions) do not form highly predictive, or uniform, relationships at a level where CIU improvements are only one or two units per utterance. It might be reasoned that stronger relationships would occur

if there were further improvements in the aphasic subjects' CIU production or even minor adjustments in the treatment's presentation that adhere more to the aphasic individual's clinical expectations (i.e., perception of workload); the latter suggestion concerning the current treatment's perceived overall demand (too light).

This contrast throws caution into the "true" meaning of all clinical data taken from mildly impaired individuals. If objective, observable improvements are noted without any perceived functional utility, then by what standard are we, as clinicians, supposed to demonstrate clinical merit? In other words, what justifies speech services for mildly impaired individuals who improve clinically but not functionally? Clearly, reconciliation of this question in future research will unravel an important dilemma concerning speech services for the mildly impaired. For now, it can be safely said that clinical services are valuable to those impaired individuals who continue to show worthwhile improvements.

With reference to this contrast between empirical improvement and functional utility, it is also interesting to note that both aphasic subjects' utterance accuracy improved during the current study's treatment period. This finding renders further objective data that were not perceived functionally important, thereby suggesting that objectively observable data can be unrepresentative of an impaired person's "real" communicative abilities. Perhaps this finding was underscored by the aphasic subjects' already mostly successful functional abilities prior to the study, as measured by referring

speech-language pathologist's description and the initial CETI data. If such data are unrepresentative, then assuredly the functional sensitivity of the utterance accuracy data mandates increases greater than 10% or these same increases but from lower starting levels, say 20%.

The data in the current study touch a broader issue, though. A tie between theory and clinic was demonstrated in this investigation in addition to the benefit of its clinical method. It was found that the evidence in the current study fell in line with the expectations of the theoretical models that formed the treatment protocol. That is, the models collectively created and partially sustained an assumption of improvement in the aphasic subjects' targeted verbal production and their estimated functional abilities. This was done by promoting natural multiple-modality comprehension and expression, controlled environmental input (scripts), and transfer of the desired behaviors into the subjects' own environment. The findings implicitly suggest that the noted verbal production improvements in these mildly nonfluent aphasic subjects were attributable to the tested empirical format. This does not support the contemporary delivery of speech services in which traditional methods are indiscriminately embraced. It suggests that speech services may include short-term alternate forms of management for individuals with differing behavior at differing post-onset periods.

As a result, clinical methodologies must transpose unnecessary or ineffective therapy commitments with those that are more theoretically

grounded for the individual being treated. A reinvestment of time and effort toward progressively planned therapy regimens will demonstrate greater accountability in the clinical interest of the aphasic individual. In fact, disregarding parsimony at traditional ends, supporting empirical evidence from such a progressive environment will also concede to valuable efficacy concerns of aphasia treatment (Holland, Fromm, DeRuyter, & Stein, 1996).

In conclusion, the current study's treatment protocol produced no relationship between the minimal improvements in an aphasic individual's objective data and their perceived functional communication abilities. It does, however, integrate theoretical models to clinical environments. Because of this and its controlled experimental influence, the current study's treatment protocol offers a new and potentially important tool in improving mildly nonfluent aphasic speech.

APPENDICES

APPENDIX A

Appendix A

Portions of the BDAE (Goodglass & Kaplan, 1983)

Commands

1. Make a *fist.*
2. Point to the *ceiling,* then to the *floor.*
3. Put the *pencil on top of the card,* then *put it back.*
4. Put the *watch* on the *other side of the pencil* and *turn over* the *card.*
5. Tap *each shoulder twice* with *two fingers* keeping your *eyes shut.*

Complex Ideational Material

• Will a cork sink in water?	Y	N
• Is a hammer good for cutting wood?	Y	N
• Do two pounds of flour weigh more than one?	Y	N
• Will water go through a good pair of rubber boots?	Y	N
• Will a stone sink in water?	Y	N
• Can you use a hammer to pound nails?	Y	N
• Is one pound of flour heavier than two?	Y	N
• Will a good pair of rubber boots keep water out?	Y	N

Mr. Jones had to go to New York. He decided to take a train. His wife drove him to the station but on the way they had a flat tire. However, they arrived at the station just in time for him to catch the train.

• Did Mr. Jones miss his train?	Y	N
• Was Mr. Jones going to New York?	Y	N
• Did he get to the station on time?	Y	N
• Was he on his way home from New York?	Y	N

A soldier tried to cash a check in a bank near his camp. The teller, firm but sympathetic, said, "You will have to have identification from some of your friends from the camp." The discouraged soldier answered, "But I don't have any friends in camp - I'm the bugler."

• Was the soldier's check cashed at once?	Y	N
• Did the soldier have a friend with him?	Y	N
• Did the teller object to cashing the check?	Y	N
• Did the soldier have trouble finding friends?	Y	N

APPENDIX B

Appendix B

Rules for Scoring and Counting Correct Information Units (CIUs)
Nicholas & Brookshire (1993)

Counting Correct Information Units (CIUs)

Definition: Correct information units are words that are intelligible in context, accurate in relation to the topic, and relevant to and information about the content of the topic. Words do not have to be used in a grammatically correct manner to be included in the correct information count. Each correct information units consists of a single word.
Instruction: Put a diagonal penciled slash through words that are not to be included in the correct information count.

Rules for Counting CIUs

A.1. DO NOT COUNT THE FOLLOWING
(In this section, words in **bold print** would not be counted as correct information units.)
A.11. Words that do not seem accurate in relation to the topic being discussed, such as incorrect names, pronouns, numbers, actions, etc. If a word reflects regional usage (such as calling the midday meal "dinner" in some areas), it is counted as a correct information unit. If grammatical incorrectness would lead to misunderstanding or uncertainty about the meaning of words, the grammatically incorrect words would not be counted as correct information units. (See B.12 for examples of grammatically incorrect words that would be counted as correct information units.)

- The girl **is** riding her bike. (The picture shows a girl with a bike nearby which she may have been riding, but which she is not currently riding.)
- The **girl** is on a **ladder. She fell.** (The picture shows a boy on a stool who is tipping but has not fallen yet.)
- The **boys** and **girls** are arriving. (The picture only one boy and one girl arriving.)

If several people are involved in an action and only one of them is mentioned, the mentioned one is still counted as a correct information unit. This constitutes an incomplete description but not an inaccurate one.
The boy is arriving. (The picture shows a boy and a girl arriving.)
The man drove away. (The picture shows a couple driving away.)
A.12. Attempts to correct sound errors in words except for the final attempt.

- He put **paper popper** pepper on his food.
- She saw her with her **mass... mack...** mask.

A.13. Dead ends, false starts, or revisions in which the speaker begins an utterance but either revises it or leaves it uncompleted and uninformative with regard to the topic.

- **My si... no no not my sister... my fa...** with my wife.
- He goes over to her and **puts his** wants to give her a hug.
- He looks out and sees that **she had** the car ran into the tree.
- **The... the... that one oh forget it.**
- **In the hose in the mouse** in the house.
- We go to **a party no I mean** a movie.

If an utterance is incomplete, but some information about the topic has been given, count that information.

- The kitchen window was...

In this example, the words the kitchen window was would be counted as correct information units (if they meet the other criteria). Even though the entire statement was not completed, the words are informative.
Words that express some legitimate uncertainty or change in perception about characters, events, or settings in a picture are counted as correct information units (if they meet the other criteria). See A.18 for further examples.

- Her dad or maybe a neighbor was in the tree.
- From the looks of the candles, he must be four. No there is another candle on the table so he must be five years old.

A.14. Repetition of words or ideas that do not add new information to the utterance, are not necessary for cohesion or grammatical correctness, and are not purposely used to intensify meaning.

- The **blue** truck was blue.
- The restaurant was a new one. **It was a new restaurant.**
- She was **cleaning** washing the dishes.

Such repetition of words or ideas can be separated by other counted words.

- The mother was very angry. The daughter was crying. **The mother was very mad.**

Exceptions:
(1) If the repeated words or ideas are necessary for cohesion, they are counted.

- She went to the store. The store was closed.

(2) If words are repeated to achieve effect or to intensify a statement, they are counted.

- The girl was very, very sad.
- They were fighting, really fighting.

(3) If repeated words are used to expand on previous information, they are counted.

- He put on a shoe... a left shoe.

- There were some people... a man and a woman.

A.15. The first use of a pronoun for which an unambiguous referent has not been provided. Subsequent uses of the pronoun for the same unspecified or ambiguous referent are counted as correct information units (if they meet the other criteria).

- **She** (no referent) was doing the dishes. I think she was daydreaming.

If an inaccurate referent is provided but it is clear that a pronoun refers back to it, the pronoun would be counted as a correct information unit.

- The fox (inaccurate referent) ate some of the cake and it was hiding.

A.16. Vague or nonspecific words or phrases that are not necessary for the grammatical completeness of a statement and for which the subject has not provided a clear referent and for which the subject could have provided a more specific word and phrase.

- The mother is drying one of those **things**.
- She gave him some **stuff**.
- He put **something** up to the tree but that **one** knocked it down.
- We had pancakes or scrambled eggs **or something like that**.
- I wash the glasses and plates **and so on**.

The words **"here"** and **"there"** frequently fall into this category.

- **Here** we have a boy.
- This **here** boy is crying.
- That mother **there** is doing dishes.
- There is a cat **here** and a dog **there**.
- The mother is **there**.
- She put them over **here**.
- She has a bike **there**.
- The cookies were up **there**.

The following are examples of uses of "here" and "there" that are necessary for the grammatical completeness of the statement and cannot be replaced by a more specific word. These uses of "here" and "there" would be counted as correct information units.

- There is a boy.
- Here comes the same couple.

The following is an example of a nonspecific word that is preceded by a clear referent and would be counted as a correct information unit.

- The boy opened the cupboard. The cookies were up there.

A.17. Conjunctive terms (particularly **so** and **then**) if they are used indiscriminately as filler or continuants rather than as cohesive ties to connect ideas.

- There is a man. **Then** there is a woman and **then** a cat.

When used cohesively, "then" indicates the temporal order or sequential organization of things or events.

- She had lunch and then she went to the store.
- When you go into my house you see the living room first, then the dining room, then the kitchen.

When used cohesively, "so" indicates a casual consequence.

- He was thirsty so he drank some juice.
- The mother was after the dog so the boy was crying.

A.18. Qualifiers and modifiers if they are used indiscriminately as filler or are used unnecessarily in descriptions of events, settings, or characters that are unambiguously pictured. The following examples concern unambiguously pictured information.

- **Apparently** this is a kitchen.
- **Evidently** the boy is on a stool.
- **I think that** the cat is in the tree.
- **It looks like** the man is up in the tree too.
- The boy is **sort of** crying and the dog is **kind of** hiding.
- **Of course**, the woman left in a huff.

When used informatively, qualifiers and modifiers suggest legitimate uncertainty on the part of the speaker about events, settings, or characters portrayed or modify associated words in a meaningful way. The following examples concern ambiguously pictured information.

- Apparently this is a mother and her two children.
- I think she is his sister.
- It looks like he gave them the wrong directions.
- She must be daydreaming.
- He might be the girl's dad or maybe he's a neighbor.
- He is the father or a neighbor. I don't know which.
- He looks sort of sad.
- Evidently they went around in a circle.

A.19. Filler words and phrases (**you know, like, well, I mean, okay, oh well, anyway, yeah**), interjections when they do not convey information about the content of the topic (**oh, oh boy, wow, gosh, gee, golly, aha, hmm**), and tag questions (**It is really smashed up, isn't it**).

A.20. The conjunction **"and."** **"And"** is never counted as a correct information unit because it is often used as filler and we have found that its use as filler cannot be discriminated reliably from its uses as a conjunction.
A.21. Commentary on the task and lead-in phrases that do not give information about the topic and are not necessary for the grammatical completeness of the statement.

- **These pictures are poorly drawn.**
- **This is kind of hard.**
- **In the first picture...**
- **As I said the last time,** she was upset.

A.22. Commentary on the subject's performance or personal experiences.

- **I can't think of the name of that.**
- **I can't say it.**
- **No, that's not right.**
- **My kids were always getting into trouble too.**
- **My wife and I used to fight like that.**
- They are fighting **but I don't know why.**

Some statements that contain personal information may be appropriate in procedural and personal information descriptions and, in such cases, they would be counted as correct information units (if they meet the other criteria).
See B.16 for embellishments that are counted as correct information units.

B.1. COUNT THE FOLLOWING (if they meet all other criteria)
(In this section, words in **bold print** would be counted as correct information units.)
B.11. All words (nouns, adjectives, pronouns, verbs, adverbs articles, prepositions, and conjunctions) that are intelligible in context, accurate in relation to the topic, and relevant to and informative about the content of the topic.
B.12. Words do not have to be used in a grammatically correct manner to be counted. Words that violate standard English grammar rules concerning appropriate verb tense and form, agreement in number between subject and predicate, agreement between articles and nouns, incorrect use of articles, and appropriate singular and plural forms are counted as correct information units unless these violations would lead to misunderstanding or uncertainty about the meaning of the words.
See A.11 for examples of words that would not be counted as correct information units.

- The **firemans** are coming.
- The firemen **ain't** rescued them yet.
- Put some stamp on it.
- The friends **is** here.
- He **don't** look very happy.

B.13. Production of a word that results in another English word, if the production would be intelligible as the target word in context.

- He is standing on **a school** and it is tipping over.

B.14. The final attempt in a series of attempts to correct sound errors.

- He went to the musket... minuet... **market.**

B.15. Informal terms **(nope, yep, uh-huh, un-uh)** when they convey information about the content of the topic.

- She said, **"Un-huh,** I'll do it."

B.16. Words in embellishments that add to the events portrayed in topics or express a moral, if they are consistent with the situation or events portrayed. Words that express some legitimate uncertainty about characters, settings, or events in topics.

- **He's going to get hurt and his mom is going to be angry.**
- **Some days everything seems to go wrong.**
- **That looks like a nice way to spend a summer day.**
- **Sooner or later cats usually get stuck up a tree.**
- **Mothers sometimes get distracted and don't notice things.**
- **This is the one about the accident-prone family.**

However, see A.22 for examples of extraneous commentary that may resemble embellishments, but are not counted.
B.17. Verbs and auxiliary verbs **(is, are, was, were, to, has, have, will, would, has been,** etc.) as two separate correct information units - one for the auxiliary verb and one for the main verb.

- His mom **is going to be angry.** (Each word in bold print is a correct information unit.)

B.18. Contractions [both standard **(won't)** and colloquial **(gonna)**] as two correct information units.
B.19. Each word in hyphenated words **(father-in-law, good-bye).**

APPENDIX C

Appendix C

SUBJECT PROFILE FORM

Name _____; Experimental Initials _____

DOB _____; Age _____

Significant Other Initials _____

Medical Diagnosis _____

Speech-Language Diagnosis _____

Post-Onset Duration _____

*Current SLP treatment: Y or N

*Monolingual speaker of English: Y or N

*Grade (Education) Level last completed: ≤8 9 10 11 12 College

*History of Language/Cognitive impairments: Y or N

Visual/Auditory WFL: Y or N

Pre-experimental screening

Receptive:

Commands (BDAE) _____%

Complex Ideational Material (BDAE) _____%

Expressive:

CIU level _____

Apraxia severity (ABA): None Mild Moderate Severe

*(Per report of aphasic/significant other)

APPENDIX D

Appendix D

Randomized Question and Statement Format Sheet

#1	
1.	Q
2.	S
3.	Q
4.	Q
5.	S
6.	Q
7.	S
8.	S
9.	Q
10.	Q
11.	S
12.	Q
13.	S
14.	Q
15.	Q
16.	S
17.	S
18.	Q
19.	S
20.	S

#2	
1.	S
2.	Q
3.	S
4.	S
5.	Q
6.	S
7.	Q
8.	S
9.	S
10.	Q
11.	Q
12.	S
13.	Q
14.	S
15.	Q
16.	Q
17.	S
18.	S
19.	Q
20.	S

#3	
1.	S
2.	Q
3.	Q
4.	S
5.	S
6.	Q
7.	Q
8.	S
9.	Q
10.	Q
11.	S
12.	Q
13.	Q
14.	S
15.	S
16.	Q
17.	Q
18.	S
19.	S
20.	Q

#4	
1.	S
2.	S
3.	Q
4.	S
5.	S
6.	Q
7.	S
8.	Q
9.	S
10.	S
11.	Q
12.	Q
13.	S
14.	Q
15.	S
16.	Q
17.	S
18.	S
19.	Q
20.	S

APPENDIX E

Appendix E

Data Sheet _____ of _____ for Session # _____ Subj _____

Utterance	Score	
1	1	2
2	1	2
3	1	2
4	1	2
5	1	2
6	1	2
7	1	2
8	1	2
9	1	2
10	1	2
11	1	2
12	1	2
13	1	2
14	1	2
15	1	2
16	1	2
17	1	2
18	1	2
19	1	2
20	1	2
21	1	2
22	1	2
23	1	2
24	1	2
25	1	2

Daily Observations:
Subject _____

_____

_____

_____

Daily Observations:
Clinician _____

_____

_____

_____

Total Utterances _____

Total Inadequate Communications _____ (2 score)

Percentage of Inadequate Comm. _____ (T.I.C. / T.U.)

APPENDIX F

Appendix F

The Communicative Effectiveness Index (CETI) (Lomas et al., 1989)

Please Rate _____'s ability at...

1. Getting somebody's attention.

Not at all able — As able as before stroke

2. Getting involved in group conversations that are about him/her.

Not at all able — As able as before stroke

3. Giving yes and no answers appropriately.

Not at all able — As able as before stroke

4. Communicating his/her emotions.

Not at all able — As able as before stroke

5. Indicating that he/she understands what is being said to him/her.

Not at all able — As able as before stroke

6. Having coffee-time visits and conversations with friends and neighbors.

Not at all able — As able as before stroke

7. Having a one-to-one conversation with you.

Not at all able — As able as before stroke

8. Saying the name of someone whose face is in front of him/her.

Not at all able — As able as before stroke

9. Communicating physical problems such as aches and pains.

Not at all able — As able as before stroke

10. Having a spontaneous conversation (i.e., starting the conversation and/or changing the subject).

Not at all able — As able as before stroke

11. Responding to or communicating anything (including yes or no) without words.

Not at all able — As able as before stroke

12. Starting a conversation with people who are not close family.

Not at all able — As able as before stroke

13. Understanding writing.

Not at all able — As able as before stroke

14. Being part of a conversation when it is fast and there are a number of people involved.

Not at all able — As able as before stroke

15. Participating in a conversation with strangers.

Not at all able — As able as before stroke

16. Describing or discussing something in depth.

Not at all able — As able as before stroke

APPENDIX G

MICHIGAN STATE
UNIVERSITY

Letter of Consent

I am conducting a study to determine if persons with nonfluent aphasia can further develop their verbal expression skills during conversation. As a subject, you will be asked to respond to questions on standard tests of language ability, to talk at length with the speech-language pathologist providing treatment, and to evaluate your own verbal expression skills. As a significant other, you will also be asked to evaluate the subject's verbal expression skills.

This is a study about speech language treatment and we will expect you to spend the agreed-upon time frame with the speech-language pathologist in your home. The therapy program will be forty-five-minute sessions, three times per week, for five weeks. There will be no charge to you for participating in this study, and you will not be paid.

The treatment program for this study is a novel therapy technique based on a theoretical framework that develops verbal expressive skills more naturally. It is designed to help you improve your ability to communicate with other people. No known risks are associated with this study, beyond normal, minimal, risks associated with speech-language treatment. The general idea of the study was explained in the first paragraph, and more specific information will be provided at the time of each treatment task.

Your participation in this study is voluntary and you may choose to stop at any time without penalty to you. In the event that you choose to stop participation in the study, you will no longer receive treatment under the current therapy plan. If you stop participation in the study prior to the end, you will not be charged for any services rendered to that time. All records of your participation will be destroyed, with the exception that, at your written request, performance scores may be provided to you.

All results of this study will be treated with strict confidence. The research staff will be aware of your identity, but you will remain anonymous in any report of research findings. If you agree to be a subject in this study, all sessions will be videotaped for later analysis by the project staff. It is possible that some tape segments will be shown to audiences other than the project staff. Your permission to show tape segments to these audiences is requested. Please note, it is certainly acceptable for you to agree to be a subject and allow taping for analysis, but not want anyone else to see the tapes, and you can indicate that on the reverse side.

This study is a treatment study. We anticipate benefit from treatment, but cannot guarantee any benefit. At all stages of the study you will be informed of progress. Your active participation as a subject in the treatment protocol or as a significant other in evaluating the subject is important. If you have any questions about this project at any time, you can contact the project investigators, Janet Patterson, Ph.D., at the letterhead address, telephone number, or fax number, or Chad McCarney, B.A., at (517) 333-8928.

Thank you for agreeing to be a subject in this study. Please sign on the reverse side, in two places, to show that you agree to be a subject, and that you do or do not wish to allow segments of your videotapes to be shown to people other than the project staff.

DEPARTMENT OF
AUDIOLOGY AND SPEECH SCIENCES
378 Communication
Arts and Sciences
East Lansing, Michigan
48824-1220
VOICE: 517/353-7175
FAX: 517/432-1244

Oyer Speech-Language-Hearing Clinic
VOICE: 517/353-8780
FAX: 517/353-3176
TTY: 517/355-8780

I agree to be a subject in this study and understand the following information:

- The general plan of the study and number of sessions have been explained to me.
- All sessions and activities will be videotaped for later analysis.
- There are no unusual risks to me.
- I will not be charged for participation nor will I be paid.
- No benefits from the treatment program are guaranteed.
- Results will be treated confidentially.
- I may stop participation at any time without penalty.

Subject's Name	Subject's Signature	Date

- The general plan of the study and involvement required of me.
- There are no unusual risks to me.
- I will not be charged for participation nor will I be paid.
- Results will be treated confidentially.
- I may stop participation at any time without penalty.

Subject's Significant Other	Significant Other's Signature	Date

I have agreed to be a subject in this study, and indicate below how videotapes of my treatment sessions may be used.

I **give my permission** for segments of videotapes of my treatment sessions to be shown to audiences other than the project staff for educational purposes.

Subject's Name	Subject's Signature	Date

I **do not give my permission** for segments of videotapes of my treatment sessions to be shown to audiences other than the project staff.

Subject's Name	Subject's Signature	Date

APPENDIX H

MICHIGAN STATE
UNIVERSITY

June 13, 1996

TO: Chad McCarney

RE: IRB#: **96-374**
TITLE: THE UTILITY OF NATURAL CONTEXT AND SOCIAL LEARNING THEORY WITHIN NONFLUENT APHASIA TREATMENT.
REVISION REQUESTED: N/A
CATEGORY: 2-F
APPROVAL DATE: 06/11/96

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW:bed

cc: Janet P. Patterson

OFFICE OF
RESEARCH AND GRADUATE STUDIES
University Committee on Research Involving Human Subjects (UCRIHS)
Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046
517/355-2180
FAX: 517/432-1171

APPENDIX I

Data sheet 1 of 3 for Session # B1 Subj B.P.

Language Sample Orthographic Transcription:

Washing
I still have some washing to do
Probably whenever G. gets home
I don't know if we'll go anywhere
Do anything
I never know
Sometimes it's one
Sometimes it's three
It depends how much he has to do
Before ten
He's does the banking
Helps with all the errands he has to
He's an all-around helper
Sometimes he will write all the check ~~and~~ bookkeeping
For Lansing Mercy
We don't have any kind of schedule
A lot of the time we're at home
I don't have any hobby
I see now should have had some
It was all work related
I had to do reviews of all my employees
I had a lot of time to do everything
Banking
First of America
I worked quite a number of different branches
Mainly it was the main office
Then to M., H.
~~And~~ before they closed that one
I was there almost thirty years
I became not a branch manager
A supervisor a branch
Til I was the only in charge from that branch
All the people
I still in touch with them
Quite a few of them
When both my boys were born
I started there before I was married even
~~And~~ after I retired
I went to work for F.C.
I did a lot of the bookkeeping ~~and~~ computer work
As long as I have something to do ~~and~~ enjoy it
I'm happy
Never have

[cont.]>>>

Data sheet 2 of 3 for Session # B1 Subj B.P.

Language Sample Orthographic Transcription:

Most of our neighbors
I enjoy them
I don't want to have to work with them all the time
My life was my work
Sometimes it became a really work
It was tough
It was so rewarding
I did
The only thing I was on a bowling league
For many years
For the bank
~~And~~ that was my entertainment was the bowling
I really didn't even sit ~~and~~ watch tv
Always busy
When I was little younger
I think it was the average about 135
My best years were about almost fifty
That was only when I was doing two leagues
I think when you're bowling two leagues you're better
That seems to me it's good
Oh really
I think my highest game was about 236
Something like that
That was not consistent
I had quite a few in the almost 200's
I was not consistent
No, not right now
I used to enjoy them very much
I find I get frustrated
I put it down
I think I was much better
Now I've lost my touch
That will be my husband
I'll be right back
I forgot that I could've put it off
Not across the house
Across Logan
Martin
Across on Fielding D.
You probably don't know where that is
It's about a mile ~~and~~ half
That his daughter
The other one is the truck driver

[cont.]>>>

Data sheet 3 of 3 for Session # B1 Subj B.P.

Language Sample Orthographic Transcription:

He's living with us
Why have apartment when he's gone so much
He went out yesterday morning
He gets home every two or three weeks
All over
California is the farthest
I think it took him six days
Something like that
He's almost anything
I can't think
Too many things
Generally
His is more smaller things
Like if it was dog food
He might haul two or three things the first run
He could have two or three stops
One could be way up north
Other days he might have Kentucky
Someplace like
He gets the loads
He doesn't have any loading or unloading
He's the driver
He likes to drive
Sometimes he would rather have a job ~~and~~ apartment
He's not married
Sometimes kinda rough
All alone too much think about

[cont.]>>>

Data sheet 1 of 2 for Session # B2 Subj B.P.

Language Sample Orthographic Transcription:

I had a bad morning
Now it's getting better
I was a little upset about my situation
I can't drive
I can't get out anyway
Very much
We'll try to get out somewhere
We might get out to the mall somewhere
I need some clothes so why not
Yes, I do
My clothes don't fit any longer
I'm still losing weight
Oh some
Not like it was
He kind of makes me eat
Even whether I want to or not
I think I'm set for that
You know if I happen to see something
I'll buy it
I don't think you can ever depend on it
It could be like Michigan in Idaho
California, it should be the same
Hopefully, there won't be this terrible heat
You really do have to
Not winter clothes
You have to have some sweaters
I know
Dole
What's his name
Oh Clinton
I feel like he is too changeable
Tomorrow it might be one way
The next day he'll have a different
I really can't describe it
One thing the arm forces
He never did go to the army
While you shouldn't take that away from him
Having the leading of a nation should have been at least some experience from wars
What would you call it
One day he is for something
The next day he's against it
I don't think he really knows what he wants
The nation wants

[cont.]>>>

Data sheet 2 of 2 for Session # B2 Subj B.P.

Language Sample Orthographic Transcription:

I'm concerned about Dole of his age
Definitely
It can take a lot out of a person
I think so
What's his name
He was on tv
Quayle
He was a vice
He is really aged in my opinion
No, two nights ago I think it was
I felt like he aged
I would think in the mid 40's
You can tell who my political
You can tell very much
Sure
Oh yes
No, not definite
I really don't know how to what to do about it
I think it's probably a terrorist
I think there will be more
I think our military has to ready at any time
I feel that this flight
It was too close to home
I mean it right in California
That's too close
It was in New York wasn't it
I think so too
They're going to have to do something
What about the Jewell
What's his name
It is Jewell
The terrorist
No, he's been at least questioned all the time
Nobody really knows yet
Two persons died
Look at the amount of people that it affected
I guess they feel that Jewell is not responsible
That will tarnish his entire life

[cont.]>>>

Data sheet 1 of 3 for Session # B3 Subj B.P.

Language Sample Orthographic Transcription:

Started very bad
My situation
I didn't even want you here today
I have to be honest
I wanted G. to go to work
I could do my work
Laundry or whatever
I got very perturbed at myself to think I can't do everything I was once able to do
I got through it
I got it through
Doctor has a very sedative pill
I did take one
The only way I felt that it would be worth your time ~~and~~ mine
I am too
I have to accept some of this thing
I have to
That's going to be the rest of my life
I'm going to have times that I'm not going to be very happy
I know that
Everybody does
I think the rest of my day will be better
No, actually we had a very good evening
A couple
We went to their house
We had supper with them
We was out in the yard
Had kinda a picnic
We had seen them not visiting
We decide last night was a time
We had an enjoyable evening
Everything
You really want to know
No, we were visiting there has been many things that have affected our lives
A couple of girls that I was very very close with both passed away
My other friend we were having dinner with
She knows them
Kinda matter of fact the same family from my previous marriage
We still keep in contact
Which I think's good
Right off of C.
Not very far at least at all
I'm guessing twenty years
Like we have been

[cont.]>>>

Data sheet 2 of 3 for Session # B3 Subj B.P.

Language Sample Orthographic Transcription:

G. ~~and~~ I ~~and~~ other couple had spouses that either passed away or divorced
We kind of grew apart
So it was kind of nice to get back with them
So we're trying to keep our relationships
Some of the girls that I worked with still
I want to retain
G. wants to
I think we had a very enjoyable evening
No we haven't
Not as we would like to
The second time this year
No we were out with them
Maybe we'll get closer
Maybe it'll passing friendship
I don't know
Kramer versus Kramer
It's good
Actually it's divorce
The man who has a little boy
How they react to it ~~and~~ everything
Only I've been through it
G.'s through it
So it's good from that standpoint too
I like almost any movie that's Robert Redford is been in
He not director
Starred in quite a few
I enjoy them
Brewmaker was a good one
It was lengthy
I think they could've shortened it
It was a good movie
I felt like a little too much spent personalities
I have seen it
I don't recall
I must have
I don't recall the movie
Therefore it wasn't one of my favorites
~~And~~ Gone with the Wind
I have been four or five times
It is very, very good
It is
~~And~~ all the stars are gone
I have

[cont.]>>>

Data sheet 3 of 3 for Session # B3 Subj B.P.

Language Sample Orthographic Transcription:

A man would really enjoy it more than I did
It was good
Yes, many times
I don't think I've seen that one
I don't know why I haven't seen it
I don't recall
I can't think of one
One of them he was a millionaire
I don't recall the storyline
It doesn't come to me
It was a good one
Maybe I should see it again
I can't even remember who the other star was
Magnificent obsession was a good one
I think it was
I think he was in one of them
It was a good flick
I remember that
It's one of the older
I mean it's been long out
60's I would think
We have a almost complete library downstairs
You'd be surprised
A lot of westerns
A lot of war

[cont.]>>>

Data sheet 1 of 3 for Session # B4 Subj B.P.

Language Sample Orthographic Transcription:

I'm ready
Did I
Sure, no problem
Pretty well
I had my doctor's appointment this morning
Everything is fine
That's good
I don't have another scheduled appointment
That's the first time since the stroke
I feel good about that
Then as you can see my grandkids come over
Then I don't worry about them
They're noisy ~~and~~ boys
It's getting to be a little warmer
I think the first of the week it's supposed to rain again
Yeah, not bad
Well I guess you know that Dole was
What do you call it now
He is the nominee
He had a very good speech last night
I felt excellent
Lowering taxes
He wants education for the underprivileged
The big issue is keeping out war
He is not afraid to send the troops if we need them
The only one that I'm aware of is Zaire
I thought so
Maybe that's the movie I was watching last night
It's been going on for about 12 years
This that I'm talking about
They're going always
It's been going on for I don't know how many years
That's right
He brought up Vietnam last night
I really think so
I hope so
I can't recall right now what anything about it
I have a feeling that perhaps Clinton will be defeated
See if I'm right
Well I was hoping
Baseball, football
I'm not into hockey at all
I don't even understand it

[cont.]>>>

Data sheet 2 of 3 for Session # B4 Subj B.P.

Language Sample Orthographic Transcription:

Baseball ~~and~~ football
They have to build again
Most of the players are new
I don't know
I'm not that much in football
I watch them
I really like football when Montana was there
Absolutely
I think he's one of the announcers now
He did so last year
Are you leaving
I do however I haven't tried since the stroke
I have out of box
I can do that
I haven't tried pies
They are much more difficult
I know that I can do it
Yeah, I kinda think so
I haven't tried again
I think I've just a little apprehensive
I don't want see just yet if I can or cannot
He doesn't bake
He would
I used to have lemon pies
I enjoyed 'em
He can't eat them
I'm doing that anymore
I do too
I've been out of it quite awhile
I can't even think of the name
It's like a pie
You layered graham crackers
I had cherries
You could anything else
Then you put whipped cream
We used to have that quite often
You don't even in a pie
You put it in a deep dish
I did quite often
That's good
I made my own not from a box of any sort
Flour, do it in cocoa
Butter, ~~and~~ nuts of sort

[cont.]>>>

Data sheet 3 of 3 for Session # B4 Subj B.P.

Language Sample Orthographic Transcription:

I think very maybe one egg
Milk is about a half of cup
I think I made them with shortening
I think you can
It's quite awhile since I've done any baking
I have a crust in the freezer
I should use it
They're good for six-eight months
I certainly do
Maybe I'll surprise G. with it
Anything almost
Except the lemon
Nothing in lemon
No, he likes the rest of them

[cont.]>>>

Data sheet 1 of 3 for Session # B5 Subj B.P.

Language Sample Orthographic Transcription:

I would say about same except we did have a family reunion yesterday
It was good to get out
There were a few from Florida for the summer
I enjoyed it
That's good
I felt like I was a little hesitant
Some of these people I had not seen since the stroke
I felt like I was doing better
I think that good to me
It is
I feel now that I can talk more easily in the beginning
I feel like everybody is not staring
I'm trying to get more natural
I think yesterday helped me
I didn't know exactly how everybody was going to accept me as the way I was
I felt very good about it
I think you're very helpful really
I liked to be back the way I was
I'm probably not going to ever be completely well
I accept that
Sometimes it's very difficult
Like you say, people I have not seen since the time
There were quite a few yesterday
They helped me
They knew about my stroke
They acknowledged it
I have to a drink
Anybody else
Sure
I guess I can move around with this can't I
Now where were we
We discussed it
About the nomination
I'm really kinda lost
Even when I'm reading the newspaper
I lost my place
Then I don't even realize what I need
I think that with the political scene ~~and~~ everything
Especially this weekend
I mean Dole has really come better
He's getting more relaxed
He has a lot of good ideas I think
Like the ten to fifteen percent he wants to lower the deficit

[cont.]>>>

Data sheet 2 of 3 for Session # B5 Subj B.P.

Language Sample Orthographic Transcription:

He had a lot of ideas
He wants the military to stay as it is
I'm not doing so well today
I feel that the nation is better off than we have been in many years
I don't want to see the military or any other policies changed
Stay as it is
That would be nice
I believe that too
I think you don't ever want to have another war
When you do we should be prepared
Welfare is definitely
I feel so
He wants, Dole, to keep the older people for social security ~~and~~ the pensions
Why has that happened
I don't either
Not much
That plane that crashed
Yesterday, the day before
One or the other
One of the secret servicemen was killed
There was eight or nine people
It was in Colorado
It was a smaller one, wasn't it
I love Colorado
You ever been to Colorado
The mountains
We've had a few trips
~~And~~ Colorado is kinda in the middle
You have to go to Colorado
You can either two ways
You can southern or the northern
~~And~~ I like to see the mountains
~~And~~ always have
The south is different
The mountains are not as high
It's different
I love the one
Colorado ~~and~~ the Dakotas
Both southern ~~and~~ north
It's different
~~And~~ when you go that route
It will take you through Montana
That's where the glacier is

[cont.]>>>

Data sheet 3 of 3 for Session # B5 Subj B.P.

Language Sample Orthographic Transcription:

~~And~~ that is beautiful absolutely
No, not Yellowstone
I can't even think the state I'm trying to think about
That is beautiful too
Glacier is in Montana
I know what we're thinking about
I can't say it either
That's what they do
It blows every so often
Something like that
What state is Yellowstone
That's my geographer
I do enjoy the program
I don't very often have the answers

[cont.]>>>

Data sheet 1 of 1 for Session # T1 Subj B.P.

Language Sample Orthographic Transcription:

I think better than yesterday
Did it
Even though I was stumbling quite a lot in speech
Good
I thought yesterday was really bad for me
No, I didn't
I'm disappointed in myself
I want so much like it used to be
~~And~~ that's the problem on myself
I feel like
You can tell I was pretty fluent in my work
Even my house
~~And~~ now I feel like my house isn't clean like I once did
~~And~~ so it's very difficult to accept the way I am
For instance, the basement
I haven't had the energy to go ~~and~~ clean like I want to
I used to
There is a lot of cobwebs
I don't mop the basement like I once did
I don't clean
I don't keep my house like I'm accustomed to
No, not quite
It's someone could get into my house unannounced
I could go ~~and~~ not feel like my house was clean enough
It's my energy
I don't have energy
By the time I get through laundry
I do a couple of loads
~~And~~ sometimes I have to wait another day
I don't have the energy I need to be comfortable with my cleaning
I used to mow the lawn
G. is not supposed to
He has a heart condition
~~And~~ now I still assist him
I feel like I can't do it
I feel like letting him down

[cont.]>>>

Data sheet 1 of 2 for Session # T2 Subj B.P.

Language Sample Orthographic Transcription:

Saw a lot of persons that I had not seen in awhile
Most of them are now retired
A couple still
Tell the bosses that we don't like
~~And~~ the ones we do
The bank is changing so much
I think worse
I think because they grown so big
You see First of America is even different states now
It's probably myself
I feel like they're not personable like once were
I do too
Most of the customers would rather have a ready teller than a regular
They can in ~~and~~ out much, much faster
Unless they have a problem
They really don't even know the customer they're dealing with
I think not very personable
I do too
On the Today show
They had a teacher telling all the things from a teacher's standpoint
I think the teaching is a little bit over the heads of the children
They're not personable like they used to
The tellers are too rushed
They don't time to chat with customer
They have so many responsibilities
You can't believe how much a teller or a branch manager
The responsibility more than they can manage
You have all the meetings
They are not necessary
Somewhere the actual teaching of a new teller is sell, sell, sell
More than they have the customer in mind
That's my opinion
You have to have a certain amount of meetings in order to train
Not only the staff
The customer too
I feel it's very much personal
The teller is more interested in the amount of work has to complete
She has to sell
That's the biggest thing a new teller is trained
I think so too
Sometimes they don't have the time
A real busy branch have about 30 bags, night drops
They have to complete

[cont.]>>>

Data sheet 2 of 2 for Session # T2 Subj B.P.

Language Sample Orthographic Transcription:

You might find five problems
You have to solve
It's really the new streamline machines are very good
You get out quicker
You're taking away the personality of both tellers, managers, the entire bank

[cont.]>>>

Data sheet 1 of 2 for Session # T3 Subj B.P.

Language Sample Orthographic Transcription:

Rushed
We had to get out here about 9:30am
The doctor is clear out in Okemos
It took me about a couple of hours for the eye exam
You have to have eye drops
We got home about, oh maybe 15 minutes ago
I think so
I don't feel any
I know these glasses are going to be very, very good
They're scratched
At the time I was in the hospital
Nobody bothered
I mean I get by glasses
I couldn't get up
Somebody would hand my glasses to me
Quite a few times I have to put them on the nightstand
They really got scratched
It's scratched
A couple of nurses would have to help me to get it in
I could not much with this hand
I didn't have a lot of movement
I couldn't even feed myself
I'm right handed
I was only once for Christmas
The rest of the time I was in my own room
Sometimes they may have to cut my food
G. have to
It was kinda bad
I was discharged on January 10th
Then the seizures came in April
I was back in that time
A week ~~and~~ a day
Then I could've gotten out early except
I was on a (?) with the nurse
I fell
I don't know if it was her fault, mine
They kept me another day ~~and~~ had all kinds of tests
To the tune of about one thousand dollars
I was in the hospital
I felt that I shouldn't have been charged
You bet
That's not right
Not for the insurance company

[cont.]>>>

Data sheet 2 of 2 for Session # T3 Subj B.P.

Language Sample Orthographic Transcription:

Why should I been charged
It happened right in the hospital
The nurse was right with me
Yet, it was more
My insurance should not have to had to pay
If I had not insurance
I would've fought it
As long as I had insurance
They covered it
I didn't make a stink
What are we going to have insurance-wise now about Clinton
If you have insurance
You go to somewhere employed
You change jobs
Your insurance goes with you
How can do that
I'm sure it's going to have to be like 90 days
Maybe they're going to have to carry it that far
When you change jobs
You're insurance is only good for about 60 days
Maybe 30 days
Who's going to pick up the tab

[cont.]>>>

Data sheet 1 of 2 for Session # T4 Subj B.P.

Language Sample Orthographic Transcription:

Most of the time I can't spell
That's my problem
I can read a newspaper no problem
If I start writing
If I had to spell
I can't do it
I call too much
I have quick notes from my sister in A.
I've done that
It's not like
If I don't know how to spell
She'll decipher it
It's been very difficult
You don't know how many times that you need to spell
Sometimes I think I know how to spell it
I start to write it
I can't get it out
Believe me, it's very difficult
Especially in my job
You had to read ~~and~~ write
The computer work
You have to know how to spell
Otherwise it takes you forever
All of the orders from the people
See, I don't do any ordering supplies
The people who are buying furniture
You have to have the order
That takes a lot of spelling
If you know how to spell a person's name it's no problem
If you can't do it
Like the beds their purchasing
She likes it
All the kids are there
I wouldn't go for any length of time at all
I don't like the climate
Maybe I shouldn't say it
They're not very well educated
I think that the more south you go
It's probably both
They don't have the money to actually have the technology that we have
I think so
Even my grandkids are beginning
He's eight

[cont.]>>>

Data sheet 2 of 2 for Session # T4 Subj B.P.

Language Sample Orthographic Transcription:

He's beginning to learn computers
He's got to have it
Almost everything you do
He's a mechanic
He has to know a lot about the truck to even know where the problem is
It's on big, big trucks

[cont.]>>>

Data sheet 1 of 2 for Session # T5 Subj B.P.

Language Sample Orthographic Transcription:

It is the best
No, it's a vacuum
A lot of attachments
If you ever want to get a sweeper
I recommend
It's supposed to be in the 80's the next two days
Then back in the heat
You can't depend on
I'm glad
There is a lot work
I know my sister-in-law's got three places to contend with
She's really into flowers
Right here in M.
E. L.
It's not really a cottage
It's more like a house in R.
Ever hear of R.
They have two places up there that they have to keep
They're only renting an apartment right now
They sold their house
Now they've got the cottage
It's been sold
They hope to winter in F.
Summer in R.
It was in H. L.
Ours is trailer
Not like theirs
It's around here though right
In M.
You'll have to talk with them
We close it in the fall
No, we don't move it
They're probably younger than I am
I would imagine
It's about the same
Once in awhile depending in the weather
Sometimes here in L.
Especially we're in the city
It can get warm
Especially a trailer
It's not air conditioned
Not even this
We have an appointment for have getting ready for the fall

[cont.]>>>

Data sheet 2 of 2 for Session # T5 Subj B.P.

Language Sample Orthographic Transcription:

The furnace cleaned ~~and~~ all ready for
Yesterday we did some shopping
Maybe we'll more that today
I need some clothes
I don't know exactly what we'll do after that
In the mall
I think I prefer M.
I don't know
No, I think about the same
Both of them
They have M.
Sometimes I have found things that I like
I go with P. usually
It's a little bit cheaper than H.
Unless you watch for sales
I kinda watch
I know H.
I like P.
I know about the prices what they should be
They usually put their up
You have to know the store

[cont.]>>>

Data sheet 1 of 2 for Session # T6 Subj B.P.

Language Sample Orthographic Transcription:

What was it about two weeks
I haven't done much at all
I will dust a little
G. did the mopping
I'm not doing much at all
I do go to store
We go out if I want to
If I feel like it
Everything like that is not different
I mean with him sometimes
I haven't yet
No, we go down to the ice cream store
If he goes to the grocery store
I haven't yet go with him
I ride with him
No, he always did the shopping anyway
I have not gone to the grocery store
I just wait in the car
At least I'm getting out
Oh, he does that
We had a fuse
You know the light
That was this morning as a matter
I have gone to M. to walk around
That's almost basic what I have done
No, two lights in the kitchen
See we had this kitchen put in ~~and~~ remodeled
I don't know if it had anything to that
I don't think so
It would have those two
So, I think that was probably the problem
I think it's been about five years
Oh, you like that, eh
I try to cook more slowly
Even G.
That's what I'm used to
I don't like, as you can see, grease on my stove
I don't like that
I felt it's too hot
If the grease is splattering it's too hot
Chicken, cake
I like it slow
Usually we'll do that

[cont.]>>>

Data sheet 2 of 2 for Session # T6 Subj B.P.

Language Sample Orthographic Transcription:

Just the chicken
Sometimes we have Chinese
Then I have chicken in them
They are very good
Rice, just rice, just make it
There is one
I take quite a lot of it
There are a couple
You might like to try it
It's very simple
It's a mix
I might have one in the kitchen
I'll show you if I have it
They're really good
Do you like Chinese
You would like it
I always put rice with it
It doesn't come in the mixture

[cont.]>>>

Data sheet 1 of 1 for Session # T7 Subj B.P.

Language Sample Orthographic Transcription:

It's a holy pant
I went fishing
I bent down ~~and~~ it didn't come out
It was a wet that day
No, I was on the shore
You're not going to see that right
It's pretty much
Right now I have about three pairs of certain pants that I cannot wear
I'm too thin
That's usually not a problem
It costs a lot of money
This won't bother you will it
I have so many slacks that I can't wear
I was never very heavy
Not at all
You can see how I'd have to
I was a bank teller among other things
I was not senior manager
I had others over me also under
I had a bank
You probably know where it is out in H.
First of America
I managed that bank for many years
The reason I wasn't in management they didn't ask me
I had to the all at that branch
It was my responsibility
Complete that bank
I enjoyed it very much
We kept in touch
Ususally some of us do talk
This was just a group at that particular time
The bank has a banquet once a year for all the banks
There are a lot of them
There are even state-wide now
So I wouldn't of course have a banquet
The ones here in town they have banquets
Then we will do what we call the Christmas
What's the holiday coming up
Christmas we have a real nice big banquet

[cont.]>>>

Data sheet 1 of 1 for Session # T8 Subj B.P.

Language Sample Orthographic Transcription:

What am I doing today
Since Friday much better
I absolutely couldn't do anything
When G. called
They believe it's the same part
The same thing that happened before
Now, they want to the Neurologist
Let me show you
It's in neurology
That's what they think
That's happening to me
That was in the first
I mean it was just the same thing now
They're trying to find out
They think it's because my nerves
So we just have to find out
All this weekend after they different my medication seems fine
We don't know
Not that I was before
Yeah a little bit
We'll say April ~~and~~ May
That is okay now
But then now it's back to that my speech
My speech is worse much than it was
I think don't you
That was terrible
Since the first of April
I think I'm getting better
Let's put it that way
Well I know I can tell it
Not 'til the 30th
I have to go do all that
G. has to do that
You know I can't read too well
I was always so good
That's why it's so hard to accept
I was really good in school, my job
I can't even bowl
That's the worse
Maybe one of these days that will come out
Me too
I'll have to just pop

[cont.]>>>

Data sheet 1 of 2 for Session # T9 Subj B.P.

Language Sample Orthographic Transcription:

A bad day
G. has been working on plumbing
When he goes it makes me nervous
He's not a plumber
His father was a plumber
I mean he knows a lot of knowledge
You still have to specialty
I think it's because of my stroke
I want everything to go smoothly
Like just a thing this morning
Last night is started
I got in the car
I realized my eyes are just as not as good as they were
I just had a another eye exam
So the next thing I think is bothering me is not being able to drive
That is part of my life
My sister ~~and~~ I used to take trips
I did all the driving
Now I'm afraid
Maybe I'll be able to
Maybe not
I just had new prescription
It should be as good as they're going to get
Unless maybe it will improve
I had this bad eye even before that stroke
Maybe I will
Yeah, it's pretty good
Maybe I have been worried uselessly
I have to wait the second stroke
I have to wait to even be tested
The end of October
Which not no big thing
I drove with my job too
I think it's being to bother me more
I'm to the point that I could anything I want to
I know but what if I can't
I sure really could
I think where you ~~and~~ I differ
I have had hardly any education except my schooling
It's true
It doesn't help you if you get to the point that you want to go up the ladder
Tell me it doesn't happen
You cannot get the

[cont.]>>>

Data sheet 2 of 2 for Session # T9 Subj B.P.

Language Sample Orthographic Transcription:

I think you know I'm educated
You can tell that
That's what keeping my goal
That's my goal is to be somewhere I can work
I don't care what kind of a job even like I had
Not even banking
The furniture store
That's what I need

[cont.]>>>

Data sheet 1 of 1 for Session # T10 Subj B.P.

Language Sample Orthographic Transcription:

They felt the dilantin was not letting my sleep
So I don't know
Maybe they can readjust it
That's what threw me in the hospital that time
No, unless I had a sleeping pill
I don't like that
I don't like to take any kind of pills
Some I have to
I was never the person to take anything
Maybe that's one good thing
I was very healthy
Maybe I wouldn't have been
I would've been even worse if I wasn't
You can't tell
The dog
We have the dog across the street
About when the kids go to school
I mean he is nothing but a nuisance
Every morning ~~and~~ today was terrible
It's just a pup
I'm hoping that it's just a puppy stage
I think so
As you notice she is more proper right now
Whenever the kids go back ~~and~~ forth
Maybe it was just lunch time too
They have all different lunch hours here
It's fine today
I could just strangle
He's just a pup
Maybe a couple of weeks
It might be
That's the time he or she started with the leaving them out

[cont.]>>>

Data sheet 1 of 3 for Session # B1 Subj R.L.

Language Sample Orthographic Transcription:

Now we're on
We went to seen the bridge
Walked on the bridge
They've been out here several times
They always want to go up north
So they called about three weeks ago
We went Sunday
It was a small motel
Well we did too
We went up there three weeks ago
Got a motel
Yeah, we go up there quite a bit
We go up ~~and~~ gamble
Play around
There's quite a few of them up there
One up there S. M.
I would say fifty miles in that neighborhood
Not quite
There's nothing there so you can go
I think down in L. V. about five hundred dollars
That was it
Well that was over a week
We were down there over four days
No, there is no one up there
I've been up there when I went to school
Before the bridge was there
The people came
We got up to the bridge
I wanted to go up to the straits
To see the boats go across
There was some there while we was there
They got to see that
Then she wanted to go to the Island
We stayed up there two days
Sunday ~~and~~ Monday
A lot of people
No, I walked just like this
That's what they said
I think so
I don't know
It's quite a deal anyway
We were right there
Our motel we walked from there to the bridge

[cont.]>>>

Data sheet 2 of 3 for Session # B1 Subj R.L.

Language Sample Orthographic Transcription:

We didn't take the car or nothing
It was probably quarter mile or something to get down there
Sunday we went
When we got there we went down through town
I wanted to show them what looks
Then we went up North
Up to the Soo
But getting through there was a lot of people in there
No, they wasn't there
Right, just to see it
Then we went on up
But there was people
A lot of them
They got here on Friday
I didn't want to go up North
My son was racing
I wanted to take them Saturday night
Before we went
That why we went Sunday
O.
Three-eighths
They all are that way
There's three of four modifies
For awhile
It looked nice when started it
Things happen around there
It's doing all right
No, this is his first year
I think so
He's done real good so far
I thought
Even to be there myself
He's doing okay
Forty
I ask him
I said is that what you want to do
He says I don't know
I'm gunna try
If you think some guy when get forty
You wondering does he really need that
Their kids
You can't tell them what to do
Let them do their own thing

[cont.]>>>

Data sheet 3 of 3 for Session # B1 Subj R.L.

Language Sample Orthographic Transcription:

Probably end of the month
I don't know
I've never been there
To have that many people
No, he lives in S. J.
He went there last year
Watched them going
~~And~~ said that I thought that be pretty thing to do
So he decided that's what he was going to do with that
Last autumn he got this car
All winter long they monkeyed with it
We helped him some what
But that's the way he done it
Yellow
You want to look at it
No, I think that's the only one around there
Dents in it now
I think they get they're numbers from it
I don't know how it comes about at the track
I don't know how that works
I don't know
When he first started, he got a nice motor on
It was ready to go
He says it's something new to him to be on there
He says the motor was okay
It was really nice
It's was big enough for him
Now he's been out there awhile
He might want a bigger motor
He understands how things go
He's in there
He's been in there
It takes awhile

[cont.]>>>

Data sheet 1 of 3 for Session # B2 Subj R.L.

Language Sample Orthographic Transcription:

I don't know what you want to
Are we on yet
So far was good
This walk will go from right here
Will go up to the new high school
That's maybe two miles
It goes from this way
Will go up to where you get off the expressway up here
That's about a mile that way
If I'm alone I usually go up to the high school
Go around that
I come back
Yeah, or more
When it goes across G. R. down here
The walk goes around the river
Up to the bridge up there
It goes across there
It goes again along the river to the next bridge
That's a small bridge there
From that it goes on up probably a half mile up along the river
That use to be just a scenic route
They got two of them
They meet right here in P. together
D., up through there
It stops here
Up above, I don't know where it
It gets real narrow
It does, right here
There's many bridges there
It is right there
On this walk
On these bridge, they got now so that without going up across the highway
They've made bridges underneath the bridge
If you go down there ~~and~~ look
They've made a pass on each one of them
Right here in P.
If you come off exit up here
You'll see a new motel they've puttin' up
When you come off of there
That walk stops just side of that
No, that's probably just as far as P. goes
It's quite a deal
It's been there probably three years maybe

[cont.]>>>

Data sheet 2 of 3 for Session # B2 Subj R.L.

Language Sample Orthographic Transcription:

When you go there
It don't matter when you go there
There's somebody there walking
It seems like
As long as the train was going through
They had rocks
That kept it pretty nice
Then when they took the ties ~~and~~ tracks out
It stayed that way pretty good
If you keep going on
Then it gets to be just a track
Where they don't put any more
I wouldn't know right away
It's been quite a while
It did
It used to be flour many years ago
It made flour
Now it's feed for cattle
It's a different place now
They do all right I guess with it
Years ago when they had the flour
When you're going down on you right
There's a big cement silos
There was a great big building right there
That's where all the flour were made
That burnt
That's probably in nineteen forty nine
In that area
I don't know
I don't
The doctor told me
This is three years ago
He told me to walk keep walking
I've never
The girls got one
They don't drive it either
It don't make any difference
I'll be working on that building over here
It will be painting
A little bit of both
The porch
With a brush
Gray, I think most of them are gray

[cont.]>>>

Data sheet 3 of 3 for Session # B2 Subj R.L.

Language Sample Orthographic Transcription:

I don't know what they call it now
It's small sheets many years ago
It's like brick
They don't make it anymore
I don't have any
I don't know it
There's three
There's two upstairs small ones
One downstairs
A kitchen ~~and~~ living room ~~and~~ den-like in the front
This is a little different any way
Yeah, more or less
This was my grandmother's house years ago
We bought it years ago
This part here is the same
This I had to put something in here these panelines
You wonder sometimes why at that time okay
I didn't like it
Today we wished we'd left it alone
Quite a bit now, yeah
I don't think so
Yes, I will have to in the kitchen
The faucets will have to be repaired
They've been there a while

[cont.]>>>

Data sheet 1 of 3 for Session # B3 Subj R.L.

Language Sample Orthographic Transcription:

You got it
We're all set
Good
We did our walk
I like to see the eleven o'clock the news
Then I'm gone usually
Eleven-thirty I usually get home
Is it
In the morning we went up to H. L.
My nephew we were supposed to go last Thursday
He couldn't make it
Friday, I couldn't make it
I thought we were done
He wanted to go yesterday
So I had to go with him
He had some things he had to look up there
Wanted me to go with him
For different things
We just went up
No, I didn't
I usually have got something going
To sat here ~~and~~ do it
If it's Sunday or later on sometimes we get her
Just to sit here ~~and~~ watch her I don't have
I like to watch it
If I'm out in the garage
I can usually hit the State on the radio
If I'm doing that way
I like to watch them all mostly
I hear about it
Sunday, we watch tennis sometime ~~and~~ golf
I don't play golf
We watch in the afternoon if there's nothing
In the summer time we've something to do
In the winter time we kinda watch
Football I like to watch that pretty good
Well, State is usually ~~and~~ the Lions
I guess that does it
I don't know
I have no idea
You wonder about what happens though
I don't know why
They got some nice people on there

[cont.]>>>

Data sheet 2 of 3 for Session # B3 Subj R.L.

Language Sample Orthographic Transcription:

I just don't know why sometimes they don't make
It's like the Tigers
I think so
I think he should
I don't know
I think so
All people are different
They have coaches
Over the years I've seen quite a few of them
Some of them are quite a bit different from the others
It's okay
No, D. ~~and~~ all them guys years ago
I have no idea right now
I don't know
I've watched on to the other night on news
They were asking several people who the president was
United States who the president was
A lot of people didn't know who he were
This is something different
I don't know
I have no idea
That's right
They was just asking people on the street
That was it
We went up to H. L.
Years ago used to there quite a bit
My wife ~~and~~ I ~~and~~ the kids
We went around there quite a ways over to P. V.
It's like around P.
It's moving
There's new stores
After you haven't been somewhere in quite a while
It looks a little different
There's a lot of people there now
I have no idea what their thing is there
I'm sure
I would imagine
We doing a lot of things up at this end you see coming in there
We got new gas stations ~~and~~ motels their making
Years ago they used to be filled
Now there's quite a few of them
Not downtown, but up above here
There's several up there

[cont.]>>>

Data sheet 3 of 3 for Session # B3 Subj R.L.

Language Sample Orthographic Transcription:

Eating places ~~and~~ flowers
They have a lot of flea markets
Whatever they call it
They got quite a few of them here
Mostly it's antiques
They have different things, right
I believe in W., or someplace over there
I think they got quite a few in their town
I've been there several times
I would imagine
I think everybody has them anymore
My grandson's both of them are soccer
We go to D. quite a bit
They have games there
They go out of S. J.
Where they're at
They go different places
N. is eleven ~~and~~ she's nine
They've been for quite a few years
It's something for them
Yeah, they do
No, I don't know what they have
They go to different towns
Every year, I think we have to go down to E. R.
VFW, they have a big camp down there
It's a big one
They have games down there
Yes, quite a few of them
They have them all over
I don't know
Probably I would say from here probably fifty miles
I would think
Takes about an hour
The VFW, they have houses for older people ~~and~~ veterans

[cont.]>>>

Data sheet 1 of 3 for Session # B4 Subj R.L.

Language Sample Orthographic Transcription:

Pretty good
I've been down in the house down there
Not yet, but I'm gunna get ready
We're upstairs ~~and~~ took the paper out of there
We're gunna use kilts I think on the plaster first
It's a cover over the plaster
Before you put the paint on
I don't think so
On the porch
Probably do on the porch
Probably not, just a brush ~~and~~ sandpaper
Have you done it
I hope so, yeah
The ceiling upstairs has been there quite a while
Just wanted to get out of there
No, just putting paper in some of it ~~and~~ paint it
The woodwork
It is now
Nothing in there
I have a refrigerator down there ~~and~~ a stove
What will they need
Just there furniture
I don't know right now
When somebody goes out somebody else wants to get in there
They have the tractors down below
Right below on the corner
I wanted something between myself ~~and~~ that
At P.
Yes, all my life
I was in the army for two years
No, I was on the other side
South of here just a little bit
No, they're both passed away
Yes, I guess
It was in the Korean War
I was in quite a few States
I didn't get out of the country at all
Well, I got out of school
I went into a garage with Ford down there
Something to do
I knew I was gunna go in
It took me about two years before they got me
I had to go in

[cont.]>>>

Data sheet 2 of 3 for Session # B4 Subj R.L.

Language Sample Orthographic Transcription:

So I was a mechanic
When I got in the army
They put me in the medical corps
That was what I did
No, with shots
I went back to the shop
Then I shortly got out of that
Wanted to do
Well, I went on the road working bulldozers for a while
Then I got this job down here
I started down in the shop down here
I was fronting press
I was there couple years
I got in the shipping part of it
They wanted somebody
I went in
I kept records pretty good
They said well you better come in the office
I stayed in the office
It was okay
It was home
Yes, fishing ~~and~~ hunting
Not usually
We went up to C. with that one
My son has been up there before
He goes with bow ~~and~~ arrow
After the situation I had here
He says I better
He always wanted me to go
I said no
He says you better go with me
He's got one with a bow ~~and~~ arrow
He didn't get one when we went up here
Five of us when up
Two of us got them
That was it
There's quite a few bear around
I've only seen one in that area
They've got a lot of bears up there
No, I don't imagine
He's got a place over around S. J.
He's got ten acres
He built a house in nineteen eighty-five

[cont.]>>>

Data sheet 3 of 3 for Session # B4 Subj R.L.

Language Sample Orthographic Transcription:

The year before that we started hunting there
I built two shanties that you can sit inside
So now, I go out there
I got two deer last fall with it
I get so I can't sit in that house
I got a chair in there
Rocker in like
I built a stove in it
I can sit there all day
I like to see the deer
I just like to see everything going on out there
Years ago, I'd take them to the locker
After a while, I says I want to do my own
I want to have my own venison
We do it
I make it
I built a grinder
So I can make the meat for hamburg like
Then I've got a lard press
You can put this hamburg inside of it
Push the crank
It will come down
I can put it in a casing
So I have them about that long
Out of that
Put them in there
I make a smoker out of a refrig
Now I do everything
I have yes
Salmon
I have before
My son got them most the time
The last couple of times I've made the sausage
It's hard
It's small meat and real hard when you get through with it
I'm trying to tell you what it is
I can't think of it right this minute
Well, someday I'll tell you
Tomorrow morning I'll do her
It's right there
That was back in fifty-eight in that area
It was a hundred eighty pounds when I took him over the locker
So he was over two hundred pounds when I got him

[cont.]>>>

Data sheet 1 of 3 for Session # B5 Subj R.L.

Language Sample Orthographic Transcription:

We done our walk again
We came down the trail this morning
Up L. you could see across
There's a small stream there
It's down in the country
Some of the people on L. here
Go down by the river
Mow the grass
Down in there
Have a nice picnic area
Anyway, we see deer down there quite a bit
So we seen a doe ~~and~~ two fawns out in there
Quite a deal
Up in that area you can see 'um
Gets pretty woods
Yeah, you'll go right out in
The river
It's a long hill going down to it
I usually go on the river
The sidewalk here
I was in there yesterday, yeah
I was upstairs yesterday
I was plastering the cracks
I think today we'll be painting in there somewhat
I don't know
Of course, we should be outside when the sun
We could do in there when it's raining
I think so
Brush it
It isn't too bad
It needs got something to do with it
I worked there for awhile
Then I had to go to the store last night in L.
Get somemore supplies for down there today
Well, we got paint
In the kitchen, I got to put a new faucet in there
One things that happen over the years
No, nothing big just paint
It sounds like we're going to be back in there again
I don't know what they're doing
It sounds like they're gunna put more planes in there again
You have to do something I guess
Years ago, I'd have to look what happened in Germany

[cont.]>>>

Data sheet 2 of 3 for Session # B5 Subj R.L.

Language Sample Orthographic Transcription:

That should never happen
That type of thing
I don't like
It shouldn't happen what happened over there before
So we was in there
I don't know
Sounds like the fellow just don't understand what's going on with people
It's funny
If you do that with your own people
Somebody'll have to do it I guess
For people have to go in there
It's bad
Around here anymore I figure as long as I'm
What I do myself
Let's see
If I do what right
Don't hurt anybody
People leave me alone
Everything will be pretty well going
If some kid comes through here
Somebody is after him
I'll probably be on the guy myself
You gotta do something
You can't just sit back ~~and~~ relax
Let everything go
Somebody's got to do something
That's right
I hope not, no.
I think they outta to
I don't know what you gotta do to tell him what to do
I don't know
Work with him I guess
They have worked with him recently
On that part of it
Now this happens
So there you go
We can sit back
See what he does
We don't live there
People sit back over there
Think about our president
They don't think much of him
You see it on the tv that he's got many people over there

[cont.]>>>

Data sheet 3 of 3 for Session # B5 Subj R.L.

Language Sample Orthographic Transcription:

Not have the medicine ~~and~~ food
Today, a lot them think he's okay
What happens you know
He's smart evidently in some way
I haven't heard anything in quite a while
I don't know
They come up with that the last
I haven't heard anymore since
I would've thought before this
With the people they have
What they got out of ocean
They would've had something
These people are pretty smart
I'm sure of this
That's right
Maybe they're still playing with it
I don't know this
If they know something happened
Why don't you tell it

[cont.]>>>

Data sheet 1 of 3 for Session # B6 Subj R.L.

Language Sample Orthographic Transcription:

Now it's raining
It's also supposed to be getting colder Saturday ~~and~~ Sunday
It's walking when you go like this
In the winter time it's all right
They don't want any snowmobiles on it
You're not supposed to take any thing on there
Yeah somewhat
I think it's so people stop there also
They got stop ahead right behind that
If they got bicycles
They can go right through there
No, not usually
Quite a bit
Usually I go in the morning
Mostly it's for myself
You don't have quite as many people
It's all right
That's good for them
I did when I was working
That's about the only time I could go then
No, not really
My doctor told me to do it twice
I says if I'll do her once that will make her
He was real good
Helped me out
It worked pretty good
Of course I smoked
After I got out of there
I haven't smoked since
I tried that before
It didn't work very good
It didn't bother me
There was something there
I haven't even wanted one
It's pretty good
If it's done anything for me
That was good
Probably down there working
We want to get as much done as we can
I've been down there
I probably will after while also
Yeah, right
I think the grandchildren will have soccer Saturday

[cont.]>>>

Data sheet 2 of 3 for Session # B6 Subj R.L.

Language Sample Orthographic Transcription:

We'd like to go ~~and~~ see them
Some of them are
They're in S. J. what they are
Well, I don't know
It depends on their
They'll call me or let us know
It's good
No, he's eleven
She's nine
I believe he's in the sixth
I believe it
I don't know she's third
Fourth probably
We were talking about the other day
It was S.'s birthday Sunday
We were out there
We were talking about where she was gunna go for college
It sounds like he's gunna have to go down to
He can go where he wants to go
I think where they're telling him is down to M.
His grandfather, her father, is retired now
I don't know what he does down there
He used to be on the
I don't know what his name
What he did there
I'm sure that's why he'll be down there
Where he goes I have no idea
Several years ago they give him money for tuition
I don't know what they call that
Well, right
He gets ready to go
It'll be there
I don't know State does it
Where that comes from
I think it is because it come out
Three or four years ago
It was quite a bit
I didn't
In my family you mean
My daughter went to F. for a year
I just don't know what
She didn't go any farther
I think she got a job here

[cont.]>>>

Data sheet 3 of 3 for Session # B6 Subj R.L.

Language Sample Orthographic Transcription:

Decided that whatever
My oldest son he was a policeman
I don't know where it was in L.
They had a course for him go through that
That's all he
I think it was
I don't know
My daughter-in-law she went at State
She was there a couple three years
I don't know what she got
She works for a bank now in L.
Relation some type of thing
It's everything

[cont.]>>>

Data sheet 1 of 4 for Session # B7 Subj R.L.

Language Sample Orthographic Transcription:

Yes sir
I worked down there this afternoon 'til about six o'clock
That was it
We still upstairs with the painting
No, we got two bedrooms up there
Those gunna be painted
I think this is gunna be white
In that area
Off a little bit
They'll both be the same up there
I watch didn't watch mine last night
I didn't watch her
We went up to H. L.
Coming back you could see some of the trees were starting to change somewhat
It's the fall
I always like to see
This month here it will get pretty good
It goes all over
Several years we went up to C.
Went on a train up there
They have this train that goes up through there
We went was a whole day
It was pretty interesting
It's right out in the country
We didn't get into cities at all
Right across the S. M.
Just across
That's where you get onto it
It goes right back ~~and~~ forth
I don't know what it is, no
In fact, I think what we might have went on the side of several towns
They're real small
There's no big cities on it
Where we stopped
You can take this
Go there stay overnight up there
Come back
We got halfway
There was tracks pulled over
So one train can stop
The other one can come through
That's where we stopped
Something different

[cont.]>>>

Data sheet 2 of 4 for Session # B7 Subj R.L.

Language Sample Orthographic Transcription:

They know when you're coming
It's pretty
Yeah, that's when we went
They have it in the winter
When you go on through the snow
I guess that's pretty in the pines
That's really pretty in there
There's a lot of people in there
A lot of cars on there
It's just like a regular train really
Yeah, more or less just sandwiches
Yeah, they don't have a big
No, I think you take you own
I believe it
They have it
You can go in have a beer
It's a different
We went to M.
We went a train there out of L.
The kids gave us a for Christmas one time
They wanted us to go over have a opera
They're nice too
The coaches aren't
When we went up sight-seeing
They aren't as big
I mean they were nice
They aren't as comfortable as the
The Phantom
We were supposed to go there
We couldn't get in there
So we went to a theatre that
After we had dinner
We went into this theatre
They have a movie right there
You're in the movie like
They have the show there
They go around to the people that are there
You're in the
Yeah, that's it
It was all right
It was pretty nice
Yeah, they talked too
It was nice

[cont.]>>>

Data sheet 3 of 4 for Session # B7 Subj R.L.

Language Sample Orthographic Transcription:

My wife ~~and~~ daughters
They went to L. here with it
When it was here just lately
They went in through there
They've wanted to go to it many years
A different thing
My daughter ~~and~~ her went to E. ~~and~~ S. ~~and~~ S.
Their about like eighty-six something about like that
There were different operas like it over there
I think they got to see one in E. one time
I don't know just where they went
Usually the girls are going
That's what they do, yeah
I like to see them
I like to go with her
Not in a long time
I wanted to go to L. here the baseball up here
We haven't made that this year either
It's gone
It must be pretty close
It looked like they were
Will they
I thought they was doing
It looks like pretty good
Every one that has gone ~~and~~ seen it says it's nice
She wants to go to the Tigers
I haven't been there in many, many years
The parking
If they get her straightened around
It's okay with me
We went to in D.
We went a couple times during the summer
Watching the horse races
We went into L.
We took a bus in there
They had a room for us to go
It has for the State
They had room for people to go in
We went with them
That was pretty nice
You go on the bus
You had dinner right at the track
You'd leave about ten o'clock in the morning

[cont.]>>>

Data sheet 4 of 4 for Session # B7 Subj R.L.

Language Sample Orthographic Transcription:

Six, seven o'clock we'd be home

[cont.]>>>

Data sheet __1__ of __2__ for Session # __T1__ Subj __R.L.__

Language Sample Orthographic Transcription:

The camera this time
Is that open out now
Pretty good
Yes, I was in the rain watching soccer game
That's right
The kids got wet
We had our suits on so it didn't hurt us too much
It was bad
S.'s was in S. J.
The girls went to that
She lost
The boys went to O.
We went with N.
Their team got a win seven to nothing
He got three of the points
He did all right
He didn't do the goalie
He was up front
I don't know the positions they have
He was up front at first
He played three quarters
The last quarter had didn't play
I think he got two points when he were up front
In back, he finally got one in there
Depends on where you're at
I believe it
I just don't know they are
I don't know where she played
I think she was goalie for awhile
If it goes by you, then it's bad news
Yesterday we went to church
Then we walked
They had a party
Some of our friends
They retired
They wanted to have a party
So there was quite a few people at this over around C.
In that area
It was an all day affair
Yes they did
They're right on a lake
Over quite a few years he got different land
Across there he's got a big garage

[cont.]>>>

Data sheet 2 of 2 for Session # T1 Subj R.L.

Language Sample Orthographic Transcription:

It was all in there mostly

[cont.]>>>

Data sheet 1 of 1 for Session # T2 Subj R.L.

Language Sample Orthographic Transcription:

No, we walked
She's down the house down there
The rental place
Everything she's playing
Yeah, yesterday after you left I went down there
I done three bedrooms painted them yesterday
Well that was the three
She'd be working on the living room now
I've got to take some paper off of that ~~and~~ paint it
I think she's gunna paper in that one
It's probably ten by twelve probably in that
It depends on what it
That one there got a one, two, three
Three doors in it
Two windows
A big archway from the front room to the other room
It's a lot of
With the paper you have to monkey around with it different places
That room has W. coating up probably thirty inches
Old W. coating
It's wood
You only have to from there up to the top you have to paper
It's wood
I gotta work in the
I gotta paint paper in the kitchen
In the bathroom, I've got to paint in there
It's quite a deal
It will be a couple of weeks we'll be done
Just what I'm gunna have to do before depends on the weather outside
If the weather's good then I work outside
You can work out
Other than painting
You don't know about the weather here
If you got to paint even outside
If it goes real cold you don't want to put paint out
It's no good
The temperature has got to be I would say around fifty
The rain don't like that
I would say you gotta watch it
I would say around fifty
Any more than that it just takes too long to dry

[cont.]>>>

Data sheet 1 of 2 for Session # T3 Subj R.L.

Language Sample Orthographic Transcription:

Yes, I was working down there
There was a chimney
You ever see the old type
They'll start halfway up
They'll go up through the to get outside
No, this was a stove
It starts about a third the way up
So that was down in the kitchen
I've wanting to take it out for years
We don't use it
Yeah, the furnace
I wanted to get that out of there
So I there's bricks
I just got through taking a shower
Man, there was stuff flying all over
Yeah, I got her down
Now I've got to get the two-by-fours in there ~~and~~ drywall
Clean it up
Yes, right now there's a hole
No, that was out before
Usually when they take them out they just leave under the roof
It just sits there
Labor Day is that the second we went up there
No, we bought it up there
They have one at S. I.
Where we got this was
Now I can't the city right now
It's the first one you get there
No, they had them right there
About the same place
We always get fudge
Two
They have different places that have it
Where we go are the regular
That's all they do is right there
A lot of these you see smoked fish quite a few times small places
I've never got them there
That's all they do is these places
They've made them
They have them right there
Yeah, that's okay
These people that's where we usually go
It been there before

[cont.]>>>

Data sheet 2 of 2 for Session # T3 Subj R.L.

Language Sample Orthographic Transcription:

Our friends from N.
They wanted to go on the bridge walking
I said as long as we're there I show the other things
I been there before
It's nice
We went on the horses
She wanted to go there
So we went around there a little bit
I don't know how far they take ya
It takes an hour ~~and~~ a half
There's different places they show you
They have a rock that's got a big hole in it
You can go up on top of that
Well we went downtown
Right in town was where we were
All they have is T-shirts
No, I didn't
Yes, they did
They wanted to get the hat

[cont.]>>>

Data sheet 1 of 2 for Session # T4 Subj R.L.

Language Sample Orthographic Transcription:

Pretty good today
We walked again this morning
It's nice day
No, it's nice
About seven o'clock now
Usually most of the times it's around eight
From seven 'til eight any time in there
Normally it's warmer during the summer
So I get it done first
Which is all right with me
No, it's getting so right now you can see all right
It's getting there
I'll be done there working again
I'd like to mow the grass here
I got to spray her to get rid of some of the weeds
I'd like to do both of them
I do
I bought a sprayer a couple of years ago
So I have it
So I can do it
It goes behind my mower
Can you get through there
No, I have to do it
With that sprayer you get to watch what it's doing behind there
I haven't been no
If you don't put for the weeds
We have a lot of dandelions around this area
If you don't she gets really yellow here
If you don't do it every year or every other year then they're back
It don't seem to
Years ago they've changed this
The state they watch what the farmers or everybody else can use anymore
Supposedly the poison we're using now is okay
I have to take the plants that's there
Around back I take all of my leaves ~~and~~ keep that in there
It's in the fence
I got two places in it
This fall I will take out the one that's been in there the longest
Put it on my garden
I'll put the leaves in there
So it takes about a year
It takes care of your leaves
You don't have to take it anywhere

[cont.]>>>

Data sheet 2 of 2 for Session # T4 Subj R.L.

Language Sample Orthographic Transcription:

Nope, we just keep working on it
We'll be going deer hunting
I'm gunna be getting ready for deer hunting
Take my guns out dry them off
Yes, it's all ready

[cont.]>>>

Data sheet 1 of 2 for Session # T5 Subj R.L.

Language Sample Orthographic Transcription:

I haven't in a long time
About once a year many years ago
I'd have to go to chiropractor
I don't know why
It'd get so you couldn't stand
I mean she's right with ya
I probably go down there for a few minutes
I don't know
I got a couple of things I want to do with the house down there
Then we're gunna go to the S. J.
Watch the other game today
They gunna play tonight
My daughter just called a few minutes
She's working L.
She's going also
Six o'clock
I don't know what we'll do
She'll be with us tonight
She goes quite a bit with us
She was going to be married a year half ago
He had trouble with his back
He's been laid up for a long time
She's just waiting to see how he's doing here
They didn't know what was gunna happen there
He can walk around now
So anyway, she's still here
She goes with us quite a bit
I did awhile
My wife she did quite a bit
She don't anymore
Her ~~and~~ I on Sundays I think
We bowl for two years I think
The other people we went with
They quit doing it so we quit
I don't think so
I never done it before
It was all right
Ice fishing
On bowling they used to have to go for so many weeks
This would be all week
Usually on Sunday you'd have to be around
A lot of things going on also
No, we just around here

[cont.]>>>

Data sheet 2 of 2 for Session # T5 Subj R.L.

Language Sample Orthographic Transcription:

There's quite a few lakes around here
There's a couple over towards S. J. in that area
S. H.
It's a state campground
I haven't in many years
Pike is usually
I haven't tried that in many years
It's like anything else they're around
My brother-in-law when I went with him before he passed away
Him ~~and~~ I went all the time
He's got a cabin up around (?)
His boy he goes in for pike fishing quite a bit
He usually has them around when we go fishing
I probably bluegills I think the last one I got I say around I believed it was 10 inches
There pretty good
No, that was up near (?)

[cont.]>>>

Data sheet 1 of 2 for Session # T6 Subj R.L.

Language Sample Orthographic Transcription:

He uses bridging on your teeth
Yes, that's what he does
He comes into P.
He goes to see the dentist if they have problems
He comes right in works with them also
No, G. L.
Go on ninety-six toward L.
Get on one hundred
Then you turn right
It's about three miles from ninety-six
Seems to be
Place to have Chinese food
I don't know they have
The G. R. goes right through there
They have different there's an island in there
They have a camp in there that you can go
G. L. ledges
There's a pass that goes along the river
Where there's caves like
There's quite a site if you ever wanted to
It goes quite a while
Not in a long time
I had went down through her
My wife ~~and~~ I went several years ago
It was in T. I believe
They was a place that you had to go down the elevator
You went down a long ways
They had a cave down below
I don't know that wasn't it
They've them also in T.
Then they have them in K. also
I have never went in the ones
The ones we went down through the elevator
It was all right
It was small
A lot of places it was small
One person goes
They had a group would go through there
They had the big icicles there from the top from the floor
You could think of a lot of things when you're down there
Some places were big enough like this room
It got the end
There was might have been fifty feet high

[cont.]>>>

Data sheet 2 of 2 for Session # T6 Subj R.L.

Language Sample Orthographic Transcription:

It had a waterfall inside
It did it was quite a deal
I don't think so
This is what we wanted to go this year
We didn't make her
Next year I think we'll go
She wants to go to A.
I've been through eighty over west out to K., N.
I want to go south some of these states
I've been through quite a few T.
We'll again with her
I think we'll go through A.
I think about we go to L. V. once in while
I thought with the car I go through there also
We'll do that then we'll go north
I don't know what the highway in there
I would like to go through M.

[cont.]>>>

Data sheet 1 of 2 for Session # T7 Subj R.L.

Language Sample Orthographic Transcription:

Pretty good
Went walking it's a nice day
I don't know
I was just looking at the paper
It supposed to a chance of rain tomorrow
Yeah, I think we're going to yes
There's a couple of them
They can be any time
These are in the morning
I have to be there at nine o'clock in S. J.
His first one
S.'s I don't know
It's ten or ten-thirty in L. I believe
They're an hour
Fifteen minutes in quarter
So they take at the quarter
They don't have much time
Then at half it might be five minutes
Then they'll back ~~and~~ going
I'm going there probably
If it don't rain
If they gunna have the races
I be going that speedway Sunday in the evening
Sunday I don't know
I don't know
This is the only time he's been this year
They'll call before he goes in there on Saturday
They'll have a notice that he get find out if they're gunna have
I've never been there ~~and~~ have the rain
I think once it starts then you can't put those cars on the track
This is asphalt
Got one up here west of P. here
That is dirt
That don't take much you can be right on it
I don't know
Those people that own this track
I don't know how they do this
They're having fifty laps on some of them
There's three car races
Usually they'll have features at Saturday
Those are only about like twenty laps
They'll have different cars from all over
What she'll do they want to get this done

[cont.]>>>

Data sheet 2 of 2 for Session # T7 Subj R.L.

Language Sample Orthographic Transcription:

We had it in the paper
I don't know what they'll do if they have to say it's not going to go
They'll have it next week I have no idea
No, it sounds like M. S. is coming around on their football
I think they knew approximately what they gunna have to have
They figured they got out okay
It's something they'll have to work with
It's like anything else you have problems
Before they're too bad
It will be all right
I see it in the paper I don't know
He likes it around L. sounded like his family

[cont.]>>>

Data sheet 1 of 2 for Session # T8 Subj R.L.

Language Sample Orthographic Transcription:

It's okay with me
I just hope it will help somebody else with your work
It was okay with me
I don't have any problems with it
I been getting along with you real good
I got no problem with that
Yes, to me
Over the years, I been down to the shop down there
I didn't know then right away
Didn't have to be them
You be around people at all
I can tell right now what the guy was gunna do
I can tell
That way, yeah
If they're gunna do their job
We're working on this
Not bad cause I can do it
I like to do it
I could have somebody come in do that
It's ours
I think we go up North
Take a vacation
That didn't bother me
If it was a long
If it got to be, fine
When I had problems
At first I thought it was kind of bad for me
You don't know what was happening
It worked good
I worked with P.
Everything worked out pretty good
Then I went to S. there
Them girls were real good
Maybe I should've had more time doing something
After awhile when I got through
I thought well I just wait awhile see if I can get myself back in gear
I still have problems
I don't know if anything would help me
It may
I would just like to
I seen her one time in the mall
It was good
They're pretty busy I'm sure

[cont.]>>>

Data sheet 2 of 2 for Session # T8 Subj R.L.

Language Sample Orthographic Transcription:

When you're there, you're there
I can't just walk in there
Say I want to see her for this
You can't
It don't sound like you can do that
I doubt if we'll do it now with this here
It might be in the spring
I think we'll go out to see those N.
Yes, they were her for awhile
They been here a couple three times
I haven't been down there so it's my turn

[cont.]>>>

REFERENCES

REFERENCES

Armus, Sharon R., Brookshire, Robert H., & Nicholas, Linda E. (1989). Aphasic and non-brain-damaged adults' knowledge of scripts for common situations. *Brain and Language*, 36: 518-528.

Aten, J., Caligiuri, M., & Holland, A. (1982). The efficacy of functional communication therapy for chronic aphasic patients. *Journal of Speech and Hearing Disorders*, 47: 93-96.

Bandura, A. (1977). Social Learning Theory. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Boller, F., Cole, M., Vrtunski, P., Patterson, M., & Kim, Y. (1979). Paralinguistic aspects of auditory comprehension in aphasia. *Brain and Language*, 7: 164-174.

Brody, J. (1992, June 10). When brain damage disrupts speech. *New York Times*, p. C13.

Brookshire, Robert H. (1992). An Introduction to Neurogenic Communication Disorders (Fourth Edition). St. Louis, Missouri: Mosby Year Book.

Bruner, J. (1983). Child's Talk: Learning to Use Language. New York, New York: W. W. Norton & Co.

Camarata, S., Nelson, K., & Camarata, M. (1994). Comparison of conversational-recasting and imitative procedures for training grammatical structures in children with specific language impairment. *Journal of Speech and Hearing Research*, 37: 1414-1423.

Chapey, R. (1994). Language Intervention Strategies in Adult Aphasia (Third Edition). Baltimore, Maryland: Williams & Wilkins, Inc.

Chester, S. L., & Egolf, D. B. (1974). Nonverbal communication and aphasia therapy. *Rehabilitation Lit.*, 35: 231-233.

Dabul, Barbara (1986). Apraxia Battery for Adults. Austin, Texas: PRO-ED, Inc.

Davis, G. Albyn (1993). A Survey of Adult Aphasia and Related Language Disorders (Second Edition). Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Davis, G., & Wilcox, M. (1981). Incorporating parameters of natural conversation in aphasia treatment. In R. Chapey (Ed.), Language Intervention Strategies in Adult Aphasia. Baltimore, Maryland: Williams & Wilkins, Inc.

Duffy, Joseph R. (1994). Schuell's stimulation approach to rehabilitation. In R. Chapey (Ed.), Language Intervention Strategies in Adult Aphasia (Third Edition). Baltimore, Maryland: Williams & Wilkins, Inc.

Eisenson, Jon (1984). Adult Aphasia (Second Edition). Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Fey, Marc E. (1986). Language Intervention with Young Children. Needham Heights, Massachusetts: Simon & Schuster, Inc.

Fink, R., Martin, N., Schwartz, M., Saffron, E., & Myers, J. (1992). Facilitation of verb retrieval skills in aphasia: A comparison of two approaches. In M. L. Lemme (Ed.), Clinical Aphasiology Conference (Volume 21). Austin, Texas: PRO-ED, Inc.

Galambos, James & Rips, Lance (1982). Memory for routines. *Journal of Verbal Learning and Verbal Behavior*, 21: 260-281.

Glosser, G., Wiener, M., & Kaplan, E. (1988). Variations in aphasic language behaviors. *Journal of Speech and Hearing Disorders*, 53: 115-124.

Goodglass, H., & Blumstein, S. (1973). Psycholinguistics and Aphasia. Baltimore, Maryland: Johns Hopkins University Press.

Goodglass, H., & Kaplan, E. (1983). The Assessment of Aphasia and Related Disorders (Second Edition). Philadelphia, Pennsylvania: Lea & Febiger.

Green, G. (1984). Communication in aphasia therapy: some of the procedures and issues involved. *British Journal of Disorders of Communication*, 19: 35-46.

Grice, H. (1975). Logic and conversation. In P. Cole and J. Morgan (Eds.), Syntax and Semantics. New York: Academic Press.

Halliday, M. A. K. (1973). Explorations in the Functions of Language. New York: Elsevien North-Holland.

Holland, A. L. (1975). *Aphasics as communicators: A model and its implications.* Paper presented as the 50th American Speech and Hearing Association Convention, Washington, DC.

Holland, A. L. (1979). Some practical consideration in aphasia rehabilitation. In M. Sullivan and M. Kommers (Eds.), Rationale for Adult Aphasia Therapy. Omaha: University of Nebraska Medical Center Print Shop.

Holland, A. L. (1980). Communication Abilities in Daily Living. Baltimore, Maryland: University Park Press.

Holland, A.L., Fromm, D. S., DeRuyter, F. & Stein, M. (1996). Treatment efficacy: aphasia. *Journal of Speech and Hearing Research*, 39: S27-S36.

Holland, A. L., Swindell, C. S., & Fromm, D. (1983). A model treatment approach for the acutely aphasic patient. In R. H. Brookshire (Ed.), Clinical Aphasiology. Minneapolis, Minnesota: BRK.

Horner, Jennifer, Loverso, Felice L., & Rothi, Leslie G. (1994). Models of aphasia treatment. In R. Chapey (Ed.), Language Intervention Strategies in Adult Aphasia (Third Edition). Baltimore, Maryland: Williams & Wilkins, Inc.

Hough, Monica S., & Pierce, Robert S. (1994). Pragmatics and treatment. In R. Chapey (Ed.), Language Intervention Strategies in Adult Aphasia (Third Edition). Baltimore, Maryland: Williams & Wilkins, Inc.

Kaiser, Ann, & Hester, Peggy (1994). Generalized effects of enhanced Milieu teaching. *Journal of Speech and Hearing Research*, 37: 1320-1340.

Kazdin, Alan E. (1984). Statistical analyses for single-case experimental designs. In D. Barlow and M. Hersen (Eds.), Single-Case Experimental Designs: Strategies for Studying Behavior Change (Second Edition). Boston, Massachusetts: Allyn & Bacon.

Kearns, K. & Yedor, K. (1991). An alternating treatments comparison of Loose Training and a Convergent Treatment strategy. In T. Prescott (Ed.), Clinical Aphasiology Conference (Volume 20). Austin, Texas: PRO-ED, Inc.

Kertesz, A. (1982). The Western Aphasia Battery. New York: Grune & Stratton.

LaPointe, L. L. (1977). Base-10 programmed stimulation: Task specification, scoring, and plotting performance in aphasia therapy. *Journal of Speech and Hearing Disorders*, 42: 90-105.

Li, E., Kitselman, K., Dusatko, D., & Spinelli, C. (1988). The efficacy of PACE in the remediation of naming deficits. *Journal of Communication Disorders*, 21: 491-503.

Lojek-Osiejuk, Emilia (1996). Knowledge of scripts reflected in discourse of aphasics and right-brain-damaged patients. *Brain and Language*, 53: 58-80.

Lomas, J., Pickard, L., Bester, S., Elbard, H., Finlayson, A., & Zoghaib, C. (1989). The communicative effectiveness index: Development and psychometric evaluation of a functional communication measure for adult aphasia. *Journal of Speech and Hearing Disorders*, 54: 113-124.

Lucariello, J., & Nelson, K. (1985). Slot-filler categories as memory organizers for young children. *Developmental Psychology*, 21: 272-282.

Lund, Nancy J., & Duchan, Judith F. (1988). Assessing Children's Language in Naturalistic Contexts (Second Edition). Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Macnamara, John (1972). Cognitive basis of language learning in infants. *Psychological Review*, 79: 1-13.

Martin, A. D. (1975). A critical evaluation of therapeutic approaches to aphasia. In R. H. Brookshire (Ed.), Clinical Aphasiology. Minneapolis, Minnesota: BRK.

McNeil, M., Odell, K., & Tseng, C. (1991). Toward the integration of resource allocation into a general theory of aphasia. In T. Prescott (Ed.), Proceedings of the Clinical Aphasiology Conference (Volume 19). Austin, Texas: PRO-ED, Inc.

McReynolds, Leija V., & Kearns, Kevin P. (1983). Single-Subject Experimental Designs in Communicative Disorders. Austin, Texas: PRO-ED, Inc.

Murray, Laura L., & Holland, Audrey L. (1995). The language recovery of acutely aphasic patients receiving different therapy regimens. *Aphasiology*, 9: 397-405.

Nelson, Katherine (1986). Event Knowledge: Structure and Function in Development. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.

Nelson, Katherine & Hudson, Judith (1988). Scripts and memory: Functional relationships in development. In Weinert, F. and Perlmutter, M. (Eds.), Memory Development: Universal Changes and Individual Differences. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.

Nelson, K., Camarata, S., Welsh, J., Butkovsky, L., & Camarata, M. (1996). Effects of imitative and conversational recasting treatment on the acquisition of grammar in children with specific language impairment and younger language-normal children. *Journal of Speech and Hearing Research*, 39: 850-859.

Nelson, Nickola W. (1993). Childhood Language Disorders in Context: Infancy through Adolescence. New York, New York: Macmillan Publishing Co.

Nicholas, Linda E., & Brookshire, Robert H. (1993). A system for quantifying the informativeness and efficiency of the connected speech of adults with aphasia. *Journal of Speech and Hearing Research*, 36: 338-350.

Perkins, L., & Lesser, R. (1993). Pragmatics applied to aphasia rehabilitation. In M. Paradis (Ed.), Foundations of Aphasia Rehabilitation. Tarrytown, New York: Pergamon Press, Inc.

Prutting, C., & Kirchner, D. (1987). A clinical appraisal of the pragmatic aspects of language. *Journal of Speech and Hearing Disorders*, 52: 105-119.

Records, Nancy (1994). A measure of the contribution of a gesture to the perception of speech in listeners with aphasia. *Journal of Speech and Hearing Research*, 37: 1086-1099.

Robertson-Tchabo, Elizabeth, & Arenberg, David (1987). Cognitive performance. In H. Mueller and V. Geoffrey (Eds.), Communication Disorders in Aging: Assessment and Management. Washington, DC.: Gallaudet University Press.

Rosenfeld, N. M. (1978). Conversational control function of nonverbal behavior. In A. Siegman and S. Feldstein (Eds.), Nonverbal Behavior and Communication. Hillsdale, New Jersey: Lawrence Erlbaum.

Rosenthal, R., & Rosnow, R. (1991). Essentials of Behavioral Research: Methods and Data Analysis (Second Edition). New York: McGraw-Hill, Inc.

Sarno, Martha T. (1991). Acquired Aphasia (Second Edition). San Diego, California: Academic Press, Inc.

Schank, Roger & Abelson, Robert (1977). Scripts, Plans, Goals, and Understanding: An Inquiry into Human Knowledge Structures. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.

Schuell, H., Jenkins, J., & Jimenez-Pabon, E. (1964). Aphasia in Adults: Diagnosis, Prognosis, and Treatment. New York: Hoeber Medical Division, Harper.

Searle, J. R. (1969). Speech Acts. London, England: Cambridge University Press.

Shatz, M. (1977). The relationship between cognitive processes and the development of communication skills. In C. B. Keasey (Ed.), *Nebraska Symposium on Motivation*, 25: 1-42. Lincoln, Nebraska: University of Nebraska Press.

Shatz, M. (1983). Communication. In J. H. Flavell and E. M. Markman (Eds.), Cognitive Development (p. 841-889). Volume 3 of P. Mussen (Ed.), Handbook of Child Psychology (Fourth Edition). New York, New York: Wiley.

Snow, C. & Goldfield, B. (1983). Turn the page please: Situation-specific language acquisition. *Journal of Child Language*, 10: 551-569.

Thompson, Cynthia K. (1994). Treatment of nonfluent Broca's aphasia. In R. Chapey (Ed.), Language Intervention Strategies in Adult Aphasia (Third Edition). Baltimore, Maryland: Williams & Wilkins, Inc.

Tseng, C., McNeil, M., & Milenkovic, P. (1993). An investigation of attention allocation deficits in aphasia. *Brain and Language*, 45: 276-296.

Waller, Marcie R. & Darley, Frederic L. (1978). The influence of context on the auditory comprehension of paragraphs by aphasic subjects. *Journal of Speech and Hearing Research*, 21: 732-745.

Wilcox, M. (1983). Aphasia: Pragmatic considerations. *Topics in Language Disorders*, 3: 35-48.

Wilcox, M., Davis, G., & Leonard, L. (1978). Aphasics' comprehension of contextually conveyed meaning. *Brain and Language*, 6: 362-377.

Williams, S., Li, E., Volpe, A., & Ritterman, S. (1994). The influence of topic and listener familiarity on aphasic discourse. *Journal of Communication Disorders*, 27: 207-222.

Wirz, S. L., Skinner, C. M., & Dean, E. (1990). Revised Edinburgh Functional Communication Profile. Arizona: Communication Skill Builders.

Zurif, E., Caramazza, A., Foldi, N., & Gardner, H. (1979). Lexical semantics and memory for words in aphasia. *Journal of Speech and Hearing Research*, 22: 456-467.