CONVERSATIONAL REPAIR STRATEGIES OF PRESCHOOL CHILDREN DURING NATURALISTIC INTERACTIONS

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Richard J. Stott
ABSTRACT

Within the area of pragmatics, the subject of children's repair strategies has been an issue of considerable research for many years. Most of this research has not addressed verbal and nonverbal repair strategy behaviors particularly among preschool children enrolled in an integrated preschool program. The purpose of the present study was to describe how preschool children enrolled in an integrated preschool program request clarification in naturalistic situations and how they use conversational repair strategies following a stacked sequence of requests for clarification by adults.

Naturalistic inquiry was used to establish an inventory of strategies used by handicapped and non-handicapped children (N=34) integrated in a preschool setting. The investigator observed and recorded behaviors of the preschool subjects as they interacted with adults in the integrated preschool setting three mornings per week over a period of six weeks. Behaviors recorded relative to child requests for clarification and child responses to stacked sequences of requests for clarification by adults were unitized and categorized by the investigator. The results,
which are presented in narrative and tabular form, represent the conversational repair strategies of preschool children in the integrated preschool setting.

A higher percentage of nonverbal than verbal behaviors was noted for both requests for clarifications and responses to requests for clarification across all subjects regardless of age and/or presence of handicap. Two-year old subjects demonstrated the highest percentage of nonverbal behavior and the lowest percentage of appropriate verbal behavior as requests for clarification; four- and five-year old subjects, conversely, demonstrated the lowest percentage of nonverbal behavior and the most appropriate verbal behavior as requests for clarification. Handicapped subjects demonstrated lower percentages of verbal and nonverbal requests for clarification in comparison to non-handicapped subjects. Repetition of the initial utterance was the repair strategy used most frequently by all subjects, across all groups.

Based on these conclusions, recommendations for future research include comparisons of handicapped and non-handicapped preschool children's conversational performance between integrated and non-integrated preschool settings.
CHAPTER I

INTRODUCTION AND REVIEW OF LITERATURE

Introduction

The components of conversation have been defined in Wood (1982, p. 33) to include the following:

1. Dialoguing and turn taking;
2. Maintaining a topic;
3. Providing the listener with the information necessary for the conversation;
4. Repairing communication breakdowns; and
5. Observing conventional ways of interacting, depending on the person, situation, and topic.

Of these five conversation components, children's repair of communication breakdowns has been of interest for many years (Brinton & Fujiki, 1982; Gallagher, 1977, 1981; Garvey, 1975, 1977; Kreidlkamp-Nelson, 1989; Langan, 1988; Leonard, 1986; Tomasello, Farrar, & Dines, 1984; Wilcox & Webster, 1980).

Throughout any conversation, the need may arise for a listener to request clarification of an utterance that has not been understood or that has been otherwise misinterpreted. The request for clarification is a type of
unsolicited contingent query (Garvey, 1977) and may occur at any time during discourse when a listener indicates that a speaker's message has not been understood or cannot be interpreted without further clarification (Gallagher, 1981; Garvey, 1977).

The speaker's response to the listener's request for clarification is the actual conversational repair. The speaker has these options according to Brinton, Fujiki, Loeb, and Winkler (1986): (a) providing a repetition, revision, addition or cue to the initial utterance, (b) ignoring the listener's request for clarification or (c) providing an inappropriate response.

The development of conversational repair strategies among children with age-appropriate communicative competence has been well documented. Some researchers (Brinton et al., 1986; Gallagher, 1981; Gallagher & Darnton, 1978; Langan, 1987; Wilcox & Webster, 1980) have analyzed the reactions of normally developing children to breakdowns in the understanding of utterances during conversational interactions or children's use of requests for clarification during such interactions when information is not understood.

Few studies have been conducted in the areas of conversational repair abilities among language-disordered children (Gallagher & Darnton, 1978; Leonard, 1986) or analysis of children's repair behaviors in naturalistic
settings (Brinton & Fujiki, 1982; Leonard, 1986). While some studies have alluded to the nonverbal and paralinguistic behaviors that occur with conversational repair strategies (Garvey, 1977; Kreidlkamp-Nelson, 1989; Langan, 1988), no studies have been found that thoroughly analyze these behaviors during communication breakdowns in children's conversation.

Most studies of conversational repair strategies utilize artificial or "staged" procedures. Only Gallagher and Darnton (1978) investigated revision behaviors among language-disordered children in naturalistic settings and interactions, but they observed only child revision responses to adult requests for clarification. There appears to be significant need for studies that analyze the abilities of linguistically developing children in using conversational repairs during spontaneous interactions in naturalistic settings. Further, there is need to study how nonverbal and paralinguistic behaviors contribute to children's conversational repair strategies. Schoen (1988, p. 2) stated that "in dealing with the language learner we . . . need to understand what is involved in a successful literacy event in order to create the necessary supportive environment where the learner would encounter quality language learning experiences."

In language intervention that targets pragmatic goals, the use of wh-questions is often a focus as a means of
promoting the child's awareness of questions and questioning as a function of language. Because conversational repairs often utilize wh-question forms, it is important to understand the development of receptive and expressive conversational repair strategies among children. This study was designed to describe, for naturalistic interactions, how children accomplish conversational repair and how they respond to requests for clarification from a listening adult.

Statement of Purpose

The purpose of this study was to determine how handicapped and non-handicapped preschool children who are enrolled in an integrated preschool program use requests for clarification in naturalistic situations and use conversational repair strategies following a stacked-sequence of requests for clarification initiated by adults.

Specifically, answers to the following questions were sought: what is the nature of preschool children's requests for clarification when they are interacting with adults in an integrated preschool setting, and what is the nature of preschool children's responses to requests for clarification when they are interacting with adults in an integrated preschool setting?

Review of Literature

Conversational development in children has been an area of increasing research interest since investigators like
Searle (1969) and Dore (1974) introduced pragmatic language theory. Prior to the 1970's child language development had been described mainly in terms of syntactical structure and the generative grammar theories originally developed by Noam Chomsky in the 1960's.

Searle (1969) proposed many of the concepts inherent in modern pragmatic language theory. Pragmatics, the study of language in context, regards the speech act rather than the sentence as the basic unit of communication. The model considers the word selections and combinations used by the speaker to reflect the speaker's intentions and beliefs and to have some impact on the listener. Searle described speech acts in terms of their illocutionary force, locutionary form, and perlocutionary effect. It was through the description and application of these components of speech acts that Searle suggested how speech acts and pragmatic functions relate. Illocutionary force refers to the intentions of the speaker. Locutionary form refers to the structure of the speech act, usually in the form of a sentence consisting of a modality (such as interrogative, imperative, or negation) and a proposition (constituents of the sentence). Perlocutionary effect refers to the perceived impact on the listener. Searle (1969) proposed that the speaker's intentions and the choices the speaker makes for constructing a sentence to achieve some effect on the listener relate the semantic and syntactical structures
of language to serve functional purposes, essentially defining the speech act.

Dore (1974) expanded on the work of researchers such as Searle and introduced the concept of "primitive speech act." Dore coined this new term in relation to Searle's early pragmatic theory to describe how language is used by young children for functional purposes. Dore developed a theoretical framework for treating children's one-word utterances as primitive speech acts. Dore defined nine primitive speech acts including labelling, requesting, answering, requesting action, requesting an answer, calling, greeting, protesting and practicing. These primitive speech acts serve to describe the functions of an individual utterance used in context by children. Dore had proposed that even at the one-word stage of language development, children demonstrate functional speech that could be described in terms of speech acts.

Garvey (1975) proposed that speech acts play a role in structuring discourse. Describing requests for clarification in terms of solicited and unsolicited contingent queries, Garvey (1977) suggested that the contingent query is a "modular component of discourse" and is a form of dependent speech act since it requires a specific verbal response from the listener.

Solicited contingent queries are intentionally used by the speaker to elicit a particular response from the
listener (e.g., "You were at the movie, weren't you?"). The unsolicited contingent query was described by Garvey (1977, p. 79) as "a major technique which a cooperative conversationalist can use to acquire what he needs in order to respond (appropriately)" (e.g., "What?"). The request for clarification is considered an unsolicited, nonspecific contingent query because the response options of the listener are many. A question like "what?" can have many possible replies.

Garvey (1977) suggested that contingent queries elicit determining responses which confirm, repeat, specify, or elaborate aspects of the initial utterance that required a request for clarification. The usefulness of contingent queries was proposed by Garvey (1977) to benefit both the listener and the speaker. The speaker gains immediate feedback on the intelligibility or acceptability of his last utterance (i.e., using solicited contingent queries), and the listener can check his understanding of all or part of the speaker's message (i.e., using unsolicited contingent queries).

While much of the literature on conversational repair strategies focuses on children's response to requests for clarification, the development of the ability to use requests for clarification when the speaker is not understood by the child has received little attention.
Most of the research in the area of child conversation development analyzes responses to unsolicited contingent queries and either expands on or clarifies points made in research by Garvey. Further, nonverbal conversational components have been largely neglected in most studies analyzing children's conversational repair strategies. Studies of both forms of conversational repair strategies (use of requests for clarification and responses to requests for clarification) will be discussed as well as studies incorporating nonverbal behavior analysis.

**Use of requests for clarification**

Child use of contingent query with adult speakers was investigated by Gallagher (1981) in terms of four components: the original utterance, the contingent query, the response to the contingent query, and the utterance that resumes the turn at speaking. In that study, it was found that the contingent query appeared less frequently in the speech of children compared to the speech of adults. It was suggested that the children were not providing continual feedback regarding the adequacy of the adult's messages. The study supported Garvey's (1977) proposal that "knowledge of the contingent query does not represent a conversational refinement, but is acquired as a part of learning to talk." Gallagher suggested that development of the use of contingent queries is related to the ability to
facilitate various types of queries eliciting a more specific response.

Responses to requests for clarification

Wilcox and Webster (1980) investigated responses to requests for clarification among children age 1-1/2 to 2 years, finding that these children have, even at the early stages of language, acquired at least rudimentary knowledge of appropriate conversational behavior.

Gallagher (1977) studied the revision behaviors among children in language stages I to III (according to Brown, 1973). Responses to requests for clarification were categorized by frequency of occurrence of repetitions, revisions, and no response behaviors. Gallagher found that a majority of the responses of her subjects to requests for clarification by an adult listener took the form of revisions of the original utterance.

In a later study, Gallagher and Darnton (1978) analyzed the effects of language disorders on responses to requests for clarification. Language-disordered children within stages I to III were the subjects of the study. The results indicated that the language-disordered subjects responded to the conversational demands of the listener when communication failure occurred primarily by revising utterances in response to requests for clarification, much like the normally-developing children in the earlier Gallagher study. It was found, however, that the types of
revision strategies used by the language-disordered children did not vary significantly across language stages.

In a related study, Leonard (1986, p. 114) proposed that language-impaired children can adequately serve as conversationalists because, ruling out syntactic ability, "world knowledge and/or experience with conversations permit considerable variability in conversational skill even within the same level of expressive language ability."

Because there are many and varied responses possible when nonspecific, unsolicited, contingent queries are made, much of the recent research (Brinton, Fujiki, Loeb, & Winkler, 1986; Kreidlkamp-Nelson, 1989; Langan, 1988; Spilton & Lee, 1977;) has analyzed responses to stacked sequences of requests for clarification.

Spilton and Lee (1977) observed that 4-year-old speakers tend to adapt their contributions to the conversation according to the nature of the listener feedback they receive. Stacked sequences were found to be a source of information where the speaker's ability to mutually cooperate with the listener to communicate effectively could be analyzed.

Brinton et al. (1986) used "what" followed by "huh" and finally "I don't understand" as a stacked sequence structure for requesting clarification from 3-, 5- and 7-year-olds. The responses of the children were classified as repetition, revision, addition, cue, or inappropriate
response types. The findings from this study suggested some developmental patterns across ages relative to repair strategies during communication breakdowns. It was found that subjects repaired most often either by repeating the previous message or by adding information in some way. Older subjects used addition as a repair strategy more often than younger subjects did. Additionally, subjects tended to add information more often as the request sequence progressed.

One component of the Langan (1988) study was to examine responses to stacked sequences among children in grades one and three using methods similar to those employed by Brinton et al. (1986). The results indicated many similarities between the two studies: younger children tended to use more repetitions than did the older children and older children employed a greater variety of repair strategies across the progression of the stacked sequence elicitation than did younger children. The results of both studies seem to indicate developmental patterns in repair strategies and abilities for topic manipulation during conversational breakdown.

Nonverbal behavior

It has been long understood that verbal and nonverbal behavior have a significant relationship in conveying semantic information between speaker and listener. Wood (1981) described two categories of nonverbal behavior that
are critical in children's development of kinesis, or communication through body movement: hand and arm movements, and facial movements. Such behaviors were referred to by Buck (1982) as culturally bound symbolic communication which "involves the transmission of propositions that are intentional and voluntary, although the use . . . may not be on the conscious level." Wood (1981) subcategorized hand and arm movements into four divisions:

1. deictic gestures: when children point to objects or places to refer to "this," "that," or "over there;"

2. pantomimic gestures: when children mimic or copy aspects of an object or event;

3. semantic gestures: when children attempt to illustrate size or shape, show emphasis, contrast, or amendment of the content; and

4. relational gestures: when children attempt to convey their feelings about their relationships with those they talk to, such as feelings of hostility, affection, or cautiousness.

Facial movements help in communicating emotional messages and are, like many hand and arm movements, culturally bound (Wood, 1981). Eye gaze, smiling, facial cues, and facial attractiveness all convey subtle semantic messages. Wood suggested that "(although) the entire face
is the best predictor of how people feel, the eyes are the single most informative portion of the face."

However, to interpret more complex emotions, such as fear, disgust or confusion, as many nonverbal cues as possible must be observed. While hand and arm movements and facial cues aid collectively in the expression and reception of feelings, other behaviors that occur along with words also contribute. Wood (1981, p. 193) described such behaviors in terms of prosodic or suprasegmental features, defined as "variations of the voice that contribute to the meaning of our messages." Such features include pitch, loudness, pauses and tempo within utterances.

Nonverbal and paralinguistic behaviors that occur during conversational breakdown have been alluded to in some studies but have never been fully described or quantified. Garvey (1977, p. 85) noted that on the phonological level, a child's response to a contingent query is marked prosodically or paralinguistically in the following dimensions:

1. reduction in tempo;
2. increase in the precision of articulation;
3. increase in volume;
4. widening of pitch range; and
5. use of contrastive stress.
Langan (1988) noted "differences in vocal rate, intensity, articulation, inflection and time between responses" between grade one and grade three subjects. Additionally, Langan found that all subjects exaggerated prosodic elements as an aid to the adult trying to understand the message.

Very recent research by Brinton, Fujiki, and Sonnenberg (1988) analyzed the gestural and suprasegmental nonverbal components among normal and language-impaired children. The results indicated that language-impaired children did not seem to compensate for their language difficulties with increased use of gestural or suprasegmental cues as did the normally-developing subjects.

Nonverbal behavior that occurs when a child gives an inappropriate response or no response at all to a request for clarification has not been documented. Brinton and Fujiki (1982) classified inappropriate responses as ignored or unrelated. Other than quantifying the occurrences of inappropriate responses, no examination of the nature of such responses was conducted. It was found in that study that the control subjects used fewer inappropriate responses than did the language-disordered subjects.

Rationale for the present study

Much of the research conducted in the area of conversational repairs has examined verbal behaviors. There has been little focus on nonverbal and paralinguistic
behaviors that occur as or during repair strategies of young children. New information may be gained regarding children's use of nonverbal and paralinguistic strategies to accomplish conversational repair.

Recent research in the area of conversational repair strategies has focused mainly on responses to stacked sequences of requests for clarification. Those studies that suggested significant developmental differences in children's repair strategies have been conducted using very controlled, highly structured models of elicitation (e.g., Brinton et al., 1986; Langan 1988; Kreidlkamp-Nelson, 1989). No research has examined stacked sequence repair abilities of children during more unstructured, naturalistic interactions with adults.

Brinton and Fujiki (1982, p. 62) indicated that "failure to take . . . (repair abilities) into consideration may limit the success of therapeutic intervention." Speech-language clinicians often target syntactic construction of question forms when intervention focuses on pragmatic abilities. Thorough knowledge of the behaviors that constitute or accompany conversational repair sequences may offer an understanding of intervention strategies needed not only to target linguistic structure but also to emphasize the interactive nature of questions, the kinds of responses that questions elicit, and the mutuality necessary during most conversational
interactions. Further, studying conversational repair behaviors as they occur in naturalistic interactions may provide insight into more practical intervention strategies for the language-impaired child enrolled in speech-language intervention that targets conversational competence.
CHAPTER II

METHODOLOGY

The purpose of the present study was to describe children's conversational repair strategies during naturalistic interactions with adults. This naturalistic design permitted study of child behaviors across a population of children and adults. This study was to answer two research questions: what is the nature of preschool children's requests for clarification when they are interacting with adults in an integrated preschool setting, and what is the nature of preschool children's responses to requests for clarification when they are interacting with adults in an integrated preschool setting?

Setting

The setting for the observation of the behaviors targeted in this study was the integrated preschool operated by the Center for Teaching and Learning (CTL). The preschool enrolls handicapped and non-handicapped children and places them together in classrooms based on age and/or developmental status. The preschool is located in the North Dakota School for the Blind in Grand Forks, North Dakota and is directed by Dr. Lynne Rocklage, Assistant
The subjects for this study were enrolled in this integrated preschool program. A list of the names of all enrolled children (N=83) and their parents was obtained from the preschool director. A letter requesting permission for child participation and describing the study was provided to all parents of the children enrolled in the integrated preschool program (see Appendix A). No observational data was collected before parents agreed to child participation. Of the 83 consent forms sent out, 50 were returned. Of these eligible subjects, 34 were included for participation in this study.

Professionals in early-childhood education and communication disorders and University of North Dakota (UND) students also participated in this study. The professionals were faculty members directly affiliated with the CTL preschool program. The students (hereafter referred to as "students-in-training") were graduate student teachers majoring in early-childhood education and graduate student clinicians majoring in communication disorders.

Design

This was a naturalistic study of child behaviors across a population of children and adults. Child behaviors were
observed and recorded by the investigator relative to the adult's interactions with the subjects. The data were divided into units (unitized) and categorized by the investigator and incorporated into a description of behaviors exhibited by the preschool subjects. Unitizing refers to listing of all individual behaviors noted in observation. Categorizing refers to the grouping of individual units with common characteristics so that data can be effectively summarized.

Procedures

The study began with the investigator observing child-adult interactions in the preschool over the first three weeks of the data collection period. Preschool subjects interacted with adults during unstructured, naturalistic activities relevant to the child's age and experiences. The interactions occurred within different settings at the CTL Preschool, during which the investigator observed and recorded the subject's behavior as the adult and child interacted. Subject's requests for clarification and responses to requests for clarification were recorded by the investigator during this observation period.

The following three weeks of observation consisted first of a training session conducted by the investigator for the professionals and students-in-training (see appendix B for outline). The training session provided the professionals and students-in-training the specific
expectations for the remaining observation period relative to the child-adult interactions for observation.

Data collection started when an adult made reference to some aspect of the adult-child interaction (e.g., labelling an object) with an unintelligible utterance, in which one or more words of the utterance were nonsense syllables (e.g., "I have a [patokipe]" while holding a pair of scissors). The subject's verbal and/or nonverbal responses were observed and described in writing by the investigator.

Requests for clarification were analyzed using a similar observation/recording/classification strategy. Based on natural interactions, stacked sequence response data recording started when an adult pointed out some aspect of the play interaction or some item within the setting and gave the subject an instruction such as, "Tell me about this," or "What do you have?" Following the subject's description of the aspect/item, which was recorded in writing by the investigator, the adult began to elicit a stacked sequence of repairs. The sequence was initiated when the adult responded to the subject's initial response utterance with "huh?" Following the subject's response to this request for clarification, the adult would say "what?" The adult waited for the subject's response, and then said, "I don't understand." If the child responded to this third request for clarification by
providing a repair, the adult would then indicated that the request had been satisfied by saying, "Oh, I see."

In summary, stacked sequences were defined for this study as three different requests for clarification produced recursively in response to the subject's utterances. The following sequence is an example:

Request 1-Adult: "Huh?" (upward inflection)
Child's response to request for clarification (repair)

Request 2-Adult: "What?" (upward inflection)
Child's response to request for clarification (repair)

Request 3-Adult: "I don't understand."
Child's response to third request for clarification (repair)
Adult: [closing statement e.g., "Oh, I see."]

This definition of stacked sequence was adapted from previous studies (Brinton, Fujiki, Loeb, & Winkler, 1986; Kreidlkamp-Nelson, 1989; Langan, 1988) that have investigated repair strategies using stacked sequences.

Response behaviors to these stacked sequences of requests for clarification were observed and described in writing by the investigator for data analysis following the observational period.
This methodology and classification protocol has been partially adapted from studies conducted by Brinton, et al. (1986), Langan (1988), and Kreidlkamp-Nelson (1989). The naturalistic design has been adapted from procedures suggested by Lincoln and Guba (1985). It should be noted that while these studies had incorporated highly structured methods of eliciting responses to stacked sequences of requests for clarification, in the present study data was collected during naturalistic adult-child interactions.

Description of Data

Two types of data were obtained in this study: child-initiated requests for clarification behaviors and child responses to requests for clarification initiated by adults. The data collected during the sessions were used to determine the types of verbal and nonverbal repair strategies that the subjects used during communication breakdowns. These data were analyzed by unitizing and categorizing data to describe behaviors exhibited across all preschool subjects. Unitizing refers to the identification and listing of each observed behavior from the data collection and categorizing refers to the grouping of data units into related categories. The data for determining the nature of the requests for clarification by preschool children consisted of the verbal and nonverbal behaviors exhibited by the preschool subjects during their interactions with the adults. Data for determining the
nature of child responses to requests for clarification consisted of verbal and nonverbal stacked repair sequence behaviors exhibited by the preschool subjects during their interactions with the adults.

Data Analysis

Unitized subject requests for clarification were classified into two main categories:

1. Verbal behavior: recording the child's actual utterance (e.g., "What?"; "What did you say?"; Huh"); including occurrences of self-correcting the adult, no request, and other or unrelated verbal behavior.

2. Nonverbal behavior: description of body movement or other nonverbal behavior used during or instead of a verbal request; including visual (e.g., looking at the adult), motor (e.g., pointing to an object or holding an object), facial (e.g., smiling or frowning), and other behavior.

Unitized child responses to requests for clarification were classified in this manner:

1. Verbal responses: recording the child's use of verbal repetitions, revisions, additions, no response, and inappropriate responses relative to an initial response to a request for clarification.

2. Nonverbal behavior: description of body movement or other nonverbal behavior used during a response to a request for clarification; including visual, motor, prosodic (e.g., vocal intensity changes), and facial behavior.

While it is acknowledged that nonverbal behaviors (e.g., prosodic changes) accompanied verbal behaviors, the units with the verbal and nonverbal categories (e.g., repetition or motor behaviors) were mutually exclusive.
Verbal responses to stacked sequences were defined according to their relevance to the child's original response and were classified into one of five repair categories. The categories are again listed and examples of each category are provided from the data of this study.

1. Repetition
   Child's original utterance: "Let's do that again."
   Adult's request for clarification: "Huh?"
   Child's repair: "Let's do that again."

2. Revision
   Child's original utterance: "I had a poptart, but it made me full."
   Adult's request for clarification: "Huh?"
   Child's repair: "My poptart made me full."

3. Addition:
   Child's original utterance: "Why?"
   Adult's request for clarification: "Huh?"
   Child's repair: "Why?" (repetition)
   Adult's request for clarification: "What?"
   Child's repair: "Why he have those on his feet?" (addition)
   Adult's request for clarification: "I don't understand."
   Child's repair: "Why does he need those things on his feet?" (addition)

4. No verbal response
Child's original utterance: "Ball."
Adult's request for clarification: "Huh?"
Child's repair: "Ball." (repetition)
Adult's request for clarification: "What?"
Child's repair: "Ball." (repetition)
Adult's request for clarification: "I don't understand."
Child's repair: -no verbal response-

5. Other or inappropriate verbal response

Child's original utterance: "What are you doing?"
Adult's request for clarification: "Huh?"
Child's repair: "What are you doing?" (repetition)
Adult's request for clarification: "What?"
Child's repair: "What are you doing?" (repetition)
Adult's request for clarification: "I don't understand."
Child's repair: "Why?"

Percent Agreement

The raw data obtained in this study were categorized by the investigator three times. The first categorization occurred immediately following the completion of the data collection; the second following consultation with the faculty advisor; and the third categorization occurred approximately two weeks after the second. Intrajudge and
interjudge reliability in categorization of the raw data were calculated using Holsti's (1963, p. 49) formula for percentage agreement for a two-coder situation. Intrajudge percent agreements calculated for the second and third categorizations were 97% for child requests for clarification and 99% for child responses to stacked sequences. Interjudge percent agreement was calculated between a categorization effort by the faculty advisor and the second categorization effort by the investigator. Interjudge percent agreement was 92% for child requests for clarification and 96% for child responses to requests for clarification.

Limitation

Because the sample size was small and the population specialized, the results of the present study may not be generalizable to the national population of preschool children. It is hoped, however, that this study will serve as a basis for further investigation in areas of conversational performance among preschool children and the effects of integrating handicapped and non-handicapped preschool children.
CHAPTER III

RESULTS AND DISCUSSION

The purpose of this study was to determine how handicapped and non-handicapped preschool children who were enrolled in an integrated preschool program use requests for clarification in naturalistic situations and use conversational repair strategies following stacked-sequences of requests for clarification initiated by adults. Preschool children (N=34) enrolled in an integrated preschool program and professionals and students-in-training at the integrated preschool participated in the study. The data from the 34 preschool subjects were separated by age (2-year olds, N=9; 3-year olds, N=10; 4- and 5-year olds, N=15) and by presence or absence of physical or developmental handicap (handicapped, N=11; non-handicapped, N=23). Naturalistic observation was used to record children's requests for clarification directed toward adults and to record children's responses to requests for clarification from adults. A total of 67.5 hours of observational data were obtained. Each age group, which included both handicapped and non-handicapped children, was observed for 45 minutes per morning, five mornings per week over the course of the six weeks of data.
collection. For the first three weeks of the study, naturalistic activities were observed and target behaviors were recorded by the investigator assuming the role of a non-participant observer. For the remaining three-week period of the study, similar observations were conducted to collect data under a systematic elicitation structure provided by the investigator to the classroom professionals and students in training. The resulting data were reduced to individual units then categorized. Conversational repair behaviors were divided across verbal and nonverbal behavior categories and then analyzed in terms of total frequency of behavior categories, frequencies of behaviors across age groups (regardless of handicap), and frequencies among handicapped and non-handicapped subject groups. Because limited amounts of data were collected during the first three weeks of naturalistic observation, these data were analyzed collectively with data from the second three weeks of structured observation. These data were analyzed to answer the following research questions: what is the nature of handicapped and non-handicapped preschool children's requests for clarification when they are interacting with adults in an integrated preschool setting, and what is the nature of handicapped and non-handicapped preschool children's responses to requests for clarification when they are interacting with adults in an integrated preschool setting?
Requests for Clarification

The subject's requests for clarification were classified into five verbal behavior and four nonverbal behavior categories. The frequency of behaviors across request categories over the course of the study is presented in Table 1.

### TABLE 1

FREQUENCY OF CHILD REQUESTS FOR CLARIFICATION BY ALL AGE GROUPS (N=34) DURING THE ENTIRE STUDY (TOTAL TIME=67.5 HOURS)

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Total number of occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verbal:</strong></td>
<td></td>
</tr>
<tr>
<td>&quot;What&quot;</td>
<td>7</td>
</tr>
<tr>
<td>&quot;Huh&quot;</td>
<td>6</td>
</tr>
<tr>
<td>Self-corrects adult</td>
<td>4</td>
</tr>
<tr>
<td>Other or unrelated</td>
<td>6</td>
</tr>
<tr>
<td>No request</td>
<td>13</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>36</strong></td>
</tr>
<tr>
<td><strong>Nonverbal:</strong></td>
<td></td>
</tr>
<tr>
<td>Visual behavior</td>
<td>40</td>
</tr>
<tr>
<td>Motor behavior</td>
<td>31</td>
</tr>
<tr>
<td>Facial behavior</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>83</strong></td>
</tr>
</tbody>
</table>

Nonverbal behaviors clearly occurred with greater frequency (N=83) than did verbal behavior (N=36). Visual behavior (e.g., joint visual attention with the adults, or
looking at the object in question) made up 48% of all nonverbal request behavior. The "no request" category was the most frequently noted response in the verbal behavior category making up 36% of total verbal behavior. Frequency of "what" and "huh" verbal requests were nearly equal with respective percentages of 19% and 17% of all verbal behavior. Other or unrelated responses were lowest in frequency (N=7) between both verbal and nonverbal behavior categories. This type of response constituted only 6% of the 119 verbal and nonverbal request behaviors observed. These data seem to indicate that, collectively, handicapped and non-handicapped preschool children are developing the understanding of the verbal contingencies of requesting clarification as well as many nonverbal behaviors that gain and/or maintain joint attention within a conversational dyad.

A further breakdown of request behaviors, frequency of occurrences across age groups and among both handicapped and non-handicapped subjects is presented in Table 2. This frequency analysis shows that the most observable verbal and nonverbal behaviors occurred among 2-year old subjects. Three-, four-, and five-year old subjects demonstrated nearly equal occurrences of appropriate verbal behavior, although the number of subjects per age group was unequal. The average number of verbal behavior responses per subject was 1.88 among 2-year olds (N=9), 0.90 among 3-
year olds (N=10), and 0.66 among 4- and 5-year olds (N=5).
It should be noted, however, that 59% of the total
classifiable verbal behavior responses of 2-year old
subjects were "no request" behaviors.

TABLE 2
CHILD REQUESTS FOR CLARIFICATION:
FREQUENCY OF BEHAVIORS ACROSS AGE GROUPS
(MEAN PERFORMANCE PER SUBJECT INCLUDED IN PARENTHESES)

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Two-year olds (N=9)</th>
<th>Three-year olds (N=10)</th>
<th>Four- &amp; Five-year olds (N=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(K=9)</td>
<td>(N=10)</td>
<td>(N=15)</td>
</tr>
<tr>
<td>Verbal:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;What&quot;</td>
<td>1 (0.11)</td>
<td>6 (0.60)</td>
<td>0 (0.00)</td>
</tr>
<tr>
<td>&quot;Huh&quot;</td>
<td>0 (0.00)</td>
<td>1 (0.10)</td>
<td>5 (0.33)</td>
</tr>
<tr>
<td>Self-corrects</td>
<td>1 (0.11)</td>
<td>1 (0.10)</td>
<td>2 (0.13)</td>
</tr>
<tr>
<td>Other/unrelated</td>
<td>5 (0.55)</td>
<td>0 (0.00)</td>
<td>1 (0.06)</td>
</tr>
<tr>
<td>No request</td>
<td>10 (1.11)</td>
<td>1 (0.10)</td>
<td>2 (0.13)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17 (1.88)</td>
<td>9 (0.90)</td>
<td>10 (0.66)</td>
</tr>
<tr>
<td>Nonverbal:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td>22 (2.44)</td>
<td>12 (1.20)</td>
<td>6 (0.40)</td>
</tr>
<tr>
<td>Motor</td>
<td>18 (2.00)</td>
<td>7 (0.70)</td>
<td>6 (0.40)</td>
</tr>
<tr>
<td>Facial</td>
<td>7 (0.77)</td>
<td>0 (0.00)</td>
<td>4 (0.27)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0.00)</td>
<td>1 (0.10)</td>
<td>0 (0.00)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>47 (5.22)</td>
<td>20 (2.00)</td>
<td>16 (1.06)</td>
</tr>
</tbody>
</table>

Frequencies of request behaviors among handicapped and
non-handicapped subject groups are presented in Table 3.
Both handicapped and non-handicapped subjects demonstrated
higher percentages and mean frequencies of nonverbal
behavior (71.4%, mean = 2.74 and 69.2%, mean = 1.81) as
compared to verbal behavior (28.6%, mean = 1.22 and 30.8%,
mean = 0.72). Non-handicapped subjects demonstrated a
higher percentage of appropriate verbal behaviors (59.2%) as compared to handicapped subjects (12.5%). For example, no handicapped subject demonstrated requests for clarification featuring "what" or "huh". Comparing this to the non-handicapped subjects, mean frequencies for "what" requests was 0.30 occurrences per subject and for "huh" requests was 0.26 occurrences per subject.

**TABLE 3**

CHILD REQUESTS FOR CLARIFICATION: FREQUENCY OF BEHAVIORS BETWEEN HANDICAPPED AND NON-HANDICAPPED SUBJECTS (MEAN PERFORMANCE PER SUBJECT INCLUDED IN PARENTHESES)

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Handicapped (N=11)</th>
<th>Non-Handicapped (N=23)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;What&quot;</td>
<td>0 (0.00)</td>
<td>7 (0.30)</td>
</tr>
<tr>
<td>&quot;Huh&quot;</td>
<td>0 (0.00)</td>
<td>6 (0.26)</td>
</tr>
<tr>
<td>Self-corrects</td>
<td>1 (0.09)</td>
<td>3 (0.13)</td>
</tr>
<tr>
<td>Other/unrelated</td>
<td>2 (0.18)</td>
<td>4 (0.18)</td>
</tr>
<tr>
<td>No request</td>
<td>5 (0.45)</td>
<td>8 (0.35)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8 (0.72)</td>
<td>28 (1.22)</td>
</tr>
<tr>
<td>Nonverbal:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td>8 (0.72)</td>
<td>32 (1.39)</td>
</tr>
<tr>
<td>Motor</td>
<td>8 (0.72)</td>
<td>23 (1.00)</td>
</tr>
<tr>
<td>Facial</td>
<td>4 (0.36)</td>
<td>7 (0.30)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0.00)</td>
<td>1 (0.04)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20 (1.81)</td>
<td>63 (2.74)</td>
</tr>
</tbody>
</table>

Responses to Adult's Requests for Clarification

Children's responses to adult's requests for clarification (both in naturalistic and stacked-sequence interactions) were classified into six verbal response
levels and four nonverbal behavior categories. The total frequency of response behaviors for all subjects are presented in Table 4.

### TABLE 4

**FREQUENCY OF CHILD RESPONSES TO ADULT'S REQUESTS FOR CLARIFICATION BY ALL AGE GROUPS (N=34) DURING THE ENTIRE STUDY (TOTAL TIME=67.5 HOURS)**

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Total number of occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verbal:</strong></td>
<td></td>
</tr>
<tr>
<td>Repeats initial utterance</td>
<td>71</td>
</tr>
<tr>
<td>Adds to initial utterance</td>
<td>12</td>
</tr>
<tr>
<td>Revises initial utterance</td>
<td>28</td>
</tr>
<tr>
<td>No response</td>
<td>30</td>
</tr>
<tr>
<td>Other verbal response</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>144</strong></td>
</tr>
<tr>
<td><strong>Nonverbal:</strong></td>
<td></td>
</tr>
<tr>
<td>Visual behavior</td>
<td>131</td>
</tr>
<tr>
<td>Motor behavior</td>
<td>86</td>
</tr>
<tr>
<td>Prosodic behavior</td>
<td>45</td>
</tr>
<tr>
<td>Facial behavior</td>
<td>22</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>284</strong></td>
</tr>
</tbody>
</table>

The most frequently occurring verbal response level among all subjects was to repeat the full initial utterance following a request for clarification from an adult (N=71). The next most frequently occurring verbal behavior classification was "no response" (N=30) which may indicate that, on the whole, preschool children may not fully understand the verbal contingencies to being asked to clarify a statement. Again nonverbal behavior (N=284) was
the most frequently observed type of behavior in comparison of verbal behavior usage (N=144). Visual behavior (primarily joint visual attention between the child and adult) was the most frequently occurring nonverbal behavior among all subjects. This type of response constituted 46.1% of all nonverbal behaviors observed. Motor behavior, primarily pointing to an object or holding up an object was the next most frequently occurring nonverbal behavior constituting 30.3% of all nonverbal behaviors.

The frequencies of the response behaviors of each age group are presented in Table 5.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Two-year olds (N=9)</th>
<th>Three-year olds (N=10)</th>
<th>Four- &amp; Five-year olds (N=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeated</td>
<td>24 (2.66)</td>
<td>19 (1.90)</td>
<td>28 (1.87)</td>
</tr>
<tr>
<td>Added</td>
<td>1 (0.11)</td>
<td>4 (0.40)</td>
<td>7 (0.47)</td>
</tr>
<tr>
<td>Revised</td>
<td>9 (1.00)</td>
<td>7 (0.70)</td>
<td>12 (0.80)</td>
</tr>
<tr>
<td>No response</td>
<td>16 (1.78)</td>
<td>10 (1.00)</td>
<td>4 (0.27)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (0.11)</td>
<td>1 (0.10)</td>
<td>1 (0.07)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>51 (5.66)</td>
<td>41 (4.10)</td>
<td>52 (3.47)</td>
</tr>
<tr>
<td>Nonverbal:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td>52 (5.77)</td>
<td>30 (3.00)</td>
<td>49 (3.27)</td>
</tr>
<tr>
<td>Motor</td>
<td>36 (4.00)</td>
<td>24 (2.40)</td>
<td>26 (1.73)</td>
</tr>
<tr>
<td>Prosodic</td>
<td>7 (0.77)</td>
<td>12 (1.20)</td>
<td>26 (1.73)</td>
</tr>
<tr>
<td>Facial</td>
<td>6 (0.66)</td>
<td>7 (0.70)</td>
<td>9 (0.60)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>101 (11.2)</td>
<td>73 (7.30)</td>
<td>110 (7.33)</td>
</tr>
</tbody>
</table>
Among verbal responses, repeating was the most frequently occurring behavior across all three age groups. The average number of occurrences among all three age groups was nearly equal with 2-year olds averaging 2.66 occurrences per subject and 3-, 4-, and 5-year olds averaging 1.90 occurrences. Two- and three-year olds had the highest percentage incidence of "no response" behavior (31.4%), decreasing in percentage over all three age groups (24.4% among 3-year olds; 1.90% among 4- and 5-year olds. This may indicate that the ability to appropriately respond verbally to a request for clarification may be developing between the ages of two and five years. Five-year olds demonstrated the highest percentage of appropriate verbal responses (90.3%). Two-year old and four- and five-year old subject groups had nearly equal frequency percentages of visual nonverbal behavior (51.5% and 44.5% respectively).

These data may indicate that both verbal and nonverbal repair response behaviors are developing throughout the preschool years to reach sophisticated levels of proficiency by the age of five years.

An analysis of occurrences of response behaviors among handicapped and non-handicapped subject groups is presented in Table 6.
CHILD RESPONSES TO ADULT'S REQUESTS FOR CLARIFICATION:
FREQUENCY OF BEHAVIORS BETWEEN HANDICAPPED AND NON-
HANDICAPPED SUBJECTS (MEAN PERFORMANCE PER SUBJECT
INCLUDED IN PARENTHESES)

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Handicapped (N=11)</th>
<th>Non-Handicapped (N=23)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td><strong>Verbal:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeated</td>
<td>18 (1.64)</td>
<td>53 (2.30)</td>
</tr>
<tr>
<td>Added</td>
<td>4 (0.36)</td>
<td>8 (0.35)</td>
</tr>
<tr>
<td>Revised</td>
<td>9 (0.82)</td>
<td>19 (0.83)</td>
</tr>
<tr>
<td>No response</td>
<td>9 (0.82)</td>
<td>21 (0.91)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0.00)</td>
<td>3 (0.13)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>40 (3.64)</td>
<td>104 (4.52)</td>
</tr>
<tr>
<td><strong>Nonverbal:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td>38 (3.45)</td>
<td>93 (4.04)</td>
</tr>
<tr>
<td>Motor</td>
<td>28 (2.55)</td>
<td>58 (2.52)</td>
</tr>
<tr>
<td>Prosodic</td>
<td>14 (1.27)</td>
<td>31 (1.35)</td>
</tr>
<tr>
<td>Facial</td>
<td>3 (0.27)</td>
<td>19 (0.83)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>83 (7.54)</td>
<td>201 (8.74)</td>
</tr>
</tbody>
</table>

The mean data in the table show that handicapped subjects demonstrated quantitatively fewer verbal and nonverbal response behaviors. However, it should be noted that the hierarchy of response levels (both verbal and nonverbal) was proportionately similar. For example, both handicapped and non-handicapped subject groups demonstrated nearly equal percentage of occurrences of repetition of the initial utterance following request for clarification (45.0% handicapped; 30.9% non-handicapped). Additionally, nearly equal percentages of visual nonverbal behavior were noted between handicapped and non-handicapped subject
groups (45.7% and 46.3%). Because of the strikingly similar response percentages, it may be inferred that both handicapped and non-handicapped children may be mutually benefitting from the exposure to language models offered in the integrated preschool setting. Further research to investigate this inference is certainly warranted.
CHAPTER IV

SUMMARY AND CONCLUSIONS

The present study was designed to describe how handicapped and non-handicapped children enrolled in an integrated preschool repair conversational breakdown during naturalistic interactions with adults. The subjects (N=34) were grouped by age (2-year olds, N=9; 3-year olds, N=10; 4- and 5-year olds, N=15). Each group was observed by the investigator for 45 minutes per morning, five days per week over a period of six weeks. The first three weeks of observation consisted of recording child-adult interactions during naturalistic conversational breakdown events. Following this initial data collection period, a training session was held by the investigator for the preschool professionals and students-in-training. The purpose of this was to outline the elicitation methods for the second three weeks of observations (eliciting requests for clarification by being unintelligible during the interaction and eliciting responses to requests for clarification using a stacked sequence of requests). The data were analyzed by classifying and quantifying units of behavior into verbal and nonverbal categories. The frequencies of behavior between the two categories were
presented three ways: by total frequency of behaviors across all subjects, by frequency of behaviors across subject groups, and by frequency of behaviors between handicapped and non-handicapped subjects.

The following results, conclusions, and implications were derived from this investigation of conversational repair strategies of preschool children:

1. A higher percentage of nonverbal than verbal behaviors was noted for both requests for clarifications and responses to requests for clarification across all subjects regardless of age and/or presence of handicap.

2. Two-year old subjects demonstrated the highest percentage of nonverbal behavior and the lowest percentage of appropriate verbal behavior as requests for clarification; four- and five-year old subjects, conversely, demonstrated the lowest percentage of nonverbal behavior and the most appropriate verbal behavior as requests for clarification.

3. Handicapped subjects demonstrated lower percentages of verbal and nonverbal requests for clarification in comparison to non-handicapped subjects.

4. Repetition of the initial utterance was the repair strategy used most frequently by all subjects,
across all age and handicap groups. Four- and five-year olds demonstrated the highest percentage of repetition behaviors. This is consistent with findings reported by Brinton, Fujiki, Loeb, and Winkler (1986), Kreidlkamp-Nelson (1989), and Langan (1988). However, those studies did not include handicapped children as subjects.

Visual behavior (e.g., visual attention to an object or person) was the most frequently occurring behavior of both child-initiated requests and child responses to requests for clarification across all subject groups. This may indicate that both handicapped and non-handicapped preschool children develop the understanding of the visual aspect of nonverbal behavior during verbal interactions very early in life.

Conclusions

The results of this study seem to show similarities and differences between handicapped and non-handicapped preschool children in the area of verbal and nonverbal conversational repair strategies. Because of the broad scope, limited number of subjects, and uneven numbers of subjects across age and handicap groups, final conclusions about the conversational repair strategies of preschool
handicapped and non-handicapped children should not be
drawn from this study. However, a conclusion that can be
drawn from this study is that the analysis of both verbal
and nonverbal behavior is imperative when discussing
pragmatic behaviors such as conversational repair among
handicapped and non-handicapped children.

The results and conclusions of the present study
closely parallel the findings of other related research.
Tomasello, Farrar, and Dines (1984) found that children as
young as 2 years of age were sensitive to the different
informational needs of familiar and unfamiliar adults. The
findings of the present study were similar. Both
handicapped and non-handicapped subjects as young as 2
years of age were able to appropriately verbally and/or
nonverbally adapt to the needs of adult listeners.

The results of the present study are also consistent
with the findings of Leonard (1986, p. 114) who had
suggested that "language-impaired children can serve as
responsive conversationalists when syntactic skill is not a
factor and that comprehension, world knowledge, and/or
experience with conversations permit considerable
variability in conversational skill within the same level
of expressive language ability." An amendment to Leonard's
statement based upon the results of the present study may
be that both handicapped and non-handicapped preschool
children can serve as responsive conversationalists.
Additionally, handicapped preschool children may be benefitting from the language models offered in an integrated preschool setting to allow for close parallels in conversational performance. Further research to compare handicapped and non-handicapped preschool children's linguistic performance between integrated and non-integrated preschool settings may be warranted.

Other results of the present study that were consistent with the findings of Brinton et al. (1986), Kreidlkamp-Nelson (1989), and Langan (1988) were that repeating was the most frequent repair across all subject age groups and that older subjects demonstrated more varied repair strategies. These results also support Gallagher's (1977) statement that "revision behaviors are systematic and change as the child's knowledge of language structure changes."

Garvey (1977) stated that "the interpersonal function of unsolicited queries appears to be the maintenance of mutual understanding; the function of solicited queries, the promotion of mutual attention or rapport." The results of the present study support this statement in that the handicapped and non-handicapped preschool subjects were able to use unsolicited and solicited queries as per Garvey's stated functions. The subjects were also able to understand and act upon queries presented by adults.
Implications

The findings of the present study have implications primarily directed toward further research issues in the area of pragmatic behaviors of handicapped and non-handicapped preschool children. Additionally, some clinical and educational implications may be suggested pending further research to support these suggestions.

First, the research design utilized in the present study, naturalistic inquiry, was found to have some advantages and some limitations. Advantages included being able to investigate a wide variety of behaviors across a fairly diverse subject population in a very unobtrusive manner. Previous studies (Kreidlkamp-Nelson, 1989; Langan, 1988) employing research protocols that involved highly structured and repetitive child-adult interactions reported subject frustration during the child-adult interactions. Those studies utilized repeat exposures to stacked sequence requests for clarification from the investigator to a small population over a short period of time. The subject's frustration behavior may have affected the findings of these studies. The naturalistic design of the present study allowed for, for example, presentation of stacked sequence requests for clarification to a wider number of children and fewer repeat exposures which reduced the effect of learning and the potential for subject frustration associated with the research protocol.
A major limitation of the naturalistic design used in this study was the investigator's frequent difficulty in placing himself in such a position within the classroom as to be unobtrusive, yet to be within listening and watching range of the child-adult interactions. This problem was reduced significantly when the investigator occasionally participated in classroom activities (e.g., circle time, snack time, and gym activities) while collecting data. This allowed the investigator to approach more adult-child interactions without adversely affecting the "naturalness" by appearing to be intently watching or listening.

A more efficient method for naturalistic inquiry, such as the inclusion of a researcher-participant observer role, may need to be devised should future investigation within a classroom environment be considered.

This study may suggest some clinical implications for the speech-language pathologist working with handicapped and/or non-handicapped preschool children in the area of language use (pragmatics). The findings of this study suggest that both handicapped and non-handicapped preschool children recognize the obligatory nature of conversational repair events across both verbal and nonverbal behaviors. Previous studies have largely ignored the issue of nonverbal behaviors during conversational breakdown. Further, the striking similarity of proportionality of occurrences of verbal and nonverbal behavior during stacked
sequence interactions may indicate that handicapped children, as a whole, are delayed in their abilities to appropriately repair conversational breakdown. Even non-vocal children were able to demonstrate some developmentally age-appropriate nonverbal behavior either to request clarification or respond to requests for clarification. The speech-language pathologist may wish to consider these points during assessment or intervention of the pragmatic language abilities of handicapped or non-handicapped preschool children.

Recommendations for Further Research

Based on the results of the present study, the recommendations for further research are as follows:

1. To compare conversational repair strategies among children with different types of handicapping conditions.

2. To investigate the frequency and type of visual attention, motor tasks, facial behaviors and/or prosodic changes preschool children demonstrate during child-adult interactions.

3. To compare verbal performance of preschool children enrolled in an integrated preschool versus a regular preschool (both handicapped and non-handicapped children).

4. To compare the efficacy of naturalistic inquiry and other types of research designs for implementation and results obtained during research in the area of conversational repair strategies.
APPENDICES
APPENDIX A

SUBJECT CONSENT FORM
SUBJECT CONSENT FORM

Your child is invited to participate in a study of conversational skills. The study centers around the language abilities of preschool children enrolled in an integrated preschool program. The study is being conducted by two graduate students from the University of North Dakota.

The investigators, Kay Jenniges and Richard Stott, will be observing and recording verbal and nonverbal behaviors as your child interacts with the teachers during routine activities at the Center for Teaching and Learning (CTL) Preschool. Your child may also interact directly with Ms. Jenniges or Mr. Stott to provide a brief language sample from which his/her level of language development will be estimated. Your child has been selected for participation in this study because he/she is enrolled in the CTL integrated preschool program.

The name of your child will not be associated with any information that is obtained in connection with this study. The identity of your child will be known only to the investigators who shall ensure confidentiality.

The decision whether or not your child may participate shall not prejudice future relations with the investigators, the CTL Preschool, or the University of North Dakota. If you decide to permit your child to participate, you are free to discontinue his/her participation at any time without prejudice.

You are encouraged to ask any questions regarding this study that you may have in the future. Questions may be asked by calling: Richard Stott (701) 775-9311 Kay Jenniges (701) 746-0082 Dr. Carla Hess (701) 777-3232.

I have read all of the above and willingly agree to let my child participate in this study as explained to me by Richard Stott.

Child's name: ________________________________

Parent or Legal Guardian's Signature _______________ Date _____________________

* PLEASE RETURN THIS PORTION OF THE CONSENT FORM TO DR. LYNN ROCKLAGE, DIRECTOR OF THE CTL PRESCHOOL, OR TO YOUR CHILD'S TEACHER WHO WILL FORWARD THE FORM TO DR. ROCKLAGE *
APPENDIX B

TRAINING SESSION OUTLINE
TRAINING SESSION OUTLINE

I. Introduction
   A. Abstract of study
   B. Relevance and rationale

II. Nature of the Study
   A. Naturalistic observation
   B. Parts I and Part II
      1. Completion of Part I
      2. Initiation of Part II

III. Investigator's needs from the staff
   A. Use of unintelligible words in naturalistic interactions
      1. Purpose: to elicit requests for clarification from the child (verbal and nonverbal).
   B. Requests for clarification in naturalistic interactions
      1. Stacked sequences (Huh? What? I don't understand.)
      2. Purpose: to elicit repairs to requests for clarification from an adult

IV. Question and Answer period

V. Brief practice with other participating members of the staff and investigator to assure understanding of the nature of Part III (above).


Schoen, B. (1988, October). Johnny the rat: Using the child as our informant. Insights Into Open Education. 21, 2, 2. Center for Teaching and Learning, Grand Forks, ND: University of North Dakota.


