A Comparison of Mother Anxiety Trait Levels with Positive Comments Following Their Child's Verbalizations

Summer 1981

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A COMPARISON OF MOTHER ANXIETY TRAIT LEVELS WITH POSITIVE COMMENTS FOLLOWING THEIR CHILD'S VERBALIZATIONS

BY

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THESIS

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Peggy Gornto
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INTRODUCTION

An interdisciplinary trend has developed in which clinicians intervene and train mothers to be agents of therapy within all areas of development if a delay or deviancy exists. Therefore much research was needed to determine the wisdom and effectiveness of mothers as agents of change. The mother-infant interchange and the environmental factors involved with it was one area that needed analysis.

Several discretionary mother-infant interactions exist which allow information to be organized somewhat sequentially. This study has reviewed the mother-infant interaction, the role of mothering, the environment, and examined the mother-child reinforcement channel related to the anxiety traits of the mother. The latter two areas were studied specifically by comparing the positive comments of mothers with high or low anxiety trait levels in response to their children's utterances.
BACKGROUND RESEARCH

The Child

Methods of learning and interacting. As the area of the mother-infant interaction related to language development has been researched in the past two decades, three theories of learning have been emphasized. One theory, as Chomsky (1957), Newsome (1977), and Schaffer (1977) point out, has proposed that the child has an "innate capacity" to learn at birth. From birth, as Schaffer (1977) stated, the child has used this capacity to develop language, cognition and interaction techniques predominantly with his or her mother or primary caregiver. Furthermore, observations have indicated that most infants possess an inherent social precociousness for interaction at birth (Newsome, 1977).

Piaget's "little scientist" of learning was the second theory underlying much of the research (Schaffer, 1977; Clezy, Balhazer, & Cevette, 1979). Piaget's theory as related by Ginnesberg and Opper (1969) stated that the child grows cognitively by his own trials and errors, as well as, from his background and knowledge of his environment. Extending Piaget's theories further, Dale (1976) described the child's language development as an experi-
menting trial and error method in which he or she invents, practices, postulates and reconstructs in order to comprehend and conserve.

Skinner (1953) and other behaviorists such as Donovan (1978) have provided empirical data to demonstrate that much of the cognitive and language learning of the child takes place via imitation with the utilization of reinforcement techniques (Donovan & Balling, 1978; Papousek & Papousek, 1977). During the early mother-infant relationship, Brazelton, Tronick, Adamson, Als, and Weise (1975) described a mother-infant synchrony of movement, attending behavior, and an anticipation for interaction being present as a rhythmic and cyclic interchange with the mother positively responding to her infant. When the mother fails to be responsive infants have been observed to show concern, jerky movements, attempts to draw the mother's attention, and withdrawal characterized by an aversion of the face and a curling up of the body in a helpless motionless manner.

Methods of assessment. Traditionally the child has been assessed first by a multidisciplinary team in order to determine etiologies, such as cerebral palsy or learning disabilities or other specific disorders, like dysarthria or agnosia (Newton, 1977). Assessments of the child's communication skills were done through the use of a multitude of different articulation, language and oral
exams of the child's speech and or language to determine a specific diagnosis (Perkins, 1978).

During the last two decades researchers and innovators in the speech, hearing, language, pediatric and nursing disciplines have emphasized the importance of assessing the child's method of interacting with his environment, his method of reinforcing people, the quality and quantity of input being received, and the child's participation in the interaction (Clezy, et al., 1979; Condon, 1977; Trevarthen, 1977). Evaluation results of the above interchange areas combined with the findings of traditional diagnosis have led to the most accurate assessment of the interchange problem and the best method of rehabilitation (Clezy et al., 1979).

**Methods of remediation.** The remediation of the deviant or delayed language of the child has been done predominantly within a clinic or special classroom setting (Bloom & Lahey, 1978). This test, teach, retest approach to therapy as Clezy et al. (1979) asserted has been reappraised and improved upon due to the wealth of new knowledge in child language development through related fields of audiology, neurology, and psychology. Within the last two decades obstetrics and pediatrics have developed improved diagnostic and early intervention procedures that the astute speech clinician has drawn upon (Silver, 1979).
Recent new forms of speech, language and hearing remediation as Clezy et al. (1979) stated have involved intervening with the mother if necessary and training her to be the "agent of therapy" and implementing any improvements necessary in the home environment. The rationale of this approach has been that the mother who is with her child and knows her child from birth can have the most lasting and efficient effect (Clezy et al., 1979). More importantly mothers provided the most motivation according to Dale (1976).

The learning theories of Piaget and Chomsky as discussed by Dale (1976) and those by Bruner (1977) and Kagan (1971) were either individually or collectively the proposed methods of child learning and development. Consequently the mother, within the confines of the mother-infant interchange, has been the natural teacher of the child all along (Clezy et al., 1979). Recently an assessment of the mother's capabilities linguistically and emotionally to provide a learning environment has been proposed (Clezy et al., 1979). Preparation and training of the mother may be necessary if she is to be part of an effective, efficient speech, language, or hearing remediation program (Bloom & Lahey, 1978; Elardo, Bradley & Caldwell, 1977).

The Mother (Caregiver)

Methods of learning and interacting. During the pre-
kindergarten years the mother, or any person who has been the primary caregiver for the child, has been the one who supplies the stimuli for the child's experiences (Clezy et al., 1979; Dale, 1976). Mothers have accomplished this task from birth, researchers have stated, by the way they touch, feed, gaze at, smile at, and vocalize to their child (Klaus, Trause, & Kennell, 1975; Stern, 1977; White & Labarba, 1976). Newsome (1977) pointed out that mothers have organized the stimulus activities for the child and reinforcements of the child's behavior in a synchronous fashion. Cognitively the mother, as Newsome (1977) observed initially assumed the responsibility for significant interchanges in a supportive fashion. Phases and pauses of the mother's sharing and responding behavior have been described in research studies, also (Newsome, 1977; Schaffer, 1977; Stern, 1977).

During the early years the mother has been the person, as Bloom and Lahey (1978), Clezy et al. (1979), and Dale (1976) have pointed out, with whom the child has had the majority of linguistic interchanges. Early cognition at the receptive level provided primarily by mothers has played an important role in developing the "deep structure" of his or her language (Clezy et al., 1979). The mother has been the main model and interactor for the development of the semantic, syntactic, phonetic and phonological language areas of the child from the preverbal gesticulation
states through the child's first few years of verbalizations (Fogel, 1977; Fowler, 1977; Papousek & Papousek, 1977). Piaget (Ginnesberg & Opper, 1969) and Dale (1976) proposed that a child must manipulate his environment as he "creates, experiments, generalizes, and transforms in order to learn and conserve language and cognitive growth." Therefore the mother has been entrusted with the responsibility of providing a home setting in which this process can take place (Clezy et al., 1979).

Infant intervention research studies have consistently shown the importance of the mother being able to maintain an appropriate and beneficial emotional level within the interactions with her child (Clezy et al., 1979; Silver, 1979). The mother has been either a positive or negative factor within the interchange depending on her response (Trevarthen, 1977). Early intervention to change any inappropriate responses to the child's stimuli has been accomplished with significant results (Fowler & Swenson, 1979; Silver, 1979).

Methods of assessment. Clezy et al. (1979) has stated that primarily the traditional area of assessment of a language-deviant or delayed child has been the child. Research in the areas of normal and deviant language; cognitive and psychological development has pointed toward a need to assess the mother (Clezy et al., 1979). As Dale (1979) indicated, the problems in language development may
be attributed to or intensified by the mother-infant interactions, and it is the interchange that is the proper focus for intervention."

Similarly, Silver (1979) in his overview of 24 clinical infant intervention programs in the related areas of cognition and psychological development, reported that mothers and/or fathers were assessed by various questionnaires and scales such as Cohler, Weise and Grumebaum's Maternal Attitude Scale, Gordon's Prenatal Stress Questionnaire, Watt's Mother-Child Interaction Scale, or Schaffer and Bell's Parent Attitude Research Inventory. The results of these scales were used to help in the assessment of the anxiety level of the caregivers within the caregiver-child interaction (Silver, 1979).

Clezy et al. (1979) advocated assessing the mother within the confines of the mother-child interchange via the Reinforcement Profile which is a five category evaluative system adapted from the Boone and Prescott (1972) scoring system. Along these same lines Baldwin and Baldwin (1973) have pointed to a need for more assessment measures and research in the area of the mother-child interaction to develop a clear theory of interpersonal interaction in naturalistic settings.

Method of remediation. Definite methods of remediation for mothers have been developed in the past decade
across the interrelated disciplines of child development. McLean and Snyder-McLean (1978) described a transactional approach to early language training that involved guided mother-child interactions. Others are summarized by Clezy et al. (1979) and Silver (1979):

1. Educationally directed programs have been implemented in which the mothers are trained to be agents of intervention to help develop their child's motoric and cognitive skills;

2. Methods to help mothers match cognitive material to the developmental level of the child;

3. Counseling and free play programs that focus on helping the mother reduce her anxiety level through positive reinforcement techniques;

4. Training programs that aid the mother in ways to enhance the infant's psychological development;

5. Remediation through a speech or language program to change the mother's language or reinforcement schedules.

The Environment

Ways the environment affects learning and interacting. The acceptance of the learning theories of Piaget, Chomsky, and Skinner, as they are considered either separately or collectively, clearly established a need for a healthy adequate natural environment in which language can develop (Bloom & Lahey, 1978). This environment has
been divided into the linguistic stimuli primarily in the form of the mother's language model (Bloom & Lahey, 1978), and the cognitive stimuli of the child's external world which becomes integrated into the child's storage of knowledge through a systematic perceptual and conceptual representation of his environment (Dale, 1976).

An adequate natural environment for a child and the freedom to interact with this environment have been considered necessary for normal development of cognitive and linguistic skills (Dale, 1976). Wood (1976) referred to an "open family structure in which all members of a family are encouraged to talk freely, asking questions and commenting on judgements and their bases," which she stated resulted in the development of "elaborated language structures." Elardo et al. (1977) described an organized environment as one that provides materials and play activities appropriate for the child's age level. Bricker and Bricker (1974) using applied behavior analysis research have developed an effective early language training strategy affecting environment through techniques of verbal imitation, shaping, chaining, positive or negative reinforcement, extinction, discrimination training and punishment.

Method of assessment. Beyond the necessary assessment of the mother's various roles within the total environmental picture, it has been shown that an assessment of
the cognitive stimuli of the infant's world must be made (Dale, 1976). It has been described as unrealistic of a speech and language clinician to expect any lasting therapeutic progress if the child's natural environmental setting remains inadequate (Clezy et al., 1979). In "a process-oriented research strategy," Elardo, et al. (1977) demonstrated that "the provision of appropriate play material" was significantly related to specific areas of language development. This longitudinal study of the effects of home environments upon early language development tested each of the study's 74 normal children at the age of three with the Illinois Test of Psycholinguistic Abilities (ITPA) and found that auditory reception, auditory association, visual association, and grammatical closure were "strongly related to the quality of stimuli found within the early home environment" as measured by the Home Observation for Measurement of Environment Scale (HOME) when the children were 6 and 24 months of age. The weaknesses of this study as the authors acknowledged included the possibility that a third factor was responsible for the language-environment relationship and the ITPA subtests do not represent pure linguistic factors. The latter was especially important in examining the simple correlation data between HOME scores and total ITPA scores, or the multiple correlations of HOME subscale scores with total ITPA scores. Most importantly this
study found "that certain parameters of the early home environment were more strongly related to language development than others" and that certain language aspects appeared to be affected to a larger degree by certain specific classes of environmental experience (Elardo et al., 1977). Based on these facts along with the findings of other research Bloom (1978) stated that assessment, then remediation of the environmental setting and adjustment of play materials to the child's current developmental level were necessary steps in the overall remediation of the infant. As Silver (1979) suggested, the need remains for the formulation of adequate individual psychological developmental measures for children, but she indicated that Caldwell's HOME and Schaffer and Bell's Parent attitude Research Inventory were the more standard measures used to assess the appropriateness of these factors in the child's environment. Once inadequate factors have been properly identified, remediation has followed to facilitate normal language acquisition by the child (Clezy et al., 1979).

**Method of remediation.** One clear cut intervention approach to improve the child's environment has been to gain the cooperation of the parents (Bloom, 1978). In most cases this has been accomplished by the parents following the recommendations of the clinician to alter or add to the child's environment appropriate stimuli
(play things, rooms, backyards, parks) necessary for cognitive and linguistic development to proceed normally (Clezy et al., 1979). Linguists like Clezy et al. (1979) and the related multidisciplinary researchers reviewed by Silver (1979) have indicated a need for intervention as early as assessment can be accomplished, but definitely while the child's brain is most plastic and responsive to remediation. In order to achieve remediation most effectively Clezy et al. (1979) has suggested that the Reinforcement Channel is another crucial area requiring assessment and intervention.

The Reinforcement Channel

Reinforcement schedules. The Reinforcement Channel has been described as the combination of the linguistic interchange and the reinforcement schedules that pass between the mother and child (Clezy et al., 1979). The findings described by Brazelton et al. (1975) indicated that even the very young infant placed importance on his mother's positive reinforcement. Confusion and withdrawal behavior of the child were observed when the mother was unresponsive. In contrast there was positive interactive behavior when the mother's behavior was responsive (Brazelton et al., 1979). Brown (1968), Dale (1976), and Fygetakis and Ingram (1973), demonstrated the use of positive reinforcement as a motivational tool in children's acquisition of language. Dale (1976) has suggested
that the effectiveness of positive reinforcement may have been greater in the mother's unselective use of positive reinforcement to all of the child's first words, rather than just to the ones the mother felt were correct as the infant experimented with language. Clezy (1976) further stated that selective reinforcement might be confusing to the child during experimentation with language. The mother's misunderstanding of the child's verbal behavior often results in an inappropriate response to the child. (e.g., An anxious mother responded to the phonologically correct pronunciation of /kelk/, cake, by saying "Good girl, you said cake properly." without noticing that the child had pointed to a dress while verbalizing. Conversely if an anxious mother says "No you are wrong." when the child says /heit/ for hat while pointing to a hat, such reinforcements by mothers serve to confuse the child conceptually and realistically.)

Thoman (1975) stated that it appeared that each member of the mother-infant relationship either impeded or facilitated the progress of synchrony. The child as a language experimenter needed motivational reinforcement while the mother as a language model needed reinforcement from the child. If not reinforced, the child reduced language attempts while the mother showed frustration and eventually stopped trying to communicate. These descriptions of an infant's rejecting behaviors toward his mother
strongly suggested that infant's may elicit mother's negative responding behaviors which in turn set up a cyclic ongoing negative interchange.

Research on mother-infant bonding has suggested that this socialization process results in varying degrees of positive or negative behaviors, varying rates of positive or negative reinforcement, or a total lack of bonding between the mother and infant (Kennell, Trause and Klaus, 1975). If bonding was proceeding in a positive direction at the appropriate level, degree, and rate this interaction process seemed to indicate that cognitive and linguistic development was greatly facilitated (Kennell et al., 1975; Ringler et al., 1978; & Thoman, 1975). Consequently, Clezy et al. (1979) have agreed that "both the child and the mother needed reinforcement at all cognitive and linguistic levels of development" and she stressed that "schedules for such reinforcement can be identified, monitored, and modified."

Anxiety levels. As the child interacted' with the normal mother, Clezy et al. (1979) and Dale (1976) pointed out that the mother "expands, corrects, elicits, and qualifies the child's utterances" which facilitates linguistic experimentation. Phillips (1973) and Snow (1972) compared the speech mothers used with their young children to the speech used with an adult interviewer and to ten-year-old children respectively. The mothers' "language
modeling: demonstrated the following characteristic teaching forms: shorter sentences; fewer verbs, modifiers, and function words (i.e., conjunctions or prepositions); fewer distinct verb forms (i.e., tenses); less diverse and generally more concrete vocabulary; shorter mean lengths of utterance; less complex sentence structures (e.g., subordinate clauses); more repetitions and fewer pronouns (Phillips, 1973; Snow, 1972). Dale (1976) reported a slower rate of speech, as well. Additionally, Dale (1976) stated, children appeared to prefer the intonation style and the appropriately simplified speech which normal mothers innately provide.

Shipley, Smith, and Gleitman (1969) found however, that a child beyond the one-word stage attended and responded to a command of a slightly more mature form as compared to a command geared to their apparent level of speech. The research of Shipley et al. (1969) indicated at least two things: commands that were slightly more complex than their language level drew the child's attention more; and attention was indicated as an important factor in language development. The determination of the person to whom infants prefer to attend was important to discover (Dale, 1976). In their research on infants and their abilities to discriminate between mothers and strangers, Landau (1977), Lasky and Klein (1979), Roe (1978), and Watson, Hayes, Vietze, and Becker (1979) all described
behaviors of these infants which indicated a significant preference for attending to their mothers' smiles, vocalizations, eyes, and faces over those same characteristics in other people.

As mothers and infants attended to one another the process of simplification of language stimulation mothers gave their children as described by Snow (1972) appeared to be directly tied to the feedback they received from their children's speech and language output. However, children, as Dale (1976) has proposed, may control by selective attention the level of complex speech that they are exposed to, rather than it being dependent on the frequency of the parental productions. Brown (1973) reported that the frequency of parental production had no apparent influence on the order of acquisition of the fourteen grammatical morphemes of English.

Dale (1976) described the "nature of the linguistic interchange as probably more important than the absolute quality of the mother's speech." Dale (1976) reviewed the work of Brown and others and described several verbal mother-infant interchanges which contained the deep structure and the transformed surface structures needed for the child to conceive and form his or her own transformations. These kinds of interchanges as listed by Dale (1976) were prompting, echoing and expansion.
The reinforcement schedules and the linguistic interchanges and the anxiety levels of the child and mother all have been found to be necessary components which need assessment before and after speech language therapy (Clezy, 1979; Dale, 1976). Jersild (1968) and Nijhaven (1972) further indicated that anxiety has been shown to be an inhibitor of interaction or communication and a producer of behaviors unconducive to learning, these authors suggested a cyclic pattern that needed assessment and remediation in order to establish a healthy learning environment.

Assessment. Clezy et al. (1979) suggested the use of the Reinforcement Profile as a means of assessing the interaction between mother and child. "The Reinforcement Profile is a five-category evaluation system" which was adapted from Boone and Prescott (1972). This profile system was reported as a scoring instrument to monitor the content and sequence of behavioral interchange between mother and child (Clezy et al., 1979).

Similarly, Amidon and Flanders (1967) and Boone and Prescott (1972) have devised profiles or scoring instruments of a more complicated nature to assess interaction processes. All of these profiles, as explained by Amidon and Flanders (1976), Boone and Prescott (1972) and Clezy et al. (1979), provided a precise system to monitor the quantitative and qualitative components of communication.
before and during the remediation procedures.

Clezy et al. (1979) and Silver (1979) indicated that mothers as agents of therapy may be the most efficient, effective approach to therapy. However, the mother according to Clezy et al. (1979) needed a reliable, simple scoring instrument which provided a visual display of her effectiveness and the results of precision therapy.

Modification. Clezy et al. (1979), Mercer (1979), Silver (1979), and Thoman (1979) all expressed the opinion that intervening early with deviant reinforcement channels and anxiety levels was truly a wise intervention strategy. Reaching the norm of language learning or the norm of cognitive growth for any individual child appeared to depend largely on the mother becoming an efficient agent of therapy (Clezy et al., 1979; Silver, 1979).

The mother's language or anxiety levels have needed remediation before change can be expected in the child (Clezy et al., 1979). The mother's approach to providing and organizing a healthy environment has needed direction (Silver, 1979). Clezy et al. (1979), Jersild (1968) and Nijhaven (1972) stated that these steps in therapy should be implemented by first following careful schedules. Not until the mother and child have reached a level of playing happily together and the mother has learned to match cognitive material to the child's level of maturation will a
language or learning program be effective (Clezy et al., 1979; Silver, 1979).

Finally, Clezy et al. (1979), and Thoman (1975) have indicated that when a state of normalcy has been reached in the mother-infant interchange with a mutual schedule of positive reinforcement as the rule rather than the exception, the mother has reached the state where she may be considered the preferred agent of therapy. Many programs of speech, language, hearing, emotional and cognitive growth have been designed within a loose structure that allowed for spontaneous mother-child interaction (Clezy, 1979; Silver, 1979). The teaching format has been framed within a play sequence that provided stimuli to elicit specific language structures. Clezy et al. (1979) insisted that the child "should be a happy, interested participator who is allowed to experience, to experiment, and by so doing to learn at his own rate." The child should be unaware of a specific program, but should be satisfied that his mother is talking to him and responding well and appropriately to the stimuli that he gives her.

In order to facilitate therapeutic progress Clezy et al. (1979), Haring and Eaton (1978), Kazdin (1980), and Lindsley (1964) suggested the use of the following precision therapy techniques:
1. Clearly and definitively pinpointing the behaviors, in observable terms;

2. Continuously and precisely monitoring the behaviors;

3. Clearly specifying the therapeutic goals and the procedural steps to achieve them;

4. Carefully converting raw data into a rate of behavior per minute for comparative purposes;

5. Graphing daily behavior on charts for easy viewing and comparison;

6. Obtaining the data from a transcribed sample of a specified amount of therapy.

Programs such as those of Clezy et al. (1979) and similar ones reviewed by Silver (1979) have been implemented with the mother as the agent of therapy within the clinical setting, within the home setting, or a combination of the two. To date, partially due to insufficient data, no conclusive indication has been found as to the appropriate setting (environment) in which this type of therapy may be conducted best (Silver, 1979). The data that does exist has indicated that there seemed to be positive results regardless of the site (Silver, 1979). With that fact in mind, Silver (1979) maintained that many successful programs were home-based. Researchers, theorists and clinicians Piaget. (Ginnesberg & Opper, 1969; Chomsky, 1957; Lindsley, 1964; Clezy et al., 1979) placed
a great deal of emphasis on assessing and remediating the physical setting as it related to the therapeutic climate. All of these circumstances indicated a clear need for more research data on the interactive process. It was evident that relationships among the effective use of reinforcement channels and reinforcement schedules had not been studied systematically.
STATEMENT OF THE PROBLEM

Professionals in speech-language pathology and related disciplines have recognized the need for assessing and remediating the reinforcement schedules and linguistic interchanges of a mother and child. Anxiety trait levels of mothers appeared to influence interactions and reinforcement schedules. Mother's clinical anxiety is believed to interfere with linguistic modeling and reinforcement behaviors to the extent that modification is necessary before efficient therapy can take place. Empirical data supporting or refuting this position on therapy has been very limited. The rationale for this study was based on the theory that high anxiety trait levels interfere with mothers' abilities to provide frequent positive comments to their children. This study proposed to investigate the relationship between anxiety trait levels of mothers and their children's verbalizations. The hypothesis was that mothers with high anxiety trait levels will not provide as many positive comments to their children for verbalizing as mothers with low anxiety trait levels.
Independent Variable

The main independent variable was the anxiety trait level of the mothers which was determined by the State-Trait Anxiety Inventory (Speilberger, 1980). The State-Trait Anxiety Inventory was administered to the mothers and their ratings on this scale were used to rank the mothers' anxiety levels from low to high as compared to normal samples and percentiles of 231 female college students enrolled in an introductory psychology course.

Trait anxiety (as distinguished from a state anxiety, a transitory condition of perceived tension) was defined by the STAI as a relatively stable condition of anxiety proneness. Test and retest reliabilities reported for scores, were as follows: one hour interval - .84 and .76; 104 days .73 and .77. The norms were from 377 high school juniors, 982 college freshmen, 484 college students enrolled in an introductory psychology course, 461 male neuropsychiatric patients, 161 general medical and surgical patients and 212 prisoners. Alpha reliability coefficients for the normative samples (high school juniors, college freshmen, introductory psychology students) ranged from .86 to .92 for trait anxiety scores.

Validities for trait scores were estimated by correlating the scores with the IPAT Anxiety Scale, Manifest Anxiety Scale, and Affect Adjective Check List. For 126 college women, coefficients were .75, .80 and .52,
respectively. The major reservation in using this test and one that must be considered in interpreting its results is its openness to faking. Also, users of the scale need some degree of psychometric training in order to avoid attributing greater validity and reliability to the test than it has (see Appendix E for a copy of the STAI scale).

Dependent Variable

The dependent variable of the experiment was the number of verbal positive comments the mothers spoke following children's verbalizations during ten minute segments of informal play sessions. A positive comment was defined as an audible remark that was encouraging and positive in nature which followed a child's verbalization. Positive comments took the form of rising, positive, genuine inflections of the mother's voice. Repetition of a child's remark was classified as a positive comment, since it was confirmation that the mother heard the verbalization.

Other Factors

Another factor involved was the determining of each child's language quotient level by the Receptive Expressive Emergent Language Scale (Bzoch & League, 1971). This scale placed the child's language level above, below, or on his chronological age level.

An informal play session was defined as a thirty minute interaction between a mother and her child.
Instructional comments were described as a mother's attempts to obtain child verbalizations. They frequently took the form of requests such as tell me or say ____.
METHODOLOGY

Subjects

The sixty subjects were mothers of normal children born at the Orlando Regional Medical Center and Florida Hospital in Orlando, Florida during the period of 1979 through 1981. These mothers all attended the La Maz classes and volunteered to participate in this experiment after the investigator called them from a master list of La Maz class participants (see Appendix H).

Apparatus

The recording or scoring instrument was an adaptation of the Reinforcement Profile (Clezy et al., 1979). The mothers' positive comments to their children's verbalizations were monitored in this study's data collection. The profile allowed the experimenter to record and quantify the positive comments, the dependent variable, over time for statistical analysis.

A Wollensak Model 2520 AV Heavy Duty Cassette Recorder with a Model 5335B Sher-O-Dyne Omnidirectional Dynamic Microphone was used to audiotape record the verbal interaction of the study's play session.

Clezy's et al. (1979) method of selecting a recorded representative sample of the verbal interaction of a
mother and her child in a therapy session was followed. A total time of ten minutes was selected from the middle of each subject's thirty minute play session, beginning with the eleventh minute and concluding at the end of the twentieth minute. This was done to ensure equivalency in the selection of interaction samples.

Procedures

Mothers who agreed to serve as subjects in this experiment were scheduled at their convenience to interact with their child for thirty minutes. These informal play sessions were held at the Central Florida United Cerebral Palsy Clinic in a room furnished for therapy purposes. At the time the mothers arrived for the informal play session informed consent was obtained. The form used appears as Appendix A. Time was allowed for each subject and child to adjust, relax and become ready to play within the experimental conditions. Each subject was instructed to perform a simple task with her child. The experimenter read identical instructions to each subject (see Appendix B for exact instructions). The mother and child were allowed the freedom to use any position on chairs or the floor that created freedom and a relaxed atmosphere. The alignment of toys and objects was placed strategically beyond the child's reach, but convenient to the mother for selection and presentation to the child upon signals from the experimenter. Then the instructions
were read. The mothers were asked to elicit verbalizations from their children using instructional comments and stimuli. The experimenter provided 10 identical toys and objects (see Appendix C for the list of specific toys and the specific order presented) to be used by each mother who chose them from a preset identical alignment. A different toy was chosen by each mother when the experimenter signaled the end of three minutes until all ten toys had been chosen. The mothers used these objects to elicit verbalizations from their children. They were assured that there was no right or wrong way to interact with their child during this session and that it was being conducted as a basis for describing the ways mothers and their children play and verbalize.

A Wollensak Model 2520 AV Heavy Duty Cassette Recorder with a Model 5335B Sher-O-Dyne Omnidirectional Dynamic Microphone was in the room to record. The middle ten minutes of the play session was audio recorded. Pre-assigned numbers were recorded to identify the subjects.

Following the play session each mother was asked to fill out the Trait Scale of the State Trait Anxiety Scale (STAI) or specifically the 20 questions related to trait anxiety was used to estimate the trait anxiety level of each subject. The exact instructions appear in Appendix D.)
Then the Receptive Expressive Emergent Language Scale (REEL) was administered according to standard instructions of the test (see Appendix F for exact instructions). The mother's responses to the REEL Scale determined that the child was developing language at the expected rate (Bzoch & League, 1971). Next each mother and child were thanked and told they would be informed of the study's results. Finally the toys and objects were reassembled for the next experimental occasion.

After all 60 informal play sessions had been completed, the Anxiety Trait scores on the STAI were tabulated. The raw scores appear in Appendix G.

Tabulation of positive comments made by the mothers during the informal play sessions was conducted according to the procedures established in a pilot study. The pilot study consisted of a session to establish a definition of "positive comments" for use in this investigation. The definitions appear in the section on dependent variables. Several examples were selected to assist the panel of judges in establishing interexaminer reliability for identifying positive comments. Comments regarded as positive were "Right!"; "Good try!"; "Nice going!"; "That's good!"; "How about that!"; "Alright!"; "Almost!"; "Super!"; "Closer!"; "That's so smart!"; "O.K."; "Thank you"; "There you go."; "There!"; "That's fine."; "Oh boy!"; "Oh."; "Uh hm."; "Kick that ball!"; "They are!";
"That's right!"; "Oh, it is!"; "I love that!"; "That's a boy!"; "That's fine."

During the second session of the pilot study three judges and the experimenter reviewed the definitions and examples of "positive comments" established in the first session. They then identified and tabulated the positive comments appearing on four ten minute taped segments of play sessions.

The pilot study was conducted in the same manner as three comparable studies of the Clezy Reinforcement Profile (Clezy et al., 1979) in which "multiple kappa analyses showed agreement coefficients above +0.9." Clezy et al. (1979) also pointed out these data were comparable with the Boone and Prescott (1972) data which demonstrated student clinicians learning to score sessions reliably using their ten-category system after training for two hours with results that correlated 0.9 with the ratings of a panel of judges.

Interrater reliability on this pilot study was established with the experimenter showing an agreement reliability factor of .99, .88, .95 with each respective judge via a frequently used observer reliability formula (Vasta, 1979). These results were used as the basis for qualifying the experimenter to judge and tally each mother's positive comment to her child's utterances.

After all the other data were scored for the 60
subjects, the taped play sessions were analyzed by the experimenter for positive comments. Procedures established in the pilot study were followed. Raw scores of the subjects appear in Appendix G.
RESULTS

The raw scores for all the subjects on the Trait Anxiety Scale of the STAI and the number of positive comments for each subject may be found in Appendix G.

On the Trait Scale of the STAI the mean score was 46.9 with a standard deviation of 8.1. The range of scores was from 33 to 66. The number of positive comments given within the ten minute period by the subjects ranged from 0 to 57. The mean was 21.3 with a standard deviation of 14.1. Obviously, there was a considerable amount of variance in the distribution of the STAI scores and the positive comment frequencies.

The anxiety scores were grouped into high, average, and low categories (High = 57-66, Average = 45-56, Low = 33-44). The number of positive comments were also grouped into frequency categories (High = 40-57, Average = 20-39, Low = 0-19). A Chi Square analysis of this data revealed no significant differences in the comparison of these groups ($\chi^2 = 3.15, p > .5$). A Pearson's correlational analysis of these groups resulted in no significant relationship between the groups ($r = -.12, p > .10$), although the slight trend in the correlation was in the predicted direction.
Further analysis of the ungrouped raw data using multiple correlation regression (Whitehouse & Noller, Note 1) revealed no significant relationship between the two variables ($r = .015$, $p > .10$).
DISCUSSION

The hypothesis was that mothers with high anxiety trait levels would provide less positive comments to their child for verbalizations than mothers with low anxiety trait levels. Correlational analyses of the data failed to confirm this hypothesis. This finding does not support Clezy et al. (1979) in the theory that mothers with high anxiety levels fail to provide positive comments appropriately to their children in play situations.

Although the analysis did not find a significant relationship between these two variables, the trend was in the predicted direction ($r = -.12$). One reason for the lack of statistical support of the hypothesis would be the large amount of variance in both the anxiety scores and positive comment frequencies. Perhaps if a larger number of subjects were used in future studies the variances would have less impact on the statistical analysis.

There are some differences in the population described by Clezy et al. (1979) and this research project. The mothers described by Clezy et al. (1979) have children with communication disorders while the mothers in this study have children believed to be developing
normally. The children in this study were between the ages of three weeks to 36 months while the children Clezy et al. (1979) referred to as clients were usually three years or older. Another study of interest then might be to obtain a group of clinical mothers of children three years or older with language disorders. Such a study might reveal higher anxiety scores among the mothers. However, it might be that the diagnostic label of communicative disorder becomes the factor that results in lack of positive reinforcement.

Caution in interpreting this data is emphasized since the reader should limit any inferences to the precise definition of the dependent variable, audible positive comments. The observable definition of positive comments used in this study was necessary in order to achieve interrater reliability, however it may have limited the data available for analysis. Clezy et al. (1979) based her conclusions on clinical observations which were not limited to auditory forms of positive comments. Nonverbal communicative acts such as facial expressions or other kinesic factors, proxemics, and touching were certainly included in her analysis of each mother. The investigator noted such communicative acts during the data collection sessions with the mothers and children. Inclusion of these observations might have resulted in different findings. A study conducted in a
similar manner to this study which would include these nonverbal communicative acts may yield different results which are definitely necessary to further test Clezy's et al. (1979) theory. Such a study is feasible using videotaped samples. An inspectional analyses of the data suggest that at the young age levels of children in this study, no significant support was found for the assumption of Clezy et al. (1979) that the anxiety trait level of mothers as measured by the STAI correlates with the language development of children as measured by the REEL. This statement is made because the ten mothers who had a ninety five per cent or higher percentile ranking of trait anxiety indicating high levels of trait anxiety as measured by the STAI and the ten mothers with the lowest anxiety (i.e. sixty percent or lower) had children with language levels well within their chronological age level range as measured by the REEL. However, it is not known if the "Clinical Anxiety" referred to by Clezy et al. (1979) is the same as anxiety traits measured by the STAI. In fact as mentioned earlier, labeling a child as "disordered" might create anxiety "States" that would cause disruption in the natural mother-child interchange. "States" of anxiety were not considered in this study.

The mean score of trait anxiety for the study's sample was 46.9 which was considerably above the mean score of 38.25 for the college students in the norm
sample. In fact, forty-eight percent of the mothers in this study had anxiety trait scores more than one standard deviation above the mean. This factor limits application of these findings to the population at large. A study with groups of mothers with very low anxiety trait scores when compared to an equal sized group of mothers with very high anxiety trait scores might show significantly different patterns of positive comments.

Measurement of anxiety under present standards is difficult and lacks precision. If there were ways to externally assess anxiety versus an internal assessment (i.e., the STAI Scale) and these methods had been utilized in this study, different mothers may have been viewed as anxious. A study conducted to investigate this question is needed.

The present limited collection of empirical data imply that mothers' anxiety trait levels are not correlated with language development. Until empirical data are presented to support clinical impressions that high anxiety levels interfere with mothers' interactions with their children, clinical procedures to assess and remediate mothers' anxiety can not be supported.
SUMMARY

Based on a review of the literature it appeared that mothers play a vital role as agents of therapy within speech and language and interdisciplinary therapeutic programs. The discussion of this theory centered on Clezy's et al. (1979) model of assessment with specific attention to the wisdom and effectiveness of the processes of assessment and remediation of mothers' anxiety levels.

A thorough search of published literature on theories of learning in child development and related research was conducted. Additionally, present methods of assessment and remediation for mothers of young children and their environment within the areas of cognitive, psychological, physical, speech, language, and audiological development were reviewed. Methods of assessing and modifying the reinforcement channel between the mother and child within the areas of reinforcement schedules and anxiety levels were covered.

The search of the literature revealed that professionals in speech and language pathology and related disciplines have recognized the need for assessing and remediating reinforcement schedules, linguistic inter-
changes, and the intertwined anxiety levels of a mother first before initiating specific therapeutic programs. However, very little empirical data supporting or refuting this approach to therapy exists.

This research collected empirical data to support or refute the wisdom of assessing and remediating the mother's anxiety level. The rationale for the study was based on the theory that high anxiety trait levels interfere with mothers' abilities to provide frequent positive comments to their children. An investigation of the relationship between mothers' anxiety trait levels with their positive verbal comments to their children's verbalizations was made. The hypothesis was that mothers with high anxiety trait levels will not provide as many positive comments to their children for verbalizing as mothers with low anxiety trait levels.

The main independent variable was anxiety trait level as determined by the State-Trait Anxiety Inventory (STAI) raw scores, normalized T-scores, and percentile ranks. Trait anxiety was defined by the STAI as a relatively stable condition of anxiety proneness. Another factor considered was the child's language quotient level as determined by the Receptive Expressive Emergent Language Scale (REEL).

The dependent variable of the experiment was the measurement of the number of verbal positive comments the
mothers gave their children's verbalizations during the ten minute segments taken from informal thirty minute controlled play sessions. A positive comment, arrived at by a pilot study conducted specifically for this study, was defined as an audible remark that was encouraging and positive in nature. A positive comment might take the form of a rising, genuine inflection of the mother's tone, a repetition of a child's remark or it may be similar to remarks such as "Good!"; "How about that!"; "Uh hm."

The sixty mothers in this study were mothers of normal children born at the Orlando Regional Medical Center and Florida Hospital in Orlando, Florida during the period of 1979 through 1981. These subjects were asked to bring their children and participate in a research study aimed at studying language development in very young children.

The site of the data collection was a small therapy room within the Central Florida United Cerebral Palsy Clinic in Orlando, Florida. The mothers were instructed to play with their children in a controlled thirty minute play session. From the center ten minute audiotaped segment the data for the dependent variable, positive comments, was collected. Following the play session the STAI Anxiety Trait Scale and the REEL Scale were administered from which the data for the independent variable
of anxiety and language quotient levels were respectively gathered. The scoring instrument for positive comments was an adaptation of the Reinforcement Profile (Clezy et al., 1979). The scoring of positive commetns was done by the experimenter following a pilot study in which interrater reliability with three other expert judges was established as .99, .88, and .95 respectively.

A Wollensak Model 2520 AV Heavy Duty Cassette Recorder with a Model 5335B Sher-O-Dyne Omnidirectional Dynamic Microphone was used to audiotape the verbal interaction data.

Each subject was assigned a number and her total positive comments (i.e., dependent variable) and her STAI Anxiety Trait level were assigned respectively in tabular form to her number. The raw scores for all the subjects on the Trait Anxiety Scale of the STAI and the number of positive comments for each subject may be found in Appendix G.

On the Trait Scale of the STAI the mean score was 46.9 with a standard deviation of 8.1. The range of scores was from 33 to 66. The number of positive comments given within the ten minute period by the subjects ranged from 0 to 57. The mean was 21.3 with a standard deviation of 14.1. Obviously, there was a considerable amount of variance in the distribution of the STAI scores.
and the positive comment frequencies.

The anxiety scores were grouped into high, average, and low categories (High = 57-66, Average = 45-56, Low = 33-44). The number of positive comments were also grouped into frequency categories (High = 40-57, Average = 20-39, Low = 0-19). A Chi Square analysis of this data revealed no significant differences in the comparison of these groups ($\chi^2 = 3.15, p > .5$). A Pearson's correlational analysis of these groups resulted in no significant relationship between the groups ($r = -.12, p > .10$), although the slight trend in the correlation was in the predicted direction.

Further analysis of the ungrouped raw data using multiple correlation regression (Whitehouse & Noller, Note 1) revealed no significant relationship between the two variables ($r = .015, p > .10$).

Although this study does not support Clezy et al. (1979) in the theory that mothers with high anxiety levels may fail to provide an adequate amount of positive comments to their children in play situations, cautions must be taken in making inferences from this study. The differences in population samples of this study and in Clezy's et al. (1979) observations must be noted (i.e. this study's normal subjects vs. clinical subjects in Clezy's et al., 1979 observations). Another difference in sample populations was that the study's mothers were
mothers of children ranging from three weeks to three years while most of the children in Clezy's et al. (1979) observations were three years and older. This study's observations were limited to audible positive comments whereas Clezy's et al. (1979) observations included nonverbal communicative acts as well. All of these differences require future research and empirical data.

At the young age levels of children in this study no significant correlation between anxiety trait level and language development was noted since both mothers with high anxiety scores and low anxiety scores as measured by the REEL had children with language quotient levels at age level or above.

The mean score of trait anxiety of this study, 46.9, was considerably higher than the mean score of the college students in the norm sample, 38.25. Forty-eight percent of the mothers had anxiety trait level scores one standard deviation above the norm sample. This limits the study's application and calls for another study with mothers with very low anxiety trait scores to be compared to an equal sized group of mothers with very high anxiety trait scores to see if a significantly different pattern of positive comments develops.

Finally, due to the difficulty in precisely measuring anxiety and the present limited amount of empirical data supporting clinical impressions that high anxiety
levels interfere with mothers interactions with their children, clinical procedures to assess and remediate mothers' anxiety can not be supported.
APPENDIX A

Voluntary Informed Consent Statement
I understand that my child and I are participating in a research project dealing with normal language development. I understand that parts of the session in which we are involved will be audiotaped. I voluntarily give my consent to Peggy Gornto to use the data collected from this audiotaped session for use in her Master's Thesis project. I am, also, assured by Peggy Gornto that full confidentiality will be maintained and neither my name or my child's name will ever appear in any informal or formal report in either written or oral form.

NAME __________________________ 
DATE __________________________ 
ADDRESS __________________________ 
PHONE NUMBER __________________________

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APPENDIX B

Instructions for the Play Session
Play Session Instructions

As you recall from our previous discussions, the purpose of my research is to add further data and knowledge to the understanding of normal language development in very young children. The way I intend to do this is with your help to study the way mothers and their infants interact in a play situation. Now I want you to relax and get ready to play with your baby for the next thirty minutes. As you can see I have lined up 10 toys or objects on the shelves. I want you to use them to play with your baby by talking about the objects or using any other techniques in hopes of getting him/her to interact with you. For instance, you may try to get him or her to name the object or tell you about it. You may choose the first object and the order in which you use them, but you must use every object and change objects every three minutes. I will signal you when to pick a new object. Part of this session will be audiotaped, so if you hear clicking noises that's all I am doing. I want you to know that this session should be as relaxed as possible and is merely an observation session of the way you and your baby interact.
APPENDIX C

Informal Play Task Toy List
Toys for Informal Play Task

1. A cloth doll
2. A plastic animal
3. An unopened cereal box with bright pictures on it
4. A small shiny pot with its own lid
5. A snap together toy (large pieces)
6. A push-pull toy (with long handle on wheels)
7. A large sized plastic ball
8. A toy truck with objects to load and unload
9. A book with large pictures and print (Richard Scarey's *What Do animals Do*)
10. A pull toy dog
APPENDIX D

Instructions for the Trait Anxiety
Scale of the State Trait Anxiety Scale
STAI - Trait Scale Instructions

So that I can know a little more about you, would you please fill out this self-evaluation questionnaire. All of your answers will remain confidential and will be identified solely by numbers. The information gathered from these answers will be used to add more depth and strength to the study. Let's read the directions together. I'll read them aloud as you read silently. Now I'll play with your child while you fill this out. Thank you.
APPENDIX E

Trait Anxiety Scale of the State Trait Anxiety Scale
SELF-EVALUATION QUESTIONNAIRE

STAI FORM Y-2

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken the appropriate space on the answer sheet to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

1. I feel pleasant .......................................................... 1 2 3 4
2. I feel nervous and restless ........................................ 1 2 3 4
3. I feel satisfied with myself ......................................... 1 2 3 4
4. I wish I could be as happy as others seem to be .......... 1 2 3 4
5. I feel like a failure ..................................................... 1 2 3 4
6. I feel rested .............................................................. 1 2 3 4
7. I am "calm, cool, and collected" ................................. 1 2 3 4
8. I feel that difficulties are piling up so that I cannot overcome them .......................................................... 1 2 3 4
9. I worry too much over something that really doesn’t matter .......................... 1 2 3 4
10. I am happy ............................................................ 1 2 3 4
11. I have disturbing thoughts ........................................... 1 2 3 4
12. I lack self-confidence .............................................. 1 2 3 4
13. I feel secure ............................................................ 1 2 3 4
14. I make decisions easily .............................................. 1 2 3 4
15. I feel inadequate ...................................................... 1 2 3 4
16. I am content .......................................................... 1 2 3 4
17. Some unimportant thought runs through my mind and bothers me .......................................................... 1 2 3 4
18. I take disappointments so keenly that I can’t put them out of my mind .......................................................... 1 2 3 4
19. I am a steady person .................................................. 1 2 3 4
20. I get in a state of tension or turmoil as I think over my recent concerns and interests .......................................................... 1 2 3 4

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APPENDIX F

Instructions for the Receptive Expressive Emergent Language Scale
Instructions for the REEL Scale

Now, to learn a little about your child I have some questions that can tell us a great deal about your child's language development. This information will be invaluable in helping me add more depth and credibility to the study. Plus the information can be helpful to you as a mother in giving you an indication of what your baby's level of development is at this point. This could cue you into ways to help your child if he or she needs it or it may tell you everything's on target. It is important that you answer these questions as accurately as possible. I will be glad to go over the results of this test if you so desire and want you to know after all the data collection analysis is completed that I'll provide you with a complete report on what is found.

Now, tell me how your child responds to speech or how he demonstrates that he understands you. (Write down answer). When have you noticed him making sounds and what kind of sounds have you heard? (Next specific questions from the REEL Scale will be asked).
APPENDIX G

Raw Scores of Subjects
### Raw Scores of Subjects

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APPENDIX H

Demographic Characteristics of Subjects
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<sup>a</sup>Numbers in this column represent education levels as follows: 1 = high school; 2 = less than 4 yrs. college; 3 = 4 yrs. college; 4 = more than 4 yrs. college.

<sup>b</sup>Child was three weeks old.
Demographic Characteristics of Subjects

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\[a\] Numbers in this column represent education levels as follows: 1 = high school; 2 = less than 4 yrs. college; 3 = 4 yrs. college; 4 = more than 4 yrs. college.
Demographic Characteristics of Subjects

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\(^a\)Numbers in this column represent education levels as follows: 1 = high school; 2 = less than 4 yrs. college; 3 = 4 yrs. college; 4 = more than 4 yrs. college.
References


Papousek, H. & Papousek, L. Mothering and the cognitive head-start: Psychobiological considerations. In H. R.


Stern, D. N., Beebe, H., Faffe, F. & Bennett, S. L. The infant's stimulus world during social interaction: A study of caregiver behaviors with particular reference to repetition and timing. In H. R. Schaffer...


Reference Note