THE INFLUENCE OF HOME ENVIRONMENTAL FACTORS ON THE DEVELOPMENT OF LANGUAGE AND CONCEPTS ABOUT PRINT OF KINDERGARTEN CHILDREN

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CHAPTER I

INTRODUCTION

Background of the Problem

That reading is central to academic success in the elementary school and later goes unquestioned; when reading instruction should start and the extent of parent involvement have been points of considerable debate. Although there is a "continued dearth of helpful research," the trend is to move toward parent involvement and earlier instruction (Durkin, 1976, Chapter 1).

It has been clearly established that there is a definite relationship between oral language performance and reading (C. Chomsky, 1972; Clay, 1972a; Lundsteen, 1977). Rupley (1975) points out that reading is a language skill and that all language skills reinforce each other. Goodman (1974) stressed this point by saying:

> Reading is language. Reading is one of four language processes. It must be viewed as the receptive written language process, parallel to listening, the aural receptive process. Speech and writing are the productive processes. (p. 824)

According to Clay (1972a) language and home environment are both important to successful early reading experiences. Bloom (1965) reported that there is a .80 correlation between home environment and academic success (p. 98. Gray

and Klaus (1970), Gordon (1972), Madden, Levenstein, and Levenstein (1976), and others have reported significant results in improving early academic success through early home intervention programs. A recent "joint statement of concerns and recommendations," Reading and Pre-First Grade, was issued by seven organizations: I.R.A., N.C.T.E., NAEKNE, ACEI, ASCD, NAESP, and NAEYC (Young Children, 1977). These concerns appear to be directed toward closing the gap between school and the home.

Statement of the Problem

This study focused on the central question, could environmental factors in the home be identified which appear to support young children moving into reading? Factors considered for investigation were limited to those factors which parents could manipulate if motivational stimuli were present. To maximize the impact of the home, beginning kindergarten children were selected as subjects. Selection of this age group presented a problem in measuring typical "reading achievement" prior to formal instruction. Therefore, the question considered was: what is appropriate reading behavior for kindergarten children? Clay (1972a) has reported stages of development for early reading behavior and concepts about print for five and six year olds. Psycholinguists such as Kenneth Goodman (1976) have articulated concepts about the

nature of the reading process and the importance of language development in learning to read. Based on this related research the following questions were derived for investigation:

1. Are there specific environmental factors in the home which influenced the language development and the development of concepts about print of kindergarten children?

2. What did parents seem to do differently in the homes of the children who were reading during the kindergarten year?

Significance of the Problem

Studies of early reading behavior are relatively few in number and those studies which are available in the literature "are deficient in types of scores that are used and in the way they are subsequently analyzed" (Durkin, 1974-75, p. 58). In the past it has generally been accepted that children should not be taught to read before they reach the mental age of six years and six months (Morphett & Washburne, 1931). Authorities in reading research and instruction have changed their position about beginning reading instruction and parental contribution to learning to read. The attitude toward parents appears to have come full circle, "From 'Hands Off' to 'Parents We Need You'" (Larrick, 1976). Della-Piana and others have described research and application of

programs for parents which are designed to modify the home environment for reading before and after kindergarten (Della-Piana, Stallmann, & Allen, 1968).

This is in the second area in which the present study may have some significance by identifying those factors in the home which appear to support children moving into print. Further research in parent training and home intervention may be assisted by the availability of a description of what some parents are doing in the home which appears to establish a positive climate for reading prior to kindergarten.

Another important aspect of the present study is an attempt to establish relationships between the home environment and "Early Reading Behavior" as defined by Clay (1972a). She describes five stages of behavior which signal acquisition of key concepts necessary in learning to read:

> Stage 1 Print can be turned into speech. The child invents a sentence which could describe a picture. . . . Print and the spoken language are equated.
>
> Stage 2 A special type of talking. The child begins to use a special type of talking found only in books. . . . He has a psychological set to use only particular kinds of language structures.
>
> Stage 3 The picture is a guide to the message. The child invents a statement which is appropriate to the picture but which is not an exact rendering of the text.
>
> Stage 4 Some sentences from the text are almost memorized. A child at this stage reads a caption book relying on what his ear remembers of the text, prompted by the pictures, and usually in sentences.

> Stage 5 Building a sentence word by word.
> The child's everyday speech is linked to the fluency with which he will read . . . the child with rich experience with books will have a greater understanding of bookish forms of language and more motivation to master the art of reading. (pp. 30-32)

Clay, Gill, Glynn, McNaughton, and Salmon (1976) have devised methods of assessing children's performance in oral language and concepts about print. The Record of Oral Language (ROL) uses sentence repetition procedures "to give insight into the ways young children master different structures found in English sentences" (p. 8). Concepts About Print was designed to check concepts about directionality, that print not the picture carries the message, functions of punctuation marks, letter and word identity (Clay, 1972b).

Since Almy (1949) conducted her landmark study "Children's Experiences Prior to First Grade and Success in Beginning Reading," very little research has investigated home environment and reading in the kindergarten. Two University of Chicago doctoral studies (Dave, 1963; Wolf, 1964) examined home influences upon academic achievement and intelligence. The two researchers used the same sample of 60 fifth grade children and each defined several "environmental" process characteristics or classification of variables. Dave identified six such characteristics as determiners of the home environment's influence on educational achievement.

Each Environmental Process Variable was further defined by several factors, all of which are listed below (Dave, 1963):

I. Achievement Press

1. Parental aspirations for the education of the child
2. Parents' own aspirations
3. Parents' interest in academic achievement
4. Social press for academic achievement
5. Standards of reward for educational attainment
6. Knowledge of the educational progress of the child
7. Preparation and planning for the attainment of educational goals

II. Language Models

1. Quality of the language usage of the parents
2. Opportunities for the enlargement and use of vocabulary and sentence patterns
3. Keenness of the parents for correct and effective language usage

III. Academic Guidance

1. Availability of guidance on matters related to school work
2. Quality of guidance on matters relating to school work
3. Availability and use of materials and facilities related to school learning

IV. Activeness of the Family

1. The extent and content of the indoor activities of the family
2. The extent and content of the outdoor activities during weekends and vacations
3. Use of TV and such other media
4. Use of books, periodical literature, library and such other facilities

V. Intellectuality in the Home

1. Nature and quality of toys, games, and hobbies made available to the child
2. Opportunities for thinking and imagination in daily activities

VI. Work Habits in the Family

1. Degree of structure and routine in the home management
2. Preference for the educational activities over other pleasurable things (pp. 38-39)

The present study is designed to investigate the relationships between children's ability to read, concepts about print, and language ability to the home environment. Concepts about print were measured by the Sand test, language by the ROL, and each child was given an opportunity to read independently. Home environment measures were determined by conducting structured interviews in the home. Selected families were interviewed a second time to determine suggested causal relationships.

Procedure

Subjects

Standard statistical procedures utilizing a table of random numbers were used to select 75 kindergarten children from four participating elementary schools in a North Texas public school district. Sixty-one of the parents agreed to participate in the present study by signing and returning a consent form.

Data Collection

Data collection of children's performance. The Sand test and the ROL were administered to 56 students in the

elementary school which they attended. Both tests were administered by an examiner with formal training in speech and language development and three years of kindergarten teaching experience. In addition, each child was given an opportunity to read to the examiner. Total time of the testing was approximately 30 minutes and was recorded on audio tape (Perkins, 1978).

Initial home interviews. Each of the 56 children's homes was visited to conduct a structured interview which consisted of 50 questions designed to measure the home environment. Both parents participated in the interviews if available. Each interview required 60 to 90 minutes to complete. (See Appendix A for copy of interview guide.)

Five profile groups were selected on the basis of the following criteria:

1. All children capable of reading unfamiliar stories.

2. Children who scored high on the Sand and ROL and came from a home with a corresponding high score in the Educational Home Environment.

3. Children who scored low on the Sand and ROL and came from a home with a similar low score in Educational Home Environment.

4. Children who scored high on the Sand and ROL and came from homes with low scores in the Educational Home Environment.

5. Children who scored low on the Sand and ROL and came from homes with high scores in the Educational Home Environment.

Follow-up interviews were conducted with four families of children who were reading during the kindergarten year to explore what appeared to be different in these homes.

Instruments

Record of oral language (ROL). The ROL consists of two sections: 1) The Levels Sentences are constructed on three increasingly complex levels of 14 sentences each. Each level contains two examples of seven different sentence types. The 42 Levels Sentences were used in this study. 2) The instructional diagnostic section was not appropriate for purposes of this study and was not administered. To receive credit for a sentence a child must repeat it verbatim. The highest possible score on the ROL is 42 (Clay et al., 1976).

Sand test. The Sand test contains 21 test items for which the child receives 1 point for each correct response (Clay, 1972b). The test was administered in 10 minutes by asking the child to help read a book. As the examiner reads the story, questions are asked about the book and features of print. The child may respond verbally and in some cases, point.

Initial home interview form. Dave developed a list of 63 questions to evaluate "the home environment in terms of the relevant processes and forces called 'Environmental Process Variables' . to study a specific component of the total home environment termed the educational environment, which may be related to the educational behavior of the child" (Dave, 1963, p. 7). Because Dave designed the questions for parents of fifth grade children and interviewed only the mothers, it was necessary to revise and rewrite some of the questions.

These revisions were tested in two homes, revised and tested again in two more homes. The revisions resulted in a list of 50 questions and three pages of general information. See Appendix A for the interview form.

Rating scales. Sixteen of the 21 rating scales for environmental measures developed by Dave (1963) were adopted for use in this study. One additional 9 point scale was developed to measure the child's interaction with print. All 17 scales are shown in Appendix B, where each of the factors of the 'Environmental Process Variables' is specified in terms of criteria for evaluation. The Educational Home Environment score was determined by averaging the process variables. See Appendix C.

Assumptions

A descriptive design was selected because of the nature of the research setting and the impracticality of controlling the home environment or isolating variables. Therefore, the following assumptions were developed to guide the investigation:

1. That the home environment will influence the development of language and concepts about print of kindergarten children.

2. That some specific factors will appear to be more closely related to language competence and concepts about print of kindergarten children.

3. That excessive or absence of some factors will adversely affect language competence and concepts about print of kindergarten children.

4. That children from a supporting academically nurturing home environment will have greater language ability and more complex concepts about print than those whose homes are not too supportive of moving into reading.

5. That beginning kindergarten children who start school as readers come from homes with a positive environment toward reading.

Limitations of the Study

Results of this investigation were interpreted with careful consideration for the following limitations:

1. The total size of the sample was 56 and the following in-depth interviews were limited to four homes.

2. There perhaps was a natural tendency on the part of the parents to give the investigator the "right answer."

Definition of Terms

The following definitions were used for this investigation:

Educational Home Environment: the aspect of the home which appears to be supportive of learning and related to success in young children moving into print. The Educational Home Environment score was derived by the averaging of six process variables.

Environmental Process Variable: specific processes or forces at work between the child, the parents, and/or the environment in which they live together, which collectively approximate the Educational Home Environment. Each Process Variable score was derived by averaging the several factors. (See Appendix C.)

Environmental Factors: specific quantifiable dimensions of the process variables which appear to be related to the educational behavior of the child.

Concepts About Print: those stages of behavior of a child as defined by Clay (1972b) and responses exhibited as measured by the Sand test.

Oral Language: the spoken or oral performance of a child as measured by the ROL.

Readers: those children who were identified by the classroom teacher as reading and/or those children who could read unfamiliar text with 85 per cent accuracy (Perkins, 1978, p. 17).

CHAPTER II

REVIEW OF LITERATURE

This study was designed to investigate specific environmental factors in the home which influenced kindergarten children's language development and development of concepts about print. Much has been written about the Early Home Intervention Programs of the 60s and 70s designed to foster social and institutional change. The first part of this chapter will review some of the pertinent studies in this area which relate to early academic success. The second part will review specific studies which relate factors in the home to reading. Next, a review of the studies which were concerned with children who learned to read prior to the first grade will be undertaken. Finally, the chapter will conclude with a review of the literature related to children's language and concepts about print as related to early reading behavior and later success.

Early Home Intervention Programs and Academic Success

> Reading instruction is initiated long before the child has its first encounter with the school. Since it is a matter of public information that parents are the first and most long term teachers of their children . . . educators must look beyond the confines of the school for the answers to an effective reading program. (Wynn, 1972, p. 557)

The critical nature of the relationship between home environment and early academic success, particularly reading, is frequently reported (Almy, 1949; Bloom, Davis, & Hess, 1967; Durkin, 1976).

Perhaps psycholinguists such as K. Goodman (1967) and F. Smith (1973), most clearly articulate the relationship between home environment and reading. F. Smith (1973) makes this connection by saying:

> Reading is not primarily a visual process. Two kinds of information are involved in reading, one that comes from in front of the eyeball, from the printed page, that I call visual information, and one that derives from behind the eyeball, from the brain, that I call nonvisual information. Non-visual information is what we already know about reading, about language, and about the world in general. . . . There is a trade off between visual and nonvisual information in reading - the more that is already known "behind the eyeball," the less visual information is required to identify a letter, a word, or meaning from the text. From this working definition we can see that what the student, reader, brings to school is critical. (p. 6, 7)

This view is further supported by Bloom, Davis, and Hess (1967) who make the following statement:

> The home environment has been studied as a means of understanding the factors which influence development of children. Studies repeatedly show that the home is the single most important influence on the intellectual development of children, particularly in the pre-school years. The ways in which parents spend time with their children at meals, in play, and at other times during the day have been found to be central factors in developing skills which prepare children for school. The objects in the home, the amount of

> parental interest in learning and the amount of practice and encouragement a child is given in conversation and general learning have been found to be significant influences on language and cognitive development, development of interest in learning, attention span, and motivation to the child. (p. 69)

The question of whether or not home environmental factors can be modified has been answered (Bronfenbrenner, 1974). More and more evidence (Klaus & Gray, 1968; Karnes, 1969; Levenstein, 1971) has been reported to support modifying the home environment through the parents by involving them in the education of their children. Gray (1970) reported results from seven years of research with a program designed to teach mothers skills in early education. The mothers of 44 experimental children went through intensive training for two or three summers with home visits on a weekly basis between the summer training segments. This training was conducted from 1961 to 1965. Follow-up tests were administered in 1965, 1966, and 1968. The experimental group remained significantly superior to the controlled group on intelligence tests. On measures of language and achievement, trends still remained but differences were no longer significant by the end of the fourth grade. Gray also reported vertical and horizontal diffusion effects of the training of the mothers; that is, older and younger siblings appeared to receive benefits from the program as well as the broader neighborhood in which the children lived.

Hunt (1975) provides a careful review of all early childhood educational programs during the last decade. He presents a comprehensive review of the relationships and historical perspectives of the contribution of project Head Start, Follow Through, and Parent-Child Centers funded by the Office of Child Development. One of the most promising studies reviewed was Levenstein's Mother-Child Home-Program. The Mother-Child Home-Program (Madden, Levenstein, & Levenstein, 1976) was designed for low income two to four year olds, to foster cognitive and socioemotional development. The program consisted of home visits by a "Toy Demonstrator" to demonstrate use of books and toys in the home. The subjects consisted of a group of 151 and another group of 96 for a different length of treatment and a comparison group of 55. This design has been replicated and it proved extremely successful with I.Q. gains holding up into elementary school above 10 points.

Bradley and Caldwell (1976) compared early home environment and changes in mental test performance in children from 6 to 36 months of age. The Bailey scales of infant development were administered at six months and the Stanford Binet intelligence scale at three years. The family was observed and interviewed using the Home Observation for Measurement of the Environment. Increases in mental test performance were related to two subscales, maternal involvement with children and provision for appropriate play

materials. Decreases in performance were related to organization of physical and temporal environment. The subjects for this study were 77 normal infants selected from a group of 135 children who participated in a program for infants. Of the 71 families included in the final study, the father was absent in 21 families and 31 families were receiving welfare.

Research in the Home

In a study of 1206 children Krus and Rubin (1974) identified 12 stable factors from a 120 item home environment inventory administered to the mothers. Their study was to design and to explore the relationship between information in the pre-school family and home environment related to educational achievement at ages five, six and seven. In the summer of the year when each child turned five, the following tests were administered: the Reading Environment Inventory (REI), the Metropolitan Readiness Test (MRT) and the Illinois Test of Psycholinguistic Ability (ITPA). These tests were readministered a year later when the child was six years of age and at age seven the Wide Range Achievement Test (WRAT) was administered. Statistical analysis of the results of these tests yielded the following 12 stable factors:

1. Parental agreement
2. Child's reading background
3. TV viewing habits

4. Five year old's school related activities
5. Child's earliest jobs
6. Mother's sex typing of activities
7. Breakfast regimen
8. Sibling's reading problems
9. Child dresses self
10. Mother's reading background
11. Father's reading background
12. Home reading materials

The researchers concluded that reading activities in the home were shown to be positively related to later development and that "earlier reading experiences are highly beneficial for later reading achievement." Most of the factors in this investigation which were critical to the educational development were found to be amenable to manipulation.

A landmark study by Hess (1969) explored the relationship between maternal attitudes towards the school and the educability of the children. The research group included 163 Negro mothers and their four year old children. The population consisted of four subgroups: one was selected from college educated, professional, executive and managerial occupational levels; the second group was selected from those with not more than high school education at a skilled blue collar occupational level; the third group came from those at the unskilled or semi-skilled occupational levels having

elementary school education; and the fourth group was the same as the third group except that the fathers were absent and the families were supported by public assistance.

Each mother was interviewed twice at home and then brought to the university for an observation session with her child. There were six measures of cognitive environment which were considered relevant: circumstances of the home and community environment, mother's orientation toward the non-family world, mother's strategies for controlling the child, mother's teaching technique in an experimental situation, maternal language, and mother's affective interaction with the child.

Earlier reports indicated significant correlations between several facets of maternal behavior and the child's performance at age four on I.Q. tests. Two years after measures of maternal behavior were taken, the children's performance was measured with several reading readiness tests. The earlier data were compared to the Lee Clark and Metropolitan Reading Tests and reading grades at the first and second semester of the first grade. Hess concluded his report by saying:

> Maternal behavior and cultural background thus appear to be influential through various avenues of behavior upon the child's early cognitive and academic development. To the extent that these affect the child's cognitive development, they

> appear to include the motivational and other abilities involved in learning to read. (p. 24)

Strom and Johnson (1974) report two doctoral dissertation studies conducted in 1972 which resulted in dramatic beneficial change after eight weeks of training at home. Significant changes were reported in: self-concept of mother as a teacher; mother's perception of the teaching, learning process; self-concept of the child; and verbal fluency of the child.

Della-Piana et al. (1968) report on two research projects relating to environmental influence. The first was a series of small cross-cultural investigations by Vernon which included 100 eleven year old boys in England, 50 eleven year old boys in Jamaica and 90 Canadian Indians and Eskimos. Environmental handicaps to mental development were reported as: psychological and nutritional factors, perceptual development and conceptual deprivation, repression of independence and constructive play, family insecurity and lack of playfulness, and female dominant. The second study done by Brown and Deutsch of 160 fifth graders reported significant variables reported were: parental aspirations for extent of child's schooling, child's entry into conversation with adults at mealtime, and number of cultural activities engaged in by the child.

The frequently quoted study by Almy (1949) reports her findings on the pre-first grade reading experiences of 106 children. The experiences that she described concerned kindergarten, responses to reading opportunities, reading accomplishments before the first grade, and attempts to teach the child to read before the first grade. Eighty-eight of the children included in the study attended kindergarten prior to first grade. Responses to reading opportunities covered such activities as reading or using books in play, child's pretending to read, and preferences for reading materials. In addition, activities with adults were covered by such topics as child's preference to be read and asking to be read to, child's attention to science, reading details such as interest in words, letters and numbers, etc., and writing activities. Interestingly, Almy did not find a significant relationship between either mental age or occupational status of the parents. In general, she gave a description of a favorable environment in the home in which a child was curious about all forms of print and was supported in his interest by a parent which provided opportunity for experience and answers to questions.

Dave (1963) and Wolf (1964) examined home influences on academic achievement and intelligence of sixty fifth grade children. Both researchers were concerned with what the parents did in the home rather than the social economic

status of the family. This is a marked departure from a majority of the research discussed above. They defined several "environmental process characteristics," or classifications of variables to structure their investigation. They identified six characteristics as determiners of home environment's influence on educational achievement. They are:

1. Achievement press - the parents' aspirations and expectations for the child and themselves

2. Language models - quality of the parents' language and standards they expect in the child's language

3. The availability and quality of academic guidance in the home

4. Activeness of the family - the extent and content of family activities, both at home and away

5. Intellectuality in the home - the nature and quality of toys and opportunities for thinking in daily activities

6. Family work habits - the degree of work routine in home management.

Each subject's mother participated in a focused interview which was scored on rating scales for each environmental process characteristic. The sum of the six environmental process variable scores was used as an Index of Educational Environment (I.E.E.). They found a correlation of .80 between the index of educational environment and fourth grade

achievement test scores. The highest correlations with the I.E.E. were obtained in word knowledge, reading, and language sub-test of the Metropolitan Achievement Battery. These studies clarified that factors in the home which relate to the school achievement, particularly reading, were significant and that the factors which they were analyzing can be manipulated or are subject to prescriptive remedies by schools.

A similar study by Koppenhaver (1974) replicated the findings discussed above. A random sample of 30 high achieving and 30 lower achieving readers was selected from 739 fifth grade students. Koppenhaver divided the home environment into academic and intellectual dichotomy with nine sub-environments. The six subscores of the academic environment were: the climate created for achievement motivation, opportunities provided for verbal development, the nature and amount of assistance provided in overcoming academic difficulty, the activity level of significant individuals in the environment, the level of intellectuality in the environment, and the kinds of work habits expected of the individual. Under intellectual environment he grouped: the stimulation provided for intellectual growth, the opportunities provided for and emphasis on verbal development, and provision for general types of learning in a variety of situations. He concluded that academic and intellectual environments of the

home and the six sub-environments of which they were composed were positively related to reading achievement of fifth grade students in the study.

Reading Before the First Grade

It was in 1931 that Morphett and Washburne published their now-famous study of the Winnetka, Illinois schools' first grade reading research. Perhaps the title, When Should Children Begin To Read?, was misleading and was interpreted as having a definitive answer. Their conclusions do not appear to be definitive when read almost one half century later. In their summary they stated

> correlations between mental age and ability to learn to read as measured by reading progress in sight word scores shows a fairly high degree of relationship. The correlations ranged from .50 to .65, consequently it seems safe to state that by postponing the teaching of reading until children reach a mental level of 6 1/2 years, teachers can greatly decrease the chances of failure and discouragement and can correspondingly increase their efficiency. (Morphett & Washburne, 1931, p. 503)

Durkin's (1959, 1962, 1974-75) studies have refuted the early opinions that a mental age of 6.5 was necessary for successful reading. She selected subjects who passed a criterion word recognition test at the start of the first grade in schools which did not provide reading instruction

in kindergarten. In one study she followed 49 early readers and in another 156 early readers through the elementary school. Her interviews with parents indicated these children showed early interest in reading all forms of print available in their environment. A majority of these children began writing on their own and sought assistance. She found that families of early readers gave support to the child in his effort to learn to read and that instruction at home varied from a completely casual approach to irregular but systematic instruction in reading. Durkin (1974-75) consistently found that early readers maintained a statistically significant lead over non-early reading children through grade six. In postulating an explanation for this finding, she stated:

> One very likely explanation is that the characteristics of the family that fostered pre-school reading ability would continue to foster achievement, with or without an appropriate instructional program in the school. (p. 51)

Sutton (1969) conducted a longitudinal study of 105 children who learned to read in kindergarten which supported Durkin's findings. Appleton (1964) reports positive results when allowing kindergarten children to pace themselves in learning to read. On a much larger scale, Brezeinski (1964), McManus (1964) and Mood (1967) have reported and commented on beginning reading in the Denver Public Schools. Denver Public Schools had about 9,000 kindergarten children in 300 classes. The study involved 61 classes, totaling 2,000 children, in a

research group which received beginning reading instruction for approximately 20 minutes per day. The remaining two hours and ten minutes of the kindergarten session were devoted to established kindergarten procedures. A randomly selected control group of 61 classes totaling 2,000 children maintained an established kindergarten schedule of three hours per day. The children who received beginning reading activities in kindergarten scored significantly better on the Gates' Advanced Primary Reading Test at the end of the first grade. As a result of this research, the Denver Public Schools were awarded a grant by the Carnegie Corporation to begin a parallel study to determine how effectively parents could prepare their pre-school children for reading. The results indicated that parents can help their children begin to read. A local TV station broadcast a regular program "Preparing your child for reading" and parents followed a study guide and worked with their children between programs. Parents reported alphabet and word sound games as being very helpful.

Language and Reading

In addressing the question "Should parents teach their children to read?" Hoskisson (1974) draws a parallel between learning to read and learning to speak. His comparison of the way parent's teach their children to speak and schools

teach them to read is striking. He also makes a very good argument that parents can teach their children to read. Nila Banton Smith (1975) says, "Not only does the development of language in young children serve as a foundation for reading, language reinforces reading throughout the school years. We have evidence of close interrelations between general language abilities and achievement in reading. Rupley (1975) in a report on language development and beginning reading instruction, says that "A language art program is centered upon language. Children write language, speak language, spell language, listen to language, and read language" (p. 403). He rejects the idea that reading is a separate skill but rather that it is integrally related to language.

Logan (1963) made a careful seven year longitudinal study of language used by children from kindergarten through grade nine. He concluded that "Those who are high in general language ability are also high in reading ability. Those who are low in general ability are also low in reading ability" (p. 85). Strickland (1962) investigated the language of elementary school children and concluded that there is a close relationship between general language and reading ability.

In two studies involving 16 and 38 children, all early readers, Elkind (1975) found support for the importance of early language and reading experiences between parent and

child. His parent interviews indicated early experience with spoken and written language where printed material is plentiful is important for successful reading. He also found that it was important for parents to read to their children frequently. Milner (1951) also explored the adult-child language interaction pattern in a study of 42 first grade children who scored high and low on reading measures. She concluded that the high scoring children were surrounded by a much richer verbal family environment than the low scoring children. In a two year study of 36 children in a pre-first grade language arts program, Durkin (1970) reports that attention to language development is more important than reading or an attempt to raise children's I.Q. Goodman (1971) makes a strong argument to begin by using the language experience approach as a way to begin where the children are.

Authors such as Stauffer (1975) and Zintz (1975) describe methods of integrating the language experience approach into beginning reading instruction. The successful experiences documented by Sylvia Ashton-Warner (1963) lends considerable weight to the importance of language and background in learning to read.

Lundsteen (1977) supports the view that there is a developmental relationship between language and reading. She believes there is a direct relationship between the capability of a child to speak the complex sentences and to be able

to make sense out of the printed structures on the page. Clay (1976) developed the Record of Oral Language (ROL) to assess a child's oral language abilities. Sentence repetition is used to measure a child's ability to repeat sentences containing a variety of linguistic forms arranged in order of increasing difficulty. In two studies of sentence repetition, Clay (1971) used samples of 160 English, Maori, and Samoan children. The results of these studies indicated that age and parent's language groups were significant variables.

Although much has been written about language and its relationship to reading, a search of the literature reveals that a relatively small amount of material is available on early reading behaviors of children just moving into print. Marie Clay (1972a) in her book Reading, The Patterning of Complex Behaviors presents five stages of reading related to language:

Stage 1 Print can be turned into speech.
Stage 2 A special type of talking.
Stage 3 The picture is a guide to the message.
Stage 4 Some sentences from the text are almost memorized.
Stage 5 Building a sentence word by word.
(pp. 30-32)

In addition to the stages, she describes other behaviors related to attending to print, position, directionality and writing. Clay (1972b) developed a method of checking a child's concepts about print by developing a test called Concepts About Print which uses a child's book entitled Sand,

which is a story about a little boy playing on the beach. Some of the concepts which the book and test are designed to check are: directionality rules, first and last, punctuation, word and letter reversals, capital and lower case, concept of the letter and concept of a word.

Hollingsworth (1977) in a study involving 60 pre-school children reports that the Sand test is a reliable instrument for use with pre-school children. Another recent study by McKenzie (1977) utilized the Sand to determine reading capability of children which range from five years and nine months of age to seven years and two months of age. She found that the Sand did indicate differences between non-readers and readers, with the readers scoring higher. Perkins (1978) presents an interesting research study which supports the use of the ROL and the Sand as diagnostic instruments to observe early reading behaviors of kindergarten children.

The Home, The School and The Future

In discussing what we know about parents as teachers, Gordon (1972) lists 19 factors which have been reported as related to child performance. They are: academic guidance, cognitive operational level and style, cultural activities plan, direct instruction of the child, educational aspirations, use of external resources, intellectuality of the

home, verbal facilities, verbal frequencies, consistency of management, differentiation of self, disciplinary pattern, emotional security, self esteem, impulsivity, belief in internal control, protectiveness, babying of child, a trusting attitude, willingness to devote time to the child and work habits. Gordon states that:

> First, it is evident that what parents do in the early years is important. Second, we cannot categorize any group of parents but must examine what an individual family does if we wish to develop responsible programs. Third, we need to realize that many parents are now doing a very good job; and fourth, parent education is a reasonable effort that we need parents who will work diligently teaching their children. (p. 8)

One has to only survey current titles such as "Learning More About Children and Families" (Edmister, 1977), "Working With Parents On The Run" (Nedler, 1977), "From Hands Off To Parents We Need You" (Larrick, 1976) to see where we are going in the future. These authors present a graphic picture of the changing function of the family in our society and the attempts of institutions to more effectively integrate the parent into the educational system and to prepare and assist the parents in the educational process in the pre-school years.

Other social pressures are at work which are conducive to greater institutional home interaction. Glasser (1978) says,

> But students are the same as everybody else in the world; when they are young they don't accept failure quietly, they react with anger and frustration that grows year by year as they see themselves trapped in a situation where there is no acceptance and no recognition except for what they gain through impulsive behavior. . . . It is well known that the core of failure is the failure to learn and read adequately. (p. 332)

Burton White (1973) supports the position of the author cited above in suggesting and advocating ways to support the family as the primary care given as the child's earliest and most influential teacher. He concludes by saying, "Finally, it seems to us that most American families want very much to give their children an excellent "early education" and furthermore, that most of them have resources with which to do so" (p. 248).

Summary of the Literature

This chapter has presented some of the literature which appears to be most significantly related to the home environment and young children's learning to read. This chapter has also presented information related to the home and its effect on young children's moving into reading. The evidence presented unquestionably supports the position of many authorities that the home is a significant factor in the early academic success of young children. In addition, it appears that reading is one of the most critical areas in

the primary grades in the transition from the home environment to the school environment.

The literature indicates a trend toward helping parents and involving them in the educational process. Parents are now encouraged to assist in teaching early reading behaviors. There seems to be less fear of encroachment on the teachers' domain.

Research and demonstration projects have clearly demonstrated the positive results of early intervention in the home when the child is between the age of two and three. If language development and concepts about print are closely related to early reading success, then more public schools might become more involved with the parents of younger and younger children.

The next chapter presents a conceptual framework and an approach to describing the factors in the home which research indicates are important and also are amenable to manipulation.

CHAPTER III

DESIGN AND PROCEDURE

The purpose of this study was to investigate environmental factors in the home which appear to influence oral language, concepts about print, and reading behavior of kindergarten children. The perplexing mystery of why some children learn to read early and easily while others are delayed and learn with difficulty prompted the framing of the following questions:

1. Are there specific environmental factors in the home which influenced the language development and the development of concepts about print of kindergarten children?

2. What did parents seem to do differently in the homes of the children who were reading during the kindergarten year?

This chapter presents information on the sample selection; source of data for attention to print and oral language ability of the subject children; structure of the model for measuring the home environment; the methods used for collecting data in the home through a structured interview; and the approach used in constructing a descriptive analysis of the effect of the home on the children's observed behavior.

The Sample

A joint proposal, which included this study and a closely related study (Perkins, 1978), was submitted to a suburban, north central Texas school district. Four of the district's seven elementary schools chose to participate in the study. The four schools were located in four different quadrants of the city.

There were 265 kindergarten children enrolled in fourteen half-day classes taught by seven kindergarten teachers. The teachers assisted in identifying sixteen children who were excluded from the study for the following reasons:

1. Children who could not speak and/or understand English.

2. Children who were six years of age before September 1, 1977.

3. Children who had a hearing, vision, or motor handicap which would keep them from following directions.

Nine children were excluded because of age and six children were excluded because they could not understand and/or speak English. One child was excluded because of a motor handicap. The names of the remaining 249 children enrolled were alphabetized by last name. Numbers were assigned from 001 to 249 and a table of random numbers was used to select 100 names from the list.

Letters explaining the study and consent forms were sent to parents or guardians of the first 75 children selected. (See Appendix D.) The remaining 25 names were held in reserve in the event there was a poor response to the letter. The response, however, was excellent as 61 or 81.3 per cent of the 75 parents or guardians agreed to participate in the study. Five families moved from the district during the course of the study reducing the sample to 56 families. There were 27 female and 29 male subject children representing the 56 families. The age of these children ranged from five years and three months to six years and three months at the time of the observation of their behavior.

The selection process was consistent with accepted sample selection methods and resulted in a representative sample in regard to sex and age of the children. The sample families also covered a wide range of ethnic and socioeconomic backgrounds. The families will be described in more detail in the next chapter in the discussion of results.

Source of Data for Attention to Print and Oral Language

Perkins (1978) investigated the relationship and development of oral language, concepts about print, and reading behavior of the 56 subject children of the families included in this study. Observations were made in November, 1977; January, 1978; and March, 1978. Only the scores from

the first observation were used in this study since the early scores will have been less influenced by the kindergarten experience.

Perkins used Clay's Concepts About Print test (Sand) which contains 24 test items with a possible scoring range of 0 to 24 (Clay, 1972). The investigator asks the child to help her read the story. Some items are scored based on normal reading behavior; other items are scored positively if the child responds to "errors" in the print. A summary of the test items from the Sand is in Appendix E.

In addition, Perkins used the Record of Oral Language (ROL) which contains 42 sentences on three difficulty levels (Clay, 1976). Each level has 14 sentences of seven different sentence types. A table showing Perkins' analysis of the seven sentence types is in Appendix F.

Background of Model for Measuring the Home Environment

This study was based on the research conducted by Dave (1963) and Wolfe (1964) at the University of Chicago. Modifications to the model were necessary because parts of the structure developed by Dave and Wolfe is applicable to factors in the home of fifth grade chilren and inappropriate for research concerning the home environment of kindergarten children. Every effort was made to retain the validity of the framework developed by Dave and Wolfe.

Research related to the total environment of the home in global characteristics would have little functional or diagnostic value and the "environment as a totality of forces affecting the individual is so complex as to be impossible to handle by present methods of research" (Bloom, 1964, p. 187). It therefore becomes necessary to limit study of the home environment to comprehensible components, recognizing the interaction in the total environment is constant and isolation of variables is not possible. Dave (1963) defines one component of the total home environment:

> Education Environment refers to those conditions, processes and socio-psychological stimuli of the total environment which affect the educational achievement of the child. The Educational Environment may be present in the school, in the classroom, in the home, and also in the community. (p. 16)

This study focuses on the home and the families use of the community resources as a part of the home and family life.

Educational Home Environment

For purposes of this study the Educational Home Environment is considered as those aspects of the home which appear to be supportive of learning and related to the success of young children moving into print. The Educational Home Environment is further defined in terms of six Environmental Process Variables. They are:

1. Achievement Press
2. Language Models
3. Academic Guidance
4. Activeness of the Family
5. Intellectuality in the Home
6. Work Habits in the Family

Each of the above Process Variables are further delineated by two, three, or four Environmental Factors. These seventeen Environmental Factors refined for this study are specific quantifiable dimensions of the six Process Variables. Each factor is presented below as a part of the discussion of the six Process Variables.

Achievement Press

Achievement Press consists of the modeling and reinforcement behavior of the parents to provide motivational stimuli for academic achievement. The four dimensions of achievement press are described below.

1. Parental Aspirations for the Education of the Child - Is measured by the level and intensity of educational and vocational goals established by the parents and expectations of educational accomplishment.

2. Parents' Own Accomplishments - Criteria for determining each parent's aspiration was: present

accomplishment, method or means of accomplishment, and future plans or aspirations.

3. Parents' interest in Academic Achievement - Was determined by the extent of participation in educational activities such as reading, school meetings, educational programs and the degree of concern shown for the educational progress of the child.

4. Standards of Reward for Educational Attainment - Determined by the degree of praise and expectations for academic accomplishments as well as selection of gifts having educational value (Dave, 1963, pp. 25-28).

Language Models

One of the most important developments in the socialization process of the preschool child in the home is the acquisition of speech and development of speech. The models available to copy and the opportunity for practice of a rich language are determiners of verbal capability. Symbolic skill is closely related to learning and therefore a significant aspect of the total Educational Home Environment. Three dimensions of Language Models were utilized in this study:

1. Quality of Language Usage of the Parents - Quality was determined by four measures: fluency of expression, pronunciation, vocabulary, and organization of thoughts.

2. Opportunity for the Enlargement and Use of Vocabulary and Sentence Patterns - This dimension was established by observing both frequency and variety of opportunities for practice. Variety was considered to be books, television, travel, and indoor and outdoor activities requiring verbal interaction.

3. Keenness of Parents for Correct and Effective Language - Two criteria were adopted for the factor: regularity in reading to the child and the parental efforts to increase the child's vocabulary and correct language usage if needed (Dave, 1963, pp. 28, 31).

Academic Guidance

Educational achievement is dependent on the kinds of experiences received by the child. The kindergarten child has been dependent upon the parent for supervision and provision of adequate materials. The following dichotomy of Academic Guidance was used:

1. Availability of Guidance on Matters Relating to Educational Activities - Parental activity was studied related to general supervision of educational activities, readiness in guidance when asked for, and suggestions regarding educational activities.

2. Availability and Use of Materials and Facilities Related to Cognitive Learning - Observations included

selection, use, and guidance of cognitive items such as reading, writing, and reference materials (Dave, 1963, pp. 31-33).

Activeness of the Family

The Activeness of the Family determines the quality and frequency of experiences which builds a base for future learning. Four dimensions of Activeness were considered: indoor activities, outdoor activities, television use, and use of reading.

1. The Extent and Content of Indoor Activities - Indoor activities were examined for educational value, frequency and variety. Such activities as games, discussion, projects, and regular activities were noted.

2. The Extent and Content of Outdoor Activities During Weekends and Vacations - Outdoor activities were also examined for educational value, frequency, and variety. Such activities as visits to a museum, zoo, or historical place were considered.

3. Use of TV and Such Other Media - In reviewing viewing patterns both the extent and purpose of the use were noted for measurement.

4. Use of Books, Periodical Literature, Library and Other Such Facilities - Data were collected on the variety of materials used by the family and the encouragement of the

child for the use of such materials and facilities (Dave, 1963, pp. 33-35).

Intellectuality in the Home

Time and opportunity to develop problem solving and other thought processes are the primary focus of this process variable. The one factor added to the model, the child's Interaction with Print, which is included as a part of the Intellectuality Process Variable was synthesized by the writer.

1. Child's Interaction with Print - This factor was viewed from three prospectives: the extent of Parent-Child-Print activity, the valuing of reading as an enjoyable activity, and availability of reading material for the child.

2. Opportunities for Thinking and Imagination in Daily Activities - This factor considered several points such as: encouragement for independent thinking, complexity of thought-provoking discussions, and activities. In addition, use of appliances and equipment was considered (Dave, 1963, pp. 35-37).

Work Habits in the Home

Work Habits in the Home are related to environmental interaction which establishes habits such as perseverence, attentiveness, industriousness, all of which become

personality patterns and can lead to academic success in such areas as reading.

1. Degree of Structure and Routine in the Home Management Of primary concern was the measurement of the planning and distribution of work in the home and the punctuality with which the plans were followed.

2. Preference for the Educational Activities Over Other Pleasurable Things - This factor was measured by the priority given by parents to educational activities and the extent to which they continue academic activities such as taking courses or returning to school to pursue higher educational goals (Dave, 1963, pp. 37-39).

Rating Scales

A nine point scale was developed from those constructed by Dave (1963) and Wolf (1964) to independently quantify each of the seventeen Environmental Factors discussed above. The Rating Scales are provided in Appendix B. Points 1, 3, 5, 7 and 9 are defined as cues to the rater in as brief and as concise a manner as is practical. When viewed in context of the total scale of the dimension and the criteria for measurement, they are as explicit as possible for practical use. Points 2, 4, 6 and 8 are used for all cases falling in between the defined odd points on the scale. The seventeen factors for which rating scales were developed

and their relationship to the total conceptual structure is shown in Table 1 (Dave, 1963; Wolf, 1964).

Home Interview Form

Dave (1963) and Wolf (1964) developed a 63 question focused interview which "provides freedom to the interviewer to ask 'probe' questions where necessary, discuss certain characteristic situations in detail and thereby obtain valid information on different aspects of investigation" (Dave, 1963, p. 42). One of the distinct advantages of utilizing a field tested instrument is reduction of time and effort in development. It was necessary to modify some questions, and remove others to fit the seventeen factors listed previously. The questions were then pilot tested on two families and further refinements were incorporated. Two questions related to reading were added and the questions were again tested with two more families. Of the four families participating in the testing one was a single parent family, and two families represented different minority groups. The resulting 50 questions are shown in Appendix A. The pilot testing also served as training for the investigator in conducting and scoring the interviews. Table 2 shows the relationship of questions to the seventeen Process Factors. The order of the questions was arranged to facilitate a more natural conversation and allow for cross checking. In addition, several

Table 1

Education Home Environment

Conceptual Framework

Process Variables	Environmental Factors
1. Achievement Press	1. Parents' aspirations for child 2. Parents' own aspirations 3. Parents' interest in achievement 4. Rewards for educational attainment
2. Language Models	5. Quality of language of parents 6. Opportunity for use and enlargement 7. Keenness of parents for correctness
3. Academic Guidance	8. Availability of guidance 9. Availability of materials
4. Activeness of Family	10. Indoor activities 11. Outdoor activities 12. Use of television 13. Use of reading material and facilities
5. Intellectuality in Home	14. Opportunity for thinking 15. Child's interaction with print
6. Work Habits of Family	16. Structure and routine 17. Preference for educational activities

Table 2

Environmental Factors and Related Questions from the Home Interview Form

Environmental Factors	Question Numbers
1. Parents' aspirations for child	1, 2, 31, 32, 33, 34, 37
2. Parents' own aspirations	34, 35, 36, 37, 38
3. Parents' interest in achievement	3, 4, 16, 18, 19, 39
4. Reward for educational achievement	1, 9, 40, 41
5. Quality of language of parents	(determined by verbal response)
6. Opportunity for use and enlargement	4, 6, 20, 21, 22, 23, 24, 28, 29
7. Keenness of parents for correctness	10, 13, 25, 28, 29, 30
8. Availability of guidance	16, 17, 22, 41, 43
9. Availability of materials	8, 12, 13, 14, 15, 17
10. Indoor activities	4, 7, 21, 22
11. Outdoor activities	3, 4, 5, 6, 22
12. Use of television	26, 27
13. Use of reading material and facilities	4, 7, 10, 25, 50
14. Opportunity for thinking	4, 11, 20, 22, 23, 25
15. Child's interaction with print	7, 9, 14, 16, 17, 22, 25
16. Structure and routine	44, 45, 46
17. Preference for educational activities	42, 47, 48, 49, 50

questions relate to more than one factor of the conceptual framework. The responses to all questions referenced for each factor were considered in scoring. (See Appendix C for Scoring Form.) The scoring process will be discussed in detail in the following pages.

Additional demographic data were collected on each family for descriptive purposes. These data included composition of the household membership, occupation and education of parents, housing, estimated income, and housing cost.

The age of occurrence of significant family changes which altered structure or functioning of the family was recorded. Child care by age of focal child was also recorded. Changes noted were: birth, death, divorce, employment, and illness. Current parent-child contact of all parents was also recorded as daily, weekly, monthly, seldom, or not at all.

Collection and Analysis of Data

Telephone numbers were secured from the school district after the sample was selected. To avoid introduction of the home visit as a variable which could influence the early reading behavior of the child, the home visit was conducted in January, February and March of 1978 after the first two observations were made. The subjects were contacted by phone or home visit in the sequence of selection by random number for the sample. Appointments were made two to seven

days in advance. Time for contacting parents was rotated from Saturday morning to a weekday morning, to Saturday afternoon, to a weekday afternoon. The parent answering the phone was reminded of the letter, and a time for the interview was requested. Each two-parent respondent was told, "I would like to talk with you and/or your wife (husband), whichever is most convenient for you." Options for appointments were Monday, Wednesday, or Friday between 8 and 5, any evening, or the weekend.

The investigator visited the home of all 56 participants to collect the data. This allowed the investigator the opportunity to observe the condition of the home and improve the validity of the data collected.

Every effort was made to make the visit a friendly, informal, non-threatening experience. The presence of the child during the interview was controlled by the parent. The first page of the interview was completed informally, in a way of exchanging information, or getting to know each other. The responses to the fifty questions were elicited and recorded on audio tape. Next, the age of the child at any significant family change (birth, death, divorce, move, employment, and illness) and child care by age of subject child was recorded. The final page of the form was completed as soon as possible after the interview was terminated and the investigator had returned home or to his office.

Scoring Procedure for Home Environment

Within 24 hours after each interview the seventeen Environmental Factors were scored on the appropriate one to nine point scale, based on the questions keyed on the rating sheet and summarized in Table 2. To safeguard against global bias or a scoring set Process Variables and the total Education Home Environment scores were computed after all interviews were completed. According to Dave (1963) accepted statistical method of deriving the Process Variable score and Education Home Environment was to compute means. Therefore Process Variables were computed by calculating the mean of the relevant Factors. Secondly, the Educational Home Environment was computed in the same manner utilizing the Process Variable scores. This method provides equal weight for each Process Variable.

Analysis of Data

Quantification of the Educational Home Environment scores above was intended to assist in grouping the families relative to Sand and ROL performance of the subject children. The process variable scores were also designed to effectively analyze inter-group differences on the various dimensions of the Educational Home Environment.

Six family clusters were established on the basis of the following criteria:

Cluster A - Children who were capable of reading unfamiliar stories

Cluster B - High Sand and ROL scores and High Education Home Environment

Cluster C - Low Sand and ROL scores and low Education Home Environment

Cluster D - Relative high Sand and ROL scores and low Education Home Environment

Cluster E - Relative low Sand and ROL scores and high Education Home Environment

Next a descriptive profile was prepared for each group. After the profiles were developed, comparisons of Process Variables between groups were made to describe what some parents were doing which appeared to have positive results, and what some parents were doing which appeared to have less positive results.

Finally, a follow-up visit was made to conduct a more detailed interview with the parents of the readers. Some of the areas discussed were:

1. How did the child learn to read?
2. How did the parents and other children learn to read themselves?
3. What initiatives did the child make to learn to read?
4. What were the parents' responses to the child's initiative in reading?
5. What was the parents' concept of the role of a parent in teaching reading?
6. What suggestions can parents of readers offer other parents?

These interviews were then summarized and presented in a narrative form.

Summary

This chapter has reported information on the sample selection, data collection of subject children's behavior, the structure of the model for measuring Educational Home Environment, the structured interview, and method of developing a descriptive analysis. The next chapter presents the findings of the study.

CHAPTER IV

DESCRIPTION OF RESULTS

The purpose of this study was to identify and investigate environmental factors in the home which appear to support young children moving into reading. The study focused on factors which could be manipulated in the home should the parents choose to change, and factors which were related to what parents did for and with their children rather than who the parents were. Answers to the following questions were investigated:

1. Are there specific environmental factors in the home which influenced the language development and the development of concepts about print of kindergarten children?

2. What did parents seem to do differently in the homes of children who were reading during the kindergarten year?

Answers to the preceding questions were sought by dividing the sample homes into five groups. They are:

A. Readers

B. High Home Environment, high Sand and ROL scores

C. Low Home Environment, low Sand and ROL scores

D. Low Home Environment, relatively high Sand and ROL scores, and

E. High Home Environment and relatively low Sand and ROL scores.

Following the delineation of the five groups, each group will be described according to the process variables which comprise the educational home environment. And finally, an analysis of the differences between various groups will be presented in an attempt to answer the questions above.

Grouping of Families into Clusters

The process variable scores and the educational home environment score were computed for each subject's home. The raw scores for these computations are shown in Appendix G. Next, the educational home environment scores were plotted with the Sand scores, the results of which are shown in Figure 1. Subjects fell into four natural clusters. Subjects in Groups A, B and E were above the mean on educational home environment and all subjects in Group C and D scored below the mean. In addition, all subjects in Group C and E fell below the mean on Sand scores. Subjects B4, B12, B17, B19 D4 and D5 were slightly below the mean for the Sand scores. The ROL scores were also plotted against the educational home environment and are shown in Figure 2. Inspection of the seven subjects' ROL scores indicated that they all scored relatively high on the ROL; it was therefore determined that subjects B4, B12, B17 and B19 would be included with the group of high Sand and ROL scores and high

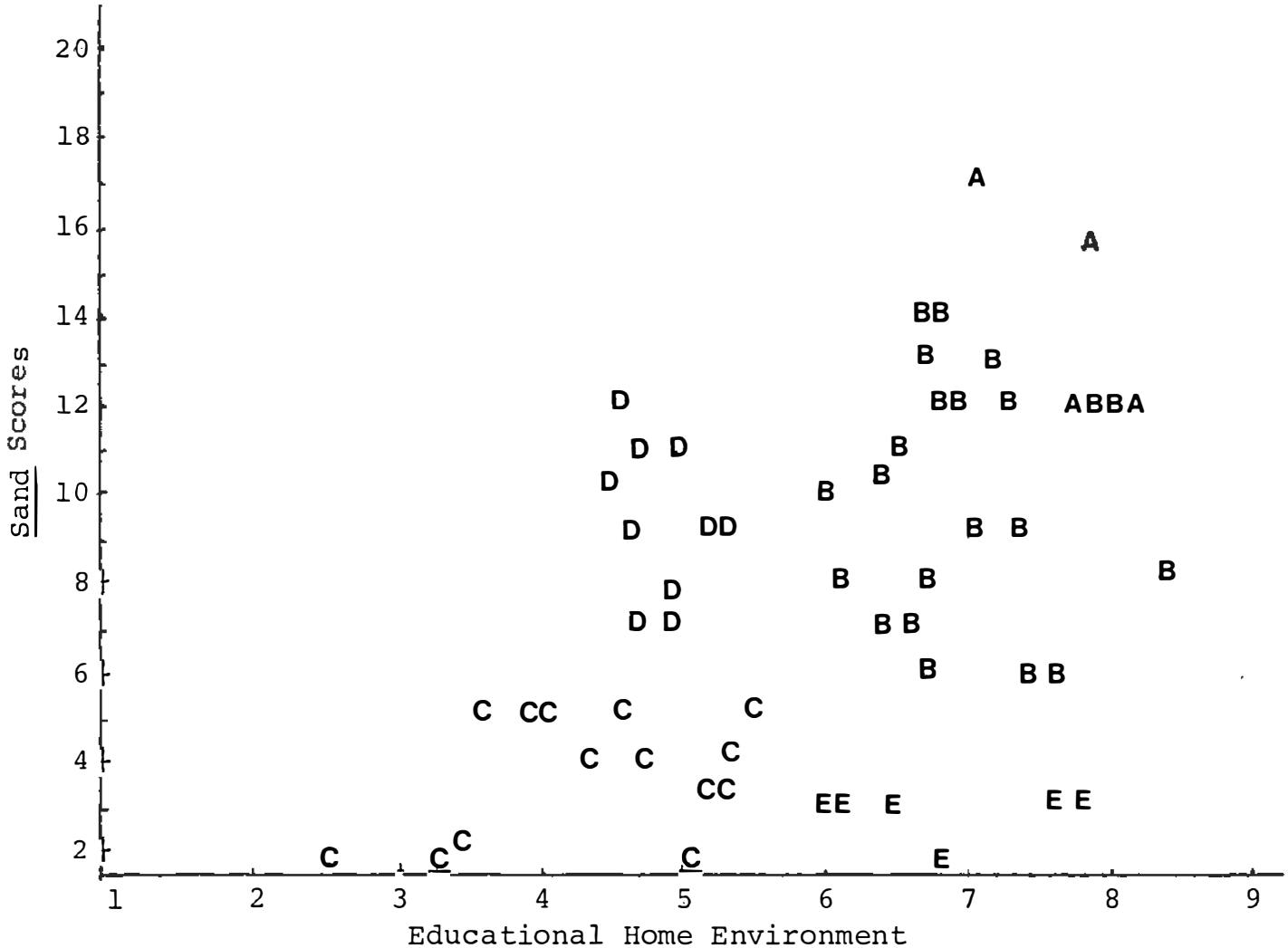

Figure 1. Scatter diagram of Sand scores and Educational Home Environment scores.

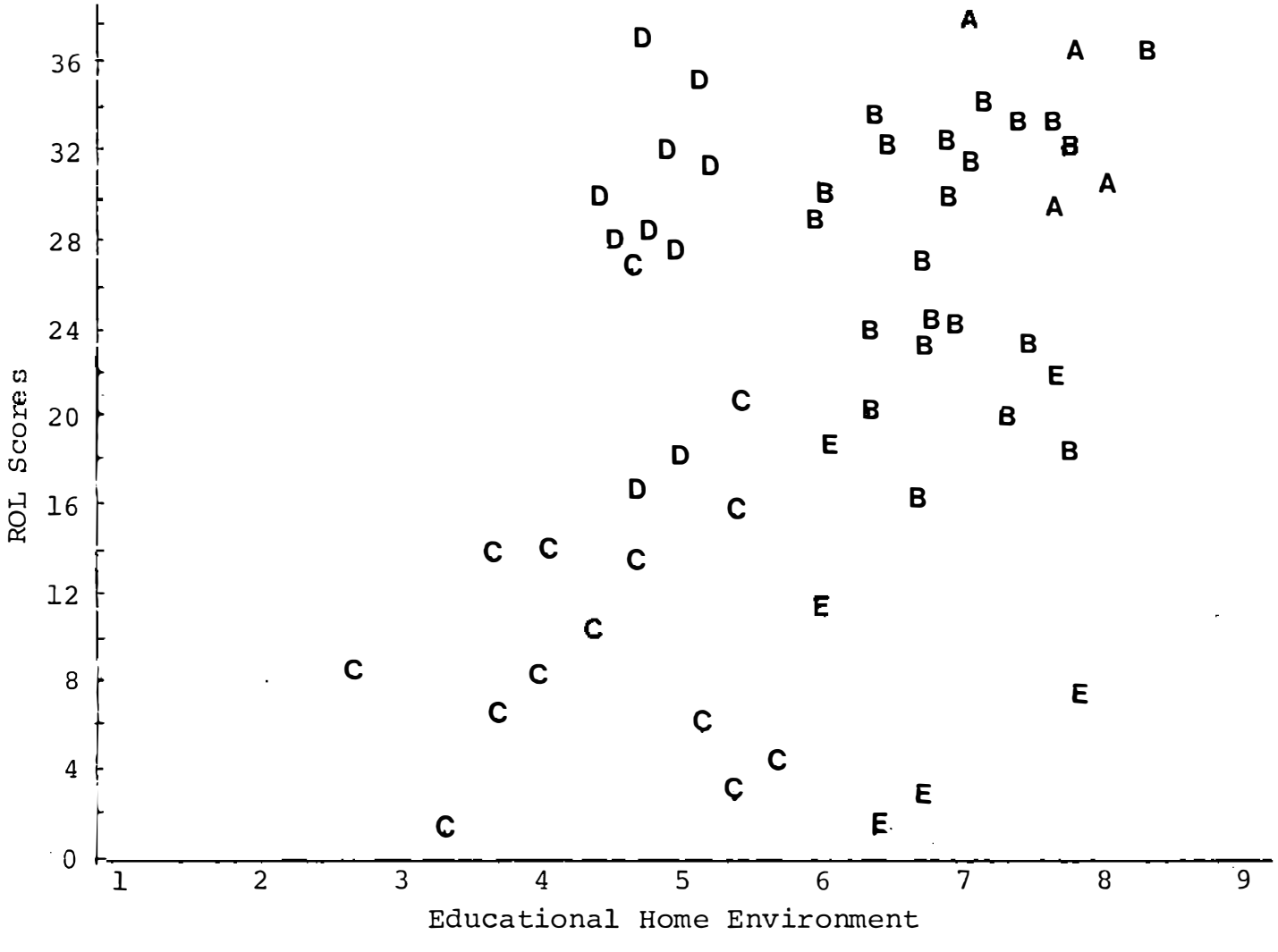

Figure 2. Scatter diagram of ROL scores and Educational Home Environment scores.

home environment. In addition, it was decided to group subjects D4 and D5 with the low home environment high Sand and ROL scores. Resulting groups are shown below in Table 3.

Table 3

Cluster Identification of

Fifty-Six Homes

Group	Number of Families	Sand & ROL Scores	Home Environment Score	Reading
A (R)	4	High	High	Yes
B (H-H)	22	High	High	
C (L-L)	14	Low	Low	
D (L-H)	10	High	Low	
E (H-L)	6	Low	High	

Four children were identified as readers and were grouped in Group A. Twenty-two children scored relatively high on ROL and Sand and came from homes with a high home environment score. Fourteen children scored relatively low on the Sand and ROL and came from homes with low home environment scores. Ten children came from homes with relatively low home environment scores but higher Sand and ROL scores. Finally, six children came from homes with high home environment scores but scored low on the Sand and ROL.

Group means were computed for home environment, Sand and ROL. The results are shown in Table 4 and raise many interesting questions, such as why do the children from such

a very good home environment in Group E score so low on both Sand and ROL? If home environment is so significant, why did the children in Group D do relatively well on the Sand and extremely well on the ROL? And finally, what are the differences in the home environments in Groups A and B which appear to influence relatively high scores when compared with Group C? After describing each home environment in detail, these questions will be analyzed in light of the findings of the study.

Table 4

Educational Home Environment, Sand and ROL Group Mean Scores

Group	N	Home Environment	Sand	ROL
A (R)	4	7.62	14.3	33.3
B (H-H)	22	6.94	10.0	27.4
C (L-L)	14	4.40	3.4	10.9
D (L-H)	10	4.82	9.2	28.2
E (H-L)	6	6.70	2.7	10.7
Total Sample	56	5.89	7.71	22.04
Possible Range of Score		1-9	0-24	0-42

General Characteristics of the Sample

Fifty-six kindergarten children and their parents participated in this study. Forty-nine of the children came from homes with two-parent families. Five of the children came from homes with one parent and two children were under the supervision of a legal guardian (see Table 5). All parents were given the option to participate in the home interviews. In the two-parent families 49 mothers and 25 fathers participated in the interview. Therefore, fathers participated in the interviews 51 per cent of the time. The remaining seven families were represented by the five mothers and two female guardians.

Table 5

Parental Patterns in the Fifty-Six Subject Homes

Group	2 Parents	1 Parent	Guardian
A (R)	4	--	--
B (H-H)	20	2	--
C (L-L)	11	2	1
D (L-H)	8	1	1
E (H-L)	6	--	--
Total	49	5	2
Per Cent	87.5	8.9	3.6

Forty-eight of the 49 male heads of household included in the study were employed. Twenty-three of the 54 mothers were employed on a full-time basis. The range of these occupations is shown in Table 6.

Table 6

Employment of Parents Living in the Household of Fifty-Six Study Families

Occupation	Number
Fathers	
Professional	18
Technical	9
Laborer or Production	8
Self-Employed	6
Supervisory	4
Miscellaneous	3
Total Employed	48
Disabled	1
Not Living in Household	7
Total Households	56
Mothers	
Homemakers*	33
Service	8
Student	7
Clerical	5
Professional	3
Total	56

*Two guardians counted as homemakers.

In 69 per cent of the homes the mother was available during the day when the child was home from kindergarten. Parents provided a pre-kindergarten school experience for 35, or 62.5 per cent, of the children. These experiences ranged from full day nursery and day care schools with educational programs for mothers who were working, to three day a week half day cooperative nursery school programs (see Table 7).

Table 7

Availability of Parental Supervision Compared to Pre-Kindergarten School Experience

Group	Parents Available		Pre-Kindergarten School, Experience	
	Yes	No	Yes	No
A (R)	3	1	4	--
B (H-H)	18	4	17	5
C (L-L)	8	6	3	11
D (L-H)	5	5	7	3
E (H-L)	5	1	4	2
Total	39	17	35	21
Per Cent	69.6	30.4	62.5	37.5

Data on cultural backgrounds of the participant families and observations of economic pressure were recorded and are presented solely to provide a better picture to the reader of the sample included in the study (see Table 8).

The sample was representative of the community which is adjacent to a metropolitan area in North Central Texas.

Table 8

Cultural Patterns of Fifty-Six Families

According to Study Groups

Group	White	Spanish	Black	Other	Two Cultures
A (R)	3	--	--	--	1
B (H-H)	22	--	--	--	--
C (L-L)	7	2	4	1	--
D (L-H)	6	--	1	--	3
E (H-L)	5	--	1	--	--
Total	43	2	6	1	4
Per Cent	76.8	3.6	10.7	1.8	7.1

A global impression of economic pressure that the family was experiencing at the time of the interview was recorded. This was based on estimated income, housing, travel and entertainment expenditures and type of transportation. Twenty per cent of the families were in a relatively high income bracket and experiencing no economic pressures other than those that may have influenced the family because of general changes in the economy. Fifty per cent of the families appeared to have average concerns about income and expenditures but were not limited to a great degree in the activities under question. Thirty per cent of the families

appeared to be suffering from restrictive economic pressures which prevented travel, entertainment, procurement of toys and books, etc. (see Table 9).

Table 9

Observation of Economic Pressure on Subject Families by Study Groups

Group	Minimum	Average	High
A (R)	2	2	--
B (H-H)	5	17	--
C (L-L)	2	4	8
D (L-H)	--	3	7
E (H-L)	2	2	2
Total	11	28	17
Per Cent	20	50	30

Cluster Profiles

Before addressing the differences between the groups, Clusters A, B, C, D and E will be described. Each cluster will be described in terms of the process variables reported in the home.

Cluster A - Readers

The achievement press in the homes of the readers was extremely high. Very high accomplishments had already been attained by the parents with education used as the most

important means of accomplishment. Both parents were very active in educational organizations and activities or continued to improve their own education through informal means. They were very particular about the educational progress of their child and praised academic accomplishments of their children highly. Gifts to the children most frequently had educational value. The parents often stated conflicting aspirations for the education of their children. Although stated with caution or with reservations, there was clearly an expectation of the best grades in school. However, occupational expectations were avoided and although funds in most cases were set aside for college, it was indicated that the decision to attend college or not would be left up to each individual child.

The quality of the language usage of the parents of the readers was rated as very good. This was determined by observing the fluency of expression, pronunciation, vocabulary and organization of thoughts by the parents participating in the interview. There was a very good variety of situations available quite frequently and consistently for the children to use and expand their language capability. The parents were extremely supportive in increasing vacabulary and improving language usage. Language patterns were modeled through reading to the child almost every day from early childhood.

Regular supervision regarding home activities and play was generally available and guidance was willingly available when asked for. There was indication and frequent examples of the selection of materials appropriate to the educational level of the child and of an abundant supply of educational materials and resources available to the child. There appeared to be appropriate and timely use of these materials and of all facilities in the community.

A variety of activities both in the home and outside the home during weekends and vacations were child centered. These activities frequently had a high educational value and participation by the total family. There was regular use of TV for educational purposes with follow-up discussions and occasional recreational use of television. There was extensive reading of books, periodicals and newspapers by family members. The child's parents encouraged him by supporting his efforts to read or write and to use the library.

The children were provided with opportunities to listen and take part in thought provoking discussions and encouraged to think independently. In addition, they were given an opportunity to work with a variety of complex appliances. There was consistent, almost daily, parent-child reading activity which was viewed as a pleasant and enjoyable time.

Each home was well managed with a high degree of structure and routine in following pre-arranged plans. However, the duties involved in the work of the household were seldom distributed among all the family members. There was a high priority attached to educational activities by the parents. Both parents continued to study and learn after completing formal education.

Cluster B - High Home Environment Scores and High ROL and Sand Scores

Parents of the children in Cluster B for the most part had already attained high accomplishments. Education was cited as one of the chief means of their accomplishments, and they still held high aspirations. The majority of the parents in this group desired a minimum of four years of college education for their children; however, as with Group A, there were frequent reservations about excessive parental pressure in attending college. Occupational expectations were frequently cited which required a college education or advanced technical training after high school. A general view of expectations with grades of A's and some B's was held by most parents in this group. Academic accomplishments were highly praised and gifts very often had educational value. At least one of the parents was normally active in an educational organization or activities. All

parents indicated they were concerned about the educational progress of their child.

The fluency of expression, pronunciation, vocabulary and organization of the thoughts of these parents were rated as good. There was a good variety of situations available quite frequently for the children to practice and enlarge their vocabulary and to improve language usage. A variety of activities, having an educational value both inside and outside the home, were often undertaken by the family. One or both parents normally participated in these activities. Vacations were planned; however, a minimum of planning went into determining activities occurring on the weekends. Use of television for general education and recreational purposes was regular. Sometimes there was discussion of educational programs between the parents and the child both during and after the viewing. There was fairly extensive reading of a good selection of books, periodicals, and newspapers by the family members. In addition, the children were encouraged to participate in print related activities.

In most homes there was frequent parent-child reading activity three to five days a week, which was viewed as a fun activity. The children had the opportunity to work with moderately complex appliances; they frequently had their own record player or tape recorder. The children also had opportunities to listen to and participate in intellectually

stimulating discussions. There was some encouragement for independent thinking. Educational activities had a high priority in the home and one or more of the parents continued to study after completing formal education. Each home appeared to be well planned and managed; however, daily duties were not distributed among the family members on a consistent basis.

Cluster C - Low Home Environment
Scores and Low Sand and ROL Scores

The accomplishments of the parents of the children in Cluster C ranged from less than moderate to fairly high. Education as one of the chief means of accomplishments occurred very infrequently. The parents desired at least a high school education in all cases and sometimes a college education or advanced technical school was stated as a desirable goal. Expectations for academic performance ranged from grades of A's and B's to B's and C's. Those parents with less than high school education expressed an intense desire for higher academic achievement by their children. Academic accomplishments were praised frequently; however, other activities such as helping with household duties or athletic accomplishments appeared to be praised more. Sometimes one of the parents was occasionally active in educational organizations and activities.

The quality of the language used by the parents in Cluster C was judged to be below average. There appeared to be a moderate variety of situations available infrequently for the children to enlarge and use their vocabulary and sentence patterns. In a few cases there was a good variety of efforts in improving vocabulary and language usage of the children; however, most parents appeared not to be aware of the methods by which their children acquired knowledge of new words. There was only occasional reading to the child by the parent in this cluster. Frequently the only reading consisted of one library book brought home by the child from kindergarten each week.

The availability of educational material in the home ranged from none to a very moderate supply. Specific selection according to the child's level occurred very infrequently. Guidance was occasionally available from the parents in the home and suggestions were given to the child regarding home activities very infrequently.

A majority of the outside activities had only incidental educational value and more frequently were for recreational purposes. Indoor activities ranged from none or just watching TV to a moderate variety of activities having a general educational value. Most frequently only one parent would be involved in indoor activities. Television was used on a regular basis for recreational purposes

and occasionally educational purposes. Very limited modeling of reading occurred in these homes with only some members reading infrequently. Encouragement of the children to use the public library was very infrequent. Most of the parents were not familiar with the location of the library.

In general, the parents read to the children less than once a week and seldom referred to reading as a pleasant activity. There was a limited opportunity for the children to read or look at books. There were some opportunities to listen to adult discussions and in a few cases some encouragement for independent thinking. There were opportunities to work with a variety of moderately complex appliances.

There appeared to be moderate planning of the home management in this cluster. Observations in the home indicated that these plans were not followed systematically on a regular basis. Priorities did not appear to include educational activities.

Cluster D - Low Home Environment Scores and Relatively High Sand and ROL Scores

In Cluster D the parents' accomplishments, aspirations for their children, rewards for educational attainment and interest in academic achievement were the same as those given in Cluster C. The fluency of expression, pronunciation, vocabulary and organization of thoughts of the parents interviewed in Cluster D were rated average. There was a

moderate variety of situations available fairly frequently for the children to enlarge and use their vocabulary and sentence patterns. The children were also read to fairly regularly, and there was some effort to improve vocabulary and language usage. Some educational material was available in the homes in most instances, and general use of these materials and occasional use of educational facilities in the community were utilized. Fairly regularly supervision of activities in the home was provided by one parent.

The extent and content of indoor and outdoor activities of the family was very similar in Cluster C and Cluster D. In addition, TV viewing patterns were the same; recreational viewing activities often were more predominate than educational viewing. There was moderate reading of some variety of reading materials by the family members and some encouragement for the child to use the library and other community facilities.

Parent-child reading related activities occurred two to five times a week and were occasionally viewed as a pleasant and enjoyable activity. The children also had opportunities to listen to and participate in adult discussions rather frequently. There was some encouragement for independent thinking and opportunities to operate complex appliances.

Few differences between Clusters C and D existed in the work habits stressed in the home.

Cluster E - High Home Environment and Low Sand and ROL Scores

The home environment profile for Cluster E is the same as the one given above for Cluster B. The relationship between the five groups described above in home environment and the children's attention to print and language development will be discussed in the next section.

Analysis of Environmental Process Variables

For each of the five clusters defined above, group means were computed for the six process variables. Those process variables are: achievement press, language model, academic guidance, family activeness, intellectuality in the home, and work habits in the home. These results are shown in Figure 3. The data clearly indicate that Cluster A the readers, have a much more favorable home environment which would appear conducive to early academic success. In addition, it is also evident that the environment is consistently higher on all six process variables. Subsequent discussion will elaborate upon the details of the home environment of Group A.

The data also clearly indicate a large difference between the home environments of Group B--children who

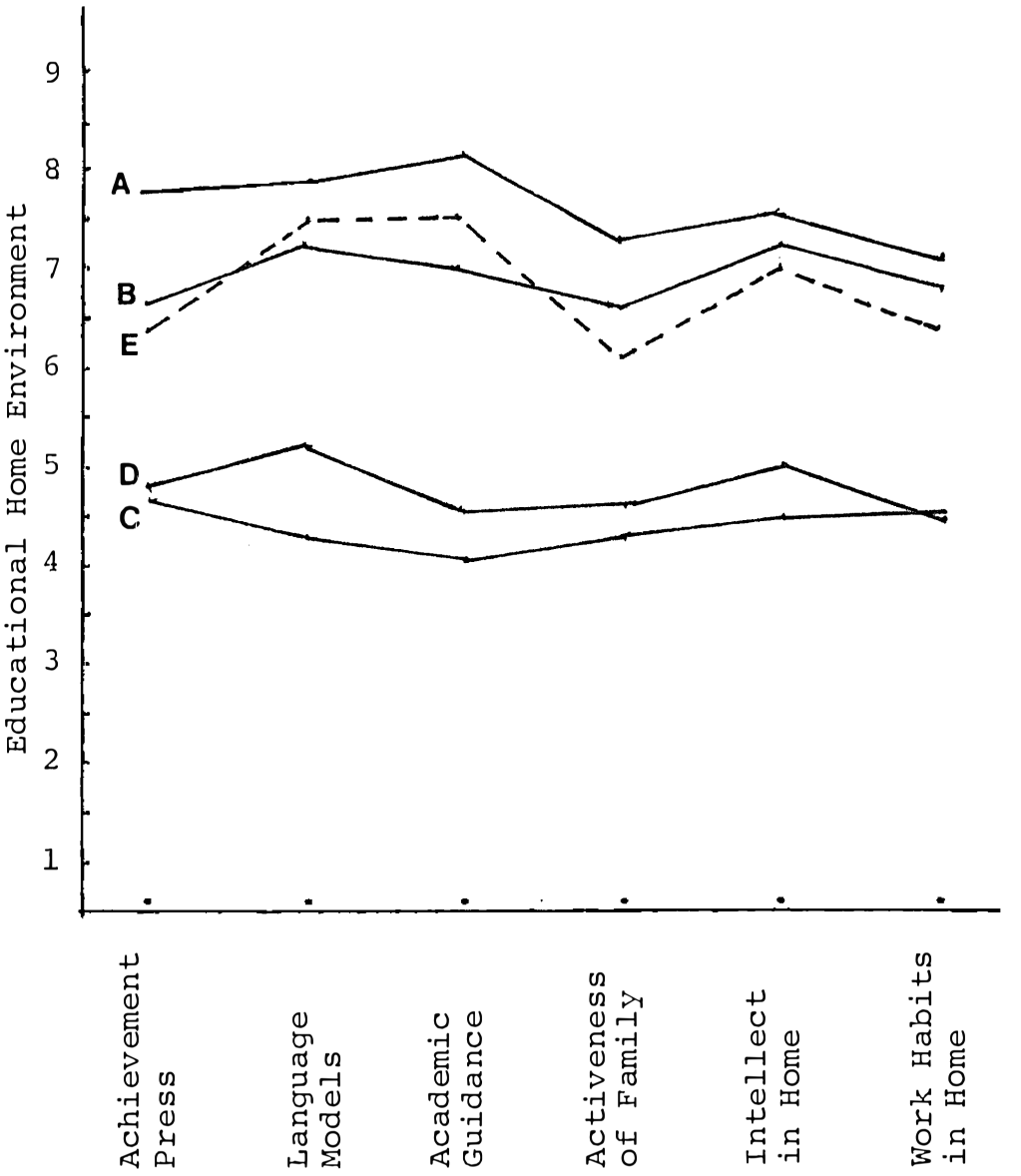

Figure 3. Process variable comparisons for Groups A, B, C, D and E.

scored high on the Sand and ROL and Group C--the children who scored relatively low on the Sand and ROL. Several key questions concerning parents and child activities with print or reading are important in determining the score of the Language Model process variable. For example, use of library facilities is a clear indication of commitment to reading and interaction with books at an early age. Almost all families in Cluster B utilized the library frequently. In 50 per cent of the families, the subject child had his own library card. In Group C very few families frequented the library at all and two children had their own library cards. A summary of these data is shown in Table 10.

Table 10

Patterns of Public Library use

by Fifty-Six Families

Group	Child With Library Card	Parent With Library Card	No Use
A (R)	1	3	-
B (H-H)	10	12	-
C (L-L)	2	2	10
D (L-H)	1	6	3
E (H-L)	2	3	1
Total	16	26	14

Another interesting response was to the question, "When did you start reading to him?" The mothers in Group B

were quite clear and gave such responses as, "The day she came home from the hospital, because I read to the older children." "When he was a week old." "I would always read to the boys and she was there on my lap. I started reading to her alone when she was around a year old." "When he was four days old." "When she was about 10 months old." These responses came rather quickly in most cases and the parents were quite sure when they started reading to their children.

The following responses were not uncommon in Group C. "When his older sister started to school." "Three years old." "Before she could understand them, about one year old." "No, he did not like for me to read to him. It's only since he started to school that he wants me to read to him."

The parents in Group B utilize many techniques to motivate children to appreciate and enjoy books. One ingenious mother who felt the father of the large family should spend more time with children individually and that the children needed an incentive to read more, developed "Super Star Day." After a child read 10 books of his choice, he got to spend a special day with his dad doing whatever they really enjoy.

The lowest process variable for Group C was academic guidance. Parents of this group did not appear to be aware or informed of the kinds of activities which would have an

educational benefit for their children. The activities in which they were involved with the child was either attending or participating in a sporting event, watching TV or shopping. In addition, it was observed that there was a tremendous gap in the differences of materials provided in the homes of these two groups. The parents of Group C failed to or could not provide printed material, games, or educational toys.

If the home environment is important relative to performance on the Sand and ROL tests, then why did the children in Cluster E score low? For the answer to this question, additional data must be analyzed. There were six children in Group E; two of whom had histories of medical problems which resulted in developmental delays and the resultant low scores. Analysis of the family structure of the remaining four children indicated that two of them were only children, one had a very young brother. The fourth child had three older brothers and although one was still living at home, he was 19 years old. While these four children were not all the youngest in the class, their behavior as reported by the teacher was less advanced in many respects. Three of the four children also scored relatively higher on the ROL, suggesting that their performance on the Sand test items may likely improve in the near future. The answer to the

question, "Why did the children in Group E not score well on the Sand and ROL tests?" then appears to be health problems, developmental delays, or the children were not ready to cope with the test items presented at this time.

Next, the question of why some children from relatively low home environments scored high on the Sand and ROL will be considered. Although the scores are much lower for Group D than they are for Group B, a similarity is seen in the profile of all six factors when compared to the scores of Group B. The highest process variables observed were language model and intellectuality in the home. Analysis of the responses to key questions on these two process variables indicated that these parents attempted to read to their children more frequently than the parents in Group C. In addition, they attempted to utilize the library facilities, also.

A unique feature of this group which cannot be overlooked is the fact that nine of the ten children came from families who appeared to have a strong work ethic. Although they were under rather severe economic pressure, they were all improving their economic position. Several had recently moved into better housing, others were improving the housing they were in; all parents were working hard to make a success of the family. In five of the families both parents were working either full- or part-time. In one single-parent

family, the mother was a student nearing completion of her degree. Perhaps these children are already moving into Erikson's fourth stage: Industry versus Inferiority:

> He develops a sense of industry - i.e., he adjusts himself to the inorganic laws of the tool world. He can become an eager and absorbed unit of a productive situation. To bring a productive situation to completion is an aim which gradually supersedes the whims and wishes of play. His ego boundaries include his tools and skills: the work principal teaches him the pleasure of work completion by steady attention and persevering diligence. (Erikson, 1950, p. 259)

Another feature of this group was that the children had frequent opportunities for verbal stimulation with either siblings or adults other than their parents. One subject in this group resided in a group home for two years previous to the time of testing. Little is known about his earlier background.

Summary of Question One

The first of the two questions under investiation was:

1. Are there specific environmental factors in the home which influenced the language development and the development of concepts about print of kindergarten children? The results of this investigation indicate that this question can be answered in the affirmative. The results of the study indicate that when children have relatively low concepts about print and language development in relationship to a

positive home environment, there are logical reasons for this phenomenon. The data also suggests some answers to the question "Why do some children have relatively well developed concepts of print and language development in relation to a low home environment?" It appears that some factors may override other negative factors in the home environment which motivate the child to develop these concepts and skills at an early age.

Analysis of the Home Environment of Early Readers

The criteria for early readers was established as the capability of reading unfamiliar stories with an 85 per cent accuracy during the kindergarten year. Four of the fifty-six subjects met this criterion. Follow-up visits were made to these four homes and the total family participated in the second interview. The interview was structured around six primary questions which were:

1. How did the child learn to read?
2. How did the parents and other children learn to read?
3. What initiative did the child make to learn to read?
4. What were the parents' responses to the child's initiative in reading?
5. What were the parents' concept of the role of the parent teaching reading?

6. What suggestions can parents of readers offer other parents?

All of the families in this group were two-parent families. The subject children each had older sisters; three had one sister and one subject had two sisters. Their ages were seven, eight, eleven, fourteen and eighteen. One mother worked full time. All four children attended a pre-kindergarten school prior to enrolling in kindergarten. One of the four parents actively guided the learning process for reading of her child. The other three attempted to establish a positive environment and allowed the child to learn to read at his or her own pace. All four children went through normal stages of pretending to read, reciting a story from memory, to reading themselves. Two of the parents provided flash cards for the children to learn sight words and all children learned the alphabet at an early age with assistance from sisters and parents. Beginning consonant sound games were played by two of the families.

One interesting note--one subject played K word games and then S word games for a long time, both difficult beginning sounds, but he was not interested in playing other beginning consonant sound games. Perhaps he already knew those sounds quite well. Three of the four children had either a sister or the mother read to them who moved her finger along under the print as they were reading. One

mother did this as a part of the natural reading process as a regular routine and when the children were young would take their finger and move it along the print or point to each word as she read. Her older daughter who learned to read the same way recalled this experience during the interview and indicated that it was a very pleasant, positive experience which she remembered quite clearly. The parents and other children all learned to read in the first grade, all indicating they did not have any problems learning to read.

The children made frequent and varied attempts to learn to read. Some of those efforts reported were: asking to be read to, asking how to write words and letters, asking what words meant, asking the parent to point to the words as they read, and asking for books and magazines. These initiatives of the children were consistently met with positive responses. One father said that if he was busy and could not answer the questions of one of his children, it always made him feel guilty and later he would go around and "make up for it." One mother said "Even when it was a nuisance, I stopped what I was doing and took time to answer her questions." All of the parents agreed that you do not force reading; it should be a natural process which should be fun and enjoyed.

In general the parents of these children indicated that other parents would do well to provide a great variety of reading material and then spend time with their children. In comparing the process variables of these homes with the other homes in the study, it was observed that the parents did spend a great deal of time with their children and that they did provide a rich environment full of opportunities for experiences related to reading and writing. However, possibly the most significant difference in these homes was the positive way in which the parents responded to any of the children's questions. They clearly established a very positive learning environment in each of these four homes. Activities for the children were not limited to educational activities; there were frequent opportunities for recreational activities of the whole family. These parents were very aware of what they were doing and gave every indication of knowing why they did certain things with their children. Finally, all of these parents enjoyed reading and served as excellent models for their families.

Summary of Results

The results of this study clearly indicate that the home is a powerful influence on the language development and the concepts about print with which a kindergarten child begins school. These results support the findings of

Dave (1963), Wolf (1964), Kruse and Rubin (1974), Hess (1969) and others. The investigation also indicates that in a study of such complex processes, reading and language, that there will be "surprises," but that these exceptions can be explained and are the result of events which occurred prior to school entry.

Second, the results of this study indicate that the parents of early readers consistently provided a superior supportive environment for a child to learn to read. The early readers in this study exhibited those same behavioral tendencies described by Durkin (1965). These children entered kindergarten

> with behavioral tendencies that clearly facilitated their learning whatever the program offered. They were interested in everything. They actively participated when active participation was desirable; yet listened quietly and attentively when that was important. They also persisted with a job until it was done. (p. 48)

CHAPTER V

SUMMARY AND DISCUSSION

Summary

Summary of Investigation

This study was designed to investigate factors in the home which appear to influence oral language and concepts about print of kindergarten children. Additionally, the investigation considered what parents did differently in the homes of children who were reading in kindergarten.

Oral language and concepts about print were assessed by the Record of Oral Language (ROL) and Concepts About Print called the Sand test (Perkins, 1978). Each child was asked to read an unfamiliar story from a first grade reader. The criteria for selecting readers was established as 85 per cent word accuracy in oral reading. The Educational Home Environment was measured by six process variables: achievement press, language models in the home, academic guidance in the home, stimulation in the home to explore aspects of the larger environment, intellectual activity in the home, and work habits in the home. These variables were further broken down into 17 factors for observation. The conceptual structure used was a modification of the structure developed by Dave (1963) and Wolfe (1964).

Fifty-six kindergarten children and their homes were randomly selected from fourteen half-day classes in four elementary schools. Children were excluded prior to the random sampling process if they could not speak and/or understand English, were six years of age before September 1, 1977, or had a handicapping condition which prevented them from following directions.

In November of 1977, Perkins (1978) made observations with the ROL and Sand, and gave the 56 subject children an opportunity to read. The children were also given an opportunity to read again in January and March of 1978.

A focused interview of 45 to 90 minutes was conducted in the home of each family during January, February and March of 1978. The interview was structured around a fifty question interview. Additional demographic data about the family was also collected. A follow-up interview of 45 minutes was conducted in the homes of those children identified as readers to collect data on the reading activities and attitudes of all family members.

The Educational Home Environment was determined by scoring 17 factors on a 9 point scale, which were developed from those constructed by Dave (1963) and Wolfe (1964).

The openness, honesty and sincerity with which the parents responded to the questions asked of them was

consistent throughout the interviews. There was reluctance to respond to specific questions in only two cases. Both situations concerned an absent father. The clustering pattern found in the analysis of the data further substantiated the validity of the parental responses.

A post review of the data indicated that the author may have scored two to three families lower on the home environment scales as a result of philosophical bias. Conversely, two or three parents established very warm relationships quickly during the interview and may have been scored slightly higher than they would have been scored otherwise. It appears that there is a possibility that only one home was scored higher because of inaccurate information supplied by the parent. These results indicate that one investigator can in an unbiased manner collect data and determine an index to the educational environment in the home.

Summary of Findings

The purpose of this study was to answer two specific questions:

1. Are there specific environmental factors in the home which influenced the language development and the development of concepts about print of kindergarten children?

The results of this study clearly indicate that the home is a powerful influence on the language development and

the concepts about print with which a child begins school. All six of the process variables observed, achievement press, language models, academic guidance, activeness, intellectuality and work habits, appeared to be strongly related to preparing children in the home for academic pursuit in kindergarten.

Academic guidance, language models and intellectuality in the home appeared to have the most influence. Academic guidance was measured by the availability of materials and supervision, guidance response when requested, and parental suggestions for educational activities. Frequently observed educational activities included visits to the library, zoo, museum and activities in the home such as projects, games and TV viewing. Language models in the home considered quality of language usage by the parents, opportunities for expansion and use of vocabulary and sentence patterns, and parental efforts to develop correct and effective language usage. Examples of activities reported were supplying correct sentence structure, grammatical structure, or appropriate words when needed. Reading to the child was also considered as a language modeling activity. Intellectuality in the home consisted of the child's interaction with print and opportunity for thinking and imagination in daily play. Reading, conversation with

adults, and encouragement for independent thinking was primary in determining the quality of this process interaction. The results also indicate that there are logical reasons for some children to come from a home with a positive environment and have relatively low concepts about print and language development. The two causes isolated in this study were delayed maturation and health related problems.

In addition, the data suggest some answers to another interesting question. How do some children from homes with a low educational home environment develop relatively good concepts about print and language? There was an indication that these children may be more independent and industrious than their peers in similar circumstances. Differences in academic guidance, language models, and intellectuality in the home appeared to be slightly more important in this group, also.

2. What did parents seem to do differently in the homes of children who were reading during the kindergarten year?

The results of this study indicate that the parents of early readers consistently provided a superior supportive environment for a child to learn to read. They planned needed direction for child-centered activities more

frequently than other parents. They spent more time with their children and surrounded them with print. The kindergarten readers received positive response to all forms of questions from parents and older siblings.

Conclusions

Within the limitations of this study and considering the complexities of the processes under investigation, the following conclusions appear warranted.

1. The educational home environment is a major factor in shaping the language development and concepts about print of most kindergarten children.

2. Children who read in kindergarten are most likely to come from homes with a rich supportive home environment where intellectual curiosity is encouraged and reassuring limits on behavior are maintained.

3. In any population of beginning kindergarten children there are some children from homes with a positive home environment who have had limited concepts about print and may also have limited language development.

4. Some children from homes with a lower educational home environment will have relatively well developed concepts about print and language at the start of kindergarten.

Discussion

To place the discussion of the findings and resultant conclusions of this study in proper perspective, a review of the meaning of environment is in order. Environment has components of physical, social, intellectual, cultural and institutional forces. Bloom (1964) very clearly states the problem involved in studies concerning the environment which impinges upon the individual. He says:

> If we think of environment as giving opportunities for interaction and experience, it may be contented that no two individuals had the same interactions and experiences. Furthermore, it we conceive of major changes in the individual as arising out of a single experience, much of our research would reduce to the psychoanalytic interview searching for the powerful experiences in each individual's life.
>
> Somewhere between the total environment and the specific interaction or single experience is the view of the environment as a set of persisting forces which affect a particular human characteristic . . . thus an environment which has a higher probability of providing certain experiences than another environment may be said to be more powerful environment insofar as the appropriate human characteristic is concerned. (p. 187)

This study has attempted to examine those variables in the home which relate to children's concepts about print and language development and which have the possibility of modification should parents from homes with lower educational environments desire to make such changes.

This study is in agreement with the findings of Clay (1976), Durkin (1975), and Hollingsworth (1977) to the

extent that factors in the home do influence children's concepts about print. In general, parents of the kindergarten children in the sample school district appear to be doing an excellent job preparing their children for moving into print. All mentally healthy parents do the best they can based on the knowledge and resources at their disposal. This can best be illustrated by quoting one of the parents in the study. She said, "We have told (name omitted) that we don't want him to have to get out and rake and scrape for everything you make. . . . We've got three children to bring up and we've got to raise them the best we know how. We give them all we can do, and like I told my husband even if it takes hair, hide, guts and all, I want them to be something. I don't want them to have to do like we done. I was born poor and I'm poor now."

This same desire for academic success pervaded all socioeconomic groups and was stated to some degree by all parents participating in the study.

The follow-up interview in the homes of the children who were reading in kindergarten verified previous observations and yielded valuable new information. The parents of these children provided a rich and positively reinforcing environment. Clearly, early reading resulted in an atmosphere where intellectual curiosity was encouraged

and behavioral limits were clearly established and maintained. Imitation of positive parent and sibling models played a significant role in learning to read. One cannot overlook the importance of young children interacting with other children, particularly older siblings as well as adults, in learning to read. Playing school appears to also be an important activity in learning to read. When the parents viewed reading as a natural developmental process and read for information and pleasure, the children appeared to view reading as an enjoyable functional activity and did not think that learning to read was difficult at all. Observations in the homes of the readers also correlated with a recent study by Mason (1977) who suggests a hierarchy of skills for reading readiness acquired by four and five year old children (p.45). Mason listed in order of acquisition, recited letters, said letter names, read own name, printed letters, read traffic signals, said letter sounds, read store signs, read food labels, read nouns, read prepositions, read verbs, and read abstract nouns. Development of these abilities was reported between the ages of three and five by the parents of the readers in this study, however, no distinct pattern or hierarchy was evident from the interviews.

Most families of the young readers in this study reported some form of "assisted reading" as outlined by Hoskisson, Sherman and Smith (1974). With varying frequency

parents or an older sister would run a finger along under the print as they read to the child. Next, the child would begin supplying words as they occurred in the reading of the story that he or she could recognize, and the parents or sister would supply the words which the child did not know, and then a pattern of alternate reading would develop. Variations of this pattern of assisted reading occurred in three of the four homes of the readers.

One of the unexpected outcomes of the study was the ease with which the cause for low Sand scores by children from homes with a favorable environment could be pinpointed. They clearly fell into two categories: those children who had a history of medical problems and those children who were delayed somewhat in maturation. Another surprising finding in the study was the unexpected number of children who scored relatively high on the Sand and ROL from lower home environments. Possibly a modification of the sixth process variable, work habits emphasized in the home, would more clearly identify those homes where the parents influenced the behavior of their children by modeling hard work. These children tended to behave in the same manner as their parents, using their total resources to the maximum extent to develop concepts about print. The interaction with other adults and opportunities to verbalize and play with other children was also a significant factor in this group.

Implications

As a result of the data collected and the nature of the study rather broad implications are possible and appear reasonable.

Implications for Public Schools

Recognizing that this study was conducted in a community with a large population of the higher socioeconomic group, the following suggestions still appear applicable to a broader population. School districts may wish to consider modification of the kindergarten program to include more writing and reading activities when a relatively large portion of the kindergarten students start kindergarten with well developed concepts about print and language. Some parents indicated a desire for challenging activities in the curriculum area. This need can be established rather quickly by reviewing the pre-school activities of the students and administering the Sand test and the ROL to those students with low Sand scores. Schools may provide low cost printed material to the homes of parents of two, three and four year olds. Other items which might be beneficial would be low cost alphabet blocks and letters made of plastic or cardboard. Another more costly consideration might be the implementation of parenting programs for children two, three

and four years of age. A still more costly approach would be publicly supported child-care programs for young children.

Implications for Teachers

There are several implications for teachers to modify their approach in early childhood education if they are willing to administer diagnostic instruments such as the Sand and ROL, and visit the homes of the children who score low in concepts about print. In the homes where a relatively low educational home environment exists, simple inexpensive activities could be suggested. Some examples are reading library books, watching educational TV with the child, a visit to the zoo, or building something together. In those homes where they found a very high home environment, they may wish to assure the parent that the child will develop concepts about print and learn to read given the opportunity and that the maturational process of the individual child must be respected and not forced.

In the classroom there are clear implications that some children need much more challenging reading and writing activities when they start kindergarten with well developed language and concepts about print. For those children with less developed language and concepts about print a more intensive compensatory program is in order. In other words

starting where the child is in reading and respecting his background and level of development.

Implications for Libraries

The results of this study indicated that the parents who most needed to use the free resources of the community utilized them at a minimum. Libraries may want to consider developing outreach programs to bring the parents of young children from the poorer neighborhoods into the library. Another possibility would be to utilize vans going into the community and distributing free materials or checking books out from a mobile library.

Implications for Parents

For many parents implications of this study are that they should recognize that they are doing very naturally all the things which prepare their children to enter the academic world. Some parents want help and need help in discovering that there are some simple activities which they can engage in with their children which will help the children develop the necessary concepts about print. They could be given counsel on how to read, talk, and interact with their child. When parents feel inadequate or incapable of helping their children, other resources in the community need to be provided and utilized.

Recommendations for Further Study

This study generates evidence which indicates the need for further investigation in several areas of the environment of the home as related to children's language development and concepts about print. Questions raised in the course of this research which merit further effort are presented in the form of the following recommendations:

1. The first and possibly most fruitful area for additional research may be in homes with low educational home environments which have produced children with well developed concepts about print and language. Careful studies designed to investigate parent (or surrogate parent) relationships may yield valuable results useful in designing parenting courses. Other areas which also warrant consideration are: the style of play between the parents and the child and the play patterns of children with older siblings and neighbors, and the amount of time the child spends with his father in his work or hobby.

2. Another area which may also prove very valuable would be concerning pre-school experiences of three and four year olds. This may best be accomplished by a large cross-sectional study to determine the influences of pre-school experience on children's ability to develop concepts about print and language.

3. A long-term intervention program of two or three years where parents were trained in "assisted reading" may prove beneficial. Such a design should compare results with a similar group of families where the parents did not receive instruction in assisting their children in learning to read.

Such studies, carefully planned and executed, may provide enough information to design more effective and efficient pre-kindergarten, kindergarten, and parenting programs. Through implementation of such programs the number of reading problems may be reduced and young children can be more positively and naturally helped to achieve the transition from oral language to print.

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APPENDIX A

INITIAL HOME INTERVIEW FORM

NUMBER_____

INITIAL HOME INTERVIEW FORM

Name of the interviewees:_____ Relation with the child:

_____ Mother Father

Address:_____ Other (specify)

_____ _____

Phone No._____ Child_____

Name of the interviewer:_____ Birth Date_____

Date of the interview:_____

Children

	Name	Sex	Age	School Grade	Remarks
1.					
2.					
3.					
4.					
5.					

(Circle number of focal child)

Adults Living in the Home

Father: ____ Yes ____ No Mother: ____ Yes ____ No

Other:_____

	Father	Mother
Occupation		
Education		

Pointing out the Subject: We are going to talk about your kindergarten grade child (name). We will probably be referring to the others on occasion, but our discussion will be mainly about _____ (name).

1. How do you feel about his school progress?

   What grades do you expect him to receive?

   What grades satisfy you?

	Expect	Satisfy

2. How do your other children generally do in school?

3. What organizations or clubs, if any, do you belong to (PTA, Church, Political, etc.)?

   Does your child know what you do in these organizations?

   _____Yes _____No. How?

4. What are your favorite recreation pastimes?

   What recreational activities do you and your family engage in on weekends together?

   What places have you visited on weekends during the past six months?

	Visit	Reason
Family		
Mother		
Father		

5. Do you usually plan your weekends and vacations ahead of time?

_____Yes _____No. How often?

Who makes the plans?

6. Where have you, as a family, traveled during the past two years?

Why were these places chosen?

What specific activities take up most of your time at these places?

7. What newspapers and/or magazines do you subscribe to?

Do you encourage your child to read them? If so, how?

Do you discuss the articles or stories in them in his presence? (Give examples)

Does your child ever participate in these discussions-vs. listening?

8. Does your child take any lessons--musical, dance, academic subjects?

If so, what?

How long has he taken these?

How did he get started in this area?

9. What kinds of toys, games, books, pamphlets, etc. have you bought for your child in the past two years? (Include birthdays and holidays) Give examples.

10. Does your child have a library card? _____Yes _____No

If so, how long has he had it?

How did he come to get this card? (Note parent initiation)

Do you remember the first few times he went to the library? Did anyone accompany him? Who?

What kind of books have you encouraged him to read?

Where else does he obtain reading material?

11. What appliances do you permit him to operate?

How long have you allowed this?

12. Does your child have a desk of his own? _____Yes _____No
If not, where does he study or look at books?

What kinds of supplies are available for him to work with? (Observe)

_____paste	_____scissors	_____others (specify)
_____paper	_____compass	_____
_____paints	_____protractor	_____
_____crayons	_____ruler	_____

13. Do you have a dictionary in your home? If so, what kind?

Does your child have a dictionary of his own? If so, what kind?

Where are they kept?

Does your child use the dictionary?

How often do you?

When the child uses the dictionary, at whose initiation--his or yours?

What other ways does your child have of learning new words? School, relatives, etc.

Home dictionary: ___Yes ___No	Child's dictionary: ___Yes ___No
Name	Name
Use	Use

14. Do you have an encyclopedia in your home? ___Yes ___No
If so, what kind?

When did you get it? Why?

Do you buy yearbooks to accompany the encyclopedia? ___Yes ___No

Where is it usually kept?

How often do you use it?

How often does your child use it?

15. Do you have an almanac or fact book? _____Yes _____No
If so, when was it purchased?

Who uses it? When?

What other sources of reading material does your child have available to locate answers to his questions--library, friends, etc.?

16. Did you teach to count, read, or print his name before he went to school? If so, how much?

17. Do you have any workbooks or other kinds of learning materials which you use to help your child in his learning?

What other steps, if any, do you take to insure that your child keeps up in his school work?

18. How often do the two of you discuss your child's progress in school?

What generally results from such discussions?

19. Have you had any experience in teaching? What?

Father	Mother

20. When does your child usually eat dinner on weekdays?

Who eats with him?

Who does most of the talking at the dinner table?

About what?

21. At what other times are you together as a family on weekdays?

    Weekends?

22. What are some of the activities you engage in with the child on weekdays? On weekends?

	On Weekdays	On Weekends
Father:		
Mother:		
Family:		

23. Are there any adults outside of you (parents) that your child is particularly friendly with?

    If so, what does he seem to like about them?

    What do you see as this person's special qualities?

    How often does your child see them?

    What does he do when he's with them?

24. Have both of you worked outside the home since your child was born?
    _____Yes _____No. If so, who took care of the child?

25. Did you read books to him when he was younger?

If so, when did you start?

When did you stop?

How regularly did you read to him?

Do you still read to him? Does he read to you?

How often?

Tell me how you read to him:

26. About how many hours a week does he usually watch TV?
Winter: _____hours Summer: _____hours

What are his favorite programs?

Do you approve of them? If not, what do you do about them?

Do you determine when the TV is on? If so, how?

27. What are your favorite TV programs?

Did you recommend that your child watch any particular programs in the past week? If so, which ones?

Did you discuss any programs with him after watching them?

28. How would you describe your child's language usage?

Do you help him to increase his vocabulary? If so, how?

How have you helped him to acquire appropriate use of words and sentences?

Are you still helping him in these respects? If so, how?

29. How much would you estimate you correct him in his speech? Ex. use of "ain't," etc.

How particular are you about your child's speech?

Are there particular speech habits of his that you are working on to improve? Earlier?

Give examples, if so.

30. Do you speak any language other than English in the home?
_____Yes _____No. If so, which one?

Does the child also speak this language?

31. How much schooling do you wish your child to receive?

32. How much schooling do you <u>expect</u> your child to receive?

33. What is the minimum level of education that you think your child must receive?

34. Do you have any ideas about the kind of work you would like to see your child do when he grows up?

Do you have any ideas about the kind of work you would not like your child to do?

35. How do you feel about the kind of work you're doing?

Father Mother

Is this is the kind of work you always wanted to do?

36. How do you feel, in general, about the accomplishments of your family?

How far have you been able to accomplish the aspirations or plans with which both of you started your family life?

37. How important has education been in achieving these goals?

How much importance is education going to have in the life of your child?

Would his future status be radically affected if he does not attain the level of education you wish him to attain?

38. What is the educational level of some of your close friends and relatives?

39. Have you met with your child's present teacher? _____Yes _____No
If so, when?

Why?

Does the teacher usually initiate parent-teacher conferences?

If you ask for a meeting, for what purpose?

What other ways, if any, are you in contact with the school?

40. Did you hug, kiss or speak approvingly to your child in the past few days? If so, for what reasons?

What are some of the activities and accomplishments of your child that you praise and approve of?

How do you do this?

What things do you find you have to scold him for?

Father	Mother

41. Do you discuss his school work with him?
What particular things do you discuss with him?

42. Do you have college plans for him? _____Yes _____No
If so, what have you done to financially prepare for this?

In what other ways, if any, do you prepare him for the attainment of educational goals? (e.g., acquaint him with colleges, telling him about what people learn in college, etc.)

43. About how often do you ask your child how well he is doing in school? What particular things do you ask him?

44. Does he help you in the routine housework? Yes _____No
If so, what responsibilities does he have?

How punctually does he carry them out?

45. Is the housework distributed among the members of the family?
If so, who did the planning for such assignments?

How regularly are these assignments followed?

What factors, if any, come in the way of carrying out such plans?

46. How would you rate your child's habit of completing his work on time, not leaving a problem undone, correcting his mistakes, etc.?

How did he acquire these habits?

47. Do you ever have to change your own plans for the sake of your child's school work? _____Yes _____No

If so, what kinds of plans have you had to change?

48. Have you had to sacrifice any of your major needs or desires such as buying a new car, giving up a job, etc., for the present and/or future education of your child?

If so, what did you give up?

What were the immediate consequences?

49. Are you taking any courses or involved in a hobby?

If so, what?

How did you get involved in this?

How are you doing it--formally or informally?

Did you study any subjects or have a hobby during the past two years? If so, what?

Mother:

Father:

50. What do you read?

Father

Mother

How often do you read?

Father

Mother

Do you or other adults read in front of the child?

AGE OF SIGNIFICANT FAMILY CHANGES

	0-1	1-2	2-3	3-4	4-5
Birth					
Death					
Divorce					
Move					
Employment					
Father					
Mother					
Illness					
Child					
Sibling					
Father					
Mother					
Other					

CHILD CARE BY AGE (Min. of 3 hrs. per day)

Mother					
Regular Sitter					
Nursery School					
Day Care					
Combination					

PARENT-CHILD CONTACT

	Daily Regular	Weekly Frequent	Monthly Infrequent	Seldom	None
Father					
Mother					
Other					

(Explain)

(Complete After Interview)

DWELLING

Cost	Up $50,000	$50,000 $25,000	$25,000 Down	Apt. $175.+	Apt. $175.-
No. Rooms	2 Less	3	4	5	6 or more

CULTURAL GROUP

White _____ Oriental _____

Brown _____ Native American _____

Black _____ Other _____

ESTIMATED INCOME LEVEL

Low _____ Middle _____ High _____

Remarks: _____

APPENDIX B

RATING SCALES

APPENDIX B

RATING SCALES

There are seventeen rating scales in all, as given in this appendix. Each rating scale is preceded by the name of the environmental process factor, the criteria for its measurement, and the serial numbers of the questions in the interview schedule that are based on the factor. The interview schedule given in Appendix A may be consulted for the questions.

The descriptions of the alternative points on the scale given as cues to the rater had to be as brief and explicit as possible for their practical use. Therefore, they are often stated in the form of phrases or incomplete and abridged sentences. Their meaning, however, will become explicit when read in the context of the other parts of the scales and the criteria for the measurement of the process characteristic concerned.

(1) PARENTAL ASPIRATIONS FOR THE EDUCATION OF THE CHILD

Criteria: *Nature of the educational and vocational goals
*Level of expectation of the educational accomplishments

Questions: 1, 2, 31, 32, 33, 34, 37

Rating Scale:

9	Beyond four years of college. Occupational expectation requiring very high education. Expectation of best grades in school.
8	
7	Four years of college. Occupational expectation requiring high education. Expectation of A's with some B's.
6	
5	At least through high school. Some college education desired. Moderately high occupational aspiration. Expectation of B's with some A's and some C's.
4	
3	Only up to high school. Very moderate and uncertain occupational expectation. Expected grades C's with some B's.
2	
1	Abscence of any long term educational and vocational goals. Only narrow and immediate goals. No expectations about grades, or expectation below C's.

(2) PARENTS' OWN ASPIRATIONS

Criteria: *Present accomplishments
*Means of the accomplishments
*Future aspirations

Questions: 34, 35, 36, 37, 38

Rating Scale:

9 Very high accomplishments already attained. Education used as in the most important means of the accomplishments, or a very keen feeling for not having enough education. Still very high aspirations.

8

7 High accomplishments already attained. Education used as one of the chief means of the accomplishments, or a keen feeling for not having enough education. Still high aspirations.

6

5 Fairly high accomplishments already achieved. Education used as one of the chief means of the accomplishments, or a keen feeling for not having enough education. Still more, but moderate aspirations.

4

3 Moderate accomplishments. Education played only an incidental role in the accomplishments. Very moderate aspirations.

2

1 Little accomplishments. Education is not considered as a means of any possible accomplishments. Practically no future aspirations.

(3) PARENTS' INTEREST IN ACADEMIC ACHIEVEMENT

Criteria: *Extent of participation in the educational activities (e.g. reading, PTA)
*Keenness for the educational progress of the child

Questions: 3, 4, 16, 18, 19, 39

Rating Scale:

9	Both parents very active in educational organizations and activities. Very particular about the educational progress of the child.
8	
7	Both or any one of the parents active in educational organizations and activities. Particular about the educational progress of the child.
6	
5	Only one of the parents occasionally active in educational organizations and activities. Fairly particular about the educational progress of the child.
4	
3	Only one of the parents occasionally active in educational organizations and activities. Not quite particular about the educational progress of the child.
2	
1	None of the parents active in any educational organization or activity. Not at all particular about the educational progress of the child.

(4) STANDARDS OF REWARD FOR EDUCATIONAL ATTAINMENT

Criteria: *Valuing academic accomplishments
*Selection of gifts having educational value

Questions: 1, 9, 40, 41

Rating Scale:

9 Academic accomplishments very highly and invariably praised. They are praised more than any other accomplishments. Very high expectations of educational achievement. Selection of gifts invariably having educational value.

8

7 Academic accomplishments are one of the most highly praised accomplishments. High expectations of educational achievement. Gifts very often having educational value.

6

5 Academic accomplishments are praised. Some other accomplishments are praised more. Moderately high expectations for educational achievement. Some gifts having educational value.

4

3 Academic accomplishments are occasionally praised. Some other accomplishments are praised highly. Moderate expectations of educational achievement. Gifts having educational value chosen only occasionally.

2

1 Academic accomplishments are not praised at all. Some other accomplishments are very highly praised. Very low expectations of educational achievement. Gifts hardly having any educational value.

(5) QUALITY OF THE LANGUAGE USAGE OF THE PARENTS

Criteria: *Fluency of expression
*Pronunciation
*Vocabulary
*Organization of thoughts

Evidences: From the conversation with the parent(s) during the interview.

Rating Scale:

(i) To rate each of the four criteria individually on the following scale, and (ii) to take their average as the overall rating for this characteristic. (Round to whole number.)

9 Excellent

8 Very good

7 Good

6 A little above average

5 Average

4 A little below average

3 Quite below average

2 Poor

1 Very poor

(6) OPPORTUNITIES FOR THE ENLARGEMENT AND USE OF VOCABULARY AND SENTENCE PATTERNS

Criteria: *Variety of opportunities (e.g. books, TV, travel, picnics, verbal interaction in home situations)
*Frequency of opportunities

Questions: 4, 6, 20, 21, 22, 23, 24, 28, 30

Rating Scale:

9 A great variety of situations available frequently and consistently.

8

7 A good variety of situations available quite frequently.

6

5 A moderate variety of situations available fairly frequently.

4

3 Only a few situations available infrequently.

2

1 Very limited situations available.

(7) KEENNESS OF THE PARENTS FOR CORRECT AND EFFECTIVE LANGUAGE USAGE

Criteria: *Regularity in reading to the child during pre-school period
*Variety of efforts for increasing vocabulary, and correcting language usage, if needed.

Questions: 10, 13, 25, 28, 29, 30

Rating Scale:

9	Read to the child very regularly, almost every day, from early childhood. The child is encouraged to read some special material to the parents and others. A great variety of efforts in increasing vocabulary and improving language usage.
8	
7	Read to the child quite regularly, almost every day, for about three years or more. Some occasional reading to him still continues. A good variety of efforts in improving his vocabulary and language usage.
6	
5	Read to the child fairly regularly for two or three times a week for about two years or so. Some effort to improve vocabulary and language usage.
4	
3	Read to the child during the pre-school occasionally and without any regularity. Incidental efforts to improve vocabulary and language usage.
2	
1	Not read to the child with any regularity at any time. Hardly any efforts to improve vocabulary and language usage.

(8) AVAILABILITY OF GUIDANCE ON MATTERS RELATING TO EDUCATIONAL ACTIVITIES

Criteria: *Extent of general supervision regarding activities
*Readiness in guidance when asked for
*Suggestions regarding Educational Activities

Questions: 11, 17, 22, 41, 43

Rating Scale:

9	Very regular general supervision regarding educational activities. Guidance made readily available when asked for. Both parents provide the guidance and suggestions.
8	
7	Regular general supervision regarding educational activities. Guidance available most of the times when asked for. Suggestions given to the child sometimes at the parents' initiative. Both parents provide the guidance and suggestions.
6	
5	Fairly regular supervision regarding educational activities. Guidance sometimes available. Suggestions given to the child regarding the betterment of the work, only occasionally. Only one of the parents provides guidance and suggestions.
4	
3	Occasional supervision regarding educational activities. Guidance only occasionally available. Suggestions given to the child regarding the betterment of the work very occasionally.
2	
1	No supervision regarding educational activities. No guidance or suggestions available for the improvement of work.

(9) AVAILABILITY AND USE OF MATERIALS AND FACILITIES RELATED TO COGNITIVE LEARNING

Criteria: *Selection of the material (e.g. Dictionary, Encyclopedia, Workbooks)
*Guidance for the use of the material and educational facilities

Questions: 8, 12, 13, 14, 15, 17

Rating Scale:

9	Selection of the most appropriate materials according to the educational level of the child. Abundant supply of the educational material. Appropriate and timely use of the materials and facilities.
8	
7	Selection of generally appropriate material according to the educational level of the child. Fairly abundant supply of the educational material. Appropriate and timely use of the materials and facilities.
6	
5	Availability of some educational material. Specific selection according to the child's level only in some cases. Some general use of the materials and facilities
4	
3	Very moderate supply of educational material. No specific selection according to the child's level. Only occasional use of the material and facilities.
2	
1	No availability of educational material in the home. No use of facilities available in the community, such as library.

(10) THE EXTENT AND CONTENT OF INDOOR ACTIVITIES OF THE FAMILY

Criteria: *Variety (Discussion, Undertaking a project, etc.)
*Frequency
*Educational value

Questions: 4, 7, 21, 22

Rating Scale:

9	A variety of activities in the home, having very high educational value are frequently undertaken by the family. Both parents participate.
8	
7	A variety of activities in the home, having high educational value are often undertaken by the family. One or both parents participate.
6	
5	A moderate variety of activities in the home, having general educational value are sometimes undertaken by the family. One or both parents participate.
4	
3	Only a very few number of family activities in the home have direct educational value. Often only one parent participates.
2	
1	No family activities in the home. Or, the activities have hardly any direct educational value. Both parents are generally not available in any educational activities.

(11) THE EXTENT AND CONTENT OF OUTDOOR ACTIVITIES DURING WEEK-ENDS AND VACATIONS

Criteria: *Variety (e.g. visits to a museum or a zoo, traveling to historical places)
*Frequency
*Educational value

Questions: 3, 4, 5, 6, 22

Rating Scale:

9	A variety of child-centered activities outside the home having very high educational value, and frequently undertaken by the family. Both parents participate. Initiated and planned by different members of the family, instead of just one person.
8	
7	A variety of outside activities having high educational value are often undertaken by the family. One or both parents participate. Generally planned by the parents.
6	
5	A moderate variety of outside activities that have high educational value. Such activities are only sometimes undertaken by the family. One or both parents participate. Generally planned by any one of the parents.
4	
3	A majority of outside activities have more recreational or other purposes, with incidental educational value. Or, very few outdoor activities. One or both parents participate. Generally planned by any one of the parents. Others follow.
2	
1	Practically no outside activities of the family having educational purpose.

(12) USE OF TV AND SUCH OTHER MEDIA

Criteria: *Purpose of the use
*Extent of the use

Questions: 26, 27

Rating Scale:

9	Regular use for specifically educational purpose. Recreational value subsidiary. Frequent followup discussions.
8	
7	Regular use for general educational and recreational purpose. Sometimes followup discussions.
5	Fairly regular use. Recreational purpose often more predominant than educational purpose. Occasionally followup discussions.
3	Not much use of TV and other media. Mostly recreational purpose when used. Hardly any followup discussion.
2	
1	No use of any of these media.

(13) USE OF BOOKS, PERIODICAL LITERATURE, LIBRARY AND SUCH OTHER FACILITIES

Criteria: *Variety of material used by the family members (e.g. books, magazines, newspapers)
*Encouragement to the child for the use of such material (e.g. helping him to be a member of the library, suggesting him to write reading material with friends)

Questions: 4, 7, 10, 25, 50

Rating Scale:

9	Extensive reading of a variety of material by the family members. Great encouragement to the child for the same from his early age.
8	
7	Fairly extensive reading of a good variety of material by the family members. Encouragement to the child for the same.
6	
5	Moderate reading of some variety of material by the family members. Some encouragement to the child for the use of reading facilities.
4	
3	Some reading infrequently done by the members of the family. Only occasional encouragement to the child for the use of reading facilities.
2	
1	Hardly any reading done by the members of the family. No encouragement to the child also.

(14) OPPORTUNITIES FOR THINKING AND IMAGINATION IN DAILY ACTIVITIES

Criteria: *Variety (e.g. use of power appliances, thought-provoking discussions, etc.)
*Level of complexity
*Extent of encouragement for independent thinking

Questions: 4, 11, 20, 22, 23, 25

Rating Scale:

9 Opportunities to work with a variety of complex appliances. Opportunities to listen to and participate in thought-provoking discussions. Great encouragement for independent thinking.

8

7 Opportunities to work with some variety of complex appliances. Some opportunities to listen to and participate in thought-provoking discussions. Some encouragement for independent thinking.

6

5 Opportunities to work with a few moderately complex appliances. Some opportunities to listen to thought-provoking discussions. Some encouragement for independent thinking.

4

3 Opportunities to work with one or two very moderately complex appliances. Opportunities to listen to thought-provoking discussions only occasionally. Hardly any encouragement for independent thinking.

2

1 Practically no opportunities to work with any complex appliances. No opportunities to listen to any thought-provoking discussions. No encouragement for independent thinking.

(15) CHILD'S INTERACTION WITH PRINT

Criteria: *Extent of Parent-Child-Print activity
*Value of reading as fun activity
*Availability of child's reading material

Questions: 7, 9, 14, 16, 17, 22, 25

Rating Scale:

9	Daily parent-child reading activity viewed as a pleasant enjoyable time. Great to read books at child's own level.
8	
7	Frequent parent-child reading activity, 3 to 5 days a week, viewed as a fun activity. Some to read books at child's level.
6	
5	Moderate parent-child reading related activity, once or twice a week. No reference as pleasant activity by adult. Little opportunity for child to read.
4	
3	Infrequent parent-child reading related activity. Negative or neutral reaction of parent to reading with child. Hardly any opportunity for child to read alone.
2	
1	Practically no parent-child reading related activity and no opportunity for the child to look at books.

(16) DEGREE OF STRUCTURE AND ROUTINE IN THE HOME MANAGEMENT

Criteria: *Planning and distribution of work
*Punctuality in following it

Questions: 44, 45, 46

Rating Scale:

9	Well planned home management. Distribution of work among the family members. Punctuality and discipline in following the plans.
8	
7	Major duties distributed among the family members. Planning followed quite consistently.
6	
5	Moderate planning. It is followed with only moderate regularity.
4	
3	Some efforts made for planning and distribution of work which was not followed systematically.
2	
1	No planning of household work.

(17) PREFERENCE FOR THE EDUCATIONAL ACTIVITIES OVER OTHER PLEASURABLE THINGS

Criteria: *Priority to educational activities attached by the parents
*Continuity of academic activities (e.g. taking courses after completing formal education)

Questions: 42, 47, 48, 49, 50

Rating Scale:

9	Very high priority attached by the parents to studies and other educational activities. Both parents continued studies voluntarily after completing formal education.
8	
7	Educational activities and studies stand among the activities of high priority. One or both parents continued studies voluntarily after completing formal education.
6	
5	Educational activities and studies moderately high in priority. A few others higher in priority. One of the parents continued studies either voluntarily or as occupational requirement after completing formal education.
4	
3	Other activities higher in priority than educational activities and studies. One of the parents continued studies after completing formal education as an occupational requirement.
2	
1	No emphasis attached to scholastic studies by the parents. It is often made subsidiary to other activities. Parents did not continue any studies after completing their formal education.

APPENDIX C

SCORING FORM

Name

APPENDIX C

Number

EDUCATION HOME ENVIRONMENT

Scoring Form

	Environmental Factors	Process Variables
1. Achievement Press. . .		_____
Parents' aspirations for child	_____	
Parents' own aspirations .	_____	
Parents' interest in achievement.	_____	
Rewards for educational attainment	_____	
2. Language Models.		_____
Quality of language, parents .	_____	
Opportunity for use and enlargement.	_____	
Keenness of parents for correctness.	_____	
3. Academic Guidance.		_____
Availability of guidance . . .	_____	
Availability of materials.		
4. Activeness of Family .		_____
Indoor activities.	_____	
Outdoor activities	_____	
Use of TV.	_____	
Use of Reading	_____	
5. Intellectuality in Home.		
Child's interaction with print	_____	
Opportunity for thinking .	_____	
6. Work Habits in the Family. .		
Structure and Routine. . .	_____	
Preference for Educational Activities	_____	
Education Home Environment . . . . . (Total of Six Process Variables		_____

APPENDIX D

LETTER TO PARENTS

AND

AUTHORIZATION

TEXAS WOMAN'S UNIVERSITY

DENTON, TEXAS 76204

COLLEGE OF EDUCATION
DEPARTMENT OF CURRICULUM
AND INSTRUCTION
BOX 23029, TWU STATION

With the cooperation of the Independent School District, Texas Woman's University is investigating children's general language development. We would like your cooperation in participating in this study. Because the cost prevents us from including all 500 kindergarten children in we have scientifically selected a random sample of 50 children, was one of the 50 children selected to participate in this study, should you agree.

The study will be conducted by Mrs. Kaaren Perkins and Mr. John Smith during the next six months. It will include three observations of the children and one or two short visits with the parents of each child. The observations of the children will be conducted during school in the months of November, January, and March and will only be about 15 minutes in duration. The interaction between the investigators and the children will be fun activities and it will not be a stressful, threatening test situation. At no time will the study interfere with activities in the classroom. The visit or visits to your home should not last over 45 minutes and will be scheduled at your convenience: morning, afternoon, evening, weekday, or weekend.

We believe that the results of this study will be helpful to kindergarten teachers and parents in the future. Education is a complex process and we plan to follow-up this study to learn more about later school experiences. We need your help; please sign the enclosed form and return it in the stamped envelope enclosed for your convenience. If you have any questions, please call Mrs. Perkins (387-5495) or Mr. Smith (382-0200).

All information from this study will be held in the strictest confidence. Individual children, schools, and the School District will not be identified in the reports of this study.

Sincerely yours,

Rose Spicola

Dr. Rose Spicola
Program Director

TEXAS WOMAN'S UNIVERSITY

I hereby authorize Kaaren Perkins and John Smith to ask _____ questions of an educational nature and record the responses on magnetic tape. I understand that the information may be used for educational and research purposes; and do hereby consent to such use.

In addition, the investigators are authorized to contact me for purposes of making an appointment to visit my home to collect additional information. I understand that the visit will be scheduled at my convenience and that all information will be held in strictest confidence.

_____ _____

Parent or Guardian Date

APPENDIX E

HOME ENVIRONMENTAL SCORES

PROCESS VARIABLE SCORES AND EDUCATIONAL

HOME ENVIRONMENT SCORES

KEY:

EHE - Education Home Environment
Process Variables--

1. Achievement Press
2. Language Models
3. Academic Guidance
4. Activeness of Family
5. Intellectuality in Home
6. Work Habits of Family

Subject's Number	EHE	1	2	3	4	5	6
A 1	7.00	6.75	8.00	8.00	7.50	7.50	5.00
A 2	8.08	8.50	9.00	8.00	8.00	8.50	6.50
A 3	7.74	7.75	6.67	8.50	7.00	7.50	9.00
A 4	7.67	8.00	8.00	8.00	7.00	7.00	8.00
B 1	8.22	7.50	8.33	7.50	8.50	8.50	9.00
B 2	7.71	7.00	8.00	7.50	7.75	8.00	8.00
B 3	7.70	7.50	7.67	7.50	7.50	7.50	7.50
B 4	7.57	7.75	7.66	8.00	7.00	7.00	7.00
B 5	7.32	5 75	8.67	8.00	7.50	7.50	6.50
B 6	7.31	6.00	8.33	7.00	6.50	8.50	7.50
B 7	7.20	7.25	7.67	6.50	7.25	8.00	6.50
B 8	7.07	6.50	7.67	7.50	6.25	7.50	7.00
B 9	7.01	7.00	7.33	7.00	6.75	7.50	6.50
B 10	6.90	7.25	6.67	7.00	7.50	6.00	7.00
B 11	6.88	6.25	7.00	8.00	6.50	7.00	6.50
B 12	6.88	7.00	7.00	8.00	6.25	7.00	6.00
B 13	6.85	7.25	6.33	6.50	6.50	8.00	6.50
B 14	6.78	6.50	6.66	7.50	7.00	6.50	6.50
B 15	6.75	6.50	7.00	7.00	6.50	7.00	6.50
B 16	6.72	6.50	7.34	7.50	5.50	6.50	7.00
B 17	6.51	6.75	7.34	6.50	5.50	6.50	6.50
B 18	6.45	6.25	5.67	6.50	6.75	7.00	6.50
B 19	6.39	6.50	7.33	6.00	6.00	6.50	6.00
B 20	6.39	6.25	7.33	6.00	6.25	7.00	5.50
B 21	6.04	6.00	6.00	6.00	5.75	7.50	5.00
B 22	5.93	5.25	6.33	5.50	6.00	6.00	6.00
C 1	5.78	6.00	5.00	5.00	4.50	6.00	6.00
C 2	5.33	6.75	4.67	5.50	5.25	4.50	6.50
C 3	5.33	5.25	5.67	5.00	5.75	6.00	5.50
C 4	5.31	6.00	4.33	5.50	5.50	5.00	5.50
C 5	5.13	5.50	6.30	5.00	5.00	4.50	4.50

HOME ENVIRONMENT SCORES--Continued

Subject's Number	EHE	1	2	3	4	5	6
C 6	4.78	4.50	4.67	4.50	4.50	5.00	5.50
C 7	4.68	4.25	4.33	4.50	4.00	4.50	6.50
C 8	4.29	5.25	3.00	3.50	3.00	4.50	6.50
C 9	3.99	4.00	3.66	3.50	4.25	5.50	3.00
C 10	3.95	4.25	4.67	3.50	3.75	4.50	3.00
C 11	3.67	3.50	3.00	3.50	4.00	3.00	5.00
C 12	3.53	3.75	3.67	4.00	3.25	3.00	3.50
C 13	3.38	2.75	4.00	3.00	3.50	4.00	3.00
C 14	2.47	3.75	2.33	1.00	3.25	3.00	1.50
D 1	5.17	5.50	6.50	4.50	5.50	3.50	5.50
D 2	5.10	4.75	5.33	6.00	4.50	5.00	5.00
D 3	4.96	4.50	5.00	5.50	3.75	4.50	6.50
D 4	4.95	5.25	5.67	4.00	4.75	5.00	5.00
D 5	4.93	5.00	5.33	5.50	4.75	5.00	5.00
D 6	4.72	5.00	4.33	5.50	5.00	5.00	3.50
D 7	4.70	4.00	5.67	3.50	5.00	6.50	3.50
D 8	4.68	4.00	5.33	4.50	4.75	5.50	4.00
D 9	4.51	5.00	5.33	4.00	3.75	5.50	3.50
D 10	4.43	4.25	4.33	4.50	4.00	5.50	4.00
E 1	7.73	7.50	8.00	8.00	7.50	8.00	7.50
E 2	7.61	7.25	8.67	7.50	7.25	7.50	7.50
E 3	6.33	6.50	7.00	6.50	6.00	6.50	5.50
E 4	6.62	5.57	7.70	8.00	5.25	7.00	6.00
E 5	6.01	4.75	6.33	7.00	5.50	7.50	5.00
E 6	5.92	5.50	6.00	6.50	5.00	6.00	6.50

APPENDIX F

SEVENTEEN ENVIRONMENTAL FACTOR SCORES

SEVENTEEN ENVIRONMENTAL FACTOR SCORES

Key to Environmental Factors:

1. Parents' aspirations for child
2. Parents' own aspirations
3. Parents' interest in achievement
4. Rewards for educational attainment
5. Quality of language of parents
6. Opportunity for use and enlargement
7. Keenness of parents for correctness
8. Availability of guidance
9. Availability of materials
10. Indoor activities
11. Outdoor activities
12. Use of television
13. Use of reading material and facilities
14. Opportunity for thinking
15. Child's interaction with print
16. Structure and routine
17. Preference for educational activities

Subject's Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A 1	8	5	7	7	8	8	8	7	9	8	5	7	7	7	8	4	6
A 2	8	9	9	8	9	9	9	8	8	8	8	8	8	9	7	7	6
A 3	8	8	8	7	9	7	8	8	9	8	5	8	7	7	8	9	9
A 4	9	9	7	7	8	8	8	7	9	7	7	7	7	7	7	8	8
B 1	7	8	8	7	8	9	8	8	7	9	9	7	9	9	8	9	9
B 2	6	8	8	6	8	8	8	8	7	7	7	8	9	9	7	8	8
B 3	7	8	8	7	8	7	8	6	9	8	6	7	9	7	8	9	8
B 4	8	8	7	8	8	7	8	7	9	8	6	9	8	7	9	6	8
B 5	5	6	6	6	9	9	8	7	9	6	9	8	7	8	7	6	7
B 6	1	9	9	5	9	8	8	5	9	8	6	5	7	9	8	6	9
B 7	8	8	7	6	8	8	7	6	7	6	8	8	7	7	9	6	7
B 8	5	8	7	6	8	7	8	7	8	6	8	5	6	7	8	7	7
B 9	8	6	7	7	8	6	8	6	8	7	6	8	6	8	7	6	7
B 10	8	6	8	7	7	7	6	7	7	7	9	7	7	6	6	7	7
B 11	6	6	7	6	7	7	7	8	8	7	5	7	7	7	7	6	7
B 12	7	7	7	7	7	6	8	9	7	7	5	6	7	7	7	6	6
B 13	8	8	6	7	5	7	7	6	7	7	8	5	6	8	8	5	8
B 14	5	7	8	6	7	7	6	7	8	9	5	8	6	6	7	6	7
B 15	7	6	7	6	8	7	6	8	6	7	6	6	7	7	7	7	5
B 16	7	6	8	5	8	7	7	7	8	5	6	5	6	7	6	6	8
B 17	7	6	7	7	8	7	7	7	6	6	7	5	4	8	5	7	6
B 18	7	5	7	6	6	5	6	7	6	7	6	7	7	9	5	7	6
B 19	7	7	6	6	8	7	7	7	5	7	6	6	5	6	7	5	7
B 20	6	6	6	7	8	7	7	6	6	6	5	6	8	8	6	6	5

SEVENTEEN ENVIRONMENTAL FACTOR SCORES--Continued

Subject's Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
B 21	5	5	7	7	5	6	7	6	6	6	5	5	7	8	7	6	4
B 22	6	4	5	6	6	7	6	5	6	5	7	5	7	6	6	8	5
C 1	6	7	6	5	6	7	7	6	4	5	5	5	3	7	6	7	5
C 2	8	7	6	6	3	6	5	5	6	6	6	5	4	5	4	6	7
C 3	7	6	3	5	6	7	4	5	5	5	6	6	6	6	6	6	5
C 4	6	7	6	5	5	5	3	5	6	6	6	5	5	5	5	5	6
C 5	5	5	5	7	8	4	7	5	5	6	4	4	6	5	4	3	6
C 6	6	5	3	4	4	5	5	5	4	4	5	5	4	5	5	5	6
C 7	6	3	3	5	4	5	4	4	4	4	4	4	4	5	4	9	4
C 8	5	5	6	5	2	3	4	3	4	3	3	4	2	4	5	6	7
C 9	5	4	3	4	4	4	3	4	3	4	6	4	3	6	5	3	3
C 10	6	3	3	5	5	5	4	3	4	3	4	5	3	3	6	3	3
C 11	5	1	3	5	3	3	3	3	4	4	5	5	2	3	3	5	5
C 12	5	2	5	3	4	4	3	4	4	4	3	3	3	3	3	5	2
C 13	4	2	2	3	4	5	3	3	3	3	4	5	2	4	4	3	3
C 14	8	1	1	5	2	3	2	1	1	2	4	5	2	3	3	1	2
D 1	7	3	6	6	3	6	4	5	4	5	7	5	5	3	4	4	7
D 2	6	3	4	6	4	6	6	6	6	5	5	5	3	6	4	6	4
D 3	7	1	5	5	6	4	5	5	6	2	3	5	5	6	3	9	4
D 4	7	3	5	6	7	5	5	3	5	4	5	5	5	5	5	3	7
D 5	5	5	4	6	5	6	5	5	6	4	4	7	4	4	6	5	5
D 6	6	4	4	6	4	6	6	5	6	6	4	5	5	6	5	2	5
D 7	4	4	2	6	5	5	7	4	3	5	5	5	5	7	6	2	5
D 8	5	3	3	5	5	5	6	4	5	4	4	5	6	5	6	5	3
D 9	6	4	6	4	5	5	6	5	3	5	4	3	3	6	5	2	5
D 10	4	3	4	6	5	4	4	5	4	4	3	5	4	5	6	5	3
E 1	9	8	7	6	9	8	7	8	8	6	7	8	9	8	8	6	9
E 2	6	8	8	7	9	8	9	8	7	6	8	6	9	9	6	7	8
E 3	7	7	6	6	7	6	8	6	7	6	7	6	5	7	6	4	7
E 4	5	8	7	3	8	5	9	9	7	5	2	7	7	9	5	5	7
E 5	5	3	5	6	6	6	7	7	7	4	8	5	5	7	8	5	5
E 6	7	3	6	6	6	6	6	6	7	5	6	5	4	5	7	7	6

APPENDIX G

SUMMARY OF SAND TEST ITEMS

SUMMARY OF SAND TEST ITEMS

Item No.	Concept
1.	Front right side up. Orientation of book.
2.	Print carries message.
3.	Start page reading at top left.
4.	Left to right direction of reading.
5.	Return sweep to start next line of print.
6.	Word by word pointing, sound and print correspondence.
7.	Beginning and end of text.
8.	Orientation of inverted picture.
9.	Orientation of inverted print.
10.	Top to bottom line sequence.
11.	Left page right page reading sequence.
12.	Word order sequence within a sentence.
13.	Letter order sequence within a word.
14.	Reordering incorrect sequence of letters.
15.	Function of question mark, or name.
16.	Function of period, or name.
17.	Function of comma, or name.
18.	Function of quotation mark, or name.
19.	Capital and lower case correspondence.
20.	Differentiation of reversible words.
21.	Concept of a letter.
22.	Concept of a word.
23.	First and last letter of a word.
24.	Capital letter.

APPENDIX H

ROL SENTENCE TYPES

ROL SENTENCE TYPES

Type	Construction		
A	Subject	+ Verb 'to be'	+ Simple Statement
B	Subject	+ Verb	+ Direct Object
C	Subject	+ Verb	+ Additional Construction
D	Subject	+ Verb	+ Indirect Object + Direct Object
E	Subject	+ Verb	+ Noun Clause
F	Adverb or Relative Pronoun	+ Verb	+ Subject
G	Subject	+ Verb Phrase	+ Object + Additional Construction

To receive credit for a correct response the subject must repeat a sentence verbatim. The possible score for the ROL ranges from 0 to 42 (Perkins, 1978).

APPENDIX I

PERKINS' AND SMITH'S SUBJECT IDENTIFICATION NUMBERS AND ROL/SAND SCORES

PERKINS' AND SMITH'S SUBJECT IDENTIFICATION

NUMBERS AND ROL/SAND SCORES

Smith's Subject Number	Perkins' Subject Number	Sand Score	ROL Score	Smith's Subject Number	Perkins' Subject Number	Sand Score	ROL Score
A 1	53	17	38	C 3	17	3	21
A 2	7	12	30	C 4	29	4	16
A 3	50	16	36	C 5	4	1	6
A 4	20	12	29	C 6	15	4	13
B 1	1	8	36	C 7	48	5	27
B 2	41	12	18	C 8	24	4	10
B 3	37	12	32	C 9	32	5	14
B 4	2	6	33	C 10	9	5	8
B 5	39	16	36	C 11	55	5	7
B 6	18	9	23	C 12	30	2	14
B 7	40	12	33	C 13	35	1	1
B 8	16	13	34	C 14	5	1	9
B 9	27	9	31	D 1	19	9	31
B 10	45	12	24	D 2	31	9	35
B 11	42	12	32	D 3	22	11	18
B 12	26	6	29	D 4	13	7	29
B 13	11	8	24	D 5	34	7	32
B 14	6	13	26	D 6	56	11	28
B 15	49	14	16	D 7	33	7	37
B 16	54	14	23	D 8	38	9	16
B 17	36	7	32	D 9	52	12	28
B 18	14	11	33	D 10	51	10	30
B 19	12	7	24	E 1	3	3	8
B 20	44	10	20	E 2	28	3	22
B 21	46	8	30	E 3	8	3	1
B 22	23	10	29	E 4	21	1	3
C 1	43	5	4	E 5	10	3	19
C 2	47	3	3	E 6	25	3	11