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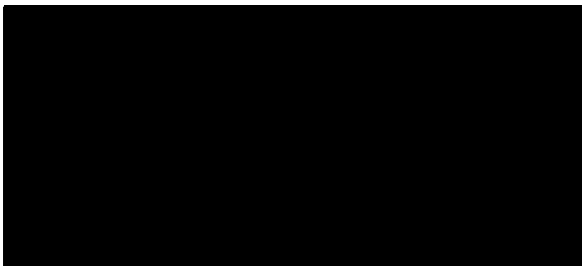
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READING SKILLS UPON ENTRY TO KINDERGARTEN;
EARLY READING AND THE PRESCHOOL ENVIRONMENT

by

Lusette Rauch

B.A. York University, 1970

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

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of

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READING SKILLS UPON ENTRY TO KINDERGARTEN: EARLY READING AND

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ABSTRACT

Many researchers have stressed the importance of early learning experiences for young children (ages 0-4). This has stimulated further research and debate about early childhood education, not only in terms of preschool intervention programs but also in terms of attitudes toward parental roles in children's early learning.

The present study examined the skills and knowledge about reading that children have acquired before entering elementary school. Children beginning kindergarten in the North Vancouver School District were administered McCormick and Mason's Letter and Word Reading Test (LWRT) at the beginning of the school year in order to determine their knowledge of: Sign and Label Identification, Spelling, Letter Name Identification, Common Word Identification, Consonant Sound Identification, and Vowel Sound Identification. On the basis of their LWRT scores, a group of early readers was identified and compared to a carefully selected group of nonreaders. Parents of early readers and nonreaders were interviewed and parent-child interactions were observed to identify factors related to early reading. At the end of the school year, the LWRT was readministered to examine changes in skills and knowledge about reading acquired during kindergarten.

The results indicated that the large majority of children in the kindergarten population enter school with very little word and letter knowledge. However, twenty-four children (3.8%) were identified as early readers on the basis of their LWRT scores.

Since the early readers had reached or approached the ceiling on most of the LWRT subtests at the beginning of kindergarten, there was little room for them to exhibit growth on this measure over the year. While children in the nonreading comparison group made significant gains on four LWRT subtests, their scores at the end of kindergarten still demonstrated very little knowledge of common and environmental words, and vowel sounds.

Information from parental interviews clearly showed that the preschool environment of the reading and nonreading groups was distinguished by the way children interacted with print. Parents reported that early readers spent more time reading books independently, pointing out and naming letters of the alphabet, and identifying printed words by sounding out letters. More parents of early readers consciously focused their children's attention on relevant distinguishing characteristics of print. While reading to their children, parents of early readers more often pointed out and explained words and checked their child's understanding of the story. Parents of nonreaders did often read to their children but in doing so directed attention to the meaning of the story and focused on pictures rather than print.

The implications arising from the results of the study for parental involvement in reading-related activities and for future directions in early childhood education and kindergarten programs are discussed.

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INTRODUCTION

The early childhood period (age 0-4) has been viewed as critical for intellectual development (e.g., Bloom, 1980; Hunt, 1961; Jenson, 1969; Piaget and Inhelder, 1969; Weikart, 1981; and Weinberg, 1979). According to Bloom, fifty percent of a child's intellectual growth occurs during the first four years, before formal schooling is initiated. Because of the rapid growth in intelligence in the early years, research has stressed the importance of early environmental experiences (eg. Hunt, 1972; White and Watts, 1973).

The importance of learning experiences during early childhood has profoundly affected educational approaches, not only in terms of preschool intervention programs but also in terms of attitudes toward parental roles in children's early learning (Clarke - Stewart, 1981).

The purpose of the present study was to examine specific skills and knowledge about reading acquired during early childhood, with emphasis on children who have already learned to read. Throughout this study, children who learned to read before they entered kindergarten are referred to as early readers, and this early childhood period is referred to as the preschool period.

It is argued here that the preschool period is critical to the development of reading skills and that reading development varies according to the reading-related experiences children encounter during this time. Research has shown that skilled reading involves mastering a hierarchy of subskills, and failure to acquire prerequisite skills

during reading acquisition may prevent or seriously delay the learning of more complex skills (Guthrie, 1973; Mason, 1977; Venezky, 1976).

Acquisition of reading skills does not begin at any given age, nor is it accomplished within a specific time period such as grade one. These skills can develop at a very young age (Chall, 1967, Forester 1977; Mason, 1981). In fact some children learn to read long before grade one (Durkin, 1966; Clark, 1976; King and Friesen, 1972; Plessas and Oakes, 1964; Stevens and Orem, 1968; Torrey, 1969).

Variability in reading performance prior to formal instruction may be traced to the home environment and parental involvement. Children who participated in specific reading experiences in their home, with the help and support of parents, displayed increasing skill development (Durkin, 1966; Hewison and Tizard, 1980; Mason, 1980). There is also growing evidence that children's later reading performance can be influenced by experiences before formal schooling (DeHirsch and Jansky, 1966; Durkin, 1966; Jackson and Myers, 1980; Mason, 1979). According to some researchers "differences in reading performance relate to stable characteristics of the student which predate entrance to school" (Calfee, Arnold, and Drum, 1976, p. 66). Early reading ability has been shown to have a continuing positive effect on children's learning (Clark, 1976; Durkin, 1966; Plessas and Oakes, 1964; McCracken, 1966; Stevens and Orem, 1968).

Variability in reading development may also derive from the kindergarten programs in which children participate. The British Columbia Kindergarten Needs Assessment (Mayfield, 1980) showed that policy decisions regarding reading and reading readiness are generally left to the individual teacher's discretion. Without defining "reading readiness", the author reported that 92% of responding teachers stated that they did not have formal reading programs, but 61% of those teachers said that they did have formal reading readiness programs. Eight percent were undecided and it was suggested that this group was unsure about what constituted a formal reading readiness program. From these data, it is clear that children receive varying degrees of reading instruction in kindergarten. Thus, at the onset of formal reading instruction in grade one, some children will have acquired reading skills from their preschool or kindergarten experiences, while others may not have acquired any. Prior experience is important since a child's previous knowledge determines how new information is encoded and also the strategies that will be used for subsequent learning (Barr, 1974; Falmagne, 1980).

In the present study, a group of children who learned to read before entering kindergarten was identified. The word and letter knowledge of these early readers and a comparison group of nonreaders was examined at the beginning of kindergarten. In addition the preschool environment of both early readers and nonreaders was studied.

in order to identify features associated with early reading development. In particular, the influence of parental involvement on early reading acquisition was investigated. Finally, changes in reading skills and knowledge over the kindergarten year were looked at.

Several researchers have previously studied children who were identified as early readers. Durkin (1966) distinguished groups of early readers in California and New York and investigated their family backgrounds and home environments. However, her sample came from a grade one rather than a kindergarten population. King and Friesen (1972) compared differences in family background, preschool experiences and other variables associated with reading. A group of readers attending Calgary kindergartens was compared with selected nonreaders. The readers were identified two months before the end of kindergarten while the readers in the present study were identified at the beginning of kindergarten in order to examine reading-related skills acquired during the preschool period. Clark (1976) looked at the reading skills, home background and school progress of children who were considered fluent readers upon starting kindergarten in Scotland. However, no comparisons were made with nonreaders. Like Mason (1977) the present study investigated letter and word development in the general kindergarten population. However, this study focused on early readers.

Specific Questions to be Addressed in the Study

1. What skills and knowledge about reading do children exhibit upon entry to kindergarten?
2. What proportion of the population of children beginning kindergarten can be identified as early readers?
3. How do early readers differ from nonreaders in their word and letter knowledge?
4. How does the word and letter knowledge of the reading and nonreading groups change over the kindergarten year?
5. What are the similarities and differences in the preschool environments of early readers and nonreaders? In particular:
 - a) In which reading-related activities do children participate independently?
 - b) What do parents do to promote reading skill development?
 - c) Are certain reading-related activities more effective in fostering reading skill acquisition?

LITERATURE REVIEW

In order to determine those factors contributing to early reading, the investigation of the literature focuses on the following: the knowledge, skills and strategies related to reading acquisition; the kinds of activities in which early readers participate on their own and the role others play in reading acquisition; and other characteristics of the preschool environment which foster early reading.

Knowledge, Skills and Strategies Related to Reading Acquisition

The basic objective of reading is to gain information and meaning from print (Resnick and Weaver, 1979). When reading is fluent automatic behavior, this objective can be attained. In order for children to become skilled readers, they must learn to decode print; that is, they must learn the relationship between letters of written language and sounds of spoken language, or the relationship between graphemes and phonemes (Chall, 1979).

Reading development is conceptualized by Chall (1979) as a progression through hierarchical stages. At each stage readers relate differently to print. The first three stages which encompass beginning reading are: Prereading Stage, Initial Reading or Decoding Stage, and Confirmation, Fluency, Ungluing from Print. While ages and grades are given for the different stages, Chall emphasizes that

they are only approximations and that some individuals may achieve an advanced level at an early age.

Chall's stages of beginning reading are described in this section because they provide useful guidelines for the discussion of the knowledge, skills and strategies that children learn during reading acquisition. The Prereading Stage is discussed in terms of linguistic awareness, the Decoding Stage in terms of graphic awareness, and the Ungluing, From Print Stage in terms of the synthesis of graphic and contextual information.

The Prereading Stage (Birth to Approximately Age 6)

Throughout the Prereading Stage, children learn about letters, words and books, develop some proficiency in the grammar of their language, and increase their vocabulary. Progress in the syntactic and semantic aspects of language is accompanied by the acquisition of other important insights into their language. For example, children realize that words can be sounded out into parts and some parts of words can be interchanged with others (e.g., dog, log). Conversely they realize that words are made up of distinct parts and sounds which are blended together (Chall, 1979).

Ehri (1979) described these insights into language as aspects of linguistic awareness. Children become linguistically aware when they discover the relationship between speech and print. Ehri discussed a

variety of linguistic insights including the relationship between reading development and word consciousness.

Word consciousness is the knowledge that words are discrete units of language and, according to Ehri, emerges as a result of children's experience with printed language. As children interact with print, words are perceived as units of print as well as units of speech and consequently printed words and word parts are matched with their spoken counterparts. Also, children begin to consider the syntactic and semantic aspects of words.

Ehri suggested three ways in which children can become word conscious. One is that, as they interact with print, children see that sentences conveying a message are made up of word units. Second, it is possible that word consciousness develops as children read word by word and remember the printed forms of words read. Third, learning how to spell words may enable children to represent word sounds with their printed forms.

Mason (1981) also described knowledge about language that children must learn in order for reading acquisition to occur: Reference, Phonological Awareness and Labels and Rules. According to Mason, children must be able to perceive the corresponding features of speech and print. Mason refers to this as Reference, noting that "When the child begins to try to read, discrete units of print must be referenced to speech and objects" (p. 4). This is often initiated through attention to environmental clues (e.g., the Golden Arches).

As parents repeatedly point out "That sign says McDonald's" children associate the spoken words with the printed symbols. With repeated exposure, children gain the insight that the message can be obtained directly from the print.

Children must also learn about the relationship between letter symbols and words. This is referred to as Phonological Awareness and may begin to develop as children associate consonant sounds with the beginning grapheme in words. Eventually children learn to relate the many orthographic patterns to their corresponding sound patterns.

Third, children must acquire Labels and Rules needed to carry out the reading act, for example, "turn to page 6", "read the last sentence" and "look at the title of the book". In addition, they must learn the rules which direct the reading process such as reading from left to right, and that punctuation and spaces between letters provide important information.

Referencing, Phonological Awareness and Labels and Rules most closely correspond to those concepts Chall describes as initially acquired during the Prereading Stage. However, Mason emphasized that while these three types of knowledge first emerge in the Prereading Stage, they continue to play an important role throughout reading acquisition.

Initial Reading or Decoding Stage (Ages 6 - 7)

Once children understand that words and messages have printed correspondents, they must "learn an arbitrary set of letters and associate these with the corresponding parts of spoken words". (Chall, 1979, p. 39). During this stage children must learn that each sound in oral language can be matched with a letter or letter group in written language and relate this knowledge to the spelling system. They must realize that each word consists of a limited number of sounds and then be able to identify these sounds regardless of their position in a word (e.g., wash, shop) or what context they are in (e.g., make, walk).

While Chall stated that the major undertaking for children in the Initial Reading Stage is to learn letter combinations within printed words and associate them with their spoken correspondents, Ehri (1971) stressed that the first and largest obstacle beginning readers must overcome is word identification.

Since the beginning reader knows only one way of representing words, as sounds in speech, he must necessarily depend upon print-speech word relationships in his attempts to recognize graphic patterns. (p 14)

In discussing children's development of word recognition skills Ehri suggested that, initially, words must be within meaningful contexts if beginning readers are to identify them accurately. After children are able to recognize a few words from their graphic forms,

they can use the syntactic and semantic information provided by these known words to identify unknown words. The number of familiar printed words increases as the identities of words that are seen repeatedly are guessed correctly.

To the extent that phonological, syntactic and semantic information is amalgamated with the graphic features of words, and to the extent that this is represented and stored as one unit in his lexicon, the reader acquires a very rich base for discriminating among printed words and instantly recognizing their identities. (p 16)

Like Ehri, Venezky (1976) considered word recognition to be of primary importance in reading acquisition. He discussed two aspects of word recognition, sight-word recognition and decoding. Sight-word recognition involves the "visual discrimination of letter strings, association and retention of labels for these strings and the ability to retrieve and articulate labels when appropriate stimuli are shown" (p. 167). To accomplish this task, children must be able to match letters, consider how letters are ordered and attend to the entire word before making a decision about the word.

When children decode words (as differentiated from recognizing words by sight) they must consider the sounds of different letters and letter groups as well as their visual representations (Venezky, 1976). They must distinguish letters and their corresponding sounds and blend sounds together to form a word. When children sound out a word, they must be able to perceive and produce the sounds making up the word.

They must also be able to perceive sounds in various words which are the same or different; for instance, the "a" sound in ball, tall and small is identical but it is different in can and cane.

It is apparent that children entering Chall's Initial Reading Stage have few word recognition skills. Chall (1979) points out that this stage is sometimes referred to as "a guessing and memory game" (p. 39), probably because, at first, children rely more on syntactic and semantic cues for word recognition than on print. However, as children progress in their reading development, they learn to use the graphemic cues.

Biemiller (1970) showed how children's reliance on syntactic and semantic cues moves toward reliance on a combination of graphemic and contextual information. Biemiller examined oral reading errors of grade one children and found that their reading development proceeded through three phases. Initially children seemed to depend on their semantic and syntactic knowledge for recognizing words. In the second phase, when children came to an unknown word, they either did not respond or made errors which seemed to be graphically but not necessarily semantically related to the printed word. In the third phase, children continued to focus on graphemic information but they now combined this with semantic information. All children seemed to go through these phases in the same order with better readers progressing faster. Poorer readers did not seem to discover how to make use of graphemic information and persisted in making substitution

errors based on meaning and syntax. It follows from Biemiller's analysis of reading errors that, if children are to progress, reliance must be shifted from semantic and syntactic information to graphemic information to such an extent that they become "glued to print" (Chall, 1979, p. 41).

Confirmation, Fluency, Ungluing from Print (Ages 7 - 8)

In the Ungluing from Print Stage, the content of what children read is already known to them so that they can focus on the print rather than on the meaning. In this way, as they interact with print, children can combine the decoding knowledge learned in the Initial Reading Stage with the redundancies they encounter in the oral and written language (Chall, 1979). Examples of redundancies in written language are: feature redundancy in individual letters, redundancy in spelling patterns and redundancies in the way words are combined (Smith, 1971).

Unlike the Initial Reading Stage in which children focus their attention on graphemic information for word recognition (glued to print), in this stage words become so familiar that word-recognition requires little of the reader's attention; thus, children become "unglued from print". Continuous exposure and practice with print leads to automatic recognition of words and word meanings so that children can attend to comprehension (LaBerge and Samuels, 1974).

Mason (1976) explained how children develop effective strategies for using graphemic information. She proposed an acquisition model of decoding strategies to describe the kinds of errors children make as they learn to read. In examining children's errors, she noted that they first made errors in consonant sounds, guessed many words or did not respond. Next, children made errors in which short vowels were overgeneralized. Finally, they made errors in which long vowels or vowel digraphs were overgeneralized.

Mason's study showed that, as children progressed, they used different strategies which reflected better understanding of the rules of spelling-to-sound correspondence. It is the discovery of these rules of orthographic regularity in the English language which enable children to advance from recognizing simple letter combinations to more complex ones.

In summary, Chall's levels of reading acquisition can be differentiated by the word-recognition strategies children use. In the Prereading Stage, environmental context cues are used rather than graphemic information. In the Initial Reading Stage, children are becoming aware of the complexities of printed words and are competent with simple features of print such as letter names, consonant sounds and familiar words. In the Ungluing from Print Stage, children become more adept at recognizing letter combinations, vowel-sound regularity and consonant-vowel clusters.

This shift from reliance on contextual cues in the Prereading Stage to graphemic cues in the Initial Reading Stage to a combination of graphemic and contextual cues in the Ungluing from Print Stage can be described as a progression from "learning to read to reading to learn" (Chall, 1979, p. 42). Children at this stage know enough about graphemic information to shift their focus away from it.

A recent study by Mason (1980) on the knowledge, skills and strategies in children's reading acquisition seems to closely parallel the stages described by Chall. In Mason's study, children's reading development was characterized by three levels of word reading: Context-Dependency, Visual Recognition, and Letter-Sound Analysis. At the first level, children attend to the environmental context in which the word is embedded rather than to the features of the letters in the word. While they know some signs and labels, such words are not easily recognized out of context. Alphabet letters are seen as discriminable patterns but children have not yet mastered letter name recognition. They are beginning to learn how to print and recite the alphabet.

At the second level, Visual Recognition, children realize that letter shapes are vital for word identification. Children begin to read a few words from books, to print and spell short words and sometimes try to read new words.

At the third level, Letter-Sound Analysis, children know how most letters are sounded in one syllable words and use a sounding-out strategy to identify words. They understand the more common vowel sound and letter-cluster-to-sound regularities. Mason refers to Level Three children as readers.

Another important aspect of Mason's (1980) findings was the identification of a hierarchy of knowledge development as children learn to read words. First there is recitation, naming and printing of letters. Shortly afterwards, signs and labels are read, particularly those which are important, conspicuous or frequently seen such as proper names, food labels and traffic signs. Next, as children focus more specifically on individual letters and letter combinations, concrete nouns and function words are read. Finally, multisyllable words and abstract nouns are read. Mason suggested that few preschool children recognized multisyllable and abstract nouns because extensive knowledge of letter-sound regularity and letter-cluster structures is required.

Chall's stages and Mason's levels are distinguished by the ways in which children interact with print. Having realized that there is a relationship between the oral language they already know and the print they see around them children must recognize words as individual units that can be separated from their meanings (Ehri, 1978). Children must also make efficient use of both the graphemic and contextual information available to them in order to gain meaning from print, the main objective of reading.

Early Readers : Activities in the Home Environment

Formal reading instruction usually begins in grade one when the educational system deems the average child "ready" (at approximately 6 years old). Yet it has been shown that some children start kindergarten or grade one already reading (Clark, 1976; Durkin, 1966; King and Friesen, 1972). How is it that some children learn to read without formal instruction while most children do not, and they do so at an age which is generally considered too young for learning this complex task?

Unlike reading acquisition, children normally learn to speak at a very young age and with very little effort. This occurs because language is functional for communication of basic needs, and because children are immersed in a rich verbal environment in which they receive constant feedback and reinforcement (Goodman and Goodman, 1979). However, reading is not essential for young children to express their needs, nor are children usually immersed in an environment rich with print. Thus it cannot be assumed that reading will develop with the same apparent ease as speech.

According to Stevens and Orem (1969), the majority of children do not interact with the print in their environment. Some children learn to recognize large captions in books and on such objects as cereal boxes because the print is prominent and they are repeatedly exposed to it. If repeated exposure to a rich print environment were

available to many children during the preschool years, perhaps more would learn to read without formal instruction.

A number of studies have focused on children's preschool experiences and the role parents play in fostering reading development (Clark, 1976; Durkin, 1966; King and Friesen, 1972; Mason, 1980; Plessas and Oakes, 1964; Torrey, 1969). In these studies, children have been identified at different ages and with various selection criteria; however, they all provide useful descriptive information about the activities in which early readers participate. Two studies (Durkin, 1966; Plessas and Oakes, 1964) involved children in the United States who were identified as early readers at the beginning of grade one. Parents in Durkin's (1966) study stated that their children participated in the following reading-related activities: children moved through the sequence of scribbling and drawing to copying objects and letters of the alphabet; they asked questions about how to spell words when they printed. Many of these children were described as having interests which were indulged for long periods of time (e.g., copying people's names and addresses, and remaking calendars). These children listened to many stories and asked questions about what words said, particularly in stories that were reread. Many children attended to whole words seen on television; they watched quiz programs, commercials and weather reports. Many early readers were interested in and asked questions

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about words found on outdoor signs, food packages, menus, phonograph records, cars and trucks. Fewer of Durkin's early readers played with toys; they liked to play alone and when playing with other children, played quiet games. Many went to nursery school and played school at home.

Durkin also reported that parents of early readers helped their children with the following: printing, identification of written words, the meaning of words, spelling and the sound of letters. Many parents read to their children, pointing out words and telling children how to sound them out. They answered many questions about word meanings and spelling. They bought books, workbooks, blackboards and other writing materials. Mothers suggested that they were readily available when help was wanted.

In Plessas and Oakes' (1964) study, parents of 20 early readers whose teachers reported that they were reading at a primer level upon entering grade one were asked to fill out questionnaires. They responded that early readers participated in the following activities: using books in play; attending to signs, questioning about words, letters and numbers; pretending to read; recognizing words on the television screen; learning the alphabet; printing their own name; and copying printed materials.

Like Durkin, Plessas and Oakes examined the role of parents in early reading development. Nearly all parents read to their children on a daily basis and involved them in the following activities: using

preprimers, dictionaries and flashcards; associating letters and sounds; and playing alphabet games. According to parents, nine of the 20 children were reading before they entered kindergarten. While the kindergarten program was not discussed in this study, it can be assumed that the 11 children who learned to read during kindergarten did so as a result of either continued parental help, the kindergarten program or a combination of these.

A study by King and Friesen (1972) in Canada provided information about a group of 31 children who were reading at the end of kindergarten. At the end of the school year these children were designated by their kindergarten teachers as readers. They also scored at the grade one level or higher on the Word Recognition and Word Analysis Subtests of the Durrell Analysis of Reading Difficulty. Parents reported that these children generally favoured quiet activities such as printing, playing word games and spending time with books. While all children watched television, only four said it was a preferred activity.

Twenty-six of these children had received help in learning to read at home, four received very little help and one no help. Home assistance included teaching letter sounds and names, telling specific words upon request, vocabulary training, and encouraging children to print words.

Both Clark (1976) and Torrey (1969) focused on children who were reading when they started kindergarten. Clark's study in Scotland

involved a sample of 32 early readers who had a reading age of over 7.5 on standard reading tasks. Similar to parental reports in the previous studies (Durkin, 1966; King and Friesen, 1972; Plessas and Oakes, 1964), children were described as displaying interest in environmental print, watching television, visiting the library and listening to stories read by parents. Clark also stated that these early readers read a variety of materials including nonfiction, fiction, comics and daily papers. In addition, she described reading strategies used by these early readers. When children read by themselves, they would deal with strange words by asking for help from someone or by sounding them out. If help was unavailable, they would go on to the next word and see if they knew it, spell it out, keep trying or skip it. The environments of these early readers were characterized by the presence of adults who were willing to provide instant encouragement in reading.

Torrey (1969) presented an interesting case study of a five year old child from a disadvantaged background who entered kindergarten reading grade three level books. According to his mother, this child had learned to read early on his own without the benefit of parental assistance. This child had watched a great deal of television, read labels on cans and boxes, printed, spelled and sounded out words. In this case, these preschool activities, not parental support, seemed to be critical in the development of this child's early reading ability.

Mason (1980) studied the development of reading knowledge in four year old children. Her sample consisted of 38 middle-class children who were attending a university operated nursery school where they received reading instruction through a language experience approach. In Mason's sample, one child at the beginning of the year and four at the end of the year were considered early readers. According to Mason, the early readers had arrived at a stage where they could recognize multisyllable words and abstract nouns. Presumably, these children were reading because their parents were aware of behavior which promotes reading at an early age, and indeed they had provided parental support. For example, they identified words often seen in the environment, answered questions relating to television programs, and encouraged their children to recognize letters and words. However, generalizations from Mason's study must be made with care because her sample involved only middle-class children who were receiving some instruction.

In summary, the preceding research seems to support Clarke-Stewart's (1981) statement that "Parents are the most important influence on children's development and the early years are the most important period" (p. 47). The preschool activities of most early readers described in the previous literature facilitated reading acquisition by meeting Stevens and Orem's (1969) conditions: exposure to strong, clear visual input in the preschool environment and constant encouragement by parents to interact with print. A few

exceptions have been reported (King and Friesen, 1972; Torrey, 1969) which showed that parental assistance is not an essential condition for reading acquisition. However, the common denominator in all studies of early readers was children's repeated practice in specific print-related activities.

Early Readers: Other Aspects of the Preschool Environment

While the home is the most obvious and pervasive setting for reading skill development during the preschool years, some children learn in programs provided by outside agencies (e.g., daycares and nursery schools), through projects involving cooperation between the home and school, or by watching television.

The importance of the early years for later development influenced the creation of early intervention programs such as Head Start (Lazar and Darlington, 1979). Head Start was built on the assumption that early education, parental involvement and the provision of medical and social services could enable children of low income parents to do as well as their middle-class peers. Lazar and Darlington (1979) investigated whether early intervention programs had a significant long-lasting impact on less-advantaged children. There were three groups of studies from which data were drawn. One set of studies considered centers outside the home which provided nursery school programs with varying degrees of structure; parents were kept

informed but were not actively involved in the day-to-day educational program. A second set was home-based studies which aimed educational efforts toward parents, usually the mother; activities, toys and games were brought to the home by a parent educator or home visitor who showed the mother how to use the activities and how to interact with her child in ways which promoted development. The third group of studies combined these approaches with a center-based nursery school program and periodic home visits involving both parent and child.

The authors used as a criterion for success the likelihood of meeting minimal requirements of later schooling. They concluded that children did benefit from preschool programs such as Head Start and that this finding was not due to initial differences in sex, ethnicity, early intelligence or early family background. When trying to determine which type of preschool program was effective in avoiding placement in special educational classes, they found that five characteristics were most important for success: age of child's entry into the program, home visits, program goals for parents, parent involvement and the number of children per adult.

In addition to parent involvement and preschool programs, television can provide children with a rich source of knowledge about reading. Some early readers such as the one in Torrey's case study, gain a great deal of letter and word knowledge from watching television commercials. In commercials, words are frequently displayed accompanied by a voice that pronounces them and shows the

objects to which they refer. The attention of the child is seized by the movement and transformation of the words, and there is repeated pronunciation, either spoken or sung (Torrey, 1979).

Television shows such as "Sesame Street" and "Electric Company" selected a phonics approach for teaching beginning reading (Resnick and Weaver, 1979). Young children watching these shows can learn names of letters, the relation of letters to sounds and how they are combined to form words. This early instruction in phonics can provide children with sufficient skills to become independent readers at an earlier age.

While there are many individual differences among early readers and their preschool environments, there are certain factors which make some environments more positive than others for learning to read. Teale (1978) described four conditions pertaining to reading acquisition which contribute to an ideal reading environment. First, the availability and range of printed materials in the home such as books, labels and signs facilitates children's perception of the function of print. Second, exposure to environmental print outside the home further increases children's understanding about the function of print. Once children realize that print is a form of communication, they should go on to develop a curiosity about what it means. Third, the environment should provide contact with paper and pencil, since, for many early readers, learning to print and learning to read/seem to develop simultaneously. Fourth, people in children's

environment should be responsive to their questions, curiosity and interest in learning to read. They can provide necessary feedback to help children determine which of their interpretations of print are correct and also emphasize relevant information to stimulate further development of word and letter knowledge. Most important, they can give children encouragement and social reinforcement to foster interest in and enjoyment of reading.

Hypotheses

1. It is hypothesized that children entering kindergarten will display a wide range of skills and knowledge about reading. A proportion of these children will enter school already reading (early readers); a proportion will enter school with little or no knowledge about reading; the large majority will have acquired some reading-related skills.
2. It is hypothesized that early readers will be distinguished from nonreaders by:
 - a) Specific reading-related activities they have experienced during the preschool years.
 - b) Parent involvement in specific reading-related activities.
3. Early readers will display substantial growth in reading skills over the school year; the group with little or no knowledge will display the least amount of growth.

METHODOLOGY

Kindergarten children in the North Vancouver School District were given a reading skills test, the Letter and Word Reading Test (LWRT) (McCormick and Mason, 1981) at the beginning of the 1981 school year in order to examine specific letter, sound and word knowledge. A group of early readers and a comparison group of nonreaders were identified, and their parent(s) were interviewed about the children's preschool environments. Interviews with the children were also conducted to determine their understanding of reading terminology, and readers were asked about their word identification strategies. Finally, a five minute reading-related interaction between parent and child was taped. In May, 1982, the LWRT was readministered to the children in the reading and nonreading groups.

Sample

Kindergarten children, families of these children and kindergarten teachers provided the main sources of information for this study. The North Vancouver School District contains 33 elementary schools with about 9,300 students and 520 teachers. Twenty-eight elementary schools (48 kindergarten classes and 33 teachers) participated in the pretesting phase of the study while the remaining five chose to be excluded. North Vancouver serves a heterogeneous socioeconomic population and its economy is based on retail outlets, sawmills, ship building, port facilities and manufacturing.

Measurement Instruments

Both formal and informal measures were used in this study. Formal measures consisted of the subtests of the LWRT (McCormick and Mason, 1981) which provided specific information about the children's reading ability and knowledge. Informal measures consisted of Parent Interviews, Child Interviews and Parent-Child Interactions which provided general information about the children's preschool reading-related experiences and reading strategies. Table 1 presents summary information about subjects and date of administration for each instrument.

Letter and Word Reading Test [LWRT] (McCormick and Mason, 1981)

The purpose of the LWRT is to assess young children's prereading and beginning reading knowledge. This test can provide diagnostic and placement information for beginning reading instruction (Mason, McCormick and Hall, n.d.). It is given individually and takes approximately ten minutes to administer.

The selection of test items in the LWRT is based on the content domains of letters, letter sounds and common words from signs, labels and primers. An individual may use the LWRT as published (McCormick and Mason, 1981) or may modify the test by selecting different items from the content domains specified by Mason and McCormick (1979).

Table 1

Summary of Information Collected

Instrument	Administered to	Date of Administration
LWRT	Kindergarten children in North Vancouver School District	(Pretest) September, October, 1981
	Children in reading and nonreading groups	(Posttest) May 1982
Parent Interviews (to examine preschool environment)	Parents of children in reading and nonreading groups.	January, February, 1982
Child Interview	Children in reading and nonreading groups	January, February, 1982
Parent-Child Interaction (reading-related)	Parents and children in reading and nonreading groups	January, February, 1982

The test used here was similar to a version used in a Vancouver study (Mason, personal communication) and consisted of nine subtests (see Appendix A). Six subtests, Label and Sign Identification, Spelling, Letter Name Identification, Common Word Identification, Consonant Sound Identification and Vowel Sound Identification describe specific letter, word and sound knowledge. The Label and Sign Identification and Common Word Identification Subtests were devised by the author for the present study. The other four subtests were used as published by McCormick and Mason (1981).

The remaining three subtests, Picture Story, Printing and Book Handling, are designed to provide descriptive information about children who have not yet begun to read. The Picture Story provides information about children's ability to relate pictures to graphic information (Mason, personal communication). The Printing Subtest indicates children's ability with paper and pencil, and the Book Handling Subtest reveals how children use a book (Mason, 1981). Following is a description of the nine subtests administered in the study.

Label and Sign Identification. This subtest measures children's attention to printed words in the environment and their ability to match phonemes heard in words to printed letters. Words selected for this subtest must meet the following criterion: familiar words from signs, labels or frequently printed names.

The subtest used in the present study was revised from McCormick and Mason's (1981), in that print was separated from environmental context during word identification. McCormick and Mason's Word Identification Subtest consisted of eight cards displaying a picture (cat) along with four printed words or nonwords which included: the correct name of the picture (cat), a word in which only the vowel was different from the correct answer (cot); a word which had only the correct initial letter (cur); and a word which had no letter in common with the correct word (ber). Because a multiple-choice format was used, some children made either a right-most or left-most response. Thus, this subtest was deleted from their analysis because of invalid information.

In the present study, print in an environmental context (e.g., a box of Crest toothpaste) was shown at the beginning of the testing session (Label and Sign Identification, Subtest A) while print in isolation (e.g., the word Crest on a flashcard), was shown near the end of the testing session (Label and Sign Identification, Subtest B). Children's ability to name items shown to them in Subtest A indicated whether these labels and signs met the criterion of familiarity. However, no score was given for this subtest because the presence of context made it unclear whether children's responses were actual measures of attention to print. Therefore Label and Sign Identification, Subtest B, was given to ensure children were recognizing printed words.

For Label and Sign Identification, Subtest A, fifteen items such as a box of Cheerios or a picture of a bottle of Coke were shown to each child, one at a time. When possible, actual examples of items were used; otherwise, a facsimile of the product, box or logo was drawn. Children were asked to name each item.

For Label and Sign Identification, Subtest B, a flashcard was presented on which the word embedded in the signs or labels shown in Subtest A was printed. Two sets of flashcards were prepared; one set had words printed in logo format, the second in standard format. Words in logo format were printed on cards exactly as they appeared on the sign, label or package (e.g., JELLO). Words in standard format were printed using upper and lower case, as the word or name appear in text (e.g., Jello). Children who did well throughout the previous testing were shown cards with words printed in standard format. If six words were successfully identified, the examiner did not use the cards in logo format. Children who did not do well in previous subtests or who identified fewer than six words in standard format were shown cards with words printed in logo format.

Three points were given for the correct choice, two for a word with the first and last letters the same as the correct choice but the vowel different (e.g., cat for Crest), one point for the same initial letter (can) and no points for no letters in common (Tim).

Spelling. This subtest measures children's ability to segment words into their phonemic representation and relate these to individual letters. Words selected for this subtest met the following criteria: two or three letters in length with a consonant-vowel-consonant (CVC) or vowel-consonant (VC) structure.

Each child was asked to spell four words, one at a time. Seven plastic upper case letters, five consonants and two vowels, were placed in a row. The child was asked to use the letters needed to make each word. One point was given for each letter in the correct initial, medial or final position.

Letter Name Identification. This subtest measures children's ability to name alphabet letters printed in upper and lower case. It also provides an indication of letter discrimination ability. Letters should meet the following criteria: frequently used letters should be selected; one or two confusable letter pairs such as b-d or t-f should be included so that any reversal or confusion errors can be observed. At least ten letters should be selected, and they should be the same for upper and lower case.

Ten letters in upper case and the same set in lower case but in a different order were printed on two cards. Children were asked to point to and name each letter on both cards. A point was given for each letter identified correctly.

Picture Story. This subtest measures children's ability to use graphemic information within a meaningful context in combination with pictures to identify words in a story. The version used here was described by Mason in a personal communication (1981). The story consists of five cards, the first of which has a picture of a car at a stop sign with the words "Stop car" at the bottom of the card. Cards two and three are the same except for the substitution of the pictures and words "truck" or "bus". Card four has a picture of a car, bus and truck at a stop sign with the words "Stop. Stop. Stop." at the bottom of the card. The last card shows a stop sign and a cat running onto a road in front of a car. On the bottom of the card are the words "Stop for the cat". The story was scored in two parts; one point was given for each word "stop" (7 points) and one for each of the remaining six words (6 points).

Common Word Identification. This subtest measures children's ability to decode isolated words, determining whether the children have begun to realize vowel and consonant sound combinations within words. The words for this subtest must meet the following criteria: words are to be 2-3 letters in length and should be selected from a listing of frequently used written words such as Dolch (1948). Common regular-vowel words and high frequency irregular words are included. Words were printed in lower case on separate cards and presented one at a time. One point was given for each word correctly read.

An additional part of this subtest, Common Words in Context, was administered to evaluate the effect of story context on word reading. Words from the list were presented, underlined, in two short stories. The test administrator read the story orally up to each underlined word, which the child was asked to read. Any word not known by the child was read by the administrator so that full contextual information would be available. A point was given for each word recognized in context which was not recognized in isolation.

Consonant Sound Identification. This subtest utilizes nonsense or low frequency words to measure children's ability to ascribe correct consonant sounds to letters. Results can also be used to provide diagnostic information about whether children decode in the correct left to right order. Criteria for selection of words are: all items must have consonant-vowel-consonant (CVC) structure; the same vowel should be used in all words; b and d should be included in the set for diagnostic purposes; each consonant should be tested in the first and last position; two different consonants should appear in each word; low frequency consonants should not be used.

Sixteen printed, lower case words were presented, one at a time, on flashcards. If a child was unable to read an item, he/she was encouraged to sound out those letters he/she recognized.

One point was given for the correct pronunciation of each consonant regardless of the order in which it was given; vowel pronunciation was ignored.

Vowel Sound Identification. This subtest measures children's understanding of regular vowel cluster-to-sound patterns. Criteria for selection of words are: each word set should begin with the same consonant and must be followed by a vowel or vowel cluster; the first five words must have a consonant-vowel-consonant structure and make up the short vowel component of this subtest. The next 15 words should test vowel digraphs and diphthongs, r-controlled vowels and the CVC spelling pattern and make up the nonshort component of this subtest.

Twenty printed lower case words were presented to each child, one at a time. One point was given for each correctly pronounced vowel or vowel combination; consonants were ignored.

Printing. This subtest measures children's ability to print alphabet letters. The child was given a piece of paper and pencil and asked to print (a) his/her name, (b) any other words, and, only if the child was unable to do so, (c) to print any two letters not included in his/her name. One point was given for each correct section (maximum = 3).

Book Handling. This subtest measures children's facility in book usage. Any book may be used which has a clearly defined front and back cover (instead of plain front and back covers).

Each child was handed a book upside down; the examiner observed whether he/she spontaneously turned it right side up. If not, he/she was directed to do so. Each child was then asked to identify various portions of the book: beginning, middle, end, top and bottom of the page, and page 5. Children were also asked to point to (not read) the first and last word in the story and the title of the book. One point was given for each item correctly identified.

Measurement Characteristics of the LWRT

The LWRT was used in the present study because it has been found to be a reliable and valid measure of young children's reading-related skills. Further, according to Mason and McCormick (1979), it is more highly related to grade one reading achievement than other reading readiness tests cited in Buros (1972), including the Canadian Reading Readiness Test.

In a study of the construction of the LWRT, Mason and McCormick (1979) reported the following:

- a) The overall test-retest correlation (.85) suggests that the content of the LWRT is appropriate for measuring kindergarten and grade one children's beginning reading knowledge.

- b) The subtest test-retest correlations which ranged from .55 (Picture-Word Matching) to .89 (Letter Name Identification) suggest an adequate range of difficulty of the test.
- c) The reliability of the test as a whole was very high ($KR_{21} = .95$).
- d) Predictive validity was examined through correlations between LWRT subtest scores and the Gates MacGinitie Vocabulary and Comprehension Subtests. It was found that the LWRT measures skills and knowledge which is directly related to beginning reading achievement.
- e) Analyses confirmed the validity of a hierarchical model of letter and word knowledge acquisition.

Parent Interviews

A parental interview schedule was developed based on those used by Durkin (1966) and Mason (1977). The following information about each reader's and nonreader's preschool environment was collected (see Appendix B):

Background Information - information about parents, child, family membership and language.

Preschool Activities - information about general kinds of activities in which the child participates (e.g., dancing, music, T.V. viewing).

Parent-Child Activities - information about activities initiated by
Which Promote Reading parents which may foster reading
development.

Parent Reports of - information about various reading-related
Children's Reading- activities in which children participate.
Related Activities

Child Interview

A short interview with each reader and nonreader followed the parental interview. The following questions were included:

1. Do you like school?
2. What would you do if you were reading a book and you got stuck on a word? (This question was asked only of readers).
3. What is a letter?
4. What is a word?
5. What is a sentence?

Questions 3 to 5 were asked to determine whether children had an understanding of certain reading terminology.

Parent-Child Interaction

Each reader and nonreader and their parent(s) were asked to participate in a routine reading-related activity such as story reading or a discussion. The interaction was tape-recorded for approximately five minutes. Measures obtained from tapes included:

1. The kinds of reading strategies used by children, such as sounding out, spelling, skipping a word and blending.
2. Parent teaching behavior such as correction, giving directions (e.g., Look at the word), asking questions, giving reinforcement and use of context.
3. Children's behavior and interest.
4. Children's reading performance (errors, intonation, speed and relevant physical activity).

Procedure

Letter and Word Reading Test [LWRT] Administration

Letters seeking permission to administer the LWRT were sent home with the kindergarten children of each of the 28 North Vancouver schools participating in the study at the beginning of September, 1981 (see Appendix C). Letters were returned by 628 children, and they were given the LWRT during the latter part of September and early October (pretest). The author and eleven trained examiners administered the test individually in a quiet spot in each school. An attempt was made to complete the testing as early in the school year as possible to ensure that the results reflected that word and letter knowledge which the children had brought to school.

Selection of Early Reading Group

McCormick and Mason (1981) identified as early readers and placed in the third level of reading acquisition, only those children whose scores on all subtests of the LWRT except Vowel Sound Identification were above 90%.

In the present study, selection procedures were modified slightly in consultation with Mason. This was because the LWRT was administered at the beginning of kindergarten and so the children were unaccustomed to testing. Performance on Common Word Identification may have been lower because of the arbitrary selection of a small group of words; children may have known other words not included in the test.

As previously mentioned in the literature review, Level Three children knew how letters were sounded in one syllable words and used a sounding out strategy to identify unfamiliar words. Performance on the Common Word Identification Subtest and the short vowel component of the Vowel Sound Identification Subtest reflected their ability to decode a considerable number of regular words and some irregular words--the typical definition of an early reader (McCormick and Mason, 1981).

Mason and McCormick (1979) described a Transition Level that fell between Levels Two and Three. Children in transition had mastered Consonant Sound Identification and Picture-Word Matching. They were more advanced than Level Two children in Short Vowel Identification and Common Word Identification. The authors suggested that they were not yet at Level Three but close to it.

Children in this study were designated as Level Three if their performance was at or above 90% on Label and Sign Identification, Spelling, Letter Name Identification, and Consonant Sound Identification and at or above 70% on Common Word Identification (Vowel Sound Identification was not considered). Children were designated as in the Transition Level if they scored at or above 90% on Spelling, Letter Name Identification and Consonant Sound Identification, at or above 50% on Label and Sign Identification and at or above 40% on Common Word Identification. Fifteen children who were in the modified Level Three or who were in the Transition Level were identified as early readers.

Selection of Nonreading Comparison Group

Studies have shown teachers to be at least as accurate predictors of student achievement as standardized tests (Glazzard, 1979; Mercer, Algozine and Trifiletti, 1979; Haung and Ridgeway, 1967; Brekke and Williams, 1973). To select a comparison group of children who were nonreaders but similar in language development and to avoid further testing of these young children, the teachers of children identified as early readers were asked to rank the students in their class(es) according to proficiency in language skills. Each teacher was given an outline of the skills to be considered in the ranking (see Appendix D). Such skills as alphabet knowledge, word meaning and derivation of meaning from written language were included. A rank of "1" was to be placed beside the name of the child most proficient in language skill,

a "2" beside the name of the child, second most proficient and so on until every child had been ranked. These rankings, along with sex and school, were used as criteria in selection of children for the comparison group. Ten nonreaders ranked by their teachers most closely in language to a reader in their class(es) made up the comparison group. By choosing nonreaders from the same class or school as the early readers, socioeconomic status was also considered since neighbourhoods around schools are usually homogeneous in their composition.

Parent-Child Interviews and Reading-Related Interactions

During January and February, 1982, the parents of the early readers and nonreaders were interviewed in their homes by the author at a time agreed upon by the parents. The child was to be at home during the interview so that a parent-child interaction could be taped and so that the child could be interviewed. The parent interview took approximately one hour to complete, the child interview about five minutes, and the parent-child interaction was recorded for five minutes. While the interview was being taped, the interviewer observed the interaction and made notes.

Post Testing

In May, 1982, all available readers and children in the comparison group of nonreaders were readministered the LWRT.

RESULTS

While the LWRT used in the present study consisted of nine subtests, not all were included in analyses performed. The Picture Story Subtest was deleted since Mason (1980) and McCormick and Mason (1981) did not report analyses of it. Further, examiners in the present study noted that it was unclear when children were using print or pictures to read the story. The Common Words in Context portion of the Common Word Identification Subtest was deleted from analysis. This was because children received a score only for words identified in context which were not identified in isolation, and there were insufficient data for analysis. Means and standard deviations are reported for six subtests: Label and Sign Identification, Spelling, Letter Name Identification, Consonant Sound Identification and Vowel Sound Identification. Since the tasks in the Printing and Book Handling Subtests were scored dichotomously (yes,no), only the percentage of children able to perform them correctly is reported.

Children's Entry Skills: LWRT Pretest

LWRT pretest results for all 628 kindergarten children are summarized in Table 2. The results indicated that the average child enters kindergarten with little word and letter knowledge. The amount of entry knowledge is reflected in the low mean scores on the

Table 2

LWRT Pretest Results

Variable	n	Mean Score	Standard Deviation	Range of Scores			
				Minimum Score Attained	% Attaining Minimum Score	Maximum Score Attained	% Attaining Maximum Score
Label and Sign Ident. (maximum possible = 30)	626	5.7	6.2	0	27.8%	30	1.4%
Spelling (maximum possible = 11)	628	2.2	3.1	0	50.6%	11	2.9%
Letter Name Identification (maximum possible = 20)	628	11.8	3.5	0		20	
Upper Case Letters	628	7.0	3.6	0	9.7%	10	40.4%
Lower Case Letters	628	4.8	3.5	0	19.9%	10	7.5%
Common Word Identification (maximum possible = 20)	628	1.0	2.1	0	71.0%	20	.8%
Consonant Sound Ident. (maximum possible = 32)	628	4.5	4.4	0	71.3%	32	2.1%
Vowel Sound Identification (maximum possible = 20)	628	0.4	0.9	0		16	
Short Vowels (maximum possible = 5)	628	0.2	0.8	0	91.4%	5	1.1%
Nonshort Vowels (maximum possible = 15)	628	0.2	0.9	0	94.0%	11	0 %

following subtests: Label and Sign Identification 5.7 (maximum score = 30); Spelling 2.2 (maximum score = 11); Common Word Identification 1.0 (maximum score = 20); Consonant Sound Identification 4.5 (maximum score = 32); Vowel Sound Identification 0.4 (maximum score = 20).

A further illustration of the low levels of word and letter knowledge is the large percentage of students who obtained the minimum possible score, zero (Table 2). In particular, on Vowel Sound Identification, over 90% of the students scored, zero. For the Common Word Identification and the Consonant Sound Identification Subtests, over 70% of the children obtained a score of zero. Finally, on the Spelling Subtest, 50% of the children scored zero.

Children performed at much higher levels on Letter Name Identification. In particular, on the Upper Case Letter Identification Subtest, less than 10% obtained a score of zero, while 40% obtained the maximum possible score. However, children identified fewer lower case letters; nearly 20% could identify no lower case letters and only 7% identified all ten letters.

The results of the Printing and Book Handling Subtests for the 628 kindergarten children are summarized in Table 3. While 73% of the sample could print their first name, only 30% could print any other word. Of those 70% who could not print any other word, 61% could print 2 letters other than those found in their name. On the Book Handling Subtest, the majority of children demonstrated understanding

Table 3

Printing and Book Handling

Variable	Percent of children (n = 628) able to perform task	
	<u>n</u>	Percent
<u>Printing</u>		
Name	459	73
Word	192	30
Letters	268	61*
<u>Book Handling</u>		
Right Side Up	521	83
Beginning	457	72
Middle	395	63
End	461	73
First Word	151	24
Last Word	139	22
Top Book	473	75
Bottom Book	476	76
Title	133	21
Page 5	384	61

* Only those children in the sample who could not print a word undertook the Letters part of the Printing Subtest. In this case there were 268 of the 436 children who could not print a word.

about the various portions of a book. However, fewer than 25% of the sample could point out the first and last word in the book or identify the title.

Identification of Early Readers

According to their LWRT scores, 24 children (3.8%) were identified as early readers. Within the early reading group, 17 children had characteristics of Level Three letter and word knowledge, and seven were in transition between Levels Two and Three (Mason and McCormick, 1979).

Some schools and teachers were not willing to be further involved because of time demands or reluctance to rank children's language ability. There were, therefore, 15 early readers who participated further in the present study; their LWRT performance is described below:

- a) Nine children scored above 90% on all subtests except Vowel Sound Identification
- b) Four children scored above 90% on all subtests except Vowel Sound Identification and Common Word Identification (these children scored 70% on Common Word Identification)
- c) Two children scored above 90% on Spelling, Consonant Sound Identification and Letter Name Identification; 70% on Label and Sign Identification; and 40% or above on Common Word Identification.

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Identification of the Nonreading Comparison Group

A group of 10 nonreaders was selected for purposes of comparison with the readers. The nonreading group was smaller than the early reading group by five children because:

- a) the mother of one nonreader failed to keep the interview appointment;
- b) an error was made in one case;
- c) in three cases, teachers were reluctant to rank children's language ability and therefore no nonreaders could be selected from these schools; however, the socioeconomic status characteristics of these three schools were similar to several of the other schools contributing both readers and nonreaders.

LWRT Pretest Results: Early Readers vs. Nonreaders

LWRT pretest results obtained for the 15 early readers and 10 nonreaders are summarized in Table 4. Early readers' scores, consistent with the criteria for their identification, approached the ceiling on most LWRT subtests (Label and Sign Identification, Spelling, Letter Name Identification and Consonant Sound Identification). On the other hand, nonreaders' LWRT scores indicated little letter and word knowledge. Only on the Letter Name Identification Subtest did they perform well.

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Table 4

LWRT Pretest Results: Early Readers vs. Nonreaders

Variable	Early Readers (n = 15)			Nonreaders (n = 10)				
	Mean	Standard Deviation	Minimum Score Attained	Maximum Score Attained	Mean	Standard Deviation	Minimum Score Attained	Maximum Score Attained
Label and Sign Ident. (maximum possible = 30)	26.8	3.7	19	30	8.7	5.9	0	20
Spelling (maximum possible = 11)	9.8	2.1	3	11	3.6	3.3	0	8
Letter Name Ident. (maximum possible = 20)	19.5	.8	18	20	16.1	3.7	7	20
Upper Case (maximum possible = 10)	10.0	0	10	10	9.1	1.6	5	10
Lower Case (maximum possible = 10)	9.5	.8	8	10	7.0	2.2	2	10
Common Word Ident. (maximum possible = 20)	15.9	4.5	8	20	0.7	1.0	0	3
Consonant Sound Ident. (maximum possible = 32)	30.6	1.8	26	32	11.9	11.5	0	28
Vowel Sound Ident. (maximum possible = 20)	6.9	3.8	2	16	.6	1.5	0	5
Short (max poss. = 5)	3.5	1.2	2	5	.2	.6	0	2
Nonshort (max poss. = 15)	3.3	3.5	0	11	.4	1.0	0	3

A one-way multivariate analysis of variance of pretest scores confirms the superior performance of early readers on all subtests: Label and Sign Identification, $F(1,23) = 92.1$, $p < .001$; Spelling $F(1,23) = 33.8$, $p < .001$; Letter Name Identification, $F(1,23) = 11.8$, $p < .005$; Common Word Identification, $F(1,23) = 107.8$, $p < .001$; Consonant Sound Identification $F(1,23) = 39$, $p < .001$; and Vowel Sound Identification $F(1,23) = 21.8$, $p < .001$.

The pretest results of the Printing and Book Handling Subtests for the 15 early readers and 10 nonreaders are summarized in Table 5. While all children in both groups could print their names, 93% of early readers but only 50% of nonreaders could print another word. All children in both groups who could not print another word were able to print two letters. On the Book Handling Subtest, most children in both groups demonstrated understanding about various portions of a book. However only 50% of the nonreaders could point out the first and last words while 93% of the early readers identified the first word and 100% the last word. Fifty percent of the early readers but none of the nonreaders could identify the title.

Table 5

Printing and Book Handling Pretest Results
For Early Readers and Nonreaders

Variable	Percent of children able to perform task			
	Readers (15)		Nonreaders (10)	
	<u>n</u>	Percent	<u>n</u>	Percent
<u>Printing</u>				
Name	15	100	10	100
Word	14	93	5	50
Letters	1	100*	5	100*
<u>Book Handling</u>				
Right Side Up	15	100	9	90
Beginning	15	100	8	80
Middle	15	100	9	90
End	15	100	8	80
First Word	14	93	5	50
Last Word	15	100	3	30
Top Book	15	100	10	100
Bottom Book	15	100	10	100
Title	8	53	0	0
Page 5	15	100	8	80

* Only those children in the sample who could not print a word undertook the Letters part of the Printing Subtest.

LWRT Pre- and Posttest Results: Early Readers and Nonreaders

There were 11 readers and 9 nonreaders for whom both pretest and posttest LWRT mean scores were available (see Table 6). A multivariate analysis was done to examine changes in the word and letter knowledge of the reading and nonreading groups over the kindergarten year (Table 7). Results indicated that early readers, as would be expected, scored significantly higher than nonreaders on all LWRT subtests and that all posttest scores were significantly greater than pretest scores.

The two significant interactions, Letter Name Identification and Consonant Sound Identification, were related to the fact that nonreaders gained in these two areas during the kindergarten year while early readers scored near the ceiling on both the pre- and posttests for these subtests.

To further examine changes in word and letter knowledge within each of the early reading and the nonreading groups, mean pre- and posttest scores were compared by means of a simple main effect analysis. Table 8 presents the multivariate and univariate F statistics. The multivariate F for early readers was not significant, $F(6,13) = 2.20$, $p > .10$. Thus, changes in individual subtests could not be examined. In contrast, the multivariate F for nonreaders was significant, $F(6,13) = 4.06$, $p < .05$. Further examination revealed that nonreaders made significant growth in four subtests, Label and Sign Identification, Spelling, Letter Name Identification and Consonant Sound Identification.

Table 6

LWRT Pretest and Posttest Scores, Early Readers and Nonreaders

Variable	Early Readers (n = 11)				Nonreaders (n = 9)			
	Pretest		Posttest		Pretest		Posttest	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Label and Sign Ident. (maximum = 30)	26.4	3.9	29.3	2.4	9.7	5.3	12.9	5.5
Spelling (maximum = 11)	9.5	2.3	10.6	0.9	3.8	3.4	7.6	2.4
Letter Name Ident. (maximum = 20)	19.4	0.8	20.0	0	15.7	3.6	18.4	1.4
Common Word Ident. (maximum = 20)	15.6	5.0	17.8	4.0	0.8	1.1	2.1	2.4
Consonant Sound Ident. (maximum = 32)	30.4	2.1	30.6	2.4	13.2	11.4	23.9	6.2
Vowel Sound Ident. (maximum = 20)	5.9	3.6	9.7	3.9	0.7	1.6	2.3	3.6

Table 7
Multivariate Analysis of LWRT Data

Source	Degrees of Freedom	Mean Square	F-Value
<u>Between Groups</u>			
(Readers vs Nonreaders)			
Label and Sign Id.	1	2721.3	99.1**
(Error)	18	27.5	
Spelling	1	193.8	29.9**
(Error)	18	6.5	
Letter Name Id.	1	70.7	15.9**
(Error)	18	4.4	
Common Word Id.	1	2312.3	106.5**
(Error)	18	21.7	
Consonant Sound Id.	1	1401.7	26.5**
(Error)	18	52.9	
Vowel Sound Id.	1	395.2	23.3**
(Error)	18	16.9	
<u>Within Groups</u>			
Time (Pretest vs. Posttest)			
Label and Sign Id.	1	90.7	9.0**
Spelling	1	58.7	12.5**
Letter Name Id.	1	27.3	10.0**
Common Word Id.	1	30.6	7.7*
Consonant Sound	1	291.3	10.8**
Vowel Sound Id.	1	74.5	13.2**

Table 7 Continued

 Group x Time

Label and Sign Id.	1	0.4	0.04
Spelling	1	17.9	3.8
Letter Name Id.	1	12.3	4.5*
Common Word Id.	1	1.8	0.45
Consonant Sound Id.	1	272.1	10.1**
Vowel Sound Id.	1	11.5	2.0
Error			
Label and Sign Id.	18	10.1	
Spelling	18	4.7	
Letter Name Id.	18	2.7	
Common Word Id.	18	4.0	
Consonant Sound Id.	18	27.0	
Vowel Sound Id.	18	5.7	

* $p < .05$ ** $p < .01$

Simple Main Effects Analysis of LWRT
Pre and Posttest Scores (For Early Readers and Nonreaders Separately)

	Degrees of Freedom	Mean Square	F-Value
<u>Readers</u>			
LWRT Overall	6	18.3	2.2
(Error)	13		
Label and Sign Id.	1	44.1	4.4
(Error)	18	10.1	
Spelling	1	6.5	1.4
(Error)	18	4.7	
Letter Name Id.	1	1.6	0.6
(Error)	18	2.7	
Common Word Id.	1	26.2	6.6*
(Error)	18	4.0	
Consonant Sound Id.	1	0.2	0.01
(Error)	18	27.0	
Vowel Sound Id.	1	80.2	14.2**
(Error)	18	5.7	
<u>Nonreaders</u>			
LWRT Overall	6	33.8	4.1*
(Error)	13		
Label and Sign Id.	1	46.7	4.6*
(Error)	18	10.1	
Spelling	1	64.2	13.7**
(Error)	18	4.7	
Letter Name Id.	1	34.7	12.7**
(Error)	18	2.7	
Common Word Id.	1	8.0	2.0
(Error)	18	4.0	
Consonant Sound Id.	1	512.0	18.9**
(Error)	18	27.0	
Vowel Sound Id.	1	12.5	2.2
(Error)	18	5.7	

* p < .05

** p < .005

Parent Interview Results

Interviews were arranged with the parents of the 15 early readers and 10 nonreaders. Parents and children were asked to decide whether the child would be present during the interview which, in all instances but one, were held while the child was at home. Except for two interviews which took place in the evening, all interviews occurred in the morning or afternoon. The same questionnaire was used for both reading and nonreading groups but questions not pertinent for nonreaders were omitted (See Interview Schedule in Appendix B).

Twenty interviews were conducted with mothers only. Both parents of three readers and one nonreader were present for interviews and, in the case of one nonreader, the mother and an aunt were present. There were no single parents.

Responses for each of the questions on the interview schedule are presented in Appendix B. Those items which were considered to be most important for the development of word and letter knowledge are described in this section. The responses to these items were analyzed using the Fisher Exact Probability Test to determine whether the early readers differed significantly from the nonreaders (see Table 9).

Background Information

Results of background information about parents, child and family membership indicated that for all these items, there were no significant differences between early readers and nonreaders.

Table 9

Results of Parent Interviews

	Early Readers (n = 15)		Nonreaders (n = 10)		Fisher Exact Probability Test
	Yes		Yes		
	<u>n</u>	%	<u>n</u>	%	
<u>Background Information</u>					
Father has college education	6	40	7	70	ns
Mother has college education	8	53	5	50	ns
Child has older siblings	11	73	5	50	ns
<u>Children's Preschool Activities</u>					
Attended nursery school for two or more years	10	67	3	30	ns
Watched TV less than 5 hrs	6	40	3	30	ns
Watched TV less than 10 hrs	13	87	6	60	ns
<u>Parent Reports of Parent-Child Reading-Related Activities</u>					
Discussed educational TV with children very often	7	46	2	20	ns
Read to children on a daily basis	10	67	3	30	ns
Explained words asked about while reading	15	100	5	50	*

Table 9 Continued

Checked comprehension of the story	13	86	3	30	*
Pointed to words while reading	11	73	1	10	*
Provided reading and printing activity workbooks	13	87	5	50	ns
Helped identify words	15	100	4	40	*
Helped with printing	14	93	5	50	*
Discussed sounds of letters	15	100	4	40	*
Identified numbers	15	100	6	60	*
Identified letter names	15	100	6	60	*
Helped with spelling	14	93	4	40	*
<u>Parent Reports of Children's Reading-Related Activities</u>					
Pointed out and named letters of the alphabet at play	15	100	5	50	*
Tried to identify a printed word by sounding out letters	13	87	2	20	*
Used both upper and lower case when printing	14	93	4	40	*
Spelled out letters in printed words	13	87	5	50	ns
Asked to have stories reread	13	87	6	60	ns
Listened to story records often	9	60	4	40	ns
Looked at books and magazines when playmates unavailable	14	93	4	40	*

ns = not significant

* $p < .05$

Children's Preschool Activities

There were no significant differences between early readers and nonreaders for children's preschool activities. However, there was a trend for early readers to have attended nursery school for a longer period of time than nonreaders; this comparison just failed to reach statistical significance.

Parent-Child Activities Which Promote Reading Development

Significantly more parents of early readers than nonreaders gave the following kinds of assistance when involved in reading-related activities with their child:

1. Explained words children asked about while reading
2. Checked children's comprehension of the stories they were reading
3. Pointed out words while reading
4. Helped identify words
5. Helped with printing
6. Discussed sounds of letters
7. Identified numbers
8. Identified letter names
9. Helped with spelling

There was also a tendency for more parents of early readers to read to their children on a daily basis and to provide reading and printing activity workbooks for their children; these two items just failed to reach significance.

Parent Reports of Children's Reading-Related Activities

Significantly more parents of early readers than nonreaders reported that their child took part in the following reading-related activities:

1. Pointed out and named letters of the alphabet while playing
2. Tried to identify a printed word by sounding out letters
3. Used both upper and lower case when printing
4. Looked at books and magazines when playmates were unavailable.

There was a tendency for more parents of early readers to report that their child spelled out letters in printed words; this item just failed to reach significance.

Child Interview Results

Fourteen early readers and 10 nonreaders took part in a short interview with the examiner after the parent interview. One early reader was at school during the time her mother was interviewed and no interview could be arranged.

In answer to the question, "Do you like school?" all children replied affirmatively except for one nonreader who replied it was "so-so". To determine children's understanding of reading terminology (labels and rules), children were asked to identify the terms letter, word and sentence. All children gave adequate examples or explanations of a letter and a word. However, none of the nonreaders could explain what a sentence was, and only six early readers could.

Examples of their explanations of a sentence included: "words put together" or "The kids went to the beach".

Only the early readers were asked what they would do if they came to a word they didn't know while reading a book. Eleven children stated that they would ask their father or mother; four children stated they would sound it out; three said they would spell it out; two said they would skip it and one said he would figure it out all by himself.

Parent-Child Reading-Related Interactions

Each of the 14 early readers and 10 nonreaders participated in a five minute reading-related interaction with one or both of their parents. While each parent and child were involved in this activity, the interaction was recorded on tape. A description of the behaviors exhibited during these interactions is summarized on the following pages.

Nonreading Group

The mothers of the 10 nonreaders participated in this interaction with their child. Nine mothers suggested that their child select a favourite book; one mother chose a book for her child.

Six children in the nonreading group listened quietly as mothers read to them. During these interactions, four children discussed

pictures and asked questions about word meanings and story content while two children remained quiet unless asked a question by their mother. Two other nonreaders repeated sentences after their mothers read them; the mothers pointed out that this was not the way they normally read stories. The remaining two nonreaders made up their own stories while looking at the pictures in the books. They "read" with enthusiasm, and their stories were logical and interesting. When finished they asked their mothers to read another story to them.

Throughout these interactions, children did not focus on the print in the books being read. Questions and discussions were about pictures visible on the page but not printed words. When children were not looking at pictures, they looked around the room or at their mothers' faces.

Parent Teaching Behavior. Except for one mother who seemed to prefer not to be interrupted while reading, generally, mothers answered questions about the stories when asked by their children.

All 10 mothers asked questions while reading; these questions generally pertained to details of a picture or to children's opinions about events in the stories. Three of the ten mothers asked questions about word meanings and then explained these words when children could not respond. One mother asked her child to predict what would happen next in the story and one pointed out that some words rhymed.


During six of these interactions, mothers did considerably more talking than the nonreaders, and initiated any interaction. The children seemed happy to listen passively but responded to questions asked with interest. It appeared that this was a time for children to cuddle next to mothers and relax.

Early Reading Group

Thirteen interactions involving the early reading group were between mothers and children while one was between a father and child. In all cases, books were chosen by the children who read aloud as each parent listened.

Twelve of the 14 children read their books aloud with appropriate fluency and intonation and only two children occasionally pointed to words as they read. One child read so quickly that he was difficult to understand; he stated that he did not like to read aloud because it slowed him down. In fact, he refused to read more slowly in spite of repeated requests from his mother. Another child read her book cautiously and at a slower rate than the others.

In all cases, it was apparent that early readers' attention was focused on the print. If there were pictures on a page children briefly glanced at them and seemed to enjoy them. Thirteen of the books selected contained some difficult vocabulary (e.g., chocolate frosting, buildings, champion and magician). The fourteenth book contained simpler vocabulary (e.g., one, cat). All children seemed to



enjoy the stories; this was apparent by their smiles and their total concentration on their books.

Word Identification Strategies. When early readers came to words they did not know, they would usually pause and try to figure out the word silently. If they were still unable to identify the word, they would then sound it out aloud and blend sounds together or spell out the word. When children made an error that did not make contextual sense, they attempted to correct it independently.

Parent Teaching Behavior. Early readers seemed reluctant to ask for help and so, as described above, they tried to figure out any unknown words independently. Parents interceded when they apparently felt their child was taking too long. They suggested sounding out words, and rereading the sentence. They emphasized graphemic detail (e.g., silent e or differentiation of two words by one letter); they provided the meaning of an unknown word, and covered up parts of long words. When children did pause, parents would often reread the sentence up to the point at which the child had stopped. Three parents asked their child to point out a particularly difficult word in a sentence. Several parents focused attention on the function of punctuation (e.g., comma, period and exclamation mark). All parents asked comprehension questions and made constructive, positive comments. Generally the proportion of talking was much greater for children than parents, with children actively attending to print and parents listening attentively and interjecting intermittently.

DISCUSSION

This study was undertaken to determine children's skills and knowledge about reading upon entry to kindergarten and to determine how many children could be identified as early readers. It was found that approximately 4% of the 628 kindergarten children tested entered school reading. This investigation was considered important because previous studies of early readers have usually not been carried out before the end of kindergarten (Durkin, 1966; King and Friesen, 1972; McCormick and Mason, 1981; McCracken, 1966; Morrison, Harris, and Auerbach, 1971; Plessas and Oakes, 1964).

The results of the present study demonstrated that the majority of children in the population exhibited very little knowledge of letter, sound and word identification at the beginning of kindergarten. It was striking that large proportions of children obtained the minimum score possible (0) on measures of environmental print, spelling, consonant and vowel sounds, and common words. This finding was rather unexpected since it has been reported that most young children do acquire at least some knowledge about print (Hiebert, 1981). One would have expected more impact on preschool children's learning as a result of recent trends such as: the expanding enrolment of children in nursery schools (e.g., Mayfield, 1980; Milburn, 1982); the broadcasting of educational television programs for preschool children (e.g., Hetherington and Parke, 1979); the implementation of intervention programs for young children (e.g., Weinberg, 1979); and increasing parent involvement in their children's

early learning (e.g., Clarke-Stewart, 1981). For example, research has shown that as a result of watching educational television, children have learned reading skills such as letter names and sounds, and sound-spelling correspondence in words (Torrey, 1979).

One explanation for the low levels of performance might be that children have difficulty understanding directions for carrying out the tasks (e.g., Hiebert, 1981). However, this does not seem to be the case in the present study as the LWRT was individually administered by examiners who reported that children seemed to enjoy and understand the tasks. Another explanation for low levels of performance might be the reluctance on the part of the children to make a response for fear of making mistakes.

Previous studies have presented only mean scores and not distributions of scores (e.g., Mason, 1980; McCormick and Mason, 1981). Consequently, sizeable proportions of children exhibiting very little or no knowledge about reading may have been prevalent, but simply have been undetected or unreported.

In order to examine factors relating to early reading development, the present study investigated the word and letter knowledge of the early readers and a comparison group of nonreaders. Upon entry to kindergarten, the early readers had mastered letter names, spelling and consonant sounds; they could identify most words (common and environmental) and most short vowels. In fact, they had approached or reached the ceiling on most subtests of the LWRT pretest. These findings were consistent with readers identified at the end of kindergarten by McCormick and Mason (1981). However, early

readers in the present study differed from those in McCormick and Mason's in that children in the latter study had received exposure to a language experience approach in kindergarten. Thus, while McCormick and Mason's readers could have acquired reading skills in both their preschool environment and their kindergarten program, the early readers in the present study acquired these skills in their preschool environment.

Proficiency in language skill development is usually related to greater reading ability (Waller and MacKinnon, 1979). Yet, in contrast to the findings for early readers, children in the nonreading comparison group exhibited very little knowledge in most areas of the LWRT at the beginning of kindergarten. Their performance resembled that of the general kindergarten population in this study in spite of the fact that their teachers had ranked them as children of high language ability. This would suggest that children considered proficient in language skills are not necessarily proficient in essential reading skills.

Since the early readers in the present study had approached the ceiling on four of the six subtests of the LWRT at the beginning of kindergarten, there was little room for them to exhibit growth on this measure over the year. On the remaining two subtests (identification of common words and vowel sounds), growth was exhibited. In order to adequately assess further development of early readers during the

kindergarten year, a more difficult version of the LWRT or measures in addition to the LWRT would be necessary and this is an area that could be investigated in future research.

An examination of nonreaders' growth in word and letter knowledge over the kindergarten year showed that they made significant gains in identifying letter names, consonant sounds, spelling, and recognition of words in the environment. In particular, they showed considerable improvement in identifying consonant sounds and approached the ceiling on letter name identification. A survey in British Columbia (Collis, 1981) found that some kindergarten teachers informally expose children to letter names, sounds and print in the classroom through chart stories and calendars and by printing stories on children's drawings. This exposure may partially account for these gains in nonreaders' word and letter knowledge. However, in spite of these gains nonreaders were still exhibiting very little knowledge of common and environmental words and vowel sounds at the end of kindergarten.

An important aspect of this study was the investigation of children's preschool environments. Interviews were conducted with parents of early readers and the comparison group of nonreaders. There were many similarities reported by parents. For example, parents of both groups stated that their children had attended nursery school, and had taken part in activities such as music, dancing, sports, watching television and going to the library. There were no

significant differences in story reading reported by parents although this activity is often considered a differentiating factor between readers and nonreaders. Children in both groups were frequently read to by their parents and were provided with various books and magazines.

However, there were also important differences between the early reading and nonreading groups. They can be summarized in terms of: a) the nature of the assistance provided by parents in reading-related activities and b) the reading-related activities that children undertake independently. Parents of early readers, similar to those in other studies (Clark, 1976; Durkin, 1966; King and Friesen, 1972), had focused their child's attention on the print. Specifically, parents of early readers indicated that they assisted their child with identifying, sounding out and printing letters, as well as pointing out, identifying and spelling words. On their own, early readers also were actively involved with print; they pointed out and named letters of the alphabet while playing, printed letters in both upper and lower case, tried to identify printed words by sounding out letters and read books independently almost every day.

Observations of parent-child interactions during a reading activity were undertaken to obtain insight into whether any specific differences existed in what seemed on the surface to be a similar activity -- storyreading. Once again, there were important differences between the two groups. In the early reading group, the

children chose to read while parents were content to listen; in the nonreading group, parents chose to read while children listened. Early readers initiated most interactions with their parents, while the parents of nonreaders initiated most interactions with their children. Early readers knew that words provided the necessary information for obtaining the message conveyed by print and they seemed to use various strategies. If they paused over a word, they stared at the print, moved their eyes back and forth, mouthed letters or words until they seemed satisfied with their interpretation. If they read a sentence which seemed awkward to them or that they did not seem to understand, they would pause and appear to reread silently or reread the sentence aloud. The parents of early readers provided their children with strategies for obtaining the message from print. For example, they told children about specific features of words (i.e., a word is made up of two smaller words); they told them to sound out words and attend to the whole word; and they explained the functions of punctuation (e.g., a comma means you stop for one rest and a period means you stop for two). On the other hand, parents of nonreaders made no reference to print while reading and, in turn, their children seemed unaware of or uninterested in the fact that it was the print that conveyed the meaning. Nonreaders were more attentive to the pictures in the books and in what their parents were saying. This finding seems to provide further support for a common denominator among early readers. Having realized that print has a

message to convey, early readers actively involve themselves in obtaining it. In doing so, they use various strategies which rely on syntactic and semantic information as well as the graphemic information.

The prevailing attitude of parents in the present study was that only if children displayed an interest in print and only if they were "ready" to learn should they be given preschool help with reading. Proponents of early reading generally share this view (Durkin, 1966; Enzmann, 1971; Sutton, 1964). This "lay-off" attitude is not limited to preschool children. Almost 80% of responding kindergarten teachers in British Columbia reported that children deemed "not ready" for the grade one program should repeat kindergarten (Collis, 1981). Both parents and teachers appear to wait for children to get "ready" but do little to get them ready. It is conceivable that the interest and readiness of some children will not develop spontaneously. This may be especially true for some children who enter school with little or no knowledge about reading. It is important for parents and/or teachers of such children to play an active role in getting them "ready" to read or they will be the ones repeating grades and attending remedial reading classes. (Mason, 1981).

Research has shown that children's early reading skills have a positive effect on subsequent reading achievement. This relationship has been found with children of heterogenous backgrounds, that is,

varying in socioeconomic status and intelligence (Clark, 1976; Durkin, 1966). Durkin (1966) suggested that an early start in reading may be of particular advantage for children with lower intelligence since these early readers maintained an increasing advantage in reading achievement over their peers throughout school.

It has also been found that an early start in reading is important for children from disadvantaged backgrounds (Lazaar and Darlington, 1979; Morrison, Harris and Auerbach, 1971). Morrison et al. (1971) examined the advantages of early reading ability among black disadvantaged children entering grade one. Some of these children had begun school with word recognition skills. They had higher reading scores than their peers with no early reading skills at the end of grade one and their advantage persisted and grew throughout the three years of the study regardless of the method by which they were taught.

Coltheart (1979) argued that while early reading in formal preschool or kindergarten programs may have positive short term effects on achievement, research has yet to show that these effects are longlasting. He pointed out that studies such as Durkin's (1970) which provide formal reading instruction in preschool, reveal significant differences between early reading and nonreading groups only for two or three years. This argument has been countered by several researchers who suggest that long term advantages for early readers will not be evident unless subsequent reading instruction

takes into account this early start (Clark, 1976; Durkin, 1966; King and Friesen, 1972; Sutton, 1969). The value of a good start in school and all the accompanying social consequences (i.e., children's self-concept, teachers' expectations) are obviously important in themselves (Entwistle, 1979). Moreover, Coltheart's argument centres on studies which have initiated formal reading instruction during the preschool years but fails to consider the possible contribution of the home environment on early reading development. Intervention programs have been more effective when parents have been actively involved (Lazar and Darlington, 1979; Willmon, 1969).

The parents of early readers in the present study, similar to previous investigations (Clark, 1976; Durkin, 1966; King and Friesen, 1972; Mason, 1980; McCrackin, 1966; Plessas and Oakes, 1964), seemed aware of activities which promote reading development. However, parents of early readers comprise only a small minority of the population. Instructional programs for parents in the area of children's reading development could be made available to make parents more aware of how they can contribute to their children's reading development. Such programs have been shown to be effective in educating parents in the role they can play in their child's reading acquisition (Clarke-Stewart, 1981; Nicholson, 1980; Weiser, 1974). Future research could determine whether parents who have taken part in such instructional programs do follow through with their children with resulting significant effects on their reading development.

In the present study, parents played a major role in children's acquisition of early reading skills. However, programs provided by agencies such as daycares and nursery schools can also promote such development. The expanding enrolment of children in nursery schools and daycare has been pointed out earlier. A majority of responding parents of kindergarten children in British Columbia reported that their child had been enrolled in some kind of preschool program (day care, nursery school, play group) for an average of two years before attending kindergarten (Mayfield, 1980). This is not surprising in light of the increasing number of women entering the work force to provide either the primary or secondary source of income (Milburn, 1982). There is evidence that good preschool programs can enhance children's reading development (Durkin, 1970; Huberty and Swan, 1974; Lazar and Darlington, 1979; Schweinhart and Weikart, 1980). Such programs would be particularly appropriate for children who receive little or no exposure to reading at home. The impact of nursery school and daycare programs and their articulation with programs in the primary grades warrants close investigation.

While the present study was not designed to examine effects of different kindergarten programs on children's reading development, future research should look at children's progress depending on whether they are offered a formal reading or reading readiness program in kindergarten. A survey of teachers in British Columbia (Mayfield, 1981) identified three groups of kindergarten teachers: those who

emphasized academics (29%), those who placed a moderate emphasis on academics (42%), and those who placed less emphasis on academics (29%). It was revealed that a large number of teachers in the group stressing academics had formal reading readiness programs. One could determine if early readers lose their advantage in a kindergarten program that provides no formal reading or reading readiness program and, further, whether the lack of such a program has a negative effect on reader's interest and attitudes toward school. For children who enter school with little or no knowledge about reading, there is evidence to suggest that if such children had a formal reading or reading readiness program in kindergarten, they acquired reading skills (Brzeinski, 1964; Enzmann, 1971; Durkin, 1970; Sutton, 1964). However, the present author was unable to find research which examined the outlook for similar children whose kindergarten program did not offer a formal reading or reading readiness program. Is this deficit cumulative and do these children fall progressively further behind?

If the individual needs of children are to be met by the schools, it is necessary to consider both the assessment of student skills and the appropriate method of instruction. While screening occurs in most British Columbia kindergartens, mainly to identify children "at risk" (Mayfield, 1980), there is generally no formal assessment of children's entry skills in reading. Some form of assessment is essential to discover what skills children bring into the classroom.

Presently, the grade one teacher beginning formal reading instruction, faces a classroom of children with extremely varied degrees of letter and word knowledge. The task of accommodating programs for children with little or no knowledge about reading, as well as for children who are already reading, seems almost overwhelming. Investigators have repeatedly emphasized that early readers be given programs which are stimulating; it is clear that these children will not make gains if they are taught what they already know. For children entering kindergarten with little reading knowledge, an intensive program focusing on reading skills should be a priority. To wait until grade one may augment an already existing deficit. Unless they acquire essential prerequisite skills, they may not learn the more complex skills necessary for proficient reading (Guthrie, 1973; Venezky, 1967). Each child's entry skills should be the starting point for instruction.

There were several limitations of the present investigation.

1. The sample size of the early readers and the comparison group of nonreaders was small. This must be kept in mind when generalizing conclusions to the general population.
2. The early readers and nonreaders were children generally considered high in language ability. Thus, while results gave some insight into the reading development of such children, no examination was made of nonreaders who are considered low or average in language ability.

3. The growth of early readers' letter and word knowledge could not be adequately assessed because of their high scores on the LWRT pretest.
4. Some of the information about children's preschool environments was obtained from parental reports. These reports were based on a retrospective view of events that occurred in the past and thus some features of the preschool environment were not directly investigated.

In summary the onset of formal education is a milestone for young children. Academic performance must meet the expectations of parents, teachers and peers. The preschool period seems an opportune time for children to acquire skills and knowledge about reading. During this time children can learn a great deal in reading-related interactions with their parents without much cost, time or energy.

The fact is that some children acquire little or no reading skills before they begin elementary school and therefore they must be given the chance to develop essential skills in a formal instructional program. To that end, research should determine the appropriate instructional methods, and the critical time for their introduction.

REFERENCES

- Barr, R. Influence of instruction on early reading. Interchange, 1974, 5, 13-21.
- Barth, R. and Swiss, I. The impact of T.V. on reading. Reading Teacher, 1976, 30, 236-239.
- Biemiller, A. The development of the use of graphic and contextual information as children learn to read. Reading Research Quarterly, 1970, 6, 75-96.
- Bloom, B.S. All our children learning. New York: McGraw-Hill, 1980.
- Brekke, B., and Williams, J.D. Teachers' prediction of reading readiness. Perceptual and Motor Skills, 1973, 37, 521-522.
- Brzeinski, J.R. Beginning reading in Denver. Reading Teacher, 1964, 18, 16-21.
- Buros, O. The seventh mental measurements yearbook. Highland Park, N.J.: The Gryphon Press, 1972.
- Calfee, R.C., Richard, A., and Drum, P. A review of the psychology of reading by E.J. Gibson and H. Levin. The National Academy of Education, 1976, 3, 1-80.
- Chall, J.S. Learning to read: The great debate. New York: McGraw-Hill, 1967.
- Chall, J.S. The great debate: Ten years later, with a modest proposal for reading stages. In L.B. Resnick and P.A. Weaver. (Eds.), Theory and practice of early reading. New Jersey: Lawrence Erlbaum Associates, 1979.
- Clark, M.M. Young fluent readers. London: Heinemann Educational Book, 1976.

- Clarke-Stewart, K.A. Parent education in the 1970's. Educational Evaluation and Policy Analysis, 1981, 3, 47-58.
- Collis, S. Kindergarten independent survey of needs. Journal of British Columbia Primary Teacher's Association, 1981, 13-19.
- Coltheart, M. When can children learn to read? In T. Waller and G. MacKinnon (Eds.), Reading research: Advances in theory and practice. New York: Academic Press, 1979.
- DeHirsch, K., Jansky, J., and Langford, W.S. Predicting reading failure: A preliminary study of reading, writing and spelling disabilities in preschool children. New York: Harper and Row, 1966.
- Dolch, E. Problems in reading. Champaign, Ill.: Garrard Press, 1948.
- Downing, J. Children's concepts of language in learning to read. Educational Research, 1970, 12, 106-112.
- Durkin, D. Children who read early. New York: Teacher's College Press, Columbia University, 1966.
- Durkin, D. A language arts program for pre-first-grade children: Two year achievement report. Reading Research Quarterly, 1970, 5, 534-565.
- Durkin, D. A six year study of children who learned to read in school at the age of four. Reading Research Quarterly, 1974-1975, 10, 9-61.
- Ehri, L. Beginning reading from a psycholinguistic perspective: Amalgamation of word identities. In F.B. Murray (Ed.), The development of the reading process. International Reading Association Monograph (No. 3), Newark, Del.: International Reading Association, 1978.

- Ehri, L. Linguistic insight: Threshold of reading acquisition. In T. Waller and G. MacKinnon (Eds.), Reading research: Advances in theory and practice. New York: Academic Press, 1979.
- Entwistle, D. Social environment and learning to read. In T. Waller and G. MacKinnon (eds.) Reading-Research: Advances in theory and practice. New York: Academic Press, 1979.
- Enzmann, A. M. A look at early reading. Reading Teacher 24, 1971, 616-620.
- Falmagne, R. Towards an educational technology. A review of the nature of intelligence. In L. B. Resnick and D. Klahr (Ed.), Cognition and Instruction. Proceedings of National Academy of Education, 1977, 4, 279-368.
- Forester, A.D. What teachers can learn from "natural readers". Reading Teacher, 1977, 31 160-166.
- Gibson, J. Learning to read. Science, 1965, 148, 1066-1072.
- Glazzard, P. Kindergarten predictors of school achievement. Journal of Learning Disabilities, 1979, 12, 689-694.
- Goodman, K.S., and Goodman, Y.M. Learning to read is natural. In L.B. Resnick and P.A. Weaver (Eds.), Theory and Practice of Early Reading. New Jersey: Lawrence Erlbaum Associates, 1979.
- Guthrie, J.T. Models of reading and reading disability. The Journal of Educational Psychology, 1973, 65, 9-18.
- Haring, N.G., and Ridgway, R.W. Early identification of children with learning disabilities. Exceptional Children, 1967, 387-395.
- Hetherington, E., and Parke, R. Child Psychology: A contemporary viewpoint. New York: McGraw-Hill, 1979.

- Hiebert, E.H. Developmental patterns and interrelationships of preschool children's print awareness. Reading Research Quarterly, 1981, 16, 236-259.
- Huberty, C., and Swan, W. Preschool classroom experience and first grade achievement. The Journal of Educational Research, 1974, 67, 311-316.
- Hunt, J.M. Intelligence and experience. New York: Ronald Press, 1961.
- Hunt, J.M. Human Intelligence. New Brunswick, N.J.: Transaction Books, 1972.
- Jackson, N.E., and Myers, M.G. Precocious readiness to read: A question of processing efficiency? Paper presented at Annual Meeting of American Educational Research Association, Boston, April 9, 1980.
- Jensen, A. How much can we boost IQ and scholastic achievement? Harvard Educational Review, 1969, 39, 1-123.
- Keough, B., and Becker, L. Early detection of learning problems: Questions, cautions and guidelines. Exceptional Children, 1974, 40, 5-11.
- King, E.M., and Friesen, D.T. Children who read in kindergarten. The Alberta Journal of Educational Research, 1972, 18, 147-161.
- LaBerge, B., and Samuels, S.J. Toward a theory of automatic information processing in reading. Cognitive Psychology, 1974, 6, 293-323.
- Lazar, I., and Darling, R. Lasting effects after preschool (Summary Report). Washington, D.C.: U.S. Department of Health, Education and Welfare, 1979.

MacGinitie, W.H. Evaluating readiness for learning to read: A critical review and evaluation of research. Reading Research Quarterly, 1979, 3, 396-410.

Mason, J. Overgeneralization in learning to read. Journal of Reading Behavior, 1976, 8, 173-181.

Mason, J. Reading readiness: A definition and skills hierarchy from preschoolers' developing conceptions of print. (Technical Report No. 59). Urbana: University of Illinois, Center for the Study of Reading, September, 1977.

Mason, J. When do children begin to read: An exploration of four year old children's letter and word reading competencies. Reading Research Quarterly, 1980, 15, 203-227.

Mason, J. The development of word reading knowledge in the four year old child. Urbana: University of Illinois, Center for the Study of Reading, n.d.

Mason, J. Prereading: A developmental perspective. (Tech. Rep. No. 198). Urbana: University of Illinois, Center for the Study of Reading, February, 1981.

Mason, J., and McCormick, C. Testing the development of reading and linguistic awareness (Technical Report No. 126). Urbana: University of Illinois, Center for the Study of Reading, May, 1979.

Mason, J., McCormick, C., and Hall, P. A diagnostic and placement test for beginning readers. Urbana: University of Illinois, Center for the Study of Reading, n.d.

Mayfield, M. British Columbia kindergarten needs assessment. Victoria, B.C.: Ministry of Education, 1981.

McCormick, C., and Mason, J. What happens to children's knowledge about reading after summer vacation? Reading Teacher, 1981, 35, 164-172.

- McCracken, R.A. A two year study of the reading achievement of children who were reading when they entered first grade. Journal of Educational Research, 1966, 59, 207-210.
- Mercer, C.D., Algozine, B., and Trifiletti, D. Early identification: an analysis of the research. Learning Disability Quarterly, 1979, 2, 12-24.
- Milburn, D. Early Childhood education: Some thoughts on scope and function. In J. Calam (Ed.), The study of education: Canada, 1982. Canadian Society for the Study of Education, 1982, Yearbook No. 9.
- Morrison, C., Harris, A., and Auerbach, I. The reading performance of disadvantaged early and non-early readers from grades 1 through 3. The Journal of Educational Research, 1971, 65, 23-26.
- Nicholson, T. Why we need to talk to parents about reading. The Reading Teacher, 1980, 19-21.
- Parke, R.D. Children's home environments: Social and cognitive effects. In I. Altman and J.F. Wohlwill (Eds.), Children and the environment. New York: Plenum, 1978.
- Piaget, J., and Inhelder, B. The Psychology of the Child. New York: Basic Books, 1969.
- Pincus, M., and Morgenstern, F. Should young children be taught to read earlier? Reading Teacher, 1964, 18, 37-42.
- Plessas, G.P., and Oakes, C. Pre-reading experiences of selected early readers. Reading Teacher, 1964, 17, 241-245.
- Resnick, L., and Weaver, P. Theory and practice in early reading. Hillsdale, N.J.: Lawrence Earlbaum and Associates, 1977.

Schweinhart, L., and Weikart, D. Young children grow up: The effects of the Perry Preschool Program on youths through age 15. Monographs of the High/Scope Educational Research Foundation, No. 7. Michigan: The High/Scope Press, 1980.

Siegel, S. Nonparametric statistics for the behavioral sciences. New York: McGraw Hill, 1956.

Smith, F. Understanding reading. New York: Holt, Rinehart and Winston, 1971.

Stderbergh, R. Reading in early childhood: A linguistic study of a preschool child's gradual acquisition of reading ability. Washington, D.C.: Georgetown University Press, 1977.

Stevens, G.L., and Orem, R.C. The case for early reading. St. Louis, Mo.: Warren H. Green, 1968.

Sutton, M. Readiness for reading at the kindergarten level. Reading Teacher, 1964, 17, 234-240.

Sutton, M. Children who learned to read in kindergarten: A longitudinal study. Reading Teacher, 1969, 22, 595-602, 683.

Teale, W.H. Positive environments for learning to read: What studies of early readers tell us. Language Arts, 1978, 55, 922-932.

Torrey, J.W. Learning to read without a teacher: A case study. Elementary English, 1969, 46, 550-556.

Torrey, J.W. Reading that comes naturally: The early reader. In T. Waller and G. Mackinnon (Eds.), Reading Research: Advances in theory and practice. New York: Academic Press, 1979.

Venezky, R.L. Prerequisites for learning to read. In J.R. Levin and V.L. Allen (Eds.), Cognitive learning in children: Theories and strategies. Madison, Wisc.: University of Wisconsin, 1976.

Waller, T., and Mackinnon, G. Reading research: Advances in theory and practice. New York: Academic Press, 1979.

Weikart, D.P. Effects of different curricula in early childhood intervention. Educational Evaluation and Policy Analysis, 1981, 3, 25-36.

Weinberg, R.A. Early childhood education and intervention: Establishing an American tradition. American Psychologist, 1979, 34, 912-916.

Weiser, M. Parental responsibility in the teaching of reading. Young Children, 1974, 29, 225-230.

Willmon, B. Parent participation as a factor in the effectiveness of head start programs. Journal of Educational Research, 1969, 62, 406-410.

White, B.L., and Watts, J.C. Experience and environment: Major influences on the development of the young child. Volume 1. Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Appendix A

LWRT

Name of child: _____

Tester: _____

Name of teacher: _____

Date: _____

A.M. or P.M.: _____

School: _____

1) Picture Identification. Show child pictures one at a time until 10 are correctly identified. Check correct response. Write in incorrect response.

- | | | |
|----------------|-------------------|----------------------|
| 1. Jello _____ | 6. Dog _____ | 11. Smarties _____ |
| 2. Stop _____ | 7. Crest _____ | 12. McDonald's _____ |
| 3. Exit _____ | 8. Rice _____ | 13. Cherrios _____ |
| 4. Milk _____ | 9. Kool Aid _____ | 14. Coca Cola _____ |
| 5. Book _____ | 10. Corn _____ | 15. Pepsi _____ |

2) Common Word Spelling. Place letters in front of child. Ask child to make the listed words. Check if correct. Write out incorrect response. Score by counting the number of letters placed in the correct position of each word.

letters: T P C A O S K

Words to spell:

CAT	_____	_____
TOP	_____	_____
AT	_____	_____
POT	_____	_____
Total	_____	_____

- 3) Letter Name Identification. Show each letter and ask the child to name the letter. Check correct response. Write in incorrect response.

R _ P _ H _ R _ A _ D _ T _ M _ E _ B _ Total Correct

b _ e _ m _ t _ d _ a _ f _ h _ p _ r _ Total Correct

- 4) Stop Story. Ask child to read the words as you turn pages. Check if correct. Write in incorrect response.

Stop car _____

Stop truck _____

Stop bus _____

Stop. Stop. Stop. _____

Stop for the cat. _____

Do you think child is guessing? _____

- 5) Common Word Identification. In this order, show child one word at a time -- ask child to read it. Check if correct. PRINT in incorrect response. If child gets more than 7 correct, do 5a and 5 b.

day _____	cow _____	eye _____	he _____
bed _____	girl _____	dog _____	box _____
leg _____	man _____	pig _____	car _____
sun _____	boy _____	red _____	toy _____
up _____	top _____	no _____	go _____

Total Correct

- 5a) Child listens while tester reads all words but those in red. Child fills in words in read. Check correct response. Print in incorrect response.

It is summer on the farm.

The dog is on his bed. _____

The sun is up in the sky. _____

His leg is over his eye. _____

Both the pig and the cow look hot. _____

The pig takes a drink from the dog's red dish. _____

Will he save some for the dog? No. _____

Total Correct

5b) Today is the big day.

It is Peter's birthday party.

The ice cream man comes with goodies.

One boy gives Peter a car.

Another girl gives him a big chocolate egg.

His sister gives him a crayon box.

Peter's favourite toy is a spinning top.

It sure can go fast.

Total Correct

6) Consonant Identification. Ask child to read aloud the make believe words. Ignore the vowel sound; check correct response (2 consonant sounds). Write down incorrect response. (G can be either jar or gum sound).

bak _____	zad _____	fac _____	gan _____
pav _____	tab _____	lam _____	sar _____
daz _____	jap _____	ras _____	nal _____
kaj _____	vat _____	maf _____	cag _____

Go on to vowels only if child did better than 5/16 with consonants.

7) Vowel Identification. Ask child to read make believe words. Ignore consonant pronunciation. Check if vowel sound is correct. Write down incorrect response.

bek _____	nābe _____	voy _____	kore _____
bik _____	nībe _____	vay _____	kere _____
bak _____	nūbe _____	vee _____	kire _____
bok _____	nebe _____	vait _____	kare _____
buk _____	nobe _____	voit _____	kure _____

If child did well on the test, start with standard format. If child did poorly on test, start with logo format. If child who did well on test but poorly on standard format (less than 5) go on to logo format.

- 1b) Word Identification. Using cards that match pictures identified in 1a, show one at a time and ask child to read. Check correct response. Write incorrect response.

STANDARD FORMAT

- | | | |
|----------------|-------------------|----------------------|
| 1. Jello _____ | 6. Dog _____ | 11. Smarties _____ |
| 2. Stop _____ | 7. Crest _____ | 12. Pepsi _____ |
| 3. Exit _____ | 8. Rice _____ | 13. Cherrios _____ |
| 4. Milk _____ | 9. Kool Aid _____ | 14. Coca Cola _____ |
| 5. Book _____ | 10. Corn _____ | 15. McDonald's _____ |

LOGO FORMAT

- | | | |
|-----------------|-------------------|----------------------|
| 1. JELL-O _____ | 6. DOG _____ | 11. Smarties _____ |
| 2. STOP _____ | 7. Crest _____ | 12. PEPSI _____ |
| 3. EXIT _____ | 8. Rice _____ | 13. Cheerios _____ |
| 4. MILK _____ | 9. Kool Aid _____ | 14. Coca Cola _____ |
| 5. BOOK _____ | 10. CORN _____ | 15. McDonald's _____ |

- 8a) Hand child a piece of paper and pencil. Ask:

1. Can you print your name?
2. Can you print any other words?
3. If can't print words - then 2 letters.

- 8b) Hand child book upside down. Check if child puts right side up _____.
Ask:

1. Show me the beginning_____, middle_____, end_____ of book
2. Show me the first word in story_____, last word_____.
3. Show me the top of page_____, bottom of page_____.
4. Show me the title of the book_____.
5. Show me page 5_____.

Appendix B

Parent Interview Schedule:

Summary of Responses for Readers and Nonreaders

Interview

Name of Child: _____ Date: _____

Birthdate: _____

Interviewee: _____

I. Family Background

Father:	R		NR		Father's Occupation	R		NR	
Birthplace: Canada	6		6		Labourers	3		-	
Other	9		4		Mech/Tech.	4		2	
Elementary school graduate?		Yes		Yes	Paraprof. Aides	-		-	
					Clerical	2		-	
High school?		Yes		Yes	Sales/Small Businesses	3		3	
College?		Yes		Yes	Professional	3		5	
Graduate work?		Yes		Yes					

Occupation: _____

Grandfather's occupation: _____

Canadian Yes 8 5

Mother:	R		NR		Mother's Occupation	R		NR	
Birthplace: Canada	6		7		Labourers	2		-	
Other	9		3		Mech/Tech.	-		1	
Elementary school graduate?		Yes		Yes	Paraprof. Aides	1		1	
High school?		Yes		Yes	Clerical	3		3	
College?		Yes		Yes	Sales/Small Businesses	2		1	
Graduate work?		Yes		Yes	Professional	7		4	

Occupation (if housewife) Before marriage: _____

Did you ever want to become a teacher? Yes 6 5

Grandfather's occupation: _____

Canadian born? Yes 3 2

Comments: _____

II. Home

Size of Family

Membership: _____

	3	4	5	6
R	-	9	4	2
NR	1	6	3	-

Any adults other than parents? _____

Yes 2 1
 R NR

Who?: _____

Siblings	Number	R	NR	Age
Older brother(s): _____		6	5	/
Younger brother(s): _____		3	3	
Older sister(s): _____		7	1	
Younger sister(s): _____		5	2	
No Sibling		0	2	
Total: _____				

Comments: _____

Language: _____

Second Language (if any): _____

	R	NR
Monolingual:	15	8

Spoken by: _____

Bilingual: _____ 2

When: _____

Physical Description: _____

	<u>R</u>	<u>NR</u>	III. Subject
Canada	13	8	
Birthplace: <u>Other</u>	<u>2</u>	<u>2</u>	

Date: _____

At what age did child begin to walk?

	<input type="checkbox"/>	<u>R</u>	<u>NR</u>
before one year	<input type="checkbox"/>	1	4
about one year	<input checked="" type="checkbox"/>	10	6
about 18 months	<input checked="" type="checkbox"/>	4	-
about 2 years	<input type="checkbox"/>		
later ()	<input type="checkbox"/>		

talk?

	<input type="checkbox"/>	<u>R</u>	<u>NR</u>
before one year	<input type="checkbox"/>	6	1
about one year	<input type="checkbox"/>	3	4
about 18 months	<input type="checkbox"/>	5	3
about 2 years	<input type="checkbox"/>	1	2
later ()	<input type="checkbox"/>		

Is child left-handed or right-handed?

Left	<input checked="" type="checkbox"/>	Right	<input checked="" type="checkbox"/>	Both	<input type="checkbox"/>	2	<input type="checkbox"/>
			10				<input checked="" type="checkbox"/>

Does he/she do different things with different hands?

Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
-----	--------------------------	----	-------------------------------------

If so, explain: _____

What illnesses has child had? _____

Has child ever had problems with his/her eyes? Yes

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>R</u>	<u>NR</u>
0	0

If so, explain: _____

Have you ever had to take _____ to an eye doctor? Yes

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>R</u>	<u>NR</u>
4	1

If so, explain: _____

Does he/she ever complain about his eyes now? Yes

<input type="checkbox"/>	<input type="checkbox"/>
<u>R</u>	<u>NR</u>
0	0

If so, explain: _____

Did the child prefer to spend time with adults or with children?

	R	NR
adults	<input type="checkbox"/> 2	2
children	<input type="checkbox"/> 9	1
both	<input type="checkbox"/> 3	6
liked to spend time alone	<input type="checkbox"/> 1	

Did child like to play alone? Yes

R	NR
<input type="checkbox"/> 11	<input type="checkbox"/> 6

If so, what did he do? _____

IV. Sibling Relationships

How does child compare with brother and/or sister in academic or intellectual ability?

	R	NR
better	<input type="checkbox"/> 9	3
same	<input type="checkbox"/> 5	6
less able	<input type="checkbox"/>	

Do children compete with each other? Yes

R	NR
<input type="checkbox"/> 11	<input type="checkbox"/> 4

Describe: _____

V. - School

Nursery School

Did child attend nursery school? Yes

R	NR
<input type="checkbox"/> 11	<input type="checkbox"/> 8

If so, which one? _____

For how long:		R	NR
2- 3 years		<input type="checkbox"/> 4	1
2 years		<input type="checkbox"/> 6	2
1 year		<input type="checkbox"/> 1	4
less		<input type="checkbox"/>	1

Why did you send child to nursery school?

	R	NR
She/he needed to be with other children	9	8
I worked	1	
Other children were going	1	
It is good preparation for school		3
Other (specify): _____	2	3

How did child benefit from nursery school?

	R	NR
learned to play with other children	9	7
learned songs, rhymes, games, etc.	9	6
developed interest in reading; printing	3	3
learned to relate to other adult	5	4
learned how to behave in school setting	6	4
other (specify): _____	4	3

Did child ever say he wanted to stay home? Yes

R	NR
2	3

If so, how often? only in the beginning

2	2
---	---

intermittently

	1
--	---

most of the time

--

Did child watch any nursery school-kindergarten type programs on television?

	R	NR
Yes	13	10

If so, what did he learn from them? _____

VI. Other Activities

Does child attend any other school other than the public school?

	R	NR
Yes	10	7

Describe: _____

Did child watch television before starting kindergarten?

	R	NR
Yes	15	10

If so, how often?	5 or fewer hours per week	R	NR
		6	3
	6-10 hours per week	7	3
	11-15 hours per week	2	4
	16-20 hours per week	<input type="checkbox"/>	
	21-25 hours per week	<input type="checkbox"/>	
	25 or more hours per week	<input type="checkbox"/>	

Are you aware of any valuable learnings child acquired from watching television?

	R	NR
Yes	11	7
No	3	2
Uncertain	1	1

What were these learnings?

	R	NR
curiosity about written words	8	7
interest in learning to print	1	4
knowledge about history; science; etc.	7	7
other (specify) _____	3	3

Does your child go to the library?	Yes	R	NR
		12	9
If so, how often?	once a week	1	4
	once every two weeks	6	1
	less often	5	4

		R	NR
Do you take out books from the library?	Yes	11	5
Does your husband?	Yes	8	4
Do you read more than the average adult?	Yes	10	5
Does your husband?	Yes	8	5
Did you or anybody else read to child before started school?			
	Yes	15	No 10

If so, could you tell me how this reading was done?

	R	NR
told him words he asked about	15	5
checked his comprehension of the story	13	3
pointed out words while reading	11	1
discussed pictures	14	9
other: _____	9	1

No that he can read himself, do you still read to him? Yes 15 NR 10

If so, how often?		R	NR
every day		10	3
couple times a week		4	3
less often		1	0
when he asks for it		0	4

Does child himself read at home? Yes 15 NR 9

If so, how often?		R	NR
every day		11	4
couple times a week		4	1
less often		0	3

Before child ever learned to read, what kinds of reading materials were available to child?

	R	NR
basal readers	5	1
workbooks	13	5
library books	12	10
Golden books	13	10
coloring books	13	10
alphabet books	15	9
other	2	2

VII. Parental Attitudes

Are you satisfied with the job the schools are doing in teaching reading?

Yes	<u>4</u>	No	<u>10</u>	Uncertain	1	R
	2		2		6	NR

Why, not? _____

Do you think parents should give help with things like reading?

Yes	<u>15</u>	<u>9</u>
	R	NR

(Yes): if child is interested 7 7

gives him a good start in school 6 2

other (specify): _____ 7

(No): He'll be in school long enough R NR

It might mix him up when he gets to school

It might lessen his interest in school

Teaching requires special training 1

VIII. Preschool Teaching and Learning

Did your child show any preschool interest in learning to read?

Yes	<u>15</u>	<u>2</u>
	R	NR

How was this interest demonstrated? _____

Did the child display any self-initiated activities/interest such as:

- printing letters

- play activity

-

-

READERS ONLY

What do you think are some of the things that interested your child in learning to read?

- being read to at home 15
- interest in printing 9
- interest in spelling 7
- television commercials 7
- curiosity about written words 14
- interest in word meanings 15
- availability of reading materials 15
- availability of paper and pencils 15
- availability of blackboard 14
- wanting to keep up with older siblings 9
- wanting to do homework with siblings 4
- school work brought home by siblings 7
- parent or family encouragement 15
- other (specify): _____ 4

At what age did child first show this preschool interest in learning to read?

- before 3 years 4
- about 3 years 7
- about 4 years 4
- about 5 years
- during kindergarten

Did you or anybody else give child preschool help with reading?

- Yes 14
- No 1

If so, at which age:

- before 3 years 6
- about 3 years 5
- about 4 years 3
- about 5 years
- during kindergarten

If not, why not? _____

Would you tell me whether you or anybody else gave child the following kinds of help?

	Yes R	NR
Identified words?	15	4
Helped with printing?	14	5
Discussed sounds of letters?	15	4
Discussed meanings of words?	15	5
Identified numbers?	15	6
Identified letter names?	15	6
Helped with spelling?	14	4

Could you tell me why these various kinds of help were given?

	R	NR
to teach him to read	6	2
to keep him occupied	1	1
to answer his questions	13	5
other (specify): _____	1	

Who were the people who gave child most of the preschool help with things like identification of numbers and letters and words, or with printing and spelling and so on?

	R	NR
mother	15	7
father	10	3
brother	1	2
sister	3	
other relatives (specify) _____	2	1
friend (specify) _____	1	

Do you think reading ought to be taught only by a trained person?

Yes $\frac{R}{1}$ $\frac{NR}{2}$

Why, not? _____

READERS ONLY

Did you have any special concerns about your child's early ability in reading?

Yes $\frac{3}{}$ No $\frac{2}{}$

If so, what were they?

thought it would lessen his interest in school $\frac{1}{}$

thought it would make him overly confident $\frac{0}{}$

thought the way he learned might be different from how he would be taught in school $\frac{0}{}$

other (specify): _____ 2

IX. Siblings and Reading

Did any of the older children in your family learn to read before they started school?

Yes $\frac{R}{8}$ $\frac{NR}{2}$

If so, specify: _____

Did you give any of the older children in the family help at home with their school work?

Yes $\frac{R}{8}$ $\frac{NR}{4}$

Did child listen and watch while you gave help?

Yes $\frac{R}{6}$ $\frac{NR}{1}$

If so, how often?

all the time $\frac{R}{3}$ $\frac{NR}{0}$

some of the time $\frac{2}{}$ $\frac{1}{}$

very in frequently $\frac{1}{}$

-13-

Does the child point out and name letters of the alphabet when playing?

	R	NR
seldom	<input type="checkbox"/>	
occasionally	<input type="checkbox"/>	5
very often	<input checked="" type="checkbox"/>	5

How many different alphabet letters does the child try to print?

	R	NR
less than 5	<input type="checkbox"/>	1
about 10	<input type="checkbox"/>	
more than 20	<input checked="" type="checkbox"/>	9

Does the child recite the whole alphabet without any mistakes?

	R	NR
seldom	<input type="checkbox"/>	
occasionally	<input type="checkbox"/>	
very often	<input checked="" type="checkbox"/>	10

If the child prints, what case does he use?

	R	NR
upper (capital)	<input checked="" type="checkbox"/>	6
lower	<input type="checkbox"/>	
both	<input checked="" type="checkbox"/>	4

If someone is teaching the child, what is being taught?

	R	NR		R	NR
letter names	<input checked="" type="checkbox"/>	1	letter sounds	<input checked="" type="checkbox"/>	3
printing letters	<input checked="" type="checkbox"/>	1	printing words	<input checked="" type="checkbox"/>	1
reading words	<input checked="" type="checkbox"/>		reading stories	<input checked="" type="checkbox"/>	1
spelling words	<input checked="" type="checkbox"/>		other (specify)	_____	

Does the child read books by him or herself?

no	<input type="checkbox"/>	look at/	occasionally	<input checked="" type="checkbox"/>	often	<input checked="" type="checkbox"/>	R
				7		3	NR

What new words have you noticed your child reading? List as many as you can think of (but no more than 15) that he/she identified. For example, did he/she point out and read labels on food, words in books or magazines? We are interested here in which printed words your child noticed recently?

Does the child try to identify a printed word by sounding out the letters?

	R	NR
seldom	2	8
occasionally	3	1
very often	10	1

Does the child spell out the letters in printed words?

	R	NR
seldom	2	5
occasionally	5	2
very often	8	3

Does the child make alphabet letters when drawing?

	R	NR
seldom	8	6
occasionally	7	4
very often		

Does the child have a subscription to a child's magazine?

	R	NR
Yes	4	5

Does the child ask to have favorite books reread?

	R	NR
seldom	1	1
occasionally	2	3
very often	13	6

What is the average time the child watches T.V. per day?

	R	NR
less than 1/2 hour	3	1
about 1 hour	7	4
more than 2 hours	5	5

Does the child hear story records at home?

	R	NR
seldom		
occasionally	7	6
very often	9	4

Does the child watch Sesame Street on T.V.?

	R	NR
seldom	5	2
occasionally	5	2
very often	5	5

Does the child watch Electric Company on T.V.?

	R	NR
seldom	10	3
occasionally	4	2
very often	1	5

Does the child watch Saturday A.M. cartoons on T.V.?

	R	NR
seldom	3	2
occasionally	6	4
very often	6	4

Does the child talk to parents about Sesame Street or Electric Company material?

	R	NR
seldom	4	4
occasionally	4	4
very often	7	2

How often does the child go on outings with a parent (trips to special places, shopping, visits to friends, etc.) per week?

	R	NR
less than twice a week	4	6
about four times a week	7	3
more than six times a week	4	1

Does the child own any alphabet books?

	R	NR
No		
One	1	3
Several	14	7

4

Appendix C

Letters of Permission

11

Dear Parent,

The North Vancouver School District has approved a project involving all kindergarten classes in the district. I am a certified teacher, currently a graduate student at Simon Fraser University and keenly interested in primary children's reading development. I am writing to provide you with information concerning your child's involvement in this study of kindergarten children's knowledge of letters and words.

Each child will be given up to eight short tasks such as identifying pictures and labels. These oral tasks will be given individually by trained assistants in a quiet relaxed atmosphere and will take no longer than fifteen minutes to complete.

The aim of the study is to gather information which in the future can be used to develop instructional programs. I hope you will permit your child to participate in this very important study and indicate your consent on the form provided below. I would greatly appreciate the return of this form to your child's teacher before September 24, 1981. May I thank you for your kind consideration.

Sincerely yours,

Lusette Rauch

I give permission to have my child (Please Print) _____
participate in an investigation of children's letter and word knowledge.

Signed _____
(Parent or Guardian)

Child's Teacher _____

School _____

Dear Teacher:

I have been given permission by the North Vancouver School District to carry out a study in all kindergarten classes in the district commencing Monday, September 28, 1981. Such an early starting date is necessary since the results should be gathered prior to formal instruction. The study will investigate children's knowledge of letters and words.

Each child participating in the study will be given up to 8 short tasks such as identifying pictures and labels. These oral tasks will be given individually. The entire procedure should take no longer than fifteen minutes per child and will be carried out in a quiet relaxed atmosphere. Every precaution will be taken to minimize classroom disruption.

I am a certified teacher and am currently a graduate student at Simon Fraser University. I am very interested in the primary grades, and in particular, reading acquisition.

The aim of this study is to gather information which would be useful to teachers for classroom instruction and placement. Previous experience has revealed that most teachers are keenly interested in ongoing research. Therefore, I will provide access to a report of this study upon its completion.

Because of the wide scope of this study, there will be eight to ten trained assistants involved in testing the children. The person or persons who will be responsible for your school will contact you prior to implementation of the study. At this time she will ask for a class list and provide you with a sufficient number of parent consent forms for your class(es). I would greatly appreciate your help in distributing these forms to parents of all students. It is essential that these forms be returned to you on or before September 24th. These forms will be picked up on September 24th and the project will begin on Monday, September 28th, 9:00 A.M. I want to thank you for your attention and kind help.

Yours sincerely,

Lusette Rauch



SIMON FRASER UNIVERSITY, BURNABY, B.C., CANADA V5A 1S6
FACULTY OF EDUCATION, 291.3395

Dear Principal:

The North Vancouver School District has approved a project involving all kindergarten classes in the district. The project will commence September 28, 1981. The study will investigate children's knowledge of letters and words. The early starting date is necessary in order that results are gathered prior to formal instruction.

Each child participating in the study will be given up to eight short tasks such as identifying labels and pictures. In order that each child achieves optimal performance, it is very important that these activities be carried out in a quiet, relaxed atmosphere. I would greatly appreciate it if you could provide a quiet area where the project could be carried on without interruption.

I have enclosed copies of a letter explaining the study to be distributed to the kindergarten teacher(s) in your school. Please keep one for your own information and kindly direct the other(s) to your teacher(s). Thank you very much for your cooperation.

Yours sincerely,

Lusette Rauch



Appendix D

Instructions to Teachers
for Ranking Children's Language Development

December 8, 1981

Dear

I want to thank you for your help and cooperation in September with regards to my language development project. All went smoothly and I have completed the initial screening stage of the project.

The next stage involves the selection of various groups for follow-up in their homes. Information needed for selecting children involves rankings in terms of their language development. Teacher ranking has been shown to be as reliable as test scores for determining children's language development and it is more feasible than further testing in terms of time.

The ranking of children's language development is a serious stage in this project insofar as the accurate formation of follow-up groups.

May I ask you then to rank the language skills of each child in your class. Please do this on a copy of your class list and give RANK 1 to the highest language skills, etc. Ranking should be a composite of the following general language development categories:

1. Alphabet knowledge
2. Word meaning
3. Sound - letter relations
4. Listening for vocabulary
5. Graphic competence
6. Evidence that child obtains meaning from written language
7. Auditory memory
8. Speaking grammar.

I appreciate your assistance and should you have any questions, please call me at 980-2260. Would you be kind enough to return your class list and rankings (this would simply be a list of names with a number beside each name according to proficiency in language development) to Dr. Leo Marshall's secretary as soon as possible. Thank you very much.

Yours sincerely,

Lusette Rauch