

AN EXAMINATION OF THE RELATIONSHIP
BETWEEN KINDERGARTEN INSTRUCTION AND ACTIVITIES
AND
GROWTH IN KNOWLEDGE OF SPELLING

by

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ABSTRACT

Although the English spelling system is alphabetic in nature, a one-to-one relationship between sounds and letters does not exist for all words. Many words are made up of complex spelling patterns. In recent years spelling researchers have been interested in determining how children acquire their spelling knowledge. There has also been an interest in identifying the factors and activities which promote preschool children's beginning knowledge of letters and words. Studies of Early Spellers/Readers indicate that there are six factors important to the development of preschool children's spelling knowledge: the children were read to with their attention focused on the print; adults responded to the children's print-related questions and activities; adults were tolerant of children's misspellings; the children had the opportunity to observe others writing and reading; the children had the opportunity to learn the letter names; and the children were involved with scribbling, drawing and printing activities.

The purpose of the present study was to use a method of naturalistic inquiry, in kindergarten classrooms, to examine the relationship between the six forementioned early spelling/reading factors and subsequent growth in children's spelling knowledge. Selected for the study were twelve kindergarten classrooms in which the teachers' emphasis on printed letters and words appeared to vary from high to low.

A measure of growth in the children's spelling knowledge was acquired by administering the Letter, Word, Reading Test (LWRT) on two occasions: at the beginning of the school year and at the end of the school year. Differences between the pre- and posttest scores on five LWRT subtests were considered to be a measure of growth in the children's spelling knowledge. In the interim, near the end of the school year, the researchers made four forty-five minute observations in each classroom. Two observations were made during periods of group instruction (GI) in language arts and two observations were made during unstructured language arts activity sessions (US). To collect observational data four observational formats were established and observational categories were established for each of the formats. Categories were selected from the formats to measure the percentage of time the children were participating in activities related to the six early spelling/reading factors.

Results indicated the relationship between the kindergarten activities related to the six early spelling/reading factors and growth in the children's spelling knowledge, as measured by the LWRT gain scores, was unclear, probably due to the small number of classrooms included in the sample. The difficulties involved in doing observational research in natural settings are discussed.

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CHAPTER I

INTRODUCTION

Exactly how children learn to spell is unknown, however, their acquisition of spelling knowledge has been examined from a variety of perspectives. Most recently researchers have examined children's acquisition of spelling knowledge through the analysis of their spelling errors. Such analysis led Gentry (1981) to propose a developmental model to explain how children learn to spell.

Gentry (1981) identified five hierarchical spelling strategies through which children were found to pass in the process of learning correct spelling. The first stage is characterized by deviant spellings with children using randomly ordered letters to represent words (e.g. btBpa for monster). At this stage the children have no knowledge of letter-sound correspondence. The second stage is that of Prephonetic spellings with the children representing only a few salient letter-sounds correspondence (e.g., MSR for monster). The third stage is characterized by phonetic spelling. At this level all salient sounds are represented but the spellings, being very phonetic, tend not to look like standard spelling (e.g., ADE for Eighty). The fourth stage is characterized by transitional spellings and at this level the children's misspellings look similar to standard English but common letter combination such as gh and ck are typically used inappropriately (e.g., highcked for hiked). The fifth and final stage is that of standard or traditional spelling.

Of interest to educators are the factors that promote children's spelling knowledge. In recent years researchers have examined the home environments of a very capable group of young spellers, the inventive spellers. Research findings indicate that some children begin acquiring their knowledge of spelling at home, in their preschool years. These Early Spellers are typically found to be Early Readers as well. This paper refers to these precocious spellers and readers as Early Spellers/Readers.

Research reveals that the spelling and reading strategies developed by the Early Spellers/Readers serve them well, with the children typically scoring above average on spelling and reading tests throughout the elementary school grades (Clark, 1976; Durkin, 1963, 1966). Identification of the in-home factors that appear to facilitate preschool children's acquisition of spelling/reading concepts may have important implications for kindergarten Language Arts programs. Since one important purpose of kindergarten is to help children become "ready" to learn about written language, teachers may find that children more readily acquire early spelling/reading knowledge when certain factors are present in the classroom environment.

An investigation of the home environments of the Early Spellers/Readers indicate there seem to be six factors contributing to the children's acquisition of early spelling/reading concepts. These six factors are as follows: the children were read to frequently with their attention focused on the print; the adults responded to the children's print-related questions and activities; the adults were tolerant of the children's misspellings; the Early Spellers/Readers frequently observed others writing

and reading; the children learned the letter names; and the children were frequently involved in scribbling, drawing and printing activities.

The purpose of the present study was to examine the relationship, in Kindergarten classrooms, between the presence of the six forementioned early spelling/reading factors and growth in the children's knowledge of spelling as measured by LWRT gain scores. Selected for the present 1981-82 study were twelve classrooms which varied in terms of the emphasis the teachers were placing on printed letters and words.

Using a method of naturalistic inquiry the researchers collected two types of data from each classroom: observational data recording the percentage of time the children were involved in instruction and activities related to the six early spelling/reading factors, and Letter and Word Reading Test (LWRT) data measuring growth in the children's knowledge of spelling. The researchers expected that growth in the children's knowledge in spelling would be greatest in the classrooms that had relatively high measures of the six early spelling/reading factors. Conversely, children in classrooms exhibiting relatively low measures of the six early spelling/reading factors were expected to show the least amount of growth in spelling knowledge.

CHAPTER 2

LITERATURE REVIEW

The English spelling system is in part a visual codification of speech. Being alphabetic, there is a relationship between the sounds (phonemes) which are spoken and the letters (graphemes) which are printed. This orthography (system of spelling) holds certain advantages over other forms of written communication, for example, it is an easier task for people to learn the 26 different letter symbols of the English orthographic system than it is to learn the some 45000 different symbols in the Chinese writing system.

Although the English spelling system is alphabetic, complexities do exist. A one-to-one sound-letter correspondence does not exist for all words. The deviance from the alphabetic principle is explained in part by the fact that there are merely 26 different letter symbols to represent the some 40 different spoken English sounds (Cronnell, 1978; Pitman, 1969).

This lack of letter symbols has necessitated the multiple use of some letters. For instance, the letters A, E, I, O, and U, are each used to represent at least two different sounds, as in the use of the letter A to represent the sounds /æ/ as in sat and /ei/ as in play; E is used to represent /e/ as in set and /iə/ as in see; I is used to represent /I/ as in sit and /ai/ as in side; O is used to represent /ɒ/ as in not and /əu/ as in go; and U is used to represent /u/ as in put and /uə/ as in cruel.

Further deviance from the alphabetic principle stems from the fact that some sounds are represented in more than one way. For example the /ai/ sound is represented in some eight different ways, as in the words: aisle, height, eye, lie, sigh, island, choir, and buy (Pitman & St. John, 1969). Other examples of multiple spellings for a single sound are found with the letter and letter combinations used to represent the /f/ sound as in telephone, laugh and fun and the /n/ sound as in no and knock. From these and other examples it becomes understandable why efforts have been made to find explanations for the apparent lack of sound-letter correspondence in our supposed alphabetic spelling system.

Well-known spelling researcher R. E. Hodges (1981) cites three main reasons for the lack of correspondence between word pronunciations and spellings. One reason for the lack of letter and sound correspondence is that while the spoken language has changed over time, the spelling system has not, as such, the spelling of some words no longer reflect their contemporary pronunciation. For example, although the pronunciation of one, two, and right have changed, their spelling has remained the same. A second reason for the lack of letter-sound correspondence is that the spelling of some words was changed by sixteenth and seventeenth-century scribes who, with the advent of the printing press, helped to stabilize English spelling. For example the scribes spelled the words come and love with the letter o instead of the letter u. A third reason for the lack of letter-sound correspondence is that some English words have been borrowed from other languages, and in many cases the original spellings have been retained but their pronunciation changed (e.g., the Latin word gymnasium).

To resolve the question concerning the extent to which the English spelling system does indeed stray from being alphabetic, Hanna, Hodges, and Hanna, 1971 used computer technology. Taking into account the fact that individual speech sounds are often spelled differently, in different positions within syllables his computer analysis of some 17000 words revealed that over eighty-five percent of the words have relatively systematic sound to letter correspondence. Of the eighty-five percent he found that there is a systematic sound to letter correspondence for approximately fifty percent of the words and for an additional thirty-five percent the spelling is systematic when certain historical or word-building factors are taken into consideration. Further analysis of the spelling system carried out by Venezky (1967) who focused on the reflection of meaning (or morphology) in the system. Venezky's study revealed that many words which have related meanings are spelled similarly though pronounced differently (e.g., nation, national and nationality).

The research of Hanna et al. (1971) and Venezky (1967) suggest that although the English spelling system does not strictly adhere to the alphabetic principle it is, on the other hand, not erratic or irregular. At higher and more abstract levels it is quite systematic.

Developmental Spelling Strategies

Spelling researchers recently have tried to identify the strategies used by children learning to spell. Based on the assumption that analysis of children's spelling errors can reveal spelling strategies, numerous studies have been conducted (Beers & Beers, 1980; Beers, Beers & Grant,

1977; Beers & Henderson, 1977; Gentry, 1978; Read, 1975). Five developmental spelling stages have been identified: (1) The Deviant Stage, (2) The Prephonetic Stage, (3) The Phonetic Stage, (4) The Transitional Stage and (5) The Stage of Correct or Standard Spelling (Gentry, 1978). These developmental stages have received substantial empirical support in the studies of Beers and Beers (1980), Beers and Henderson (1977), Gentry (1978), and Read (1975). Each stage is characterized by a particular spelling strategy.

The Deviant Stage is the first in the developmental spelling hierarchy. Deviant spellings are characterized as randomly ordered letters produced by children indicating that the children have no knowledge of letter-sound correspondence. For example, a child might write b t B p A for the word monster (Gentry, 1981).

The Prephonetic Stage is second in the developmental spelling hierarchy and only a few of the salient letter-sound correspondences are represented. Prephonetic spelling is an indication of the children's growing awareness of the alphabetic principle (Gentry, 1981). The prephonetic spellings are usually limited to one-, two-, or three-letter sequences with the emergent speller linking some of the sounds to corresponding letters (e.g., MSR for monster and KLZ for close).

The Phonetic Stage is third and is characterized by an almost perfect match between letters and sounds. Although readable, phonetic spelling does not look like standard spelling as only the salient sounds are represented. (e.g., ADE LAFWIS KRAMD NTU A LAVATR for Eighty elephants crammed into a (sic) elevator).

The Transitional Stage is fourth in the developmental spelling hierarchy. Misspellings at this level tend to look similar to standard English orthography but common letter combinations such as oo, ou, igh, ed, and ck are typically used inappropriately (e.g., HIGHCKED for hiked).

The fifth and final stage is that of Standard or Traditional Spelling. These spellings reflect the correct conventions of the language. Gentry (1981) found that children typically use more than one spelling strategy, for unfamiliar or low frequency words children tend to use lower level spelling strategies and for familiar or high frequency words they tend to spell using higher level strategies.

Despite the complexities inherent in the English spelling system, some children enter first grade with a sizeable amount of spelling knowledge (Chomsky, 1971a; Clark, 1976; Cohn, 1981; Durkin, 1966; Hall, Moretz & Statom, 1976; King & Friesen, 1972; Plessas & Oakes, 1964; Read, 1975; Torrey, 1979). Such children are referred to as spontaneous spellers (Chomsky, 1971a), inventive spellers (Read, 1975), and early spellers (Hall, Moretz & Statom, 1976).

Coexistence of Early Spelling/Reading Skills

The majority of the Early Spellers are also characterized as being preschool or Early Readers. The Early Readers usually are found to have developed an interest in learning to print and spell prior to or simultaneously with, their interest in learning to read. The Early Spellers/Readers are typically characterized as "pencil and paper kids", spending a great deal of time engaged in writing-like behavior; spelling

simple words and taking great pleasure in seeing their words emerge in print (Chomsky, 1971(a); Clark, 1976; Cohn, 1981; Durkin, 1961, 1966; Plessas & Oakes, 1964; Read, 1975; Torrey 1979).

While there is a sizeable amount of literature focusing on the reading skills of the Early Spellers/Readers the researchers do not consistently report on the children's specific spelling abilities. It appears that the exclusion stems from the assumption that reading and spelling skills develop separately. However recent investigations (Beers & Beers, 1980; Beers, Beers & Grant, 1977; Beers & Henderson, 1977; Gentry, 1978; Read, 1975) point to the simultaneous development of spelling and reading skills. Children's spelling and reading strategies are found to be linked; higher level spelling strategies are used for the words the children see most often in their reading and lower level spelling strategies are used for words they do not come into contact with as often.

Due to the lack of available data on the development of Early Spellers in isolation, and the greater availability of research citing the co-existence and interactive development of early reading and early spelling skills, this paper will review the available early reading research together with the early spelling research. The precocious Spellers and Readers will be referred to as Early Spellers/Readers.

For the most part Early Spellers/Readers are found to have acquired their spelling and reading skills in the absence of any formal instruction from parents or siblings (Chomsky, 1971a; Clark, 1976; Cohn, 1981; Durkin, 1966; King and Friesen, 1972; Plessas & Oakes, 1964; Read, 1971, 1975; Torrey, 1979). This was also noted by Rauch (1983, Note 1). The strategies

developed by the Early Spellers/Readers appear to serve them well in subsequent years with longitudinal studies revealing that Early Spellers/Readers score higher on standardized reading and spelling tests than their Nonearly Spelling/Reading classmates, throughout the majority of the primary grades (Clark, 1976; Durkin, 1963, 1966). Keeping in mind the longitudinal studies which reveal the Early Spellers/Readers' high level of spelling and reading proficiency in subsequent grades, identification of the factors which contribute to the development of Early Spellers/Readers may have important implications for Spelling and Reading programs in kindergarten classrooms.

This literature review will first focus on the factors that have, in the past, been assumed to be prerequisite in the development of Early Spellers/Readers (e.g., intelligence, socioeconomic status, interest in print, and amount of print in the environment). It will then focus on the factors that appear, in recent research, to be important to the development of preschool children's spelling/reading knowledge (e.g., the role played by adults in activities such as reading to children, answering print-related questions, tolerating invented spellings and modelling writing and reading). The review also focuses on the skills and activities which appear to contribute to early spelling/reading knowledge (e.g. the importance of letter name knowledge and the importance of activities such as scribbling, drawing and printing).

The research methods for gathering data, which in turn provide the basis for making inferences about the correlates of Early Spelling/Reading, reflect marked differences. These methods include everything from parent

and/or investigator impressions of the children actually writing (Chomsky, 1971a, 1971b; Cohn, 1981) to analysis of their errors on standardized spelling tests (Clark, 1976). Some studies have been conducted while the Early Spellers actually acquired their skill (Hall, Moretz, & Statom, 1976) while others began their analysis of spelling errors after the children "became" Early Spellers (Read, 1975). Many studies included combinations of the above procedures. A note of caution must therefore be interjected: the available studies of Early Spellers/Readers, being basically anecdotal and correlational in design, limit the causal relationships that can be drawn between any of the factors outlined and subsequent success in beginning spelling/reading.

Factors Assumed to be Prerequisite to the Development of Early Spelling/Reading

In the past researchers have suggested that relatively high levels of intelligence and socio-economic status are important prerequisites in the development of early spelling/reading skills (King & Friesen, 1972; Krippner, 1963; Plessas & Oakes, 1964). Other factors cited are those of children's levels of interest in letters and words (Heibert, 1981; McNichol, 1983, Note 2) and amount of print in the environment. If these factors are indeed important to the development of early spelling/reading then one would expect to find most Early Spellers/Readers to have higher levels of intelligence, and/or higher socio-economic status, and/or higher levels of interest in print and/or be in more highly print filled environments than their Nonearly Spellers/Readers counterparts.

Durkin's (1966) study involving an experimental group of approximately 50 Early Readers matched with a group of Nonearly Readers on the basis of intelligence and socioeconomic status revealed high levels of intelligence and socio-economic status were not important prerequisites in the development of Early Spellers/Readers. In terms of the importance of the interest in print factor, Durkin (1970) found that many Nonearly Spellers/Readers were just as interested in print as their Early Spelling/Reading counterparts; however, in order to develop spelling & reading skills the children's interest apparently needs to be encouraged and directed by adults and/or siblings. As for the suggestion that the amount of print in the environment is one of the most important factors, as pointed out by Hiebert (1981), most children have numerous opportunities to learn about print but only a few become Early Spellers/Readers. Thus intelligence, socioeconomic status, interest in print and amount of print in the environment appear to be ruled out as prerequisites to the development of Early Spellers/Readers.

On the other hand, research indicates that there are commonalities in the environments of the Early Spellers/Readers. Six factors have repeatedly been found in the environments of the Early Spellers/Readers: 1) the Early Spellers/Readers were read to frequently, with the focus placed on the print, 2) the adults responded to the children's print-related questions and activities, 3) the adults tolerated the children's invented spellings, 4) the children often observed their parents and older siblings writing and reading, 5) the preschoolers learned the letter names, and 6) the children

spent time scribbling, drawing and printing. Each of these factors will be discussed individually with the pertinent research cited.

Factor 1: The Early Spellers/Readers were read to frequently with their attention focused on the print.

The Early Spellers/Readers liked to be read to and their parents apparently read to them frequently, sometimes reading the same story over and over (Clark, 1976; Cohn, 1981; Durkin, 1963, 1966; Hall et al, 1976; King & Friesen, 1972; Krippner, 1963; Plessas & Oakes, 1964; Rauch, Note 1). Story books, picture dictionaries, labels and signs are all cited as important reading material. During the reading sessions the parents of the Early Spellers/Readers apparently focused their children's attention on the print, pointed out words and letters, discussed letter sounds, identified letters, explained words children asked about and checked children's story comprehension. On the other hand, while many parents of the Nonearly Readers read to their children they had a tendency not to focus the children's attention on print (Rauch, Note 1).

Factor 2: Adults responded to the Early Spellers/Readers' print related questions and activities.

In the majority of homes the parents of the Early Spellers/Readers apparently did not make a conscious effort to teach their children about spelling or reading, rather they tended simply to answer the children's questions. As a group, the daycare workers, parents and teachers of the Early Spellers/Readers showed a general willingness to answer the

children's questions about print (Cohn, 1981; Clark, 1976; Durkin, 1961, 1963, 1966; Gentry, 1978, 1981, 1982; Hall et al, 1976; King & Friesen, 1972; Krippner, 1963; Plessas & Oakes, 1964; Rauch, Note 1; Read, 1975; Torrey, 1979). Parents of Early Spellers/Readers typically felt that the child's own interest in learning about print lessened the need for special training on the part of those who helped (Chomsky, 1971a, 1971b; Clark, 1976; Cohn, 1981; Durkin, 1966; Rauch Note 1; Read, 1975; Torrey, 1979). On the other hand, parents of the Nonearly Spellers/Readers generally believed that reading related instruction was best handled by trained individuals (Durkin, 1966; Rauch, Note 1).

Factor 3: Adults were tolerant of the children's misspellings.

Regardless of misspellings, parents of the Early Spellers/Readers accepted their children's spelling efforts and typically considered them as creative productions. The parents apparently offered correct spellings only when the children specifically asked for them.

Gentry (1981) suggests that young spellers need many creative or independent writing activities in order to form hypotheses about spelling; generate spelling patterns; and to reorganize, restructure and elaborate the options for spelling a word. Beers, Beers, and Grant (1977) draw an analogy between learning to talk and learning to spell. They explain that no one actually teaches young children to talk. Rather, they learn to talk by talking and by listening to others talk. Similarly, the researchers claim that children can learn to spell not necessarily from receiving

specific instruction in spelling but rather through their own experiences with writing and reading. Just as children make grammatical errors when learning to speak they will make many spelling errors when they begin to spell. It is suggested that just as children who are constantly corrected as they try to speak may hesitate for fear of being corrected, children who are continually corrected as they try to spell may hesitate for fear of being corrected. Beers, Beers and Grant (1977) suggest that adults should tolerate and encourage children's beginning attempts at learning to spell thus enabling the children's spelling strategies to develop to higher levels.

Factor 4: The Early Spellers/Readers frequently observed adults and siblings engaged in writing and reading activities.

Reportedly the Early Spellers/Readers often observed their parents and siblings involved in writing and reading tasks. It is therefore suggested that Early Spellers/Readers learned to view writing and reading activities as rich sources of information and enjoyment (Clark, 1976; Durkin, 1966; Hall et al, 1976; Krippner, 1963; Torrey 1979).

Factor 5: The Early Spellers/Readers learned the letter names.

The importance of letter name knowledge in the development of Early Spellers/Readers is cited by numerous researchers, (Beers & Beers, 1980; Beers & Henderson, 1977; Chomsky, 1977; Durkin, 1966; Gentry, 1978, 1981, 1982; Hall et al, 1976; Read 1975). Letter name knowledge typically develops out of scribbling, drawing, and copying activities, and apparently

enables beginning spellers to progress from lower level Deviant Spelling Strategies to the higher level Prephonetic and Phonetic Strategies (Gentry, 1978, 1981, 1982; Read, 1975). Early Spellers/Readers often learned the letter names and later learned that a letter can also be used to represent a sound that occurs in the name of the letter (Read, 1975).

Factor 6: The Early Spellers/Readers were frequently involved in scribbling, drawing and printing activities.

Writing materials such as paper and pencils, chalkboards, and magnetic letters were readily available, and the Early Spellers/Readers were encouraged to use them (Chomsky, 1977; Clark, 1976; Cohn, 1981; Hall et al, 1976; King & Friesen, 1972; Plessas & Oakes, 1964; Read, 1975; Torrey, 1979). Many of the Early Spellers/Readers frequently took on long-term and intense projects which included activities such as making and remaking calendars and address books (Clark, 1976; Durkin, 1966; Plessas & Oakes, 1964; Torrey, 1979). For these "pencil and paper" children the learning sequence moved from (a) scribbling and drawing, to (b) copying objects and letters of the alphabet, to (c) to spelling, to (d) reading (Durkin, 1963, 1966).

The available literature, dealing almost exclusively with in-home factors contributing to the development of early spelling/reading skills may have important implications for kindergarten Language Arts programs. If the factors found in the home environments of Early Spellers/Readers are indeed important contributors to the development of young children's early spelling/reading knowledge, then the following assumption could be made:

growth in kindergarten children's knowledge of spelling, as measured by LWRT gain scores, should be greatest in classrooms exhibiting relatively high measures of the six early spelling/reading factors; conversely, growth in children's knowledge of spelling should be least in classrooms exhibiting relatively low measures of the six early spelling/reading factors.

CHAPTER III

METHOD

This chapter describes the purpose, sample, procedure and materials used for this study. This thesis is part of a larger study initiated by Rauch, (Note 1) who in the fall of 1981 administered the Letter and Word Reading Test (LWRT) (McCormick & Mason, 1981) to almost all the children attending the forty-eight kindergartens in the North Vancouver School District. A group of Early Readers were identified and matched with a group of Nonearly Readers. The parents of both groups were interviewed to determine similarities and differences in the children's preschool activities and environments. From this initial study a set of twelve kindergarten classrooms were selected to participate in the present study.

Purpose

The purpose of the present observational study was to investigate, in selected kindergarten classrooms, the relationship between instruction and activities related to the six early spelling/reading factors and subsequent growth in children's knowledge of spelling, as measured by LWRT gain scores. It was assumed that growth in children's knowledge of spelling would be greatest in classrooms in which the children had spent the greatest amount of time in activities related to the six early spelling/reading factors.

Sample

Instruction in beginning spelling/reading concepts is optional in British Columbian kindergartens (Province of British Columbia, 1973) and the 1981 Kindergarten Assessment (Mayfield, 1981) indicated that B.C. teachers do indeed place varying levels of emphasis on print. In 1981 one-third of the teachers reportedly placed a light emphasis on print, approximately one-third placed a medium emphasis on print and the remaining third appeared to be placing a heavy emphasis on print.

Researchers involved in the present study wished to select classrooms which reflected varied emphasis placed by teachers on printed letters and words. In consultation with personnel at the Center for the Study of Reading, University of Illinois, a questionnaire was designed to identify the emphasis being placed on printed letters and words in the kindergarten classrooms. (See Appendix A). Hand delivery and retrieval of the questionnaires enabled the researchers to make cursory observations in most kindergarten classrooms and, based on the questionnaire responses and the cursory observations, the researchers roughly categorized the forty-eight classrooms as having high, medium or low print emphasis.

Having roughly established the print emphasis the researchers worked together to select twelve classrooms for the study. During the sample selection the researchers kept in mind one other factor, the desire to include classrooms containing one or more of the Early Readers identified by Rauch (Note 1).

Selected for the study were twelve classrooms: four appeared to have a high print emphasis, four appeared to have a medium print emphasis and four

appeared to have a low print emphasis. Nine of the twelve classrooms contained one or more Early Readers.

Procedure

From each classroom two types of data were collected: (1) test data measuring growth in the children's spelling knowledge, and (2) observational data recording the amount of classroom time the teachers and children were engaged in activities related to the six early spelling/reading factors. The procedure used to measure growth in the children's knowledge of spelling will be described first, the methods used to record and classify the classroom observational data will follow.

Growth in Children's Knowledge of Spelling

Growth in the children's knowledge of spelling was measured by administering, on two occasions, the Letter and Word Reading Test (LWRT) (See Appendix B) (McCormick and Mason, 1981): once at the beginning of the school year, before the children had had much classroom exposure to print-related Language Arts and again near the end of the school year, after the children had participated in a variety of classroom Language Arts activities.

The initial LWRT data were collected by Rauch (Note 1) who, with the help of a number of trained research assistants, including the researcher in the present study, administered the LWRT to almost all of the nearly 600 children enrolled in the North Vancouver kindergarten classrooms. For the present study, only the children attending the twelve selected classrooms

were retested at the end of the school year. In each instance test administrators were trained in administering the LWRT, and testing sessions lasted approximately 20 minutes. Posttest data for children new to the twelve classrooms was not collected.

Observational Formats

Four researchers were involved in collecting observational data: a member of the Simon Fraser University Faculty of Education and three graduate students of the same university who had taken graduate level courses in reading and had experience teaching in the primary grades. The data were collected during two types of Language Arts periods: whole class Group Instruction (GI) and Unstructured (US) activity sessions.

In order to collect data during these two different Language Arts periods, researchers contacted each of the twelve teachers and asked to make four 45 minute classroom observations: two observations during Group Instruction and two observations during Unstructured Language Arts activity sessions. For the most part, the teachers were very obliging and, after suggesting appropriate times for the researchers to visit, the teachers agreed to plan and implement their Language Arts sessions as usual. The researchers expected to observe varying levels of print emphasis.

Classroom observations were made during a four week period in late April and early May with the researchers assuming that a greater emphasis would be placed on developing spelling/reading related skills at the end of the school year, when kindergarten children were being prepared for their transition into Grade One.

Observational studies similar to the one undertaken in this thesis were unavailable so the researchers devised an observational schedule and four observational formats using Durkin's (1978 - 79) observational study of comprehension as a model, along with advice from personnel at the Center for the Study of Reading (Note 3). The schedule consisted of making four forty-five minute observations in each classroom. Whenever possible at least three of the four researchers made individual observations in each classroom; each classroom was observed by at least two of the four researchers. Because the study was of an exploratory nature the researchers chose not to use a checklist or instrument for recording the observational data during classroom observations the researchers remained as unobtrusive as possible, rapidly taking notes regarding the activities of the teacher and children and the materials being used.

During Group Instruction (GI) observations the researchers focused primarily on the activities of the teacher, noting what she was doing, the materials she was using, and whether the activity involved print-related material (if so, whether the emphasis was on a letter, a number, a child's name, a word, a sentence or a book). Scans of the children were made noting their responses to the group instruction. During Unstructured (US) activity sessions the researchers focused primarily on the children, taking note of their activities and whether their activities involved printed numbers, letters or words.

Four observational formats were established and separate sets of observational categories were established for each format: these will be described in the next section. The researchers met with one another

frequently to establish and define the categories within each format. To be sure that there was consistency between the researchers' categorization of the data, the researchers made a point of jointly categorizing the first two sets of observational data collected by each researcher. In total, eight sets of observational data were jointly categorized. From then on the researchers met frequently to discuss the categorization of subsequent data. Categories were collapsed and redefined as necessary.

The categories established for the four observational formats are described in the following pages.

Group Instruction - Focus on Teacher's Activities

During GI the researchers focused primarily on the instruction provided by the teacher. The GI observations commenced with a 10 minute focus on the teacher's instruction, followed by a 10 second scan of each child. Eight categories and six subcodes were established for the GI (Teacher) formats. (See Table 1).

Definitions of the categories are:

Comprehension Discussion - Teacher leads a discussion intended to develop children's understanding of material being read or discussed (subcoded as Child or Teacher Initiated, and Print or Nonprint-Related). The subcodes used for each follow in brackets and their definitions are given at the end of the GI (Teacher) categories.

Concept/Vocabulary Development - Teacher leads an activity intended to increase children's knowledge of specific concepts or vocabulary (subcoded as Teacher or Child Initiated, and Print or Nonprint-Related).

TABLE 1.

Categories Established for the GI (Teacher) Observational Format

Teachers' Activities	Subcodes	
	CI or TI ^a	PR or NPR ^b
Comprehension Discussion	CI or TI	PR or NPR
Concept/Vocabulary Development	CI or TI	PR or NPR
Giving Directions		PR or NPR
Speaking Skills	CI or TI	PR or NPR
Reading ^{c,d}		PR
Management/ Checking Work		PR or NPR
Printing ^d Instruction		PR
Reading ^d Instruction		PR

^a CI or TI - Child Initiated or Teacher Initiated

^b PR or NPR - Print Related or Nonprint Related

^c Also categorized as having a Print Emphasis, a Picture Emphasis or No Emphasis

^d Also categorized as being a focus on a child's name, a letter, a number, a word, a sentence or a book

Giving Directions - Teacher gives directions to children on how to complete a task (subcoded as Print or Nonprint-Related).

Speaking Skills - Teacher leads class in a speaking or singing activity (subcoded as Child or Teacher Initiated and Print or Nonprint-Related).

Reading - Teacher or child reads to group. This is, by definition, print-related (subcoded as having a Print, Picture or No Emphasis).

Management/Checking Work - Teacher focuses on either correcting misbehaviour, correcting assignments or providing the children with transition time between activities (subcoded as Behavior Control, Nonbehavior Control or No Interaction and as Print or Nonprint-Related).

Printing Instruction - Teacher gives instructions in printing. This is print-related by definition (subcoded as a Watching, Tracing or Copying activity).

Reading Instruction - Teacher gives instruction in reading. By definition this is print-related (Level of Focus was recorded as being on a child's name, letter, number, word, sentence or book).

Definitions of the six subcodes are:

Child Initiated or Teacher Initiated (CI or TI) - If the categories Comprehension Discussion, Concept/Vocabulary Development and Speaking Skills began with a child's question or comment it was coded as Child Initiated (CI); conversely if the activity was initiated by a teacher it was coded as Teacher Initiated (TI).

Print-Related or Nonprint-Related (PR or NPR) - When GI involved printed letters, numbers or words it was coded PR. When GI did not involve

printed letters, numbers or words it was coded NPR. In order to record all print-related instruction, regardless of its incidental nature, the researchers coded Comprehension Discussion, Concept/Vocabulary Development, Speaking Skills, Giving Directions and Management/Checking Work as Print-Related (PR) or Nonprint-Related (NPR). By definition, Reading, Reading Instruction and Printing Instruction are print-related.

Level of Focus on Print - For the categories of Printing Instruction and Reading Instruction the Level of Focus on Print was recorded as on a child's name, a letter, a number, a word, a sentence or a book.

Print emphasis, Picture Emphasis or No Emphasis - During Reading the teacher's emphasis was coded as being a Print or Picture Emphasis or as having No emphasis.

Watching, Copying or Tracing - Printing Instruction was sub-coded as a Watching, Copying or Tracing activity. There proved to be little classroom time spent on Printing Instruction and this breakdown was not used in the analysis of the results.

Group Instruction - Focus on Children's Activities

To examine children's involvement during GI, their activities were recorded at the end of each 10 minute focus on the teacher. During the GI (Children) focus each child was watched for 10 seconds, and his or her activities were recorded as:

On Task - when a child was behaving as he/she had been asked.

Off Task - when the child was not behaving as he/she had been asked.

Correct Response (CR) - when a child did or said something that was considered as a correct response by the teacher.

Incorrect Response (IR) - when a child did or said something that was not considered as the the correct answer.

No Response (NR) - when a child made no response and no response was expected by the teacher.

Print-Related (PR) - when a child's response was related to print material.

Nonprint-Related (NPR) - when a child's response was not print-related.

Unstructured Sessions - Focus on Children's Activities

During US, the researchers' attention was focused primarily on the children. The US observations began with a 10 second scan of each of six children followed by a 10 second scan of the teacher. Table 2 presents an overview of the categories and subcodes established to record the children's activities during US.

Definitions for the (US) Children categories are:

Prewriting Activity - child uses a writing implement but does not print letters or numerals (e.g., the child paints, colors, draws, scribbles).

Writing Activity - child traces, copies, or prints independently (subcoded as PR with Level of Focus recorded as being on a child's name, letter, numeral, word or sentence).

TABLE 2.

Categories Established for the US (Children) Observational Format

Children's Activities	Subcodes
	PR or NPR
Prewriting	NPR
Writing ^a	PR
Reading ^a	PR
Other Print/Language Related ^a	PR
Nondirected/Non Print Related	NPR
Art	NPR
Distinctive Feature	NPR
Oral Language Related	NPR
Watching	NPR
Conversation	NPR
Off Task	NPR
Other	NPR

^a Also categorized as being a focus on a child's name, a letter, a numeral, a word, a sentence or a book

Reading Activity - child reads independently or listens to someone else (subcoded as PR with the Level of Focus recorded).

Other Print/Language-Related Activity - child plays with print-related objects but does not focus on the print (e.g., the child builds a structure with plastic letter shapes).

Nondirected/Nonprint-Related Activity - child engages in activities which do not require teacher instruction and are not print-related (e.g., the child plays in playhouse center, builds with blocks, eats a snack or cleans up the classroom).

Art - child works on craft-like project which do not involve writing implement (e.g., the child cuts or glues papers).

Distinctive Features Activity - child works at a nonprint activity involving distinctive features (e.g., the child works at a jigsaw puzzle).

Oral Language-Related Activity - child is involved in a nonprint activity and appears to be concentrating on oral language (e.g., the child plays with puppet or listens to a tape recorder).

Watching - child watches others engaged in a nonprint activity.

Conversation - child talks with someone.

Off Task - child is clearly not paying attention to any specifiable classroom activity (e.g., the child is wandering, leaving the room, or misbehaving).

Other - child is involved with a nonprint-related activity not classifiable as distinctive feature, art or oral language-related (e.g., the child dances, exercises or plant seeds).

The subcodes established to further record US (Children) activities are given below:

Print-Related or Nonprint-Related - By definition, the three categories of Writing and Reading and Other Print/Language-Related are concerned with printed letters and numbers and as such are coded Print-Related (PR). The remaining nine categories which did not involve print are by definition Nonprint-Related (NPR).

Level of Focus on Print - The Level of Focus during US print-related activities was also recorded as being a focus on a child's name, an individual letter, numbers, a word, a sentence or a book.

Unstructured Sessions - Focus on Teacher's Activities

During US observations the focus was primarily on the children; however, after six children had been individually observed for 10 seconds each, the teacher was observed for 10 seconds. Table 3 presents a summary of the US (Teacher) categories and subcodes.

The US (Teacher) categories are:

Interaction - Behaviour Control - teacher interacts with child attempting to modify child's behaviour.

Teacher/Student Interaction - Not Behaviour Control - teacher talks with child (e.g. gives directions, or has conversation).

No Interaction - no interaction takes place between teacher and child (e.g., the teacher looks in a cupboard, sits at her desk, leaves the room or talks with someone at the door).

TABLE 3.

Categories Established for the US (Teacher) Observational Format

Teacher Activities ^a	PR or NPR
Interaction (Behavior Control)	PR or NPR
Teacher/Student Interaction (Nonbehavior Control)	PR or NPR
No Interaction	PR or NPR
Concept/Vocab Development	PR or NPR
Writing (Teacher Writes)	PR
Writing (Teacher Watches Child Write)	PR
Reading (Teacher Reads)	PR
Reading (Teacher Listens to Child Read)	PR

^a All activities were categorized as having a focus on a child's name, a letter, a number, a word, a sentence or a book

Concept/Vocabulary Development - teacher has discussion with child in an attempt to help child understand a concept or word meaning.

Writing (Teacher Writes) - teacher prints as child watches.

Writing (Teacher Watches Child Write) - teacher watches as child prints.

Reading (Teacher Reads) - teacher reads and child listens.

Reading (Teacher Listens to Child Read) - teacher listens as child reads.

Definitions of the subcodes used in the US (Teacher) observations are:

Print-Related or Nonprint-Related (PR or NPR) - When US (Teacher) activities involved printed letters, numbers, or words, it was coded PR. When US (Teacher) activities did not involve printed material it was coded NPR. Concept/Vocabulary Development, Interaction Behavior Control, Interaction Nonbehavior Control and No Interaction were either coded as Print or Nonprint-Related. The categories of Reading and Writing were, by definition, Print-Related.

Level of Focus on Print - The level of focus on print during Print-Related activities was coded as being a focus on a child's name, a letter, number, a word, sentence or book.

In summary, the researchers made four visits to each classroom: two during periods of Group Instruction and two during periods of Unstructured activity time. During the GI observations the researchers focused on the activities of the teachers and made very brief observations of the children. During the US observations the researchers focused on the children's activities and made brief observations of the teacher's

activities. Of necessity four sets of observational categories were developed (GI-Teacher, GI-Children, US-Children, US-Teacher).

Observational Data Selected to Reflect the Six Early Spelling/Reading Factors

It will be recalled that the purpose of the classroom observations was to determine the amount of time the children were involved with instruction and activities related to the six early spelling/reading factors. Observational data collected during GI and US were used to determine the amount of time children were involved in activities related to the six early spelling/reading factors. Thirteen sets of observational categories were selected to reflect the presence of the six factors. Unfortunately the GI (Children) data were found to be non-discriminatory in that most children were recorded as being On Task, hence the GI (Children) data will not be presented. The Category sets established for each factor are discussed below and presented in Table 4.

Factor One (Children were read to frequently with their attention focused on the print)

Categories from the three observational formats of GI (Teacher), US (Children) and US (Teacher) were selected to determine the amount of classroom time children spent in activities related to Factor One. Included in the GI (Teacher) set was the category of Reading - Teacher Reads with a Print Emphasis. Included in the US (Children) set was the category of Reading Activity. The US (Teacher) set included the category Reading - Teacher Reads.

TABLE 4.

Observational Data Selected to Reflect the
Six Early Spelling/Reading Factors

Factor 1: Children are read to with their attention focused on the print.		Factor 2: Adults respond to children's print related questions and activities.	Factor 3: Adults are tolerant of children's misspellings.	Factor 4: Children have the opportunity to observe others writing and reading	Factor 5: Children have the opportunity to learn the letter names.	Factor 6: Children are involved with scribbling, drawing and printing.
G I R N O S U T P R E C A T C H I O E R	Reading - Teacher Reads, Print Emphasis	Comprehension Discussion - PR/CI Concept/Vocab. Development -PR/CI Speaking Skills - PR/CI	No Data	Reading - Teacher Reads, All Emphases	Comprehension Discussion - PR Concept/Vocab. Development - PR Giving Directions - PR Speaking Skills -PR Reading - All Emphases Management/Checking Work - PR Printing Instr. Reading Instr.	Printing Instruction
	Reading Activity	No Data	No Data	Writing Activity Reading Activity	Writing Activity Reading Activity Other Print/Language Related	Prewriting Activity Writing Activity
	Reading - Teacher Reads	Interaction Nonbehavior Control - PR Interaction Behavior Control - PR Writing - Teacher Watches Child Write Reading - Teacher Listens to Child Read	No Data	No Interaction - PR Writing - Teacher Writes Writing - Teacher Watches Child Write Reading - Teacher Listens to Child Read Reading - Teacher Reads	Interaction Behavior Control - PR Interaction NonInvr. Control - PR Concept/Vocab. Development - PR Writing - Teacher Writes Writing - Teacher Watches Child Write Reading - Teacher Listens to Child Read Reading - Teacher Reads	No Data
C H I L D R E N U N S T R U C T U R E D T E A C H E R						

Factor Two (Parents responded to the children's print-related questions and activities)

Categories from the GI (Teacher) and US (Teacher) observational formats were selected to measure the amount of classroom time the children spent involved in Factor Two activities. US (Children) categories were not included in the measurement of Factor Two. The GI (Teacher) set included the three categories of Comprehension Discussion, Concept/Vocabulary Development and Speaking Skills. These three categories were included only if the observations were subcoded as Child Initiated and Print-Related (CI/PR). The US (Teacher) set included the categories of Interaction Nonbehavior Control PR, Interaction Behavior Control PR, Reading, and Writing - Teacher Watches Child Write.

Factor Three (Parents were tolerant of the children's misspellings)

The presence of Factor Three was to be determined by recording the teacher's responses to children's misspellings. As no such data were available it was not possible to measure the presence of Factor Three.

Factor Four (Children frequently observed parents and siblings writing and reading)

The presence of Factor Four was determined using categories selected from the three observational formats of GI (Teacher), US (Children) and US (Teacher). The GI (Teacher) set included the category Reading (Teacher Reads). The US (Children) set included the categories of Writing Activity and Reading Activity. The US (Teacher) set included the categories of No

Interaction PR, Reading (Teacher Reads), Reading (Teacher Listens to Child Read), Writing (Teacher Writes) and Writing (Teacher Watches Child Write).

Factor Five (Children learned the letter names)

The presence of Factor Five was determined using categories selected from the three observational formats of GI (Teacher), US (Children) and US (Teacher). The eight categories selected for the GI (Teacher) set were Comprehension Discussion PR, Concept/Vocabulary Development PR, Giving Directions PR, Speaking Skills PR, Reading - All Emphases, Management/Checking Work PR, Printing Instruction and Reading Instruction. Selected for the US (Children) set measuring Factor Five were Writing Activity, Reading Activity and the category of Other Print and Language-Related. Selected for the US (Teacher) set were the categories of: Interaction Nonbehavior Control PR, Interaction Behavior Control PR, Concept/Vocabulary Development PR, Reading (Teacher Reads), Reading (Teacher Listens to Child Read), Writing (Teacher Writes) and Writing (Teacher Watches Child Write).

While the Level of Focus on Print at the Letter Level was probably most appropriate for the development of letter-name knowledge, it was also assumed that print-related instruction and activities at any level would result in children focusing their attention on print and thus provide them with the opportunity to increase their knowledge of letter names.

Factor Six (Children were frequently involved with scribbling, drawing and printing activities)

The presence of Factor Six was determined using categories selected from two observational categories: GI (Teacher) and US (Children). The GI (Teacher) set included the category of Printing Instruction. The US (Children) set included the categories of Prewriting Activity, Writing Activity. The US (Teacher) categories were not included in the measure for Factor Six.

As shown in Table 4, thirteen sets of observational categories were established to determine the presence of the six early spelling/reading factors: five GI (Teacher) sets, four US (Children) sets and four US (Teacher) sets. It should be noted that some categories were selected for more than one set.

Once collected, coded and tallied, the observational data from each classroom was converted from seconds to percentages. Calculations were made separately for the four different observational formats.

Interrater Reliability

Although reliability was evident in the researchers' consistent use of the coding system, no statistical measure of inter-rater reliability was taken. The researchers met formally to jointly discuss and categorize the first two sets of observational data collected by each researcher. From then on the researchers met frequently to collapse, redefine or discuss generally the use of the categories. A further verification of the use of the categories was accomplished through frequent and formal checks of one

another's observational classifications. This method of establishing categories, classifying observational data and establishing interrater reliability is consistent with the method used by Durkin (1978 - 1979).

Instruments

The Letter and Word Reading Test (LWRT)

The purpose of the Letter and Word Reading Test (Mason and McCormick, 1979) (Note 4) is to measure, using a developmental model, young children's beginning knowledge of spelling and reading concepts. The LWRT used in the present study was modified by Rauch (Note 1) (see Appendix B) and consists of 10 subtests which measure children's ability to identify words found on labels, identify letters, spell short regular words, read sight words in context and isolation, read nonsense words emphasizing knowledge of consonant and vowel sounds, read words from labels printed in standard printing, print names or words, and identify parts of a book.

For the present study, five of the LWRT subtests were chosen to measure growth in the children's knowledge of spelling: Letter Name Knowledge, Consonant Sound Knowledge, Spelling, Vowel Sound Knowledge and Printing Knowledge. These subtests were selected for a number of reasons. First, the subtests had been found to be a reliable and valid measure of young children's reading and related skills (Mason and McCormick, Note 4). Second, the test takes into account the developmental manner in which children acquire their early spelling/reading knowledge. Third, the test had been administered at the beginning of the school year to a large group of approximately 600 kindergarten students for the original study initiated

by Rauch (Note 1). It therefore seemed very appropriate to use, for the present study, five of the LWRT subtests to measure growth in the children's spelling knowledge.

The five LWRT subtests selected to measure growth in the children's spelling knowledge are described below:

Letter Name Knowledge - measures children's ability to name common letters of the alphabet. Each child was individually presented with two cards: on one card ten upper case letters were printed, and on the other card ten lower case letters were printed. The same letters were used on both cards although they appeared in a different order. The letters chosen were R P H F A D T M E B. These letters met the following criteria: they are frequently used in English spelling, and two confusable letter pairs (eg. b-d and t-f) are included. The child was asked to point to and name each letter. One point was given for each correct letter identified.

Consonant Sound Identification - measures children's knowledge of consonant sounds. Each child was individually presented with sixteen cards, each having one nonsense word printed on it (e.g., pav). The cards were presented one at a time. The criteria for selecting the nonsense words were: all words had a consonant-vowel-consonant structure (CVC), high frequency consonants were used, two different consonants appeared in each word, each consonant was tested in both the initial and the final positions and easily confusable consonants such as b and d were included in the set. The first eight words were made up of consonants whose sound coincides with the initial sound segment of the letter name (e.g., in the words pav and daz the initial consonant sounds are similar to the sound at the beginning

of the letter names). The remaining eight words contained consonants whose sounds do not coincide with the initial sound of the letter names (e.g., fac and daz). To make the task somewhat easier, the vowel a was used throughout enabling the child to concentrate on the consonants. If the child was unable to read the word, he/she was encouraged to sound out the letters he/she recognized. One point was given for the correct pronunciation of each consonant regardless of the order in which the sounds were given. Pronunciation of the vowel was ignored.

Spelling - measures children's ability to segment short words into their component sounds and to represent the sounds by the appropriate letters. Words selected for this subtest were two or three letters in length with a consonant-vowel-consonant (CVC) or vowel-consonant (VC) structure. Each child was provided with seven upper case magnetic letters: five consonants and two vowels. The letters were arranged in the following order, T P C A O S K, and the child was asked to use the letters to spell four individual words: CAT, TOP, AT, and POT. One point was given for each letter in the correct initial, medial or final position. No time limit was set.

Vowel Sound Identification - measures children's knowledge of regular vowel patterns. This subtest consists of twenty nonsense words. The first five words test knowledge of the short vowel sounds in the consonant-vowel-consonant pattern (CVC), the next five words measure knowledge of the long vowel sounds in the consonant-vowel-consonant-silent e pattern (CVCE), the subsequent five words test children's knowledge of

the complex vowel combinations oy, ay, ee, ai and oi, and the final five words test the children's knowledge of "r" controlled vowels.

The twenty words in this subtest were hand printed onto separate cards and presented to the child one at a time. If the student was uncertain of how to pronounce the word he/she was encouraged to make a guess. One point was given for the correct vowel sound. Consonant sounds were not scored in this subtest.

Printing - measures the children's ability to print the letters of the alphabet. In each instance the child was given a pencil and a piece of paper and asked to print (a) his/her name, (b) any other words, and only if the child was unable to print any other words, they were asked to print (c) any two letters not included in his/her name. One point was given for name, two points were given for the spelling of another word and if the child could not spell another word they were given one point if they could print any two letters not in their name.

Validity of the LWRT for the Present Study

Mason and McCormick (Note 4) report the following LWRT evaluation results. The predictive validity of the test was examined through correlations between the LWRT subtest scores and the Gates-McGinitie Vocabulary and Comprehension Achievement scores. The LWRT had been administered at the end of kindergarten and at the beginning of Grade One. The Gates-MacGintie was administered at the end of Grade One. Predictive validity was examined with correlations between subtest scores from both time periods and the Gates-MacGintie Vocabulary and Comprehension

achievement scores. The range of correlations for the spelling related subtests with Vocabulary at the end of kindergarten were between .51 and .67. The range of correlations between the spelling related subtest and Comprehension for the end of kindergarten were from .45 to .51. For the beginning of Grade One the correlations between the spelling related subtests Vocabulary ranged between .45 and .77. Correlations between the spelling related subtests and Comprehension at the beginning of Grade One were between .37 and .72. All correlations were significant at or beyond the .01 level, indicating that every subtest measured skill or knowledge which was directly related to achievement in beginning reading. As mentioned earlier, young children's preschool knowledge of reading and spelling appear to reinforce one another (Beers and Beers, 1980; Beers, Beers and Grant, 1977; Beers and Henderson, 1977; Chomsky, 1971(a), 1971(b); Clark, 1976; Cohn, 1981; Durkin, 1961,1966; Plessas and Oakes, 1964; Read, 1975; Torrey, 1979). It is therefore assumed that the LWRT subtests measure both spelling and reading knowledge. The total test, test-retest correlation was .85, indicating a relatively high reliability.

The available test-retest correlations for the selected subtests are as follows: Spelling, .67; Letter Name Knowledge, .89; Consonant Sound Identification, .75; Vowel Identification, .57. No test-retest data are available for the Printing Subtest. The stability coefficients varied considerably and were lower than that of the whole test. Mason & McCormick (1979) note that letter naming was probably stable because most of the children were unerringly accurate at both time periods. Consonant identification seemed to be stable because of consistent improvement by

most children. Small erratic gains or losses possibly due to lucky guesses is the reason cited for the lower test-retest correlation for vowel identification.

CHAPTER IV

RESULTS

The purpose of the study was to investigate the relationship between the amount of time the children were involved in activities related to the six early spelling/reading factors and subsequent growth in the children's knowledge of spelling, as measured by LWRT gain scores. It was assumed that growth in the children's spelling knowledge would be greatest in classrooms in which the children had spent the greatest amount of time involved with instruction and activities related to the six early spelling/reading factors.

This chapter presents the LWRT data measuring growth in children's spelling knowledge and the observational data establishing the percentage of time the children spent involved in instruction and activities related to the six early spelling/reading factors. The two sets of data are then examined together to determine if a relationship exists between the amount of time the children were involved with activities related to the six early spelling/reading factors and growth in the children's spelling knowledge.

Spelling Test Results

Growth in spelling knowledge was measured by calculating the difference between pre- and posttest scores on all of the five LWRT subtests and on the total of the five subtest scores. The children's pre-

and posttest scores and calculated growth score are reported as class means.

Letter Name Knowledge Subtest

The children's pretest scores on the Letter Name Knowledge Subtest (Table 5) suggest that it is a satisfactory instrument for measuring Kindergarten children's preschool letter name knowledge. With a maximum of twenty items the highest mean class pretest score was 15.6. The mean pretest score for all classrooms was 11.5 (s.d.:3.0). As a posttest measure of kindergarten children's knowledge of letter names this subtest appeared to be inadequate because of a ceiling effect. More items on the test might have altered this problem. The maximum possible score on this subtest was twenty and the mean posttest score was 16.4 (s.d.:2.7) with one class score of 19.8. Children's knowledge of letter names increased by an average of 4.9 points. Classrooms A, B, K and D placed above the mean in terms of growth in their letter name knowledge. Two of these classrooms had pretest scores below the mean.

Consonant Sound Identification Subtest

The maximum possible score for the Consonant Sound Identification Subtest was 32. Both pre- and posttest scores indicate that this subtest was appropriate for measuring growth in the children's knowledge of consonant sounds. Class means on the pre- and posttests and the Measures of Growth are reported in Table 6. The mean scores for the pre- and posttest are 5.6 and 16, respectively, with the average amount of growth 10.3

TABLE 5.

Scores on Letter Name Knowledge Subtest
(Maximum = 20)

Class	Number of Children in Class	Pretest	Post Test	Gain
A	18	9.4	17.2	7.8
B	12	9.8	17.2	7.4
C	13	8.2	13.2	4.9
D	12	11.7	17.1	5.3
E	11	15.1	19.8	4.7
F	12	10.2	13.1	2.9
G	10	6.3	11.2	4.9
H	6	10.5	15.0	4.5
I	8	15.5	19.5	4.0
J	19	15.6	18.4	2.7
K	10	11.9	18.6	6.7
L	18	14.0	16.8	2.8
	mean: 12.4 s.d.: 4.1 median: 12.0	mean: 11.5 s.d.: 3.0 median: 11.1	mean: 16.4 s.d.: 2.7 median: 17.0	mean: 4.9 s.d.: 1.7 median: 4.8

points. Seven classrooms (J, H, A, L, I, B, E,) placed above the mean in terms of growth in their Consonant Sound knowledge. Five of these classes, had pretest scores below the mean.

Spelling Subtest

The maximum possible score for the spelling test was 11. The pre- and posttest scores in the Spelling Subtest presented in Table 7 indicate that this is an appropriate test for measuring kindergarten children's pre- and posttest spelling ability. The data indicate that there were some children in every class that had some preschool spelling knowledge. The difference between the pre- and posttest scores indicates that the children improved on an average of 4 points in this subtest. Scoring above the mean on the growth measure are six classrooms (J, I, H, D, E, A). Three of these classrooms had pretest scores below the mean.

Vowel Identification Subtest

The maximum possible score for the Vowel Identification subtest was 20. The results presented in Table 8 indicate that this is an extremely difficult test for kindergarten children. Columns 1 and 2 indicate that the children's pre- and posttest knowledge of vowels was very limited (mean scores of .4 and 2.2, respectively). Growth in knowledge of vowels averaged 1.7. Five classrooms (H, I, L, D, J) scored above the mean. Three of these classrooms had pretest scores below the mean.

TABLE 6.

Scores on Consonant Sound Identification Subtest
(Maximum = 32)

Class	Pretest	Post Test	Gain
A	3.8	18.3	14.5
B	3.1	14.2	11.0
C	6.2	12.8	6.5
D	7.6	17.9	10.3
E	2.7	13.6	10.9
F	8.6	12.6	4.6
G	3.2	4.5	1.3
H	0.0	15.8	15.8
I	11.4	22.9	11.5
J	3.8	21.4	17.6
K	8.6	17.1	8.5
L	8.6	20.4	11.9
	mean: 5.6	mean: 16.0	mean: 10.3
	s.d.: 3.3	s.d.: 4.9	s.d.: 4.6
	median: 5.0	median: 16.5	median: 11.0

TABLE 7.

Scores on Spelling Subtest
(Maximum = 11)

Class	Pretest	Post Test	Gain
A	1.4	6.4	4.9
B	1.7	4.5	2.8
C	0.8	4.7	3.9
D	1.5	6.7	5.2
E	2.6	7.8	5.2
F	1.8	5.3	3.5
G	1.5	2.4	0.9
H	1.5	6.8	5.3
I	3.1	8.6	5.5
J	2.4	8.5	6.1
K	3.3	6.6	3.3
L	5.7	6.8	1.1
	mean: 2.3 s.d.: 1.3 median: 1.7	mean: 6.3 s.d.: 1.8 median: 6.7	mean: 4.0 s.d.: 1.7 median: 4.4

TABLE 8.

Scores on Vowel Identification Subtest
(Maximum = 20)

Class	Pretest	Post Test	Gain
A	0.1	1.7	1.7
B	0.6	0.9	0.3
C	0.4	1.9	1.5
D	0.4	3.2	2.8
E	0.2	1.6	1.5
F	0.5	0.8	0.3
G	1.1	1.8	0.7
H	0.0	3.2	3.2
I	0.5	3.6	3.1
J	0.0	2.2	2.2
K	1.1	2.1	1.0
L	0.3	3.1	2.8
	mean: 0.4	mean: 2.2	mean: 1.7
	s.d.: 0.4	s.d.: 0.9	s.d.: 1.1
	median: 0.4	median: 2.0	median: 1.6

Printing Subtest

Results on the Printing Subtest proved to be nondiscriminatory in that most children could print their name and either another word or two more letters. As such the data for the Printing Subtest are not included in this study.

Summary of Spelling Test

Table 9 presents, pre- and posttest scores and Growth Measures on the entire set of LWRT subtests for all classrooms. Children in seven classrooms (A, H, J, I, D, E, B) showed above average growth in spelling knowledge; children in three of these classrooms (H, A, B) scored below the mean on the pretest.

Keeping the purpose of the study in mind, the researchers assumed that children with above average growth in spelling knowledge would be found in classrooms where above average amounts of time had been spent in activities related to the six early spelling/reading factors.

Observational Data Results

The classrooms selected for the study appeared to vary in terms of the emphasis placed on activities related to the early spelling/reading factors. The researchers assumed that the heaviest emphasis on print-related Language Arts instruction would occur at the end of the year when the children would be prepared for the transition into the formalized Grade One Language Arts program. Observational data were collected from each classroom during Group Instruction (GI) in Language Arts and

TABLE 9.

Combined Scores on LWRT Subtests
(Maximum = 83)

Class	Pretest	Post Test	Gain
A	14.7	43.6	28.9
B	15.3	36.8	21.5
C	15.6	32.5	17.0
D	21.2	44.9	23.7
E	20.6	42.8	22.2
F	20.5	31.8	11.3
G	12.1	19.9	7.8
H	12.0	40.8	28.8
I	30.5	54.6	24.1
J	21.8	50.5	28.7
K	24.9	44.4	19.5
L	28.6	47.1	18.5
	mean: 19.8 s.d.: 6.1 median: 20.6	mean: 40.8 s.d.: 9.4 median: 44.0	mean: 21.0 s.d.: 6.7 median: 21.9

Unstructured Language Arts activity times (US). Not all classroom activities were related to the six early spelling/reading factors therefore not all the data were used in the analysis of the results. What is surprising is the small amount of Language Arts time spent in early spelling/reading related activities.

The observational data are reorganized in Table 10. An average of 84 minutes of GI data were collected from each classroom. Of the GI (Teacher) data collected, an average of 64% did not include early spelling/reading related activities. An average of 46 minutes of US (Children) data were collected from each classroom. Of the US (Children) data collected an average of 70% did not include any early spelling/reading related activities used in the analysis of the results. An average of 8 minutes of US (Teacher) data were collected from each classroom and of this very small amount of US (Teacher) data collected an average of 72% did not include any early spelling/reading related activities. Thus for all classrooms and all GI and US formats combined, an average of 138 minutes of data were collected from each classroom but almost 70% of observational data did not involve any early spelling/reading related activities.

The discussion in the remainder of this chapter involves approximately 30% of the observational data, an average of approximately 42 minutes per class. Considering the fact that the classroom observations were made during Language Arts periods near the end of the school year, along with the fact that nine of the classrooms contained one or more Early Reader (identified by Rauch, Note 1) this small percentage of classroom time devoted to early spelling/reading related activities is quite surprising.

TABLE 10.

Classroom Observational Data

Class	Focus on Teachers During Group Instruction	Focus on Children During Unstructured Activity Time	Focus on Teachers During Unstructured Activity Time
A	^a 118 min. ^b 69 %	30 76	5 53
B	31 81	69 72	12 80
C	79 70	24 73	4 67
D	84 60	53 81	9 77
E	73 56	56 51	9 73
F	76 57	34 68	62 71
G	75 100	58 53	10 81
H	141 45	28 64	5 75
I	75 69	55 74	9 58
J	98 45	50 65	8 72
K	77 62	37 79	6 87
L	78 50	58 78	10 72
Mean Minutes:	84	46	8
s.d.:	26.7	14.6	2.5
Mean Percentage:	64 ^c	70	72
s.d.:	15.7	9.8	9.3

^a Length of observations, in minutes

^b Percentage of observational data not included in analysis

^c Mean Percentage of minutes not included in analysis

In reading the remainder of this thesis one must keep in mind that because in many cases there are only a small number of minutes from each class to work with, the conclusions one may draw are very limited.

To investigate the relationship between growth in children's spelling knowledge and the amount of classroom time spent in early spelling/reading related instruction and activities, thirteen sets of observational categories were established. (See Table 4). The presence of Factors Two, Three and Four were measured using three sets of observational categories the presence of Factors One and Four were determined using two sets of observational categories. Of the thirteen sets of observational categories five were from the GI (Teacher) format, four were from the US (Children) format and four were from the US (Teacher) observational format.

The classroom observational data will be considered in two ways. First the data will be examined separately for each of the six early spelling/reading factors, secondly the data will be considered together for all six of the early spelling/reading factors.

For the first method of data analysis the GI (Teacher) observational sets will be examined followed by the US (Children) and US (Teacher) sets. The within factor sets will then be considered together.

Factor One: Children are read to frequently with their attention focused on the print.

The amount of time children were read to was considered by examining three sets of data: GI (Teacher), US (Children) and US (Teacher). (Refer to Table 4 for the observational categories within each set). The percentage

of GI (Teacher) time that children were read to is presented in Table 11. Children in ten classes were not read to by their teachers with the teacher's emphasis on the print.

Table 11 indicates that children read in this category in every classroom; on an average the children read for approximately 10.4% of US and children in six classrooms (C, F, I, B, L, H) spent more than an average amount of time reading.

Children in five classrooms were not read to by their teachers during US. The mean amount of US time the children were read to was 4.1%, with five classrooms (C, H, J, E, F) placing above the mean. This low percentage of time spent by teachers reading to children during US is not surprising as kindergarten children generally are read to during GI as a whole group.

Considering the GI (Teacher), US (Children) and US (Teacher) together for Factor One, children in one classroom (H) spent above average amounts of time involved in Factor One activities in all three observational data sets. Children in three classrooms (C, F, J) spent above average amounts of time in two of the observational formats.

Factor Two: Adults responded to children's print-related questions and activities.

Two sets of observational categories were used to determine the amount of time teachers responded to children's print-related questions and activities. These included the GI (Teacher) and US (Teacher) observational formats.

TABLE 11.

Percentage of Time Children Were Read To
With Their Attention Focused on the Print

Class	Percentage of Time Teachers Read During GI With Emphasis on Print	Percentage of Time Children Read During US	Percentage of Time Teachers Read During US
A	0.0	5.2	0.0
B	0.0	11.6	1.4
C	0.0	23.0	12.5
D	0.0	3.6	0.0
E	0.0	5.1	7.2
F	0.0	18.2	5.8
G	0.0	6.1	0.0
H	5.7	10.8	10.7
I	0.0	13.8	1.8
J	11.2	7.6	10.0
K	0.0	8.2	0.0
L	0.0	11.2	0.0
	mean: 1.4 s.d.: 3.5 median: 0.0	mean: 10.4 s.d.: 5.8 median: 9.5	mean: 4.1 s.d.: 4.8 median: 1.6

The percentage of GI (Teacher) time teachers were observed responding to Child Initiated/Print-Related questions and activities is reported in Table 12. Only two classrooms (J, K) spent time in this measure; in ten classrooms teachers were not observed responding to Child Initiated/Print-Related questions and activities during GI.

On an average teachers spent about 18% of US responding to children's Print-Related questions and activities. Five schools (A, I, L, F, E) scored close to or above the mean.

Comparison of the GI (Teacher) and US (Teacher) observational sets for Factor Two indicates that the teachers who were observed during GI to be responding to the children's print-related questions and activities were not observed during US to be responding to the children's print-related questions and activities. This lack of similarity between the teachers activities during GI and US was not expected, rather it was assumed that during US teachers would reinforce the concepts and activities they initiated during GI.

Factor Three: Adults were tolerant of children's misspellings.

As mentioned earlier, the researchers expected to observe the teachers responding to children's misspellings. Unfortunately, there were no observations of children spelling independently and as such there is no measure for Factor Three.

TABLE 12.

Percentage of Time Teachers Responded to Children's
Print Related Questions and Activities

Class	Percentage of Time Teachers Responded During GI	Percentage of Time Teachers Responded During US
A	0	40.4
B	0	12.9
C	0	4.2
D	0	7.6
E	0	18.0
F	0	23.4
G	0	17.1
H	0	14.3
I	0	34.6
J	9.2	10.0
K	5.2	13.5
L	0	24.1
	mean: 1.2 s.d.: 2.9 median: 0	mean: 18.3 s.d.: 10.7 median: 15.7

Factor Four: Children had the opportunity to observe others writing and reading

Three sets of observational categories were selected to measure the percentage of time the children had the opportunity to observe others writing and reading. These included the GI (Teacher) set, the US (Children) set and the US (Teacher) set.

As shown in Table 13 the average length of time children had the opportunity to observe their teacher reading during GI (Teacher) was 5.4%. In five classrooms (F, K, J, H, E) the children were able to do so an above average amount of time. In general the teachers appeared to spend a generally low percentage of GI (Teacher) time reading.

Under the assumption that children can serve as models for other children, and keeping in mind that nine classrooms contained one or more preschool readers, the US (Children) categories Writing Activity and Reading Activity were selected to be included in the US (Children) measure of Factor Four. Children had the opportunity, during US (Children) observations, to observe their classmates writing or reading approximately 17% of US. Children in eight classrooms (E, C, F, G, B, H, I and J) had the opportunity to observe their classmates involved in writing or reading activities an above average amount of time.

In every classroom children had the opportunity, during US (Teacher) observation, to observe their teachers writing or reading (mean = 19.9%). Five classrooms (A, I, E, J, C) placed above the mean. Considering together the data together for the three observational formats used to measure Factor Four, two classrooms (J, E) were above average in all sets; four classrooms (C, F, H, I) were above average in two of the sets.

TABLE 13.

Percentage of Time Children Had Opportunity to
Observe Others Writing and Reading

Class	Percentage of Time Teachers Read During GI	Percentage of Time Children Wrote & Read During US	Percentage of Time Teachers Wrote & Read During US
A	1.7	10.8	46.6
B	0.0	19.3	8.5
C	0.0	23.0	20.8
D	0.0	4.5	18.9
E	6.9	23.6	25.2
F	23.7	22.6	14.5
G	0.0	22.3	8.5
H	7.8	19.2	10.7
I	1.3	18.9	36.4
J	11.2	17.9	22.0
K	11.9	8.7	8.1
L	0.0	15.3	18.9
	mean: 5.4 s.d.: 7.4 median: 1.5	mean: 17.2 s.d.: 6.2 median: 19.1	mean: 19.9 s.d.: 11.8 median: 18.9

Factor Five: Children had the opportunity to learn the letter names

Three sets of observational categories were established to determine the amount of time children had the opportunity to learn the letter names. It is possible that the best opportunity for children to learn the letter names was when their attention was focused on print specifically at the letter level, and the GI category of Reading Instruction had been subcoded according to the level of print (i.e., letter, number, name, sentence, or book). However, because of the small amount of data in the Reading Instruction category, this breakdown is not presented. The category of Reading Instruction - All Levels of Focus was included in the GI (Teacher) measure for Factor Five.

The data in Table 14 indicate that teachers in all but one classroom provided some Print-Related instruction during GI (Teacher). The seven classrooms with above average measures of Factor Five were J, H, L, E, F, D and K.

For the US (Children) set, children in all classrooms spent some US time involved in Factor Five activities. The average amount of classroom time spent in Factor Five related activities was 19%. Seven classrooms placed above the mean (F, C, G, E, H, I, B).

The average amount of US (Teacher) time spent in activities related to Factor Five was approximately 27%. Five classrooms (A, I, C, F, L) spent above average percentages of time in this measure.

Considering together the GI (Teacher), US (Children) and US (Teacher) data for Factor Five, children in one classroom (F) spent above average

TABLE 14.

Percentage of Time Children Had Opportunity to
Learn the Letter Names

Class	Percentage of Time Teachers Provide Print Related Instruction During GI	Percentage of Time Children were Involved With Print Related Activities During US	Percentage of Time Teachers Were Involved With Children & Print Related Activities During US
A	31.3	16.9	43.3
B	19.9	19.3	20.0
C	30.4	23.7	33.3
D	40.5	4.5	22.7
E	43.7	23.6	25.2
F	43.4	25.5	29.2
G	0.0	23.7	18.8
H	54.6	22.8	25.0
I	30.6	20.1	41.9
J	55.1	18.2	26.0
K	37.7	13.7	13.5
L	50.3	15.6	27.5
	mean: 36.6 s.d.: 15.7 median: 39.1	mean: 19.0 s.d.: 5.9 median: 19.7	mean: 27.2 s.d.: 8.8 median: 25.8

percentages of time in all three observational formats. Children in five classrooms (C, E, H, I, L) spent above average percentages of time in two of the observational formats.

Factor Six: Children were involved in scribbling, drawing and printing activities.

Two sets of observational categories were established to measure the presence of Factor Six: GI (Teacher) and US (Children). The US (Teacher) categories were not included in the Factor Six measures. The GI (Teacher) measure was comprised of just one category, that of Printing Instruction. As reported in Table 15, children in just four classrooms were observed to spend GI (Teacher) time printing. Considering the fact that the observations were made near the end of the year during a time when the children were probably being prepared for their transition into Grade One, the absence of Printing Instruction in eight classrooms was certainly surprising.

Table 15, indicates that children did some scribbling, drawing or printing during US (Children) observations in every class with the average amount of time being approximately 18%. Children in four classrooms (E, G, J, H) spent an above average amount of US (Children) time in Factor Six activities.

Considering the GI (Teacher) and US (Children) observational sets together for, Factor Six the children in two classrooms (H, J) spent above average amounts of time in both measures. Research for Early

TABLE 15.

Percentage of Time Children Spent
Scribbling, Drawing or Printing

Class	Percentage of Time Teachers Taught Printing During GI	Percentage of Time Children Were Involved With Scribbling, Drawing or Printing Activities During US
A	0	12.3
B	0	15.7
C	12.7	3.5
D	0	14.7
E	0	44.4
F	0	10.8
G	0	39.2
H	10.6	22.1
I	0	11.2
J	3.1	27.0
K	1.3	7.7
L	0	10.1
	mean: 2.3 s.d.: 4.5 median: 0	mean: 18.2 s.d.: 12.7 median: 13.5

Spellers/Readers (e.g. Durkin, 1966; Read,1975) emphasizes the importance of scribbling, drawing and printing activities in the development of early spelling/reading knowledge.

Comparison of Growth in Spelling Knowledge With Early Spelling/Reading

Activities

For the six early spelling/reading factors combined there are a total of thirteen sets of observational categories: three sets for Factors One, Four and Five; and two sets for Factors Two and Six. Table 16 presents a summary of the data for each set within the factors.

Table 17, indicates the number of observational category sets in which each classroom spent above average percentages of time. Classrooms H and J spent above average percentages of time in nine of the thirteen sets; classrooms F, E, C and I spent above average percentages of time in six or more of the sets. The remaining classrooms spent above average percentages of time in five or less of the thirteen observational sets.

Recalling the purpose of this study, to examine the relationship between the time children spent in activities related to the six early spelling/reading factors and subsequent growth in children's knowledge of spelling, it was assumed that the greatest growth in children's spelling knowledge would be in classrooms where the children had spent above average percentages of time in the greatest number of activities related to the six early spelling/reading factors.

TABLE 16.

Observational Data Reflecting the Presence of the
Six Early Spelling/Reading Factors

	Factor 1: Children were read to with their attention focused on print.	Factor 2: Adults responded to children's print related questions and activities.	Factor 3: Adults were tolerant of children's misspellings	Factor 4: Children had the opportunity to observe others writing and reading	Factor 5: Children had the opportunity to learn the letter names.	Factor 6: Children were involved with scribbling, drawing and printing.
I N S T R U C T I O N	A 0	A 0	No Data	A 1.7	A 31.3	A 0
	B 0	B 0		B 0	B 19.1	B 0
	C 0	C 0		C 0	C 30.4	C 12.7
	D 0	D 0		D 0	D 40.5	D 0
	E 0	E 0		E 6.9	E 43.7	E 0
	F 0	F 0		F 23.7	F 43.4	F 0
	G 0	G 0		G 0	G 0	G 0
	H 5.7	H 0		H 7.8	H 54.6	H 10.6
	I 0	I 0		I 1.3	I 30.6	I 0
	J 11.2	J 9.2		J 11.2	J 55.1	J 3.1
K 0	K 5.2	K 11.9	K 37.7	K 1.3		
L 0	L 0	L 0	L 50.3	L 0		
	Mean: 1.4	Mean: 1.2		Mean: 5.4	Mean: 36.5	Mean: 2.3
C H I L D U N D E R S T A N D I N G	A 5.2	No Data	No Data	A 10.8	A 16.9	A 12.3
	B 11.6			B 19.3	B 19.3	B 15.7
	C 23.0			C 23.0	C 23.7	C 3.5
	D 3.6			D 4.5	D 4.5	D 14.7
	E 5.1			E 23.6	E 23.6	E 44.4
	F 18.2			F 22.6	F 25.5	F 10.8
	G 6.1			G 2.39	G 23.7	G 39.2
	H 10.8			H 19.2	H 22.8	H 22.1
	I 13.8			I 18.9	I 20.1	I 11.2
	J 7.6			J 17.9	J 18.2	J 27.0
K 8.2	K 8.7	K 13.7	K 7.7			
L 11.2	L 15.3	L 15.6	L 10.1			
	Mean: 10.4		Mean: 17.2	Mean: 19.0	Mean: 18.2	
T E A C H E R	A 0	A 40.4	No Data	A 46.6	A 43.3	No Data
	B 1.4	B 12.9		B 8.5	B 20.0	
	C 12.5	C 4.2		C 20.8	C 33.3	
	D 0	D 7.6		D 18.9	D 22.7	
	E 7.2	E 18.0		E 25.2	E 25.2	
	F 5.8	F 23.4		F 14.5	F 29.2	
	G 0	G 17.1		G 8.5	G 18.8	
	H 10.7	H 14.3		H 10.7	H 25.0	
	I 1.8	I 34.6		I 36.4	I 41.9	
	J 10.0	J 10.0		J 22.0	J 26.0	
K 0	K 13.5	K 8.1	K 13.5			
L 0	L 24.1	L 18.9	L 27.5			
	Mean: 4.1	Mean: 18.3		Mean: 19.9	Mean: 27.2	

Comparison of the observational set data with the spelling test data shows that four classrooms (E, H, I, J) placed above the mean in both measures. This might suggest that there is a relationship between the amount of time the children spent in activities related to the six early spelling/reading factors and growth in their spelling know, however, this is not necessarily the case, a close look at Table 17 indicates that the relationship between the observational data and growth in children's knowledge of spelling is unclear: Children in three classrooms (A, B, D) showed above average growth in spelling knowledge yet they were not observed to be spending an above average amount of time in an above average number of the thirteen observational category sets. Conversely children in two classrooms (C, F) spent above average percentages of time in eight or more of the observational category sets yet the growth in the children's spelling knowledge was below average. Verification of this lack of relationship is indicated by the nonsignificant value of Pearson's product-moment correlation coefficient, 0.16.

Although the relationship between the thirteen sets of observational categories and growth in children's spelling knowledge is unclear, it is possible that a relationship may exist between growth in children's spelling knowledge and the absolute percentage of time the children spent in early spelling/reading related activities.

Examination of the relationship between growth in children's spelling knowledge and the absolute percentage of time children spent in activities

TABLE 17.

Comparison of Observational Categories with
Gain in LWRT Scores

Class	Observational Categories (Maximum of 13 sets)	Gain
A	3	28.9
B	3	21.6
C	7	17.0
D	1	23.7
E	7	22.2
F	8	11.3
G	3	7.8
H	9	28.8
I	6	24.1
J	9	28.7
K	2	19.5
L	5	18.5
	mean: 5.3 s.d.: 2.8 median: 5.5	mean: 21.0 s.d.: 6.7 median: 21.9

related to the six early spelling/reading factors necessitates looking at the observational data in another manner. Some observational categories within each format were used more than once, for example as shown in Table Four, the GI Teacher category of Reading is used to measure Factors One, Four and Five. As such it is impossible to determine the absolute percentages of time spent in early spelling/reading related activities in each classroom by simply adding together the category sets within each of the formats. In order to determine the total percentage of time the children spent in activities related to six early spelling/reading factors it is necessary to list the categories established for each observational format and present the percentage of observational time used in the analysis of the results.

Table 18 shows that during GI (Teacher) observations an average of approximately 36% of the teachers' time involved instructional activities related to the six early spelling/reading factors. Table 19 shows that for approximately 31% of US (Children) time the children were involved with activities related to the six early spelling/reading factors. Table 20 shows that during US (Teacher) observations the teachers were involved in activities related to the six early spelling/reading factors for approximately 27% of the time.

Table 21 presents, the absolute percentage of classroom time the children and teachers were involved in activities related to the six early spelling/reading factors. During GI (Teacher) observations, the teachers in seven classrooms (J, H, L, E, F, D, K) spent an above average amount of time involved in early spelling/reading related activities. During US

(Children) observations children in five classrooms (E, G, H, J, F) spent an above average amount of time involved in activities related to the six early spelling/reading factors. During US (Teacher) teachers in five classrooms (A, I, C, F, J) spent an above average amount of time involved in activities related to the six early spelling/reading factors.

In looking at the absolute percentages of time spent in activities related to the six early spelling/reading factors for the three observational formats, the children and teachers in two classrooms (F, J) spent above average percentages of time involved in activities related to the six early spelling/reading factors in all three formats. The children and teachers in two classrooms (H, E) spent above average percentages of time involved in such activities in two of the observational formats (GI (Teacher), US (Children)). Except for classroom B, the remaining classrooms spent above average percentages of time involved in activities related to the six early spelling/reading factors in at least one of the three observational formats. Classroom B spent below average percentages of time involved in early spelling/reading related activities in all three observational formats.

Comparison of the absolute percentage of time the teachers and children spent in activities related to the six early spelling/reading factors (Table 21) with growth in the children's knowledge of spelling (Table 17) indicates that of the four classrooms with above average percentages of time spent in early spelling/reading related activities,

TABLE 18.

Summary of Observational Data - Group Instruction
(Focus on the Teacher).

Observational Categories	A	B	C	D	E	F	G	H	I	J	K	L	Average For All Classrooms
Comprehension Discussion	^a 1.7	0	0	1.2	0	0	0	3.6	0	10.2	-	3.8	1.7
	^b 1.7	-	-	4.8	9.6	-	-	10.6	9.3	21.4	-	6.4	5.3
Concept/Vocabulary Development	11.0	19.1	1.3	8.3	12.3	15.8	-	7.8	9.3	7.1	6.5	2.6	8.4
	27.1	52.1	16.5	32.1	31.5	48.7	58.7	23.4	36.0	7.1	9.1	21.7	30.3
Giving Directions	0	0	0	6.0	4.1	1.3	0	1.4	-	1.0	3.9	2.6	1.7
	5.1	9.6	6.3	6.0	9.6	2.6	9.2	3.6	-	5.1	18.1	6.4	8.9
Speaking Skills	0	0	0	0	0	0	0	.7	4.0	8.2	5.2	-	1.2
	18.6	-	13.9	22.6	6.8	9.2	8.0	13.5	21.3	30.6	27.3	8.9	15.0
Reading	1.7	-	-	-	6.9	23.7	-	7.8	1.3	11.2	-	11.9	5.4
	1.7	-	-	-	6.9	23.7	-	7.8	1.3	11.2	-	11.9	5.4
Management/Checking Work	1.7	0	6.3	0	0	2.6	0	6.4	0	6.1	7.8	0	2.6
	28.8	38.3	40.5	9.5	15.1	15.8	24.0	14.2	16.0	13.3	31.2	15.3	21.8
Printing Instruction	-	-	12.7	-	-	-	-	10.6	-	3.1	1.3	-	2.3
	-	-	12.7	-	-	-	-	10.6	-	3.1	1.3	-	2.3
Reading Instruction	16.9	-	10.1	25.0	20.5	-	-	16.3	16.0	8.2	13.0	29.4	13.0
	16.9	-	10.1	25.0	20.5	-	-	16.3	16.0	8.2	13.0	29.4	13.0
	Percentage of GI Data Included in Analysis												
	31.3	19.1	30.4	40.5	43.8	43.4	0	54.6	30.6	55.1	37.7	50.3	36.2
	Minutes of Observation												
	118	31	79	84	73	76	75	141	75	98	77	78	84

^a Percentage of GI time teachers provided instruction in Early Spelling/Reading related activities.

^b Percentage of GI time teachers spent in each observational category.

TABLE 19.

**Summary of Observational Data Unstructured Activity Time
(Focus on the Children).**

Observational Categories	A	B	C	D	E	F	G	H	I	J	K	L	Average For All Classrooms
Prewriting	6.7	8.0	3.5	13.8	25.9	6.4	23.0	13.7	6.1	16.7	7.2	6.0	11.4
	6.7	8.0	3.5	13.8	25.9	6.4	23.0	13.7	6.1	16.7	7.2	6.0	11.4
Writing	5.6	7.7	0	.9	18.5	4.4	16.2	8.4	5.1	10.3	.5	4.1	6.8
	5.6	7.7	0	.9	18.5	4.4	16.2	8.4	5.1	10.3	.5	4.1	6.8
Reading Activity	5.2	11.6	23.0	3.6	5.1	18.2	6.1	10.8	13.8	7.6	8.2	11.2	10.4
	5.2	11.6	23.0	3.6	5.1	18.2	6.1	10.8	13.8	7.6	8.2	11.2	10.4
Other Print/Language Related	6.1	1.0	.7	0	-	2.9	1.4	3.6	1.2	.3	5.0	.3	1.9
	6.1	1.0	.7	0	-	2.9	1.4	3.6	1.2	.3	5.0	.3	1.9
Other Nondirected Non Print	-	-	-	-	-	-	-	-	-	-	-	-	0
	23.9	46.6	.7	48.4	32.7	24.0	3.7	37.5	27.6	32.0	53.6	35.6	30.5
Art - Distinctive Features	-	-	-	-	-	-	-	-	-	-	-	-	0
	48.9	24.6	64.6	31.7	17.9	42.7	44.0	25.0	43.9	28.6	25.7	39.9	36.5
Conversation	-	-	-	-	-	-	-	-	-	-	-	-	0
	3.9	.5	7.6	1.3	-	1.5	5.7	1.2	2.1	4.3	-	2.9	2.6
	Percent of Data Used in Analysis												
	23.6	28.3	27.2	18.3	49.5	31.9	46.7	36.5	26.2	34.9	20.9	21.6	30.5
	Minutes of Observation												
	30	69	24	53	56	34	58	28	55	50	37	58	46

^a Percentage of US time children were involved with early spelling/reading related activities

^b Percentage of US time children spent in each US category

TABLE 20.

Summary of Unstructured Observational Data - Unstructured
Activity Time (Focus on the Teacher)

Observational Categories	A	B	C	D	E	F	G	H	I	J	K	L	Average For All Classrooms
Interaction (Behavior Control)	^a ^b -	-	-	-	-	-	-	-	-	-	-	-	-
	-	8.7	-	5.7	-	-	1.7	-	-	8.0	5.4	1.7	2.6
Teacher/Student Interaction (Nonbehavior Control)	-	10.1	4.2	3.8	1.8	14.7	8.6	14.3	5.5	6.0	5.4	6.9	6.8
	26.7	65.2	50.0	62.3	66.1	76.5	79.3	67.9	56.4	44.0	64.9	27.6	57.2
No Interaction	3.3	-	-	-	-	-	-	-	-	2.0	-	-	.4
	30.0	11.6	20.8	9.4	7.1	8.8	1.7	21.4	7.3	28.0	21.6	48.3	18.0
Concept Vocabulary Development	-	1.4	8.3	-	-	-	1.7	-	-	-	-	1.7	1.0
	-	5.7	8.3	3.8	1.8	-	8.6	-	-	-	-	3.4	2.6
Writing (Teacher Writes)	3.3	4.3	8.3	15.1	1.8	-	-	-	5.5	6.0	-	1.7	3.8
	3.3	4.3	8.3	15.1	1.8	-	-	-	5.5	6.0	-	1.7	3.8
Writing (Teacher Watches Child Write)	30.0	1.4	-	1.9	9.0	2.9	5.1	-	3.6	2.0	2.7	15.5	6.2
	30.0	1.4	-	1.9	9.0	2.9	5.1	-	3.6	2.0	2.7	15.5	6.2
Reading (Teacher Listens)	10.0	1.4	-	1.9	7.2	5.8	3.4	-	25.5	2.0	5.4	1.7	5.4
	10.0	1.4	-	1.9	7.2	5.8	3.4	-	25.5	2.0	5.4	1.7	5.4
Reading (Teacher Reads)	-	1.4	12.5	-	7.2	5.8	-	10.7	1.8	10.0	-	-	4.1
	-	1.4	12.5	-	7.2	5.8	-	10.7	1.8	10.0	-	-	4.1
	Percentage of Data Used in Analysis												
	46.6	20.0	33.3	22.7	27.0	29.2	18.8	25.0	41.9	28.0	13.5	27.5	27.0
	Minutes of Observation												
	5	12	4	9	9	6	10	5	9	8	6	10	8

^a Percentage of US time teachers were involved with early spelling/reading related activities

^b Percentage of US time teachers spent in each US category

TABLE 21.

Percentage of Time Within Each Format That Teachers and Children Spent in Activities Related to The Six Early Spelling/Reading Factors

Class	Percentage of GI Teacher Time	Percentage of US Children Time	Percentage of US Teacher Time
A	31.3	23.6	46.6
B	19.1	28.3	20.0
C	30.4	27.2	33.3
D	40.5	18.3	22.7
E	43.8	49.5	27.0
F	43.4	31.9	29.2
G	0.0	46.7	18.8
H	54.6	36.5	25.0
I	30.6	26.2	41.9
J	55.1	34.9	28.0
K	37.7	20.9	13.5
L	50.3	21.6	27.5
	mean: 36.4	mean: 30.5	mean: 27.8
	s.d.: 15.7	s.d.: 9.9	s.d.: 9.4
	median: 39.1	median: 27.7	median: 27.3

three (H,J,E) also showed above average growth in spelling knowledge. While this may appear to indicate that there is a relationship between amount of time spent in activities related to the six early spelling/reading factors and growth in spelling knowledge, a close look at the data indicates that the relationship between the two is unclear. Of the seven classrooms which showed above average growth in spelling knowledge, only in three had the children been observed to be spending above average percentages of time involved in early spelling/reading related activities. The children in one classroom (B) were observed to spend a below average percentage of time involved in early spelling/reading related factors in all three observational formats, yet the children showed a slightly above average growth in spelling knowledge.

Four classes (E, F, H, J) scored above average in both methods of data analysis, yet as indicated in Table 17, the children in only three (E, H, J) showed above average growth in spelling knowledge. It is unclear why the children in classroom (C) did not show above average growth in spelling knowledge. Furthermore it is unexplainable what factors contributed to the above average amount of growth in spelling knowledge found in classrooms D, I and A. According to this method of analysis it appears that the relationship between growth in children's spelling knowledge and the amount of time spent in activities related to the six early spelling/reading factors is unclear.

The data were considered in a third manner to examine the relationship between the percentage of time the children spent involved in instruction

and activities related to the six early spelling/reading factors and growth in the children's knowledge of spelling.

For each factor, within each classroom, the data from the three observational formats were totaled. That is, the total number of minutes the teachers and children spent in activities related to the six early spelling/reading activities in the GI (Teacher), US (Children) and US (Teacher) formats were added together. Classroom percentages for each factor, within each classroom, were then calculated. Following the conversion of actual time to percentages of time the classrooms were ranked within each factor. See Table 22. These rank orders were then compared to the mean class gain scores on the LWRT (Table 9).

It was expected that classes with the highest gain scores on the LWRT would be those in which the teachers and children spent the highest percentage of observational time involved in activities and instruction related to the six early spelling/reading factors. Unfortunately this method of data analysis once again indicated an unclear relationship between the observational data and growth in spelling knowledge as measured by the LWRT.

TABLE 22.

Within Factor
Rank Order of Classrooms-
All Formats Combined

Classroom	Rank Order According to Gain Score	Factors				
		1	2	4	5	6
A	28.9	12	4*	10	8	12
B	21.6	2*	3*	4*	11	6
C	17.0	5*	12	9	7	5*
D	23.7	11	10	11	10	7
E	22.2	8	7	2*	5*	1*
F	11.3	4*	5*	1*	3*	11
G	7.8	10	6	12	12	2*
H	28.8	3*	11	7	1*	3*
I	24.1	6	1*	6	9	8
J	28.7	1*	9	3*	2*	4*
K	19.5	9	8	5*	6	10
L	18.5	7	2	8	4*	9

* Indicates classrooms ranking from 1 to 5

CHAPTER V

CONCLUSIONS

Of interest to educators is how children acquire their knowledge of spelling. Gentry (1981) has proposed a developmental model to explain how children learn to spell. Based on his analysis of children's spelling errors he suggests that children's knowledge of spelling develops through five hierarchical stages with each stage characterized by a particular spelling strategy. Abundant research supports this model (Beers & Beers, 1980; Beers, Beers, & Grant, 1977; Beers & Henderson, 1977; Gentry, 1978; Read, 1975).

Educators are interested in identifying the factors which promote the development of children's spelling knowledge. Of particular interest is how children learn to spell naturally. The fact that some children teach themselves to spell and read has interested a variety of researchers. Researchers investigating natural spellers/readers have found that some children learn to spell before they begin school and that the Early Spellers are typically Early Readers as well (C. Chomsky 1971(a), 1971(b); Clark, 1976; Cohn 1981; Durkin 1961, 1963, 1966, 1970; Hall Moretz & Staton, 1976; King & Friesen, 1972; Krippner, 1963; Plessas & Oakes, 1964; Read 1971, 1975; Torrey, 1979).

Focusing on the environments and activities of the Early Spellers/Readers the research indicates there are six factors which appear to contribute to the development of preschool children's precocious

knowledge of spelling/reading: 1) The children were read to frequently with their attention focused on the print; 2) Adults responded to the children's print-related questions and activities; 3) Adults were tolerant of the children's misspellings; 4) The children had the opportunity to observe others writing and reading; 5) The children learned the letter names; 6) The children were involved with scribbling, drawing and printing activities.

To date research examining the relationship in kindergarten classrooms between these six early spelling/reading factors and growth in the children's spelling knowledge is unavailable. The purpose of this study was to use a method of naturalistic inquiry in kindergarten classrooms to examine the relationship between the six early spelling/reading related factors and growth in children's spelling knowledge.

Instruction in beginning spelling/reading concepts is optional in Kindergartens in British Columbia (Province of British Columbia, 1973) and a 1981 Kindergarten assessment (Mayfield, 1981) indicates that teachers did indeed place varying levels of emphasis on print-related instruction. Selected for the study were twelve classrooms which appeared to vary in terms of the emphasis the teachers were placing on instruction involving printed letters and words.

Measures of the children's spelling knowledge were acquired both at the beginning and end of the school year. In the interim, observational data were collected from each classroom. The researchers expected that the classrooms would vary in terms of the amount of time the children spent involved in activities related to the six early spelling/reading factors

and that growth in children's knowledge of spelling, as measured by LWRT gain scores, would be greatest in the classrooms in which the children spent the greatest amount of time involved in activities related to the six early spelling/reading factors.

Discussion

The observational data were examined in two ways: in terms of the thirteen sets of observational categories selected to measure the six early spelling/reading factors and in terms of the absolute percentages of time spent, within each observational format, in activities related to the six early spelling/reading factors.

Unfortunately the specific relationship, in kindergarten classrooms, between the presence of activities and instruction related to the six early spelling/reading factors and growth in children's spelling knowledge was unclear. Results showed that children entered kindergarten with varying levels of spelling knowledge. Results also indicated that kindergarten classrooms did indeed vary in terms of the emphasis teachers placed on instruction and activities involving printed letters and words. Most importantly the results indicated that children's preschool spelling knowledge was often markedly different from their spelling knowledge at the end of kindergarten. In some instances classrooms with the lowest pretest spelling score had posttest scores well above the mean. What is not clear from this study are the factors that contributed to the growth in the children's spelling knowledge.

Children in seven classrooms showed above average growth in spelling knowledge: in only three of these classrooms did the children and their teachers appear to spend an above average percentage of time involved in activities and instruction related to the six early spelling/reading factors.

Research Design Limitations

A number of limitations are imposed on this study due to its design. Being a naturalistic observational study, the researchers were unable to manipulate classroom variables in order to provide any degree of classroom consistency. As a result the amount of observational data collected from each classroom varied considerably. Furthermore, although the researchers spent a considerable amount of time gathering approximately two and one-third hours of observational data from each of the twelve classrooms, only a small amount, 30%, were related to the six early spelling/reading factors.

Further limitations are imposed on the study with regard to the observational formats used. At the time this study was conducted, suitable observational formats were unavailable and the researchers, consulting with personnel at the Center of the Study of Reading, University of Illinois designed the observational formats using as a model the format developed by Durkin (1978 - 79). The reliability and validity of these newly developed formats is unknown.

Human error must also be considered as a limiting factor. Observational routines were precisely established for each format and the

researchers adhered to them as closely as possible, but in classrooms with many active children it is difficult to know if the activities of every child and teacher were described and categorized accurately. In all instances the researchers made every effort to record, as precisely as possible, the activities observed.

Possibilities for Future Research

This study fails to determine the relationship between growth in children's spelling knowledge and the amount of time the children spend in activities related to the six early spelling/reading factors. It may be that a relationship would be found in a similar study involving larger amounts of observational data collected over a longer period of time from a larger sample of kindergarten classrooms.

APPENDIX A

Covering Letter and Print Emphasis Questionnaire



SIMON FRASER UNIVERSITY, BURNABY, B.C. CANADA V5A 1S6

April 30, 1982

Dear Parent:

You may remember that in September you were contacted about a project involving all kindergarten classes in the North Vancouver School District. For this project the kindergarten children were individually given eight short tasks (such as identifying pictures and labels).

This letter is to let you know that a follow-up to the fall project has been authorized by the school district. Your child will again be asked to complete the same eight tasks and will be asked about his/her interest in books. As before, all tasks will be given individually by trained administrators in a quiet relaxed atmosphere.

All results will be kept strictly confidential; your child's teacher will not be informed of his/her individual results. The purpose of the project is to gather information which in the future can be used by teachers for instructional purposes.

We hope you will permit your child to participate in this very important study. If you do NOT wish him/her to be involved, please return the slip below to your child's teacher before May 7, 1982.


Thank you for your kind consideration.

Sincerely,

Janet Ross Kendall
Assistant Professor
291-3796

I do not wish my child _____ to participate
in the project described above.

Signed _____
(parent or guardian)

 Child's Teacher _____



SIMON FRASER UNIVERSITY, BURNABY, B.C. CANADA V5A 1S6

April 8, 1982

Dear Kindergarten Teacher:

You may remember that in September and October of this year all North Vancouver kindergarten children were assessed as part of a study to evaluate what children have learned about letters and words before attending school. We are now planning a follow-up to study the relationship between kindergarten language arts activities and students' language skills. Because there is wide variability in kindergarten language arts activities, it is important to know which activities are used most often and how they relate to student learning. To accomplish this, obtaining accurate information from as many kindergarten teachers as possible is necessary. Without much effort you can play an important role in providing some of this information by filling out the attached questionnaire. We may also contact you again to request your further cooperation.

Please be assured that your individual responses to this questionnaire will remain confidential. To enable us to contact some teachers at a future time, we are asking for your name on the questionnaire. However, all information will be reported only as sums and averages; it will not be possible to identify any individual teacher.

Thank you in advance for your cooperation.

Sincerely,

Janet Ross Kendall
Assistant Professor



1. Listed below are some language arts activities which you may have used this year in your classroom.
- If any of the children in your class have been involved in these activities, please check them.
 - If, in your opinion, any are inappropriate for kindergarten children, please cross them out.
 - If we have omitted any activity you believe is appropriate for kindergarten children, please add it.

ORAL LANGUAGE DEVELOPMENT

- poems, fingerplays, and songs
- learning new word meanings
- rhyming words
- listening and following directions
- listening to stories
- interpreting and discussing stories
- creative drama

LETTER AND SOUNDS

- learning the alphabet
- recognizing upper and lower case letters
- printing upper and lower case letters
- identifying beginning or ending sounds in words
- learning letter sounds

WORDS

- printing own name
- reading own and others' names
- reading colour and number names and calendar words
- reading signs and labels
- matching words to pictures
- tracing or copying words
- learning to read sight words
- learning to read common function words (e.g., a, the, was)
- sounding out words for reading

SENTENCES AND STORIES

- drawing illustrations for stories
- students reading books independently
- making books (e.g., alphabet, colour, picture books)
- dictating sentences or stories to adults
- sounding out words during writing with teacher assistance
- writing words or sentences independently
- learning punctuation rules, capital letters

2. List below the published materials you have used frequently in your language arts program (e.g., Ginn Level 1 Kit, Peabody Language Development Kit).

3. Please specify the approximate amount of time your students spend each day in

a. whole class activities _____

b. small group activities _____

c. unstructured activities _____

4. Please indicate how many years you have taught _____

Thank you again for your cooperation and help.

Once more, please be assured that your individual responses to this questionnaire will remain confidential.

NAME _____

SCHOOL _____

APPENDIX B

The Letter and Word Reading Test

(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 _____

.../2

-3-

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 _____

-4-

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. Cheerios _____ |
| 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____, last word____.
3. Show me the top of book____, bottom of book____.
4. Show me the title of the book____.
5. Show me page 5____.

REFERENCE NOTES

1. Rauch, L. Reading Skills Upon Entry to Kindergarten: Early Reading and the Preschool Environment. Unpublished Master's Thesis, Simon Fraser University, Burnaby, B.C., 1983.
2. McNichol, M. An Examination of the Relationship Between Kindergarten Classroom Environment and Interest in Print. Unpublished Master's Thesis, Simon Fraser University, Burnaby, B.C., 1983.
3. Mason, J. Center for the Study of Reading - telephone conversations. University of Illinois, Urbana, Illinois.
4. Mason, J. & McCormick, C. Testing the Development of Reading and Linguistic Awareness. May, 1979, paper.

REFERENCES

- Beers, J.W., & Beers, C.S. Vowel spelling strategies among first and second graders: a growing awareness of written words. Language Arts, 1980, 57, 166-172.
- Beers, J.W., & Henderson, E.H. A study developing orthographic concepts among first graders. Research into the Teaching of English, 1977, 11, 133-149.
- Beers, J.W., Beers, C.S., & Grant, K. The logic behind children's spelling. Elementary School Journal, 1977, 77, 239-242.
- Chomsky, C. Reading writing & Phonology. Harvard Education Review, 1970, 40, 287-307.
- Chomsky, C. Write first, read later. Childhood Education, 1971, 47, 296-297. (a)
- Chomsky, C. Invented spelling in the open classroom. Word, 1971, 27, 499-519. (b)
- Chomsky, C. Approaching reading through invented spellings. In L. Resnick and P. Weaver (Eds.) Theory and Practice of Beginning Reading. Hillside, N.J.: Erlbaum, 1977.
- Clark, M.M. Young Fluent Readers. London: Heinemann Educational Books, 1976.
- Cohn, M. Observations of learning to read and write naturally. Language Arts, 1981, 58, 549-555.
- Cronnell, B. Phonics for reading unstructured phonics for spelling. The Reading Teacher, 1978, 32, 337-340.
- Durkin, D. Children who read before grade one. The Reading Teacher, 1961, 14, 163-166.
- Durkin, D. Children who read before grade one: a second study. The Elementary School Journal, 1963, 64, 143-148.

- Durkin, D. Children Who Read Early. New York: Teachers College Press, 1966.
- Durkin, D. A language arts program for pre-first-grade children: two year achievement report. Reading Research Quarterly, 1970, 5, 534-564.
- Durkin, D. What classroom observations reveal about reading comprehension instruction. Reading Research Quarterly, 1978 - 1979, XIV, 481-533.
- Gentry, J.R. Early spelling strategies. Elementary School Journal, 1978, 79, 88-92.
- Gentry, J.R. Learning to spell developmentally. The Reading Teacher, 1981, 34, 378-381.
- Gentry, J.R. An analysis of developmental spelling in GNYS at work. The Reading Teacher, 1982, 36, 192-201.
- Hanna, P., Hodges, R. & Hanna, J. Spelling: Structures and Strategies. 1966. Boston: Houghton Mifflin, 1971.
- Hall, M., Moretz, S.A., & Statom, J. Writing before grade one - a study of early writers. Language Arts, 1976, 53, 582-585.
- Heibert, E.H. Developmental patterns and interrelationships of preschool children's print awareness. Reading Research Quarterly, 1981, 16, 236-260.
- Hodges, R.E. Theory and Research into Practice Learning to Spell. Urbana, Illinois: ERIC Clearinghouse on Reading and Communication, 1981.
- King, E.M., & Friesen, D.T., Children who read in kindergarten. The Alberta Journal of Educational Research, 1972, 18, 147-161.
- Krippner, S. The boy who read at eighteen months. Exceptional Children, 1963, 30, 105-109.

- McCormick, C., & Mason, J. What happens to kindergarten children's knowledge about reading after a summer vacation? The Reading Teacher, 1981, 35, 164-171.
- Mayfield, M., British Columbia Kindergarten Needs Assessment: Summary Report. Victoria, B.C.: Ministry of Education, British Columbia: 1981.
- Pitman, J., & St. John. Alphabets and Reading: The Initial Teaching Alphabet. Pitman Publication Co., New York: 1969.
- Province of British Columbia Department of Education. Resource Book for Kindergarten, Victoria, B.C., 1973.
- Plessas, G.P., & Oakes, C.R. Prereading experiences of selected early readers. The Reading Teacher, 1964, 17, 241-245.
- Read, C. Pre-school children's knowledge of English Phonology. Harvard Educational Review, 1971, 41, 1-34.
- Read, C. Children's Categorization of Speech Sounds in English. NCIE Research Report Number 17. Urbana, Illinois: National Council of Teachers of English, 1975.
- Torrey, J.W. Learning to read without a teacher: a case study. In T.G. Waller & G.E. MacKinnon (Eds.), Reading Research Advances in Theory and Practice, Vol. 1. New York: Academic Press, 1979.
- Venezky, R.L. English orthography: its graphical structure and its relation to sound. Reading Research Quarterly, 1967, 11, 75-105.