LINGUISTIC AWARENESS IN THE KINDERGARTEN

by

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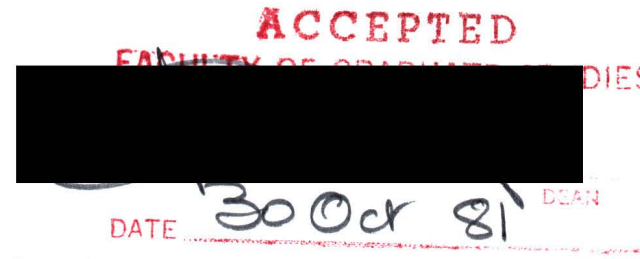

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ABSTRACT

The purpose of this study was three-fold: (1) to investigate the nature of kindergarten children's cognitive confusion about the functional and featural concepts of literacy; (2) to investigate the relationship between the development of the functional and featural concepts of literacy; and (3) to observe in what ways and to what extent the development of linguistic awareness is encouraged and supported by the kindergarten environment.

Thirty-five kindergarten children participated in the study. The data were collected by means of three instruments: the Test of Linguistic Awareness in Reading Readiness (Ayers, Downing, & Schaefer, 1977), an interview schedule, and a classroom observation schedule. The Test of Linguistic Awareness provided a measure of each child's level of linguistic awareness, which was used to divide the children into three groups. In addition, the incorrect responses were analyzed so that inferences about the nature of the children's cognitive confusion could be made. The individual interviews provided information about how the children thought about the nature, purposes, and technical language of literacy.

The classroom observation schedule was used to record the kinds and frequency of literacy-related activities which occur in the kindergarten environment.

Several general conclusions were drawn from the data:

(1) the ability of the kindergarten children in the study to recognize literacy behaviors, to understand the purposes of literacy, and to use the technical language of literacy and the nature of their cognitive confusion concerning these literacy concepts was related both to their overall level of linguistic awareness and to the type of question being asked;

(2) in general, the children understood the functional concepts of written language better than they understood the featural; however, the development of the basic functional concepts seemed to facilitate the development of the basic featural concepts, which in turn seemed to facilitate the development of more complex functional concepts, and so on;

(3) the pattern of development of the functional and featural concepts was essentially the same for the three groups, even though the groups differed with respect to both the degree of development of the concepts and to the nature of the cognitive confusion about the concepts;

(4) the kindergarten environment did support and encourage the development of linguistic awareness, and was similar in many ways to home environments which have been found to stimulate preschool interest in written language; and

(5) there were indications that the kinds of literacy-related activities kindergarten children engaged in and the frequency with which they engaged in these activities were related to level of linguistic awareness.

Several implications of the findings for instructional practice and for future research were discussed.

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CHAPTER I

Statement of the Problem

1. Conceptual Framework of the Study

Downing (Note 1) defined reading as the interpretation of "arbitrary symbols deliberately created for the purpose of communication" (p.1). This definition highlights two different, but complementary, kinds of concepts underlying written language. The first concern the communicative purposes of writing, and these are referred to as functional concepts; the second concern the features of oral language that are represented by written symbols and the rules for representing them, and these are referred to as featural concepts. It may be hypothesized that the ability to read, and to write, requires understanding of both the functional and the featural concepts of written language, and that learning to read and to write involves the development of this understanding.

In fact, the cognitive clarity theory of learning to read which Downing has recently proposed is based on just such a premise. He outlined his theory in the form of the following eight postulates:

(1) Writing or print in any language is a visible code for those aspects of speech that were accessible to the linguistic awareness of the creators of that code or writing system;

(2) This linguistic awareness of the creators of a writing system included simultaneous awareness of the communicative function of language and certain features of spoken language that are accessible to the speaker-hearer for logical analysis;

(3) The learning-to-read process consists in the rediscovery of (a) the functions and (b) the coding rules of the writing system;

(4) Their rediscovery depends on the learner's linguistic awareness of the same features of communication and language as were accessible to the creators of the writing system;

(5) Children approach the tasks of reading instruction in a normal state of cognitive confusion about the purposes and technical features of language;

(6) Under reasonably good conditions, children work themselves out of the initial state of cognitive confusion into increasing cognitive clarity about the functions and features of language;

(7) Although the initial stage of literacy acquisition is the most vital one, cognitive confusion continues to arise and then, in turn, give way to cognitive clarity throughout the later stages of education as new sub-skills are added to the student's repertory;

(8) the cognitive clarity theory applies to all languages and writing systems. The communication aspect is universal, but the technical coding rules differ from one language to another. (Downing, Note 1, pp. 6, 7)

For the purposes of this study, then, linguistic awareness was defined as the simultaneous understanding of the functional and featural concepts of written language, and cognitive confusion, as the lack of this understanding; functional and featural concepts were defined as those concepts which concern, respectively, the communicative purposes of written language and the coding rules for representing oral language by written symbols. There is evidence that preschoolers are in a state of cognitive confusion about the functions and features of literacy (Downing, 1969; 1969/70; Francis, 1973, 1977; Forester, 1975a, b; Reid, 1966; Doake, Note 2) and that level of linguistic awareness in kindergarten is significantly related to reading achievement in grade 1 (Ayers & Downing, Note 3). The nature of the children's cognitive confusion and the process by which it gives way to cognitive clarity, however, is not well documented.

2. Purpose of the Study

The purpose of this study was to investigate the nature of kindergarten children's cognitive confusion about the functional and featural concepts of literacy, especially as it is related to their level of linguistic awareness. A secondary purpose was to observe in what ways and to what extent the development of linguistic awareness is encouraged in the kindergarten classroom.

Many of the studies of linguistic awareness have been of an ad hoc experimental nature, focusing on a narrow range of specific linguistic concepts such as "letter," "word," and "sentence" (e.g.: Downing, 1969, 1969/70; Francis, 1973; Reid, 1966). The Test of Linguistic Awareness in Reading Readiness (Ayers, Downing & Schaefer, Note 4) was designed to survey a more comprehensive set of concepts involved in reading instruction, including the functional as well as the featural aspects of literacy. According to their scores on the Test of Linguistic Awareness and to the results of structured interviews using items similar to those on the Test of Linguistic Awareness, kindergarten children have a better understanding of the functional concepts of literacy than of the featural (Downing, Ayers & Schaefer, Note 5; Ayers, Downing & Schaefer, Note 6). It also appears that certain items on the Test of Linguistic Awareness receive a much higher proportion of incorrect responses than do the others.

Two questions arise from these findings: (1) what is the relationship between understanding the functional concepts of literacy and understanding the featural? (2) do children at different levels of linguistic awareness differ in the nature of their cognitive confusion, that is, do they make different kinds of errors? Doake (Note 2), Forester (1977), Goodman (1976), and McInness (Note 7) have

suggested that reading instruction should be sensitive to children's intuitions about reading and that it should encourage the natural development of these intuitions. Investigation of the two questions posed above may provide useful information toward such reading instruction.

Studies of the relationship between the family orientation toward literacy and early reading (Clark, 1976; Durkin, 1966; Kadson, 1958; Clark, Note 8), of the relationship between family orientation toward literacy and attitude toward reading (Hansen, 1969; Ransbury, 1973), and of the relationship between early reading and reading achievement in primary school (Durkin, 1966; McCracken, 1966; Sutton, 1968), all emphasize the importance of the child's early prereading experience on reading achievement. Certain characteristics of the home environment appear to be particularly effective in encouraging the preschooler's interest in written language, for example, the integral role of literacy behaviors in daily routines, the willingness of parents to respond to queries about written language, and the frequency of shared language experiences. Ayers and Downing (Note 3) have demonstrated that level of linguistic awareness in kindergarten is significantly related to reading achievement in grade 1. This finding suggests that it is important to study how the kindergarten environment fosters the development of linguistic awareness.

A possible initial approach to such a study is to describe the kindergarten environment in terms of those factors in the home environment which have been found to stimulate preschool interest in written langauge.

3. Statement of Hypotheses

It was hypothesized that kindergarten children have a better understanding of the functional concepts of written language than of the featural, or more specifically, that they would score significantly higher on Subtests A and B of the Test of Linguistic Awareness than on Subtest C. Three matched t tests were used to test this hypothesis.

It was also hypothesized that kindergarten children differ not only in their level of linguistic awareness but also in the nature of their cognitive confusion, or more specifically, that kindergarten children at high, medium, and low levels of linguistic awareness would differ significantly in the frequency with which they made various kinds of errors. Level of linguistic awareness was based on performance on the Test of Linguistic Awareness and error types and frequencies were determined by analysis of the incorrect responses on the Test of Linguistic Awareness. A chi square analysis was used to test this hypothesis.

For the purpose of testing statistical significance, the alpha error level of $p < .05$ was established.

Finally, it was expected that it would be possible to describe the kindergarten environment in terms of the factors found to be effective in the home environment in encouraging preschooler's interest in written language. This research question was not tested statistically.

CHAPTER II

Review of Related Literature

1. Historical Background

What do children, embarking on their school career and about to receive formal instruction in reading for the first time, know about reading? Ferguson (1975) tried to answer this question by using the Symbols test. One hundred children entering primary school were shown cards containing a symbol (e.g., a wavy line; a pair of legs) and told what the symbol meant (e.g., water; runs). The children were then tested on their ability to decode, memorize, and comprehend 24 short symbol combinations, tasks which have something in common with early reading. From the results of this study, Ferguson (1975) concluded that:

> Finding out what reading is may be an important prerequisite of learning to read, and the insights that a written symbol can translate to an audible sound and that these sounds can combine to give meaning may too often be forgotten in both the teaching and testing of prereading skills. (p. 788)

Gibson and Levin (1975), however, make the assumption that the "mnemonic function of reading and writing is a primary one that any [preschool] child can easily be made aware of" (p. 9) and that "reading and writing for the

purpose of communication was also obvious to the child" (p. 9). Is this really the case? Is preschoolers' knowledge of the nature and purpose of literacy similar to that of the adults'? Or do the children first view reading as some mysterious activity, consisting of certain rituals, such as turning the pages of a book, to which they eagerly try to conform? Does their concept of reading undergo several changes as their experiences with reading increase, becoming more and more refined at each stage? If so, what path does the development of the concept of reading follow? What knowledge of reading does the child bring to kindergarten?

A review of the literature reveals that, as preoccupied as educators and the public are with reading, as extensive as the research on reading has been, what the child thinks about reading is one aspect of the problem which has been rather neglected until the mid-sixties. Gibson and Levin (1975) have compiled a comprehensive review of research on the psychology of reading, and they have not included one direct reference to this issue. Their "Project Literacy Multi-level Reading Program," a program on initial reading instruction which grew out of, and contributed to, basic research on the process of reading, has as its first guideline:

> understanding that reading is a means of communication, and that the written representation is a code for language . . . is a preliminary skill which a child must have before reading instruction is begun. (Gibson & Levin, 1975, p. 323)

but there is no description of when and how this understanding appears. In a paper (Bateman, Note 9) which is concerned solely with the evaluation of various approaches to teaching the beginning of the child's concept of reading and what effect this might have on his/her learning to read. Why is this the case?

In tracing the history of reading instruction from the 1920's to the 1960's, Durkin (1966; 1970) provides some explanation of this situation. Two forces combined to influence the direction of educational philosophy in the 1920's. The first was the work of G. Stanley Hall, Arnold Gesell, and their followers, which stressed developmental stages, the maturational process, "neurological ripeness", all concepts which suggest that a child cannot perform certain tasks until he/she is "ready", and this readiness is largely controlled by one's genetic make-up. When it was revealed that many children were failing grade 1, mainly because of poor reading ability, the obvious explanation was that these children were not ready to read. The next task was to determine when reading readiness occurs, and here the second force, the testing and measurement

movement, played its role. Mental age was chosen as an index of the child's readiness, and considerable effort was expended in correlating mental age and reading ability, culminating in Morphett and Washburne's formula (1931) that a mental age of 6.5 is a prerequisite for successful reading. Although some disillusionment with intelligence tests became evident, faith in reading readiness tests remained strong, even in the face of Gates' study (1937), which concluded that many of the tests had little or no predictive validity. This emphasis on maturation, mental age, and reading readiness continued into the fifties. Consequently not only was it common practice to delay reading instruction until well into grade 1, but parents were frequently advised not to encourage preschoolers' attempts to learn to read, on the grounds that (1) the children would become confused when they encountered formal reading instruction in school; (2) they would become bored both with reading and with school; and (3) any gains they made would soon be lost.

There were indications, however, that these attitudes were changing. For example, a survey of 500 elementary teachers (LaConte, 1970) revealed that the majority felt strongly that there should be no reading instruction in kindergarten, because this could engender a dislike of reading and be psychologically harmful to the children, but that the

children who wanted to read should be encouraged to do so. These teachers also believed that television has stimulated children to learn to read earlier, and that children who could read before entering school were likely to be better students throughout the grades. This trend has continued. There has been increasing concern that kindergarten children are being held back, that they are capable of more than is being demanded of them, and that prereading activities should be introduced as soon as possible. This has been accompanied by considerable interest in such aspects of the reading process as visual and auditory discrimination and sound blending, an interest which has been reflected in both instruction and research. There has been less concern for what the child thinks about reading, its nature and purpose and technical language, yet some exciting and creative work has been done in this area, which is frequently referred to as linguistic awareness, and the number of such studies is increasing.

Empirical investigation of linguistic awareness can involve comparing certain personal and family characteristics of children who learn to read before entering school with those who do not, examining the errors children make in their early attempts to read and write, and employing more direct techniques such as structured interviews and standardized tests. Research typical of each of these

general paradigms is reviewed and their findings compared in an attempt to describe the development of linguistic awareness in young children as completely as possible, given the evidence to date.

2. Early Readers

Much of the initial research on early readers was designed to test the validity of the arguments which had been marshalled against encouraging preschoolers to read, namely, that they would become confused and bored in school and that they would quickly lose whatever gains they had made. Kadson (1958) interviewed the fifty freshman who had scored highest on the entrance reading tests administered by universities in the Los Angeles area. Although he relied on the ability of his subjects to recall factors contributing to their reading success and did not attempt to discover whether or not the less successful readers would have responded similarly, his findings are nevertheless interesting. Over 50% of these superior readers reported that they had been able to read before grade 1; 80% attributed their interest in reading and their ability to read so young to curiosity about signs and advertisements and the content of books, and to the encouragement of their family; and 65% claimed that they became good readers because they enjoyed reading and read a good deal.

In a different kind of study, Sutton (1968) offered an optional reading program to kindergarten children, consisting of unstructured reading activities for fifteen minutes a day from January to June, and then followed the reading achievment of these children during their first three years of elementary school. Those who had participated in the program consistently performed better on reading tests than those who had not, and the reading advantage increased each year. Also, the early readers were spontaneously described as "book hungry" by teachers, librarians, and parents. Of course, one problem not addressed by Sutton but which is of considerable importance is what distinguished the two groups originally - why did some of the children want to engage in reading activities while in kindergarten and others did not? McCracken (1966) also followed children who were reading when they entered grade 1, and his findings corroborate those of Sutton. The reading achievement scores of the early readers were well above average, and in many cases this advantage increased over the two year period of the study.

These studies, then, accomplished their goal of dispelling the myths about early reading, but they raised other and more perplexing questions, for example, why do some preschoolers show a much greater interest in literacy activities than others? Why do some children learn to

read before entering school and others do not?

Durkin (1966) has made considerable contributions in this sphere. In one study she identified all the children (49) entering grade 1 in the Oakland area who scored at least at the grade 1 level on a standardized reading test, although they had had no formal instruction in reading. When the reading achievement of this group was compared to that of a control group of equally bright non-early readers over a six-year period, it was found that "the average achievement of early readers who had either five or six years of school instruction in reading was significantly higher than the average achievement of equally bright classmates who had had six years of instruction but were not early readers" (Durkin, 1966, p. 41). Interestingly, this advantage was especially important for the less bright children (IQ scores from 90 to 100) - Durkin speculated that the less bright children require more time to become competent in reading, and this extra year or two of experience with reading before entering school gives them the time they need. Interviews with the parents of the early readers revealed nothing significant about either the family background or the children themselves which suggested why these children had become early readers.

Durkin decided to do a second study, this time in New York City. The control group was selected on the basis of

sex and first grade teacher as well as IQ scores, the interviews were more extensive, and the parents of both early readers and non-early readers were interviewed. The project was terminated after three years, and again "the average achievement of early readers was significantly higher than that of comparably bright non-early readers" (Durkin, 1966, p. 83).

Efforts to distinguish between the two groups on the basis of personality traits, visuomotor skills, intelligence, and creativity failed. Parental descriptions of the personality characteristics of the children, whether given spontaneously in response to direct questions or in the form of a checklist, were very similar. Teacher ratings along a five-point scale of variables thought to be important to reading skills (e.g., intelligence, attention, persistence) differed little between the two groups. Neither the Bender-Gestalt nor the Minnesota Test of Creative Thinking could differentiate early and non-early readers. Above average intelligence was not a prerequisite for early reading, as several children scored below 100 on the Revised Stanford-Binet Intelligence Scale, the lowest being 82.

The results of the family interviews, however, did reveal differences in parental attitudes, home environments, and activities of the children which might have affected the early acquisition of reading skills.

The mothers of early readers read more often and used the library more often than did the mothers of non-early readers. They were also more likely to read to their pre-schoolers. All the mothers of early readers answered their children's queries about written language. For example, they identified numbers, letters, and words for the children; they printed letters and words for the children to copy; and they discussed word meanings, word spellings, and letter sounds with the children. The mothers of non-early readers hesitated to help their children with reading, even when they showed an interest in learning to read, because of the fear that this would confuse the children when they entered school. Some of these mothers did identify numbers, letters, and words for their children, but less frequently than did mothers of early readers, and comparatively little help was given with word meanings, word spellings, and letter sounds.

All the early readers and three-quarters of the non-early readers showed an interest in reading before they entered school, which their mothers attributed to the experience of being read to and to the saliency of print in the environment (e.g., on signs, food packages, calendars, and the like). The mothers of early readers also felt that television, the availability of writing materials, the availability of reading materials, and interest in the

meaning of words had helped to stimulate their children's curiosity about the printed word, but few of the mothers of non-early readers did.

There appeared to be two main differences between early and non-early readers - early readers were more likely to enjoy playing alone; and if no playmates were available, early readers were more likely to look at books and magazines than to play with toys.

Early readers, then, according to the reports of their mothers, were more interested than non-early readers in letters and their sounds; in words, their spellings, their meanings, their occurrence in signs and advertisements; in printing, and in playing with reading materials instead of toys when alone. Whether the early readers were in fact more interested in these things, or their mothers were more aware of and sensitive to their interests, or their home environments (e.g., the availability of reading and writing materials, the willingness of parents to help) stimulated and encouraged this interest, cannot be determined from the data.

Durkin (1966) concluded: "early readers are not some unique species capable of being identified and sorted by testing . . . . their preschool achievement in reading is the combined expression of themselves, their parents, and the kind of environment these parents provide" (p. 110).

A decade later Clark (1976; Note 8) studied 32 early readers through a variety of psychological tests and intensive interviews with both the children and their parents. Her findings and conclusions were virtually identical to those of Durkin, but she placed even greater emphasis on the home environment and the parents' encouragement and support of their child's interest in literacy-related activities. In her own words: "That the attributes of the particular child were an important aspect of the situation is not denied, but the crucial role of the environment, the experiences which the child obtained, their relevance to his interest and the readiness of the adults to encourage and build upon these, should not be underestimated" (Clark, 1976, p. 106) and "There was seldom any direct teaching of reading but rather a shared language interaction out of which development of an understanding of the printed word was a natural extension since print features so much in our general environment" (Clark, Note 8, p. 4).

The study of children who learn to read before entering school suggests that they become aware of the functional aspects of written language at an early age, through their interest in and curiosity about books, signs, T.V. advertisements, food packages, etc., and this awareness stimulates questions about the featural aspects of written language: what is this letter? What sound does it make? What does

this word say? How do you spell . . . ? Help me write my name. Certainly the children's aptitudes and attitudes have an important bearing on the depth and breadth of their probings, but the home environment, the integral role of literacy behaviours in daily activities, the availability of reading and writing materials, the willingness of parents to respond to the children's queries, and the frequency of shared language experiences, may be even more influential.

3. Attitude Toward Reading

One characteristic of early readers which was identified in all the studies reported in the previous section was their love of reading. They learned to read and they continued to be inveterate readers because they thoroughly enjoyed the activity. There have been no investigations of preschoolers' attitudes toward reading, but several studies involving elementary students have examined the relationship between reading achievement and attitude toward reading (Askov & Fischbach, 1973; Groff, 1962; Healy, 1963, 1965; Ransbury, 1973) and between the home environment and attitude toward reading (Hansen, 1969; Ransbury, 1973). These studies have two important findings: the relationship between attitude and achievement seems to be cyclic, in that a positive attitude fosters reading success, which in turn enhances the positive attitude and so on; and the

active involvement of the parents (e.g., helping the child with homework; encouraging, helping select, and discussing the child's reading) rather than merely providing materials and being a good model as a reading parent seems to be an essential factor in the child's positive attitude. These findings suggest that it would be valuable to explore the relationship between preschoolers' attitude toward reading and the development of linguistic awareness, and influences on their attitude toward reading.

4. Early Reading Attempts

Another approach to the study of the development of linguistic awareness is to infer what children understand about the functional and featural concepts of written language from their early attempts to read. Considerable information of this nature was gleaned through a procedure known as "miscue analysis." This system of analysis is based on two main assumptions: (1) the reader utilizes three kinds of information during the reading process, namely, graphic, syntactic, and semantic; and (2) it is possible to infer the strategies a reader is employing by examining the "correct" features of an erroneous response. Graphic information is information contained in the printed text itself; syntactic information is information implicit in the grammatical structures of the language; and semantic

information refers to the meaning of the message. Because utilization of syntactic and semantic information depends on the reader's language and experiential background, they are referred to as contextual information.

Consider as an example a child who read the sentence "The man went into his home" as "The man went into his house." The miscue, house, showed sensitivity to graphic constraints - it resembled the expected response in length and shape, and it shared several letters with the expected response, in particular, the highly salient initial letters. It showed sensitivity to syntactic constraints - it was the same part of speech as the expected response, and it maintained the grammaticality of the sentence. Finally, it showed sensitivity to semantic constraints - it was closely related in meaning to the expected response, and it maintained the sense of the sentence. In other words, even though the child made an oral reading error, it is apparent that he/she is coordinating all information sources to a considerable extent.

It can be argued that sensitivity to the syntactic and semantic constraints of a printed text suggests at least some understanding of the functional concepts of written language, that is, at least some awareness that the text communicates a meaningful message. Similarly it can be argued that sensitivity to the graphic constraints

of a printed text suggests at least some understanding of the featural concepts of written language, that is, at least some awareness of the coding rules. If these arguments are accepted, then the findings of miscue analysis studies can serve as indications of the level of linguistic awareness of children entering grade 1.

(a) Understanding of Functional Concepts

Weber (1970a, b) analyzed the oral reading errors of first graders throughout the school year and collected much evidence that these children were sensitive to semantic and syntactic constraints. For example: (1) most of the errors maintained the grammaticality of the sentence; (2) few errors occurred at the end of the sentence, where grammatical constraints are the most stringent; (3) substitution errors generally involved content words, and tended to be of the same part of speech as the intended response, whereas omissions and insertions were usually restricted to information-laden words such as modifiers and functors; and (4) most errors preserved the meaning of both the sentence and the story. Similar findings have been reported by Biemiller (1970) and Cohen (1974/75).

Weber also found that the children seldom corrected grammatically acceptable errors, but if the error violated

the grammaticality of the sentence, they frequently went back to correct it. This finding supports Goodman's (1965) two predictions concerning the occurrence of regressions, which were: (1) that regressions are likely to occur whenever an error disrupts the meaning of a passage, at which point the reader retraces his/her steps to the source of the inconsistency; and (2) that they are less likely to occur when the error conforms to the syntactic and semantic constraints, unless the reader "is relying so heavily on analytic techniques, using only cues within words, that he has lost the meaning altogether" (p. 642).

It appears, then, that children enter grade 1 with some sensitivity to semantic and syntactic constraints, and thus it may be inferred that they have at least some understanding of the functional concepts of written language.

(b) Understanding of Featural Concepts

In addition to examining the syntactic and semantic appropriateness of the oral reading errors, Weber (1970a,b) also measured the graphic similarity between the oral reading error and the expected response. Analysis of the position of shared letters suggested that the initial letter was the most salient cue in word recognition, and

that the final letter was the next in importance. The error and the expected response generally shared more than one letter, and often differed by only one letter. Substitutions, omissions, and insertions usually involved frequently occurring letter clusters, many of which were affixes. In general, Weber found that initially the children's graphic similarity scores were low, but that the scores improved throughout the year. Similar findings have been reported by Biemiller (1970) and Cohen (1974/75).

It appears, then, that children enter grade 1 with limited sensitivity to graphic constraints, and thus it may be inferred that they have a limited understanding of the featural concepts of written language.

(c) Simultaneous Understanding of Functional and Featural Concepts

Goodman (1965), Weber (1970a,b) and Biemiller (1970) had all observed that during oral reading lessons some first graders would say nothing rather than knowingly make an error. Biemiller called this kind of miscue a "no-response," which he abbreviated to NR. He hypothesized that children learning to read pass through three stages, each of which is defined in terms of the frequency of NR errors. During the first phase, called pre-NR, the

beginning reader relies heavily on contextual information, which is reflected in the high syntactic and semantic appropriateness of his/her errors and the low graphic similarity between the errors and the expected responses. The learner becomes aware that graphic information is important, but he/she is not skilled in the utilization of these cues. This is the beginning of the NR phase, in which at least half the errors are no responses because the child would rather say nothing than say a word which is contextually acceptable but which violates graphic constraints. As the child develops word attack strategies, he/she attempts more and more words, and is now in the post-NR phase. At first the learner concentrates on graphic information, but gradually coordinates both graphic and contextual cues. As predicted, Biemiller found that contextual cues were high during the pre-NR phase and that they decreased during the NR and early post-NR phases; that graphic errors were low during the pre-NR phase and that they increased during the NR and post-NR phases; and finally, that errors during the second part of the post-NR phase reflected both graphic and contextual constraints, that is, the errors both closely resembled the expected response and also preserved grammaticality and meaning.

It appears, then, that children enter grade 1 with a limited ability to utilize graphic and contextual constraints simultaneously, and thus it may be inferred that their simultaneous understanding of both the functional and the featural concepts of written language is limited.

(d) Differences in Understanding of Functional and Featural Concepts

Weber (1970a,b), Biemiller (1970), and Cohen (1974/75) all reported that compared to poor readers, good readers: (1) were more sensitive to semantic and syntactic constraints; (2) were more sensitive to graphic constraints; (3) were more likely to regress when the miscue was grammatically unacceptable but less likely to regress when the miscue was grammatically acceptable; and (5) were more quickly able to coordinate contextual and graphic cues. These differences were evident from the beginning of grade 1.

It appears, then, that children enter grade 1 differing in their abilities to utilize contextual and graphic cues, and thus it may be inferred that they differ in their understanding of the functional and featural concepts of written language.

(e) Relationship Between Understanding of Functional and of Featural Concepts

Chomsky (1978), Cohen (1974/75) and Weber (1970a) have all observed that children utilized graphic information better when they read familiar material. These observations were tested more fully by Francis (1977). She asked beginning readers to read sentences which were lifted intact from their readers, these same sentences in which the order had been rearranged, sentences comprised of parts of two book sentences, and lists of words from these sentences. She found that the familiar sentences were read far better than the other three conditions and that the reading was based on only a fraction of the text. Francis (1977) concluded:

> [The children] seem to learn by storing the paired written and spoken versions of a set of words, or a sentence or two, which form the ground for further attempts to learn. Then new learning was not simply the addition of more new words, but their incorporation into what was developing as a structured form of knowledge of the graphic coding of written language. Using any available context cues, including expectations of the general coverage of what was to be read, they attempted to identify new words or sentences by calling on their memories of aspects of the visual appearance of what they knew . . . . Word memory is not a simple all or nothing, but a more or less successful reconstruction from visual form and context . . . . Given that word learning

> shows varying degrees of solidity there is obviously a need for practice of various kinds to consolidate early learning sufficiently for it to be a firm base for attempts to make valid comparisons and discriminations that will serve to help read new words. (pp. 124-125)

Her conclusion suggests that contextual information is highly accessible when reading material is familiar and thus it can facilitate the utilization of graphic information. It is likely that such coordination of contextual and graphic information involves the simultaneous awareness of both functional and featural concepts of written language. In fact, it is likely that understanding of functional concepts facilitates understanding of featural concepts.

(f) Summary

Several inferences about the level of linguistic awareness of first graders are suggested by the findings of miscue analysis studies. It appears that children entering grade 1 differ in their level of linguistic awareness, although most have some understanding of the functional concepts of written language, a limited understanding of the featural concepts, and little ability to consider both types of concepts simultaneously.

Understanding of functional and of featural concepts increases throughout the first grade, and it is likely that the latter is facilitated by the former.

5. Early Writing Attempts

Examination of the early attempts of young children to write also provides some interesting insights into the development of their linguistic awareness. The parents of both early and non-early readers in Durkin's study (1966) who were able to describe their child's preschool interest in reading with specific observations all reported that this was preceded by an interest in writing. First the children scribbled and drew, then they started to copy letters of the alphabet, and this was followed by demands for their name to be printed so that they could copy it. Printing their own name generally lead to a desire to copy other people's (or pets') names, then other words, longer discourse, and even to long-term projects such as making calendars. Clark (1976, Note 8) also found that the children in her study developed an interest in writing as well as in reading. She noted that their spelling attempts, even before they had received any instruction, showed a high degree of success, that their errors closely approximated the standard spelling, and that they were sensitive to the correctness/incorrectness of their attempts.

It appears, then, that before or concurrently with an interest in reading children make themselves familiar with the written code, spending hours copying isolated letters and words and then groups of words, often without knowing the meaning of what they are writing. Others (Hildreth, 1936; Legrun, 1932; Ginsburg, Wheeler & Tulis, Note 10) have reported this same sequence of events: scribbling and drawing giving way to the production of letters and words. Also, children are soon aware that writing is different from pictures: Lavine's results (1972) indicate that 86% of three year olds, 90% of four year olds, and 96% of five year olds could distinguish between graphic displays depicting objects and those containing letters, which they called writing whether or not they were able to name the letters or read the words. There is evidence, however, that kindergarten children confuse the acts of writing and drawing (Downing, Ayers & Schaefer, Note 5).

From a year long observation of five year olds, Clay (1975) postulated 13 concepts or principles which seem to describe their early writing attempts. First the children realize that a sign (letter, word, punctuation mark) carries a message, and then that spoken messages can be written down. They copy letters, words, and word groups, but often become tired of copying and instead invent their own signs. This experimentation enables the children to explore the

limits within which each letter form may be varied and still retain its identity. Five year olds periodically make lists of what they know, as if taking an inventory of their learning. The children frequently repeat a sentence pattern, and then attempt to combine or rearrange the elements to produce new patterns. They have to discover the conventions regarding directionality, use of space, and page and book arrangement, which they frequently violate in the initial stages. Children who are making rapid progress in reading and writing may also playfully create contrasts between shapes, meanings, sounds, and word patterns, and use abbreviations. It may be that children rediscover the functional and featural aspects of written language more easily through their early writing attempts than through their early reading attempts. It is even more likely that the two activities complement one another. Reading, and particularly being read to, enables the children to build up a reservoir of written words and meanings, and a data base from which they can generate and test hypotheses about structural, syntactic, and semantic similarities and differences among words as well as letter-sound correspondences. The actual generation and evaluation of these hypotheses occurs while attempting to write.

Recently there have been several studies involving the analysis of spelling errors, particularly of beginning

spellers, from an orientation similar to that of the miscue analysis studies described previously. From these findings, Gentry (1978) has developed a classification of spelling strategies which is most interesting. The most primitive level is called deviant, and is characterized by strings of letters or approximations of letters, often interspersed with numerals, which are written from left to right in order to resemble the arrangement of letters in real words. Spellings which are greatly abbreviated, often with only the initial and/or final sounds represented, are typical of the prephonetic strategy. During the phonetic stage all the sounds are represented but the spellings do not look like real words because the children are not aware of those aspects of English orthography which convey meaning and/or have a specific function, such as semantic forms, syntactic forms, irregular structural patterns, and letter-sound patterns and the environments in which they are likely to occur. As the children learn these forms and patterns (and the most likely route to this learning is reading), their spellings increasingly resemble standard spelling. This is known as the transitional stage, and is followed by the stage in which most of the spellings are correct. Gentry's scheme suggests that there is a close relationship between linguistic awareness and spelling strategy, and that linguistic awareness is developed through both reading

and writing.

6. Direct Investigation of Linguistic Awareness

Of the research directly concerned with what children think about reading, most have concentrated on children entering primary school.

Mason (1967) asked 178 children who were 3, 4, and 5 years old if they liked to read and if they could read all by themselves. Almost all replied in the affirmative to both questions. From this Mason concluded that one of the first steps in learning to read is to learn that one does not already know how. This might be so, but it is possible that these children knew that what they did with books was not reading, it was just pretend reading. In either case, what the children had to learn was not that they did not know how to read but rather what reading is.

This notion is supported by Reid's classic study (1966) of what children think about reading. She interviewed 12 five-year-olds after they had attended infant school for two months, five months, and nine months. During the interviews, Reid discussed reading with the children informally, introducing certain prespecified questions whenever it seemed appropriate. The first session was held before there had been much reading instruction, and although all the children except one knew they could not read, none had

a specific idea of what reading entailed - some made vague references to "the black part" and "in your head" - or its purpose. When asked what is in books, most said pictures; only one said words. The children replied that their mother knew which bus to take "by the number", but seemed uncertain about what this meant. The results of this interview led Reid (1966) to conclude that these five-year-olds began school with a "general lack of any specific expectancies of what reading was going to be like, of what the activity consisted in, of the purpose and use of it . . . . and a great poverty of linguistic equipment with which to deal with the new experience" (p. 58).

Three months later they had acquired some technical vocabulary, although they sometimes used it incorrectly - whereas letters had previously been confused with numbers, now they were often called words; sounding out words was often referred to as spelling, copying, or saying. Also, the children were becoming aware of the alphabetic system of writing. They were learning that rules exist, but most were experiencing difficulty accounting for the use of capital letters and silent letters - they suggested many different rational explanations (e.g., a big letter for a big animal) - but it did not occur to any of these children that a rule could be arbitrary, a convention. By the third interview the children's notions of reading were more

sophisticated and their use of the terminology more accurate. "Word" was a more clearly defined concept, which now included the criterion that it mean something, although there was still some confusion between "name" and "word". In summary, Reid (1966) said that during these nine months "the children had come to see that language and pictures are two kinds of symbols, that letters and numbers are subclasses in the class of written symbols, that 'names' form a subclass in the class of words, and that capitals form a subclass in the class of letters" (p. 61).

In order to find out what effect Reid's method had on her results, Downing (1969; 1969/70) first interviewed 13 children two months after they had entered infant school, following Reid's procedure as closely as possible. The results were essentially the same. Next, concrete aids were used to see if they would better probe the children's understanding of reading. The children were correct about 85% of the time in stating whether or not the reading act had been depicted in a picture. When given a book which did not contain any pictures and again asked what their parents did when reading, six pointed to the print and the other seven used technical terms (e.g., writing, words, letters) which they had not done when posed the same question during the interview. However, their idea of how one reads was still very vague. When the children were shown toy

buses and asked how their parents knew which bus to take, 12 of them pointed to the destination boards on the toy buses and indicated that they knew the information was contained there. In the third part of the study, the children were presented with 25 auditory stimuli (5 non-human noises, 5 single vowel phonemes, 5 single words, 5 phrases, and 5 sentences) and were asked to respond yes/no, depending on whether or not they thought the stimulus to be a "word." The task was repeated, but now the children were to identify a "sound." The results indicated that not one of the children held the same concepts of word and sound as adults, yet teachers use these words continuously when teaching reading - what is this word? what sound do you hear? Downing concluded that, although his results confirm Reid's findings, the use of concrete materials enabled the children to express themselves more fully and increased the likelihood that they would reveal the technical terms they were familiar with and the extent of their knowledge of them.

Francis (1973) asked 50 children who had just entered primary school: "Can you tell me a letter - any letter you know?" and "What do we use letters for?", then repeating the questions for "word" and "sentence." Next the children were shown a card with two examples of each category randomly arranged, but each within a clearly defined area, and asked

to identify a letter, a word, and a sentence. This procedure was repeated four times, at six month intervals. Both tasks revealed a similar sequence to the understanding of these concepts. Letters were most easily named and recognized, followed by words, and finally sentences. Letters and words were confused, but seldom was either of them confused with a sentence. As awareness of the hierarchical nature of these concepts developed, and as each concept was mastered, the preceding one in the hierarchy was clarified. Also, the children appeared to apply the concepts much more readily to written than to spoken language, perhaps as a result of the fact that they learned these concepts through the process of learning to read. Francis tested the children's general vocabulary and found that there was little relationship between their ability to understand abstract concepts in general and the technical language of reading in particular. On the other hand, reading ability and knowledge of its terminology were highly correlated. Francis (1973) concluded that "young children lack a consciously analytic approach to speech and their notions of units in language appear to be derived from analysis of written forms as they learn to read. Thus, difficulty in comprehending the technical vocabulary of reading instruction appears to be an integral part of learning to read, rather than a separate conceptual difficulty" (p. 23). Forester

(1975 a,b) also found that children learned the terminology and rules of reading while learning to read, although she used a completely different procedure, that of analyzing the interactions of students with each other and with the teacher during reading lessons and analyzing the students' errors during oral reading.

Downing, Ayers, and Schaefer (Note 5) conducted structured interviews with over 300 kindergarten children in order to investigate their concepts of reading. The interview schedule comprised four parts, the first three of which involved the recognition of acts of reading and writing, concepts of purposes of reading and writing, and concepts of features of printed materials. Few of the children had difficulty recognizing reading and writing behavior when they saw it, but more than half could not make a clear distinction between writing and drawing activities. The children had more difficulty with questions concerning the purposes of reading and writing, especially when the word "telling" was used to imply a reason for writing. Possibly this word is more strongly associated with speaking than with writing. The most difficult questions were those contained in Part III, which examined the child's concepts of features of written language. Nearly all the children could identify "the picture" on a page from a book, and about 70 per cent had some understanding

of the terms "printing," "letter," "bottom line," and "number." Other technical terms, however, such as "sentence," "first word," and "first two words," were much less well understood. Based on these findings, the authors stated: "The conclusion that young children's understanding of the functions and features of written language cannot be taken for granted seems inescapable" (Downing, Ayers, and Schaefer, Note 5, p. 13).

7. Summary

The different approaches to the study of the linguistic awareness of young children have tended to provide complementary rather than conflicting data.

Children in kindergarten and grade 1 appear to have some understanding of the functional concepts of literacy. They cannot always identify instances of reading and writing. In particular, there is evidence that they confuse the acts of writing and drawing, although they are not as likely to confuse basic literacy and non-literacy symbols. These children seem to be aware of the entertainment or story-telling functions of written language but less aware of other ways in which it can be used.

Children in kindergarten and grade 1 do not appear to have as well-developed an understanding of the featural concepts of literacy as of the functional. On the other

hand, the children's implicit knowledge of the language and their familiarity with the context of a printed text may enable them to recognize specific words and encourage them to explore some of the features of written language. It seems that they gradually become aware of the hierarchical nature of the featural concepts of literacy, and as one concept is being developed, the preceding one in the hierarchy is clarified. Interest in reading is generally accompanied by, and even preceded by, an interest in writing, and children's early writing attempts may contribute considerably to the clarification of the featural concepts of written language.

Certain factors in the home environment appear to strongly influence children's interest in written language. These include: (1) the saliency of print in the environment and the integral role literacy behaviors play in daily routines; (2) the availability of reading and writing materials for the children to play with; (3) the frequency of shared language experiences between the adults and the children; (4) the active involvement of the parents in the children's selection of reading materials; (5) the willingness of the parents to respond to the children's queries about written language. The forms the parents' responses to children's questions may take are: identifying numbers, letters, and words for the children; printing

numbers, letters, and words for the children to copy; and discussing word meanings, word spellings, and letter sounds with the children.

CHAPTER III

Methodology

1. Subjects

The parents of 35 kindergarten students received a letter explaining the nature and purpose of the study and asking that their child be allowed to participate. A copy of the letter is contained in Appendix A.

The students were members of two kindergarten classes in the Cowichan School District, one from School A and the other from School B. These classes were selected for three reasons: (1) according to the school records, the students came from a wide spectrum of working and middle class homes; (2) no formal reading and writing instruction was included in the kindergarten programs; and (3) a primary teacher in the District was conducting related research in these classrooms at the same time (see MacCarthy, 1980). Information about the sex and age of the children in each class is presented in Tables 1 and 2.

The subjects were assigned "code names" which consisted of a number between 1 and 35 (indicating their rank order on the Test of Linguistic Awareness in Reading Readiness),

Table 1

Number of Students by Sex in Schools A and B

School	Males	Females	Total
A	8	10	18
B	7	10	17
Total	15	20	35

Table 2

Age Ranges and Means by Sex in Schools A and B

School	Males		Females	
	Range	Mean	Range	Mean
A	4.11 -5.10	5.3	5.0 - 5.10	5.4
B	5.00 - 5.8	5.4	4.10 - 5.9	5.3

Note: Ages have been rounded off to the nearest month.

the letters A or B (indicating their school), and the letters M or F (indicating their sex).

2. Instruments

The data were collected by means of three instruments: the Test of Linguistic Awareness in Reading Readiness (Ayers, Downing, & Schaefer, Note 4), an interview schedule, and an observation schedule. Each is described below.

(a) Test of Linguistic Awareness in Reading Readiness

The Test of Linguistic Awareness was developed to measure kindergarten children's understanding of the functional and featural concepts of written language. It consists of three subtests, each of which is a paper and pencil test designed for group administration.

Subtest A is entitled "Recognizing Literacy Behaviors", and its 22 items require that the child distinguish reading and writing activities from other kinds of activities. It consists of four types of questions: (1) identifying things one can read; (2) identifying persons who are reading; (3) identifying objects with which one can write; and (4) identifying persons who are writing.

The 20 items of Subtest B, "Understanding Literacy Functions", measure the extent to which the child understands the various purposes of written language. The purposes of literacy which are examined include: (1) reading for

entertainment (e.g., a story); (2) reading for information, to learn something (e.g., an advertisement); (3) reading for personal communication (e.g., a letter); (4) writing to entertain (e.g., a story); (5) writing to remember (e.g., a shopping list); and (6) writing to communicate (e.g., a letter).

Subtest C is called "Technical Language of Literacy". Its 29 items can be classified as representing one of four types of questions: (1) identifying the basic symbols of written language, that is, numbers, letters, and capital letters; (2) identifying examples of printing and writing; (3) identifying the directional rules of written language, that is, the top and bottom lines of a passage, the first and last letters of words, and the first and last words of sentences; and (4) identifying higher-order units of written language, that is, words, names, sentences, and punctuation marks.

Form I of the Test of Linguistic Awareness was used to obtain an overall linguistic awareness score and individual subtest scores for each student. The children's incorrect responses were anlayzed so that inference about the nature of their cognitive confusion could be made.

The reliabilities of all the Linguistic Awareness Subtests are high (.87, .84, and .88 respectively), but construct validity has not been firmly established (Ayers,

Downing, & Schaefer, Note 6). The authors attribute the failure to establish construct validity to some technical problems associated with the interview procedures used, and they feel that the criteria for construct validity will be met when the interview schedule is revised. Evidence of predictive ability is provided by the reported correlation between performance on the Test of Linguistic Awareness at the end of kindergarten and reading achievement at the end of grade 1 (.60 to .80; Ayers & Downing, Note 3).

A copy of the instructions for administering the Test of Linguistic Awareness in Reading Readiness and of the questions in each subtest is contained in Appendix B.

(b) Student Interview Schedule

An interview was held with each subject individually. It consisted of three parts, each of which is described below. A copy of the interview schedule is contained in Appendix C.

The first part of the interview was designed to provide insights into how kindergarten children think about the nature and purpose of written language. As was explained in the previous section, the 42 items of Subtests A and B can be assigned into one of ten categories. One question for each category was randomly selected from Form II of the Test of Linguistic Awareness and mounted on an index card.

The children were asked to answer the questions and then explain their answers. Only one question per category was selected because in most cases there were under five questions from which to choose. Also, the responses were not used for any statistical analyses but only to help explain the children's performance on the Test of Linguistic Awareness, in particular, to confirm/disconfirm the inferences about the nature of their cognitive confusion which were made by analyzing the incorrect responses.

The Sand "Concepts about Print" Test (Clay, 1976) was administered during the second part of the interview. The Sand Test assesses knowledge of some of the arbitrary conventions of written language, and thus performance on this test can be compared, by means of correlations, to performance on Subtest C of the Test of Linguistic Awareness. The Sand Test must be administered individually because the subject responds by pointing to certain features of the printed page as the examiner reads the book. The kinds of questions asked include indicating: the front of the book, where one begins reading on a page, in which direction one reads, the top and bottom of a page, exact spoken and written word matching, punctuation marks, and upper and lower case letters.

According to Clay (1976), both the reliability and the validity of the Sand Test are high (.95 and .79 respect-

ively). A copy of the instructions for administering the test and of the questions is contained in Appendix D.

The third and final section of the interview consisted of an attempt to assess each subject's reading strategy while he/she "read" a familiar book. Four strategies of increasing sophistication were identified from the literature: (1) looking at the pictures and making up a story; (2) reciting the story from memory, using the pictures as cues; (3) reciting the story from memory, using graphic cues (e.g., identifying some words in context); and (4) not relying solely on memory to read the story (e.g., attempting to make letter-sound correspondences). This scheme is based on the findings of miscue analysis studies (Biemiller, 1970; Cohen, 1974/75; Weber, 1970a, b), observation of children learning to read (Forester, 1975a, b, 1977; Francis, 1973, 1977; Doake, Note 2), and investigations of word recognition strategies (Mason, 1979; Mason & McCormick, 1979; Mason, McCormick, & Hall, 1979; Mason, Note 11). Reading strategies and performance on the Test of Linguistic Awareness were compared to determine whether or not these variables were related.

(c) Classroom Observation Schedule

Nineteen literacy-related behaviors (see Table 3) which might be expected of kindergarten children were identified from the literature, especially Mason's (1979)

Table 3

Literacy-related Behaviors to be Recorded
During the Classroom Observations

Letter Knowledge-related Behaviors

Low Sophistication:

1. reciting the alphabet
2. asking to have letters identified
3. pointing out and naming letters
4. copying letters
5. printing letters from memory

High Sophistication:

6. using both upper and lower cases
7. asking to have letter sounds identified
8. identifying letter sounds

Reading-related Behaviors

Low Sophistication:

9. starting at the front of the book
10. focusing on the print rather than on the picture
11. following the directional rules of reading

High Sophistication:

12. asking to have printed words identified
13. asking about the meaning of words
14. identifying printed words

Writing-related Behaviors

Low Sophistication:

15. asking how a word is spelled
16. copying words

High Sophistication:

17. printing words from memory
18. copying sentences
19. printing discourse from memory

work. Observers recorded instances of these behaviors, as well as any of the teacher's comments which referred to either the functional or the featural concepts of written language. They also recorded who was involved in each of these literacy-related behaviors or discussions, the duration of the behavior or discussion, the circumstances surrounding its occurrence, and the details of its occurrence. These observations were used to describe the kindergarten environment in terms of literacy-related behaviors/discussions, the manner in which children of different levels of linguistic awareness interact with the environment, the saliency of written language in the classroom, the role written language plays in the daily routines, the manner in which the teachers respond to the children's queries about written language, the availability of reading and written materials, and the frequency of shared language experiences. It must be emphasized that this part of the study was intended to be exploratory and descriptive in nature.

The observation schedule was developed and used by the researcher on several occasions. Before the study began, the researcher and the research assistant discussed the schedules which had been completed. They then recorded observations of a class independently. The inter-rater reliability was high; in fact, they identified all the same

instances of literacy-related behaviors during a 40 minute period except for one, although they differed in the amount of detail in which each incident was described.

3. Procedure

(a) Group Administration of the Test of Linguistic Awareness

The Test of Linguistic Awareness was administered to each kindergarten class during the week of October 15 to 19, 1979. Subtests A and B were written in one session and Subtest C, in a second session. In retrospect, it would seem advisable to give the three subtests on different days because kindergarten children are not used to writing tests and they are quite tired at the end of a testing session.

At the beginning of each testing session, the subjects were given a test booklet with their name on it and a pencil, and then assigned a place to sit. When all the students had successfully answered the practice questions, the actual testing began. The researcher read the questions aloud and the children responded by circling their choices directly on the test booklet. A research assistant and the classroom teacher watched the children to ensure that they understood and were following the instructions, and also to let the researcher know when to go on to the next question. While it is certainly more efficient to administer

the Test to the subjects as a group rather than individually, there are two problems with this procedure. The first is that the children are unfamiliar with the notion of testing, and they do not understand why they cannot discuss the questions with each other and share their work as they usually do. The second is that the children work at very different rates and those who always have to wait get restless.

(b) Student Interviews

Either the researcher or the research assistant met with each child individually during the week of October 22 to 26, 1979. The interviews were held in a quiet, private area and were conducted in an informal and relaxed manner. Each lasted about 20 minutes. The children were given every opportunity to express themselves fully but they were not forced to continue if they appeared tired or uncomfortable. It was originally intended to audiotape the interviews but this proved unnecessary. The children's responses, as well as any other pertinent observation or comment, were recorded immediately on the interview schedule.

In Part 1 of the interview the subjects were shown the cards one at a time. The question was read to them and they responded verbally and/or by pointing. They were then asked questions designed to elicit the criteria on which

they based their judgements.

The Sand Test was administered according to the instructions (Clay, 1976). Each subject was asked the questions as he/she and the examiner looked at the book together.

In the final part of the interview the children were given a book to play with, and they were observed as they did so. After a few minutes they were asked what they were doing, what they were looking at, what the story was about, how they knew, and questions of a similar nature until it was possible to determine which strategy they were using. It was necessary to slightly modify the proposed strategies.

(c) Classroom Observation

The researcher observed the School A kindergarten class and the research assistant, the School B kindergarten class, on five Wednesday mornings between October 31, 1979 and December 5, 1979. Observations were recorded for the teacher and all the students but special attention was focused on two students, one who had scored high on the Test of Linguistic Awareness and one who had scored low. Although the observers did not actively participate in the classroom activities, they were readily accepted by the students and could wander about and record observations freely, without disrupting the students.

4. Coding the Data

(a) Test of Linguistic Awareness

The student responses to each of the 71 items of the Test of Lingusitic Awareness were coded as 1, 2, 3, 4, NR, UN, or IN.

A "1" denoted a correct response, that is, all instances of the question and no non-instances were circled.

A "2" denoted a partially correct response, that is, only some of the correct instances and no non-instances were circled.

A "3" denoted an incorrect response which was closely related to the correct response. Examples of type 3 errors include:

a. not differentiating print from its context;
b. confusing instances of reading and writing;
c. confusing letters and numbers;
d. confusing upper and lower case letters;
e. confusing instances of printing and writing;
f. following only some of the components of instructions which contain several parts;
g. confusing the terms first and last;
h. confusing letters and words;
i. confusing periods, commas, and question marks;
j. confusing sentences and groups of words;
k. confusing words and names.

A "4" denoted an incorrect response which was loosely related to the correct response. Examples of type 4 errors include:

a. confusing literacy and non-literacy symbols;
b. defining writing in terms of the instrument used to write rather than the nature of the symbol produced;
c. focusing on a secondary rather than primary aspect of the question;
d. confusing capital letters and words;
e. confusing writing with writing-like scribble;
f. confusing writing with non-writing-like scribble;
g. focusing on only one component of instructions which contain several parts;
h. confusing sentences and words.

A "UN" denoted an incorrect response that bore no apparent relationship to the correct response.

An "IN" denoted errors which seemed to be due to indiscriminate responding, without regard to the question. For example, when a child answered a series of questions by circling the first box or the first two boxes or some other pattern, or when a child enclosed all the boxes within one circle, he/she was assumed to be responding indiscriminately.

An "NR" denoted no response.

(b) Sand Test

Responses to the 24 items of the Sand Test were coded as "1" if they were correct and as "0" if they were incorrect.

(c) Reading Strategy

Each child's reading strategy was defined according to the following scheme:

1. uses graphic cues to make up a story which closely follows the actual story theme;
2. uses pictorial cues to make up a story which closely follows the actual story theme;
3. uses pictorial cues to make up a story which loosely follows the actual story theme;
4. uses pictorial cues to make up a story which bears no relationship to the actual story theme;
5. strategy cannot be determined.

5. Statistical Analysis

(a) Matched t Tests

The children's scores were converted to percentages, and a mean percentage score for each of the subtests was calculated. The significance of the difference between the means of Subtests A and B, A and C, and B and C was

tested by means of three matched t tests. This analysis was carried out to test the hypothesis that kindergarten children have a better understanding of the functional concepts of written language than of the featural.

(b) Chi Square Analysis

The realtionship between the understanding of the functional and the featural concepts of literacy was further examined. The children were classified as high or low performers on Subtest A, Subtest B, and Subtest C, depending on whether or not they answered at least 50% of the questions correctly. The relationship between performance on Subtests A and B, A and C, and B and C were tested by means of a chi square analysis.

A chi square analysis was also used to test the relationship between level of linguistic awareness and nature of the cognitive confusion. The children were assigned to high, middle, and low groups, depending on their score on the Test of Linguistic Awareness. The total number of errors made by each group was determined, and the percentage of the total number accounted for by each of the six error types was calculated as an index of cognitive confusion.

CHAPTER IV

Results

Part 1 - Test of Linguistic Awareness and Individual Interviews

1. Overall Performance

The first purpose of this study was to investigate the nature of kindergarten children's cognitive confusion about the functional and featural concepts of literacy, especially as it is related to their level of linguistic awareness. It was expected that kindergarten children would perform better on questions pertaining to the functional concepts of written language than to the featural, and that they would differ in the frequency with which they made various kinds of errors, depending on their level of linguistic awareness. Both hypotheses were supported by the data.

(a) Hypothesis 1. The means and standard deviations for overall performance on the Test of Linguistic Awareness, for each of the subtests, and for the Sand Test are given in Table 4. Note how similar the data pertaining to the Test of Linguistic Awareness are to those reported

Table 4

Means and Standard Deviations of the Test of Linguistic Awareness and the Sand Test

Test[a]		Means[b]	Standard Deviations[b]
Test of Linguistic Awareness	(71)	31.6	15.2
Subtest A	(22)	12.5 (12.9)	5.6 (5.3)
Subtest B	(20)	7.5 (8.4)	4.4 (4.9)
Subtest C	(29)	11.7 (11.5)	7.3 (6.8)
Sand Test	(24)	8.8	3.9

[a]Numbers in parentheses indicate the number of items in each test.

[b]Numbers in parentheses indicate data reported by Ayers, Downing, and Schaefer (Note 6).

Table 5

Percentages of Error Types by Level of Linguistic Awareness

Level[a]		Error Types[b]					
		2	3	4	NR	UN	IN
High	(264)	15.2	35.6	26.5	11.0	10.6	1.1
Middle	(469)	21.7	32.8	19.8	5.5	13.6	6.4
Low	(646)	12.2	12.2	8.4	4.0	6.0	57.1

χ^2 (10) = 117.48, $p < .001$

[a]Numbers in parentheses indicate the total number of errors made by each group.

[b]2=response correct, but incomplete; 3=response closely related to correct answer; 4=response loosely related to correct answer; NR=no response; UN=response unrelated to correct answer; IN=indiscriminate response.

by Ayers, Downing, and Schaefer (Note 6), who tested a stratified random sample of 310 kindergarten children. These data show that the children performed better on Subtest A, Recognizing Literacy Behaviors, than on Subtests B, Understanding Literacy Functions, and C, Technical Language of Literacy. The mean on Subtest A was significantly higher than the means on Subtests B and C, $\underline{t}(34) = 6.94$, $\underline{p} < .001$ and $\underline{t}(34) = 4.92$, $\underline{p} < .001$ respectively (see Appendix E. Table 11). This supports the hypothesis that kindergarten children have a better understanding of the functional concepts of written language than of the featural. The relationship between function and featural concepts was further examined by means of a chi square analysis (see Appendix E, Tables 14, 15, and 16). Performance on Subtest A was significantly related to performance on both Subtest B and Subtest C, $\chi^2(1) = 4.43$, $\underline{p} < .05$ and $\chi^2(1) = 6.19$, $\underline{p} < .05$ respectively, but performance on Subtests B and C were not, $\chi^2(1) = 2.26$, n.s.

(b) Hypothesis 2. The scores on the Test of Linguistic Awareness ranged from 3 to 56 out of a possible 71. There was also a wide range of scores on the Sand Test, from 3 to 19 out of a possible 24. Thus it was possible to divide the children into three groups - high,

middle and low - according to performance on the Test of Linguistic Awareness. Neither sex nor school was significantly related to level of linguistic awareness, $\chi^2(2) = 4.61$, n.s. and $\chi^2(2) = 0.95$, n.s. respectively (see Appendix E, Tables 12 and 13), but error types were.

Table 5 presents the percentages of the total number of errors made by the high, middle, and low groups accounted for by each type of error. Percentages or error types were significantly related to level of linguistic awareness, $\chi^2(10) = 117.48$, $p < .001$. While overall the high and middle groups tended to make more type 3 errors than any others, and the low group, more IN errors, this was not always the case when the different types of questions were considered separately.

2. Group Response Patterns by Type of Question

While support for hypotheses 1 and 2 was found by examining overall trends in the data, more useful information was obtained by comparing the response patterns of the high, middle, and low groups to each of the 11 types of questions contained in the Test of Linguistic Awareness, and to the corresponding tasks in the individual interviews.

(a) Subtest A: Recognizing Literacy Behaviors. As was reported previously, the kindergarten children in this study performed better on Subtest A than on the other two subtests. In fact, of the five types of questions which elicited the highest percentages of correct responses, three were from this subtest. These were, in order, A3 questions (identify things people write with), A2 questions (identify people who are reading), and A1 questions (identify things that people read). On the other hand, performance on A4 questions (identify people who are writing) was among the lowest for all three groups.

The response patterns to the four types of questions contained in Subtest A, according to level of Linguistic Awareness, are given in Table 6. Each is discussed separately, with reference to the corresponding data from the individual interviews. Individual student response patterns for each type of question are given in Appendix F, Tables 17, 18, 19, and 20 respectively.

(i) A1 Questions: Identify Things People Read. The children in the high group answered the large majority of the nine questions in this section correctly, and the children in the middle group also performed well. What errors they made were either type 2 or type 3. With respect to the type 2 errors, there was no pattern

Table 6

Percentages of Response Types on Subtest A by Level of Linguistic Awareness

Level	Response Types[a]						
	1	2	3	4	NR	UN	IN
A1 Questions							
High	85.8	6.1	8.1	-	-	-	-
Middle	65.0	16.2	17.1	-	-	1.7	-
Low	18.2	19.2	34.3	-	3.0	16.2	9.1
A2 Questions							
High	84.1	-	15.9	-	-	-	-
Middle	73.1	1.9	17.3	7.7	-	-	-
Low	34.1	34.1	13.6	6.8	-	-	11.4
A3 Questions							
High	100.0	-	-	-	-	-	-
Middle	97.4	2.6	-	-	-	-	-
Low	72.7	3.0	-	-	3.0	-	21.2
A4 Questions							
High	48.5	1.5	3.0	45.5	-	1.5	-
Middle	43.6	2.6	-	39.7	1.3	-	12.8
Low	9.1	1.5	4.5	30.3	3.0	-	51.5

Note 1: The number of A1, A2, A3 and A4 questions is 9, 4, 3, and 6 respectively.

[a] 1 = correct response; 2 = response correct, but incomplete; 3 = response closely related to correct answer; 4 = response loosely related to correct answer; NR = no response; UN = response unrelated to correct answer; IN = indiscriminate response.

to which of the correct instances were omitted - the children were as likely to omit one house number as the other in question 4, the bread wrapper as the newspaper in question 6, and one of the two newspapers as the billboard in question 9. The type 3 error involved confusing the printed word with its context, that is, circling the picture as well as the written message on an advertisement, food package, or book cover (questions 1, 2, and 8 respectively).

Less than 20 per cent of the responses of the low group was correct, and these children made a substantial number of UN and IN errors in addition to type 2 and type 3 errors. Moreover, when shown two pages of a book, one containing print and the other a picture (question 3), most circled both the print and the picture, whereas none of the children in the high and middle groups did.

During the individual interviews most of the children, especially those in the high and middle groups, identified the part that people read on the basis of whether or not letters or words were present. A variety of terms was used to convey the notion of letters or words, including writing, spelling, printing, signs, and numbers. A few children suggested that things people read must be book-like, that is, have pages or be capable of being opened. There were a couple of children in both the middle and

the low groups who could not articulate the reasons underlying their answers or who did not appear to understand the task (see Appendix G, Table 29).

Even though many children could identify the part people read, this was not reflected in their reading strategies (see Appendix G, Table 30). Only one child, a member of the high group, consistently focused on the print when playing with books. She tried to recognize words mainly by sounding out the initial letters.

The majority of the children, regardless of their level of linguistic awareness, looked at the pictures rather than the print. Generally the stories they made up corresponded exactly to that contained in the print. A small number of children, however, made up stories which only loosely followed the story theme or which bore no resemblance to it at all. Two of the children belonging to the low group just rapidly turned the pages without saying anything aloud, thereby rendering it impossible to describe their reading strategy.

(ii) A2 Questions: Identifying People Who Are Reading. The large majority of the responses of the high and middle groups to the four questions in this section was correct, and about one-third of those of the low group was. Nearly all the children answered question 12 incorrectly, mainly because they circled the picture of a

woman writing as well as the pictures of people reading (type 3 error). This was the only error made by the high group, but in question 10 three children in both the middle and low groups circled a woman who was looking at a picture in addition to the two people who were reading (type 4 error). The responses of the low group also included a few IN errors and a substantial number of type 2 errors.

During the individual interviews only one child, a member of the high group, articulated that reading involved the presence of letters and words. Few of the children in the high and middle groups could specify the criteria by which they judged whether or not a person was reading; instead, they mentioned what the person was reading. Moreover, many of them pointed to the person who was writing, explaining that this boy was reading what he had written. Several of the children, mainly those in the low group, failed to indicate that the boy who was looking at a sign was reading. Their explanations suggested the presence of a book or something resembling a book was necessary in order for reading to be possible. Two children from the low group did not appear to understand the task (see Appendix G, Table 31).

(iii) A3 Questions: Identify Things People Write With. All three groups scored a higher percentage of correct responses to this type of question than to any of the other types of questions contained in the Test of Linguistic Awareness. With only one exception, all the children in the high and middle groups answered the three questions correctly. Most of the children in the low group had no errors or just one, but three of them responded indiscriminately to the questions in this section. None of the children had difficulty with the corresponding questions in the individual interviews.

(iv) A4 Questions: Identify People Who Are Writing. This section of Subtest A caused the children more difficulty than the other three. In fact, almost half the children in the low group responded indiscriminately to all six questions, and the others circled people who were painting, people who were drawing, and people who were reading in addition to people who were writing. Nearly all the children in the high and middle groups answered questions 17, 18, and 22 correctly, yet most of these same children responded incorrectly to questions 19, 20 and 21. This finding appears to be related to the nature of the distractors presented in each question. The former set of questions involved distinguishing people who were writing from people who were painting with a

paintbrush on a canvas, while the latter involved distinguishing people who were writing from people who were drawing with a pencil on a piece of paper. Downing, Ayers, and Schaefer (Note 5) also reported that only a small proportion of the kindergarten children in their sample could make a clear distinction between writing and drawing activities.

During the individual interviews the majority of the children in each of the three groups defined writing in terms of using a pen or pencil to make marks on a piece of paper. A few children articulated that writing involved letters or words, and a few others knew that writing and drawing were different but they could not explain the difference (see Appendix G, Table 32).

(b) Subtest B: Understanding Literacy Functions. Of the five types of questions which elicited the highest percentages of correct responses, only one was from Subtest B, namely, B1 questions (identify people who are enjoying/telling a story). In general, performance on B3 questions (identify people who know how to find out/ remember) was slightly higher than on B2 questions (identify people who are receiving/sending a message).

The response patterns to the three types of questions contained in Subtest B, according to level of linguistic

awareness, are given in Table 7. Each is discussed separately, with reference to the corresponding data from the individual interviews. Individual student response patterns for each type of question are given in Appendix F, Tables 21, 22, and 23.

(i) B1 Questions: Identify People Who Are Enjoying/ Telling A Story. Four children, none of whom were from the high group, responded indiscriminately to all four questions in this section. The majority of the responses of the high and middle groups was correct, and what errors they made were more likely to be on questions 11 and 13, which asked them to identify people who were telling a story, than on questions 1 and 2, which asked them to identify people who were enjoying a story. Downing, Ayers, and Schaefer (Note 5) also reported that the kindergarten children in their study had difficulty with the question in which the word "telling" was used. The children in the low group responded correctly about 30 per cent of the time, and they made about the same number of errors on questions 1 and 2 as on 11 and 13.

The most frequent error other than type IN was type NR, all of which were made by seven children, generally in response to questions 11 and 13. Type 4 errors were third in frequency. They involved circling pictures portraying a possible story-telling context, for example,

Table 7

Percentages of Response Types on Subtest B by Level of Linguistic Awareness

Level	Response Types [a]						
	1	2	3	4	NR	UN	IN
B1 Questions							
High	81.8	2.3	-	4.5	11.4	-	-
Middle	63.5	7.7	-	7.7	9.6	3.8	7.7
Low	29.5	4.5	-	9.1	11.4	6.8	38.6
B2 Questions							
High	40.3	9.1	15.6	23.4	5.2	2.6	3.9
Middle	31.9	12.1	21.9	24.2	3.3	3.3	3.3
Low	14.3	11.7	14.3	15.6	5.2	5.2	33.8
B3 Questions							
High	53.5	20.2	3.0	8.1	9.1	6.1	-
Middle	39.3	40.2	.9	6.8	3.4	6.0	3.4
Low	10.1	22.2	2.0	6.1	9.1	14.1	36.4

Note 1: The number of B1, B2, and B3 questions is 4, 7 and 9 respectively.

[a] 1 = correct response; 2 = response correct, but incomplete; 3 = response closely related to correct answer; 4 = response loosely related to correct answer; NR = no response; UN = response unrelated to correct answer; IN = indiscriminate response.

a girl drawing (question 2), a man sitting at a table drinking a cup of coffee (question 11), and a woman looking at a picture (question 13), in addition to circling people reading or writing. All but one of the high and middle group's type 4 errors concerned question 13; the low group made type 4 errors on the three questions.

Only one child, a member of the low group, had difficulty pointing to the people who had found a story when asked to do so during the individual interview. The others knew who had found a story because these people were looking at a book or at "the letters." When asked to identify people who were telling a story, however, the children's responses were more diverse. Most of the high group and some in the other two groups referred to writing or drawing a story. Almost every child mentioned looking at a piece of paper with a story on it, and several specified that telling a story meant reading a story or talking (see Appendix G, Tables 33 and 34).

(ii) B2 Questions: Identify People Who Are Receiving/Sending A Message. None of the groups answered even half the questions in this section correctly. Type 3 and type 4 errors were the most frequent, and three children in the low group responded indiscriminately to all seven questions.

Question 10 asked the children to identify the people who had received a message. Nearly all the children, regardless of level of linguistic awareness, circled the girl who was writing as well as the woman who was reading (type 3 error). Questions 17 and 20 asked the children to identify people who were sending a message. The middle and low groups were more likely than the high group to circle the people reading as well as those writing (type 3 error). Type 3 errors were not possible on questions 18 and 19, because the incorrect responses showed people involved in non-literacy behaviors.

Nearly every child answered questions 9 and 12 incorrectly, mainly because a secondary word in the question seemed to be highly salient to them (type 4 error). Question 9 required the children to identify who were asking people to pay money for a glass of lemonade. The four pictures were similar except that two showed a sign advertising drinks for sale and the other two did not. Most of the children, regardless of group, circled all four pictures. Question 12 required the children to identify the people who were telling a friend what they had for dinner. Three of the pictures showed a woman writing and one showed a girl eating. Most of the children, regardless of group, circled the latter.

According to their explanations during the individual interviews, the children identified people who had received a message as those who were holding or looking at a piece of paper. About half the high and middle groups mentioned that the paper must have writing on it. Only two children, both from the high group, knew that the children who had posted a sign were the ones asking people to pay money for the kittens. The others based their decision on a variety of criteria, including: the children were sitting down; there were kittens in the picture; there were children in the picture; there were both kittens and children in the picture; there is a box for the kittens in the pictures; and finally, "if people don't pay for the kittens, they might go to jail." Apparently the children did not understand what the question was asking (see Appendix G, Tables 35 and 36).

(iii) B3 Questions: Identify People Who Know How To Find Out/Remember. The high and middle groups performed somewhat better on B3 than on B2 questions. Other than the IN errors made by three children in the low group to all nine questions, the most common error was type 2. There was no pattern, however, to which of the correct instances were omitted.

Although the type 3 error of confusing instances of reading and writing was quite common in response to A2

questions, when asked in question 5 to identify the people who were finding out what programs were on T.V. only six children circled both pictures of people reading and pictures of people writing.

Nearly all the type 4 errors which were made in this section were in response to question 4, which asked the children to identify people who were finding out how to build a birdhouse - a large proportion of each of the three groups circled the picture of the birdhouse instead of or in addition to the pictures of people reading.

When asked during the individual interviews to identify people who were learning a friend's telephone number, about half the children in each group made references to looking it up in the phone book. The other children in the high group pointed to people who were writing, explaining that these people were writing the telephone number down so that they would not forget it. Many children in the middle and low groups could not answer the question. Most of the children in each of the groups pointed to the men mowing the lawn and watering the plants when asked to identify people who knew how to remember what jobs had to be done, explaining that these people must have remembered to do the job, since they were doing it. Only one-third mainly from the high group, made references to writing things down or making lists as a means of remembering

(see Appendix G, Tables 37 and 38).

(c) Subtest C: Technical Language of Literacy. Of the five types of questions which elicited the highest percentages of correct responses, only one was from Subtest C, namely, C1 questions (identify the basic symbols of literacy). There were considerable differences among the three groups with respect to their relative performance on the other three types of questions in this subtest. The findings, however, were similar to those reported by Downing (1969; 1969/70), Francis (1973), Reid (1966) and Downing, Ayers & Schaefer (Note 5). These studies have been described previously.

The response patterns to the four types of questions contained in Subtest C, according to level of linguistic awareness, are given in Table 8. Individual student response patterns for each of the question types of questions are given in Appendix F, Tables 24, 25, 26, and 27 respectively. The corresponding data for the Sand Test are given in Table 9 and in Appendix F, Table 28.

(i) C1 Questions: Identify the Basic Symbols Of Literacy. Although seven children in the low group responded indiscriminately to most of the C1 questions, only one child circled geometric shapes when asked to identify numbers. When asked to distinguish between numbers

Table 8

Percentages of Response Types on Subtest C by Level of Linguistic Awareness

Level	Response Types[a]						
	1	2	3	4	NR	UN	IN
C1 Questions							
High	75.0	4.5	17.0	1.1	2.3	-	-
Middle	51.0	11.5	27.9	1.0	3.8	2.9	1.9
Low	23.9	5.7	10.2	-	-	-	60.2
C2 Questions							
High	56.4	1.8	30.9	10.9	-	-	-
Middle	43.1	1.5	40.0	12.3	3.1	-	-
Low	9.1	5.5	10.9	14.5	-	-	60.0
C3 Questions							
High	74.7	-	16.2	4.0	1.0	4.0	-
Middle	41.9	-	23.9	12.0	1.7	14.5	6.0
Low	7.1	-	7.1	1.0	1.0	1.0	32.8
C4 Questions							
High	50.6	-	18.2	1.3	10.4	19.5	-
Middle	33.0	4.4	23.1	1.1	5.5	33.0	-
Low	6.5	2.6	1.3	-	1.3	1.3	87.0

Note 1: The number of C1, C2, C3, and C4 questions is 8, 5, 9, and 7 respectively.

[a] 1 = correct response; 2 = response correct, but incomplete; 3 = response closely related to correct answer; 4 = response loosely related to correct answer; NR = no response; UN = response unrelated to correct answer; IN = indiscriminate response.

Table 9

Percentages of Correct Responses on Sand Test by Level of Linguistic Awareness

Level	Section [a]			
	1	2	3	4
High	45.5	100.0	85.9	16.5
Middle	41.0	84.6	67.5	4.9
Low	30.3	54.5	49.5	2.5

Note: The number of questions in each section are 3, 1, 9, and 11 respectively.

[a] 1 = identifying the basic symbols of written language; 2 = identifying examples of printing and writing; 3 = identifying the directional rules of written language; 4 = identifying the higher-order units of written language.

and letters, the majority of the children in the high and middle groups were able to do so correctly every time but none in the low group could. Few of the children, however, regardless of level of linguistic awareness, identified capital letters correctly. Most of the children in the high and middle groups circled lower case as well as upper case letters (type 3 error), although a couple either circled words (type 4 error), did not respond, or responded indiscriminately.

The large majority of children in each of the three groups was able to point to one and then to two letters during the Sand Test, but only a small minority was able to correctly answer questions involving capital letters.

(ii) C2 Questions: Identify Examples of Printing And Writing. While children in the high group rarely circled writing-like scribble when asked to identify the printing (type 4 error), they frequently confused printing and writing (type 3 error). The middle group responded similarly, although it made fewer correct responses. Seven children in the low group responded indiscriminately to most if not all the C2 questions, and the others consistently confused printing and writing with each other and with writing-like scribble. When asked to point to the print during the Sand Test, however, 100 per cent of the high group, 85 per cent of the middle group, and 55 per

of the low group was able to do so.

(iii) C3 Questions: Identify The Directional Rules of Written Language. Nearly all the children in the high and middle groups correctly identified the top and bottom lines of a printed passage, but only three in the low group did. If the children did not know the answer, they tended to circle the whole passage (UN error).

Virtually all the children in the high group correctly identified both the first and the last words in a sentence. Only a couple of the children in the middle group did, however; instead, they circled the entire sentence (UN error), each word in the sentence (type 4 error), or the first and last letters in the sentence (type 3 error). Every child in the low group except one responded indiscriminately to these three questions. The exception circled letters instead of words.

The children in the high group had more difficulty identifying the first two or the last two words in a sentence, and tended to circle the first two or last two letters instead (type 3 error). This was the most frequent response of the middle group as well, and of the one child in the low group who did not respond indiscriminately.

Only five children in the high and middle groups were able to identify both the first letter in each word

in a sentence and the last letter of each word in a sentence. The others either circled the first or last letters of the first and last words in the sentence (type 3 error), each word in the sentence, or the whole sentence (UN error). Nearly all the children in the low group made IN errors.

During the Sand Test, all the children except one in the low group correctly identified the front of the book. Most of the children in the high and middle groups, but only a few in the low group, knew that one started to read at the top left of a page, that one read from left to right along a line of print, that one read from the top of the page to the bottom, and that one read the left page before the right.

Nearly all the children identified the bottom of a picture which had been inverted, but few in the middle, and especially the low, group identified the starting point of a printed passage which was upside down. More than half the children in the high group identified the first and last letters of a word, but only three in the middle group and none in the low group did.

(iv) C4 Questions: Identify The Higher-Order Units Of Written Language. Virtually all the children in the high group correctly identified words. Most of the children in the middle group did, except two who confused them with letters (type 3 error). The majority

of the high group correctly identified periods and question marks. Only one however, identified a comma - the others circled both the comma and the period (type 3 error). Few in the middle group identified any of the punctuation marks correctly. Some confused the various kinds of punctuation marks (type 3 error), but most made UN errors, that is, they circled letters, words, or parts of sentences. Only three children in the high and middle groups correctly identified a sentence. Instead, three circled groups of words (type 3 error), one circled all the words (type 4 error), but most made UN and NR errors. The children in the high and middle groups correctly identified a name; the others circled most or all the words.

All except one of the children in the low group responded indiscriminately throughout.

The children performed very poorly to this type of question during the Sand Test as well, most scoring 0 or 1 out of a possible 11. One child from the high group pointed to each word as the examiner read it, noticed line order, word order, and letter order changes in the text, pointed to the words "no" and "was," and pointed to one and then two words, for a score of 6. She was not able to name or explain any of the punctuation marks. Five other children were able to exactly match spoken and

written words; ten were able to point to one and then to two words; and three were able to identify a period.

(d) Summary. Table 10 presents the percentages of correct responses for each of the 11 types of questions, according to level of linguistic awareness. All three groups performed best on the following five types of questions, although they differed considerably in their rate of correct answers:

A3 questions - identify things people write with;
A2 questions - identify people who are reading;
A1 questions - identify things people read;
B1 questions - identify people who are enjoying/telling a story;
C1 questions - identify the basic units of written language.

Although the order of difficulty of these "relatively easy" types of questions was roughly the same for the three groups, this was not the case for the six "relatively difficult" types of questions.

Types of errors appeared to be related to both level of linguistic awareness and relative difficulty of the question type. The most frequent type of error of the high group on the relatively easy types of questions was type 3; on the relatively difficult, it was type 4, closely

Table 10

Percentages of Correct Responses to Question Types by Level of Linguistic Awareness

Percentage Range	Level		
	High	Middle	Low
100	A3		
95 - 99		A3	
90 - 94			
85 - 89	A1		
80 - 84	A2, B1		
75 - 79	C1		
70 - 74	C3	A2	A3
65 - 69		A1	
60 - 64		B1	
55 - 59	C2		
50 - 54	B3, C4	C1	
45 - 49	A4		
40 - 44	B2	A4, C2, C3	
35 - 39		B3	
30 - 34		C4, B2	A2
25 - 29			B1
20 - 24			C1
15 - 19			A1
10 - 14			B2, B3
5 - 9			A4, C2, C3 C4

followed by type 3. The most common type of error of the children in the middle group on the relatively easy types of questions was type 3, although they also made a substantial number of type 2 errors. Their predominant error on the relatively difficult types of questions was type 4, closely followed by type 3, and type 2 and UN errors were frequent as well. There were a few children in the low group who responded indiscriminately to most of the relatively easy types of questions, and the others made type 2 and type 3 errors with roughly equal frequency. The majority of these children answered indiscriminately to all of the relatively difficult types of questions.

In general, the individual response patterns of each child was similar to that of the group to which he/she belonged. For example, the most common type of error of the majority of the children in the high group was type 3, followed by type 4. Two children, however, had high percentages of NR errors and one of these children also had a high percentage of type 2 errors. These NR and type 2 errors were, for the most part, in response to questions on Subtest B. Only one child made any IN errors, to the three B2 questions. The percentage of UN errors was low for all the children in the high group, and these occurred mainly in response to C4 questions. The most frequent type of error of the majority of the children

in the middle group was type 3. Five children, however, had higher percentages of type 2 and type 4 errors than of type 3 errors, most of which were in response to questions on Subtest B. Three children made four or more IN errors. While UN errors were not the predominant error of any of the children in the middle group, 11 of them made four or more UN errors, mainly in response to C3 and C4 questions. As was stated previously, the predominant error type of nearly all the children in the low group was IN.

Part 2 - Classroom Observation

A secondary purpose of this study was to describe the kindergarten environment in terms of factors found to be effective in the home environment in encouraging preschool interest in written language. Each factor as well as the literacy-related behaviors in which the children were observed to engage, is discussed separately.

1. Saliency of Print

Print was a salient feature of both classrooms. Each child had his/her own clothes hook, mail box, and library card pocket, all clearly labelled with his/her name. Large, colorful letters indicated the various activity areas in the room. Several alphabet charts, showing the letters

in both upper and lower case, were displayed at different heights on the wall, thereby enabling the children to view them from a distance or to trace the shape of the letters with their fingers. Other kinds of charts were posted as well, including: color charts, which showed the name of a color in large letters and pictures of objects having that color; letter charts, which showed a letter in upper and lower case and pictures of objects whose name began with that letter; safety rule charts, which showed a picture of someone observing a safety rule and a written description of that rule; and feelings charts, which showed a picture of someone expressing a particular emotion with the name of that emotion written below. A calendar, the words to the song "O Canada," and a poem appropriate for the season were displayed as well. Lists of who could tie their shoelaces, who had to return library books, and whose turn it was to be snack helper or to bring in pet food were kept up-to-date on the blackboard. Finally, there were several shelves of books and numerous games and puzzles which involved the identification of letters and words.

2. Integral Role of Print in Daily Routines

Both teachers used written language frequently during the course of their daily routines, and on most occasions they explained what they were doing and why to the class. Typical comments included "Let me check my register to see whose turn it is," "I'll write _____'s name on the board under Pet Food so that we won't forget who is responsible for bringing in pet food tomorrow," "I'll just read my list to remind me what activities I planned for today," and so on. In other words, references to the register and updating of lists were common.

These examples demonstrate that the memonic function of literacy was highlighted repeatedly. Certain technical features were frequently commented on as well, in particular, letter names and the order of letters in the alphabet (e.g., "We've finished all the people in the class whose name begins with 'm.' What comes next?"). It is interesting to note that both teachers used the terms "print" and "write" interchangeably, even though they always printed on the blackboard. Also, they used upper and lower case letters when printing names and titles, but seldom brought this to the children's attention or explained why they did so. On the Test of Linguistic Awareness the children had difficulty distinguishing between printing and writing, and between upper and lower case letters.

Story time was a daily activity in both classes. The teachers read from a book to the entire class, using this opportunity to focus the children's attention on the directional rules of reading (e.g., "Now let's start on the first page."), on the use of contextual cues and initial letters to identify words (e.g., while pointing to the dog dish in the picture, "I wonder what it says on the dish?": "Good guess, it starts with 'j' like Janet but it says Jean."), and on certain technical features of written language (e.g., "A word is some letters put together to mean something.").

There were other daily activities which involved the children more directly in literacy-related behaviors. These included reciting a song or poem while the teacher pointed to the words on a large chart, identifying letters and words beginning with those letters while the teacher pointed to them on the blackboard and/or on charts, and naming the day and the month while the teacher pointed to them on the calendar. Because the same material was read over and over again, the children soon memorized much of it and this seemed to help them recognize some of the words.

3. Availability of Reading and Writing Materials

A variety of reading and writing materials was readily available to the children, including: books; signs; charts; the blackboard and chalk; paper and pencils; and newsprint and paints. Assigned classroom activities frequently required use of these materials, and the children were allowed to play with them before class and during free periods.

4. Willingness to Respond to Questions

Both teachers answered the children's questions about literacy willingly. This generally occurred when the children were working individually or in small groups - they seemed to ask more literacy-related questions under these conditions than when the teacher was working with the class as a whole.

5. Frequency of Shared Language Experiences

There were several short periods each day in both classes when the teacher assembled the children around her to discuss what they were going to do next. If there had been a special activity the previous day, such as a tour of the hospital or a trip to a holly farm, the children were given time to share their impressions of these events with the rest of the class. Also, occasions were provided for the children to talk about matters

important to them, for example, the birth of their new brother or sister. In other words, shared language experiences were frequent.

6. Frequency of Literacy-Related Behaviors

The frequency of various literacy-related behaviors by level of linguistic awareness is presented in Appendix G, Table 39. Only data recorded during the children's "free time," that is, those occasions when they decided what they wished to do, are included in Table 39, but incidents observed during scheduled activity periods are used to elaborate these data in the description which follows.

None of the children were observed reciting the alphabet, copying letters, or asking to have letter sounds identified. Some children from each of the three levels of linguistic awareness did point out and name letters, however, usually while playing a game or working on a puzzle, and a couple also printed letters on the blackboard from memory. Neither of these activities was very frequent, but identification of letter sounds was, at least among members of the high and middle groups. In one of the classes each letter of the alphabet was studied in turn for a week. This involved practicing printing the letter and compiling a list of words beginning with that letter. These words were recorded on the blackboard

and reviewed daily, with new words being added to the list as necessary. Each week the lists grew longer, and by the fourth week the children, particularly those in the high and middle groups, were coming to class equipped with new words and were attempting to discover appropriate words on their own. Some children in the high group became very sensitive to the initial sounds of words, even those that had not yet been studied, and comments such as "Jog is a 'j' word" and "Treehouse is a 't' word" appeared frequently in their conversations. Letter sounds were more of a problem for children in the low group, and they often could not think of a word beginning with the letter under study when asked to by the teacher. One boy from the low group who had not been able to name a 'd' word when it was his turn sat quietly, saying "duh" to himself over and over again, while the rest of the class moved on to another activity. He suddenly cried out in great excitement "Dolman's is a 'd' word." He had finally caught on to the task and was obviously delighted with his discovery.

The children did not often play with books during their free time, but it was obvious that they enjoyed this activity. The attention with which they listened to the teacher reading during story time and the frequency with which they borrowed books from the classroom and school

libraries were further evidence of the children's positive attitude toward reading. All the children except one girl in the low group demonstrated that they knew at least the basic directional rules of reading, although most tended to focus on the pictures rather than the print. Only one child, a girl from the high group, consistently attempted to identify the words when playing with books.

The children seldom asked to have printed words identified, but those in the middle group and especially those in the high group often tried to identify words on their own. From the comments which accompanied these attempts, it seemed that the children relied both on initial letters (e.g., "It says Mog on the dish - I know because it starts with 'm'") and on their memory (e.g., referring to the list of words on the blackboard, "Eeyore is under evil"). Occasionally a word was recognized out of context. For example, when the word November appeared in a poem the class was reading together from a large chart, a girl in the high group explained that she knew it said November because it was the same as the word on their calendar. No child in the low group was observed identifying printed words, other than his/her own name.

Occasionally the children asked the teacher to print their name on the blackboard so that they could copy it. Most children in the high and middle groups could print

their Christian name on their own, and many could print their surname as well. Only a couple of them, however, used both upper and lower case letters. One child from the middle group and all the children in the low group had difficulty printing their name, even when copying it. They knew that their attempts were not like the model, but they still could not make the letters properly. One child traced the teacher's model, and all eventually resorted to making rows of their initial letter. Children from each of the three groups were observed copying words other than their name, especially children from the high group who copied entire lists of words written on the blackboard with no difficulty. On the other hand, children from the low group expended considerable time and effort to copy one or two words, yet they persisted and appeared just as satisfied with their achievement as the other children were with theirs.

Children from the high group were observed printing words from memory more frequently than they were observed copying words. They sometimes printed their own name, but they were more likely to print the names of classmates or family members or television characters. Just one child from the low group was seen printing a word from memory, and that was her name. Only two children, both from the high group, were observed either copying dis-

course or printing it from memory.

To summarize, the children engaged in a variety of literacy-related behaviors during their free time. The kinds of behaviors they engaged in and the frequency with which they engaged in these behaviors were both related to their level of linguistic awareness.

7. Summary

Print was a highly salient feature of the two classrooms, and it played an integral part in daily routines. Reading and writing materials were readily available to the children. Both teachers willingly responded to questions about literacy, and provided for frequent shared language experiences. In other words, those factors which have been found to be important in the home environment in stimulating preschoolers' interest in written language were all present in both kindergarten environments examined in this study. Moreover, the children could engage in a variety of literacy-related behaviors (eg.: pointing out and naming letters; identifying letter sounds; copying letters and words or printing them from memory; and identifying words in isolation and in context) according to their level of linguistic awareness.

Part 3 - Limitations of the Study

There were three main limitations of this study which must be kept in mind when interpreting the findings:

(1) the sample was not randomly selected; (2) there was not an equal opportunity to make the various types of errors for each type of question on the Test of Linguistic Awareness; and (3) the classroom observations were not conducted in a strictly systematic manner. Each of these limitations is discussed below.

The means and standard deviations on the three subtests of the Test of Linguistic Awareness reported in this study closely resembled those obtained by Ayers, Downing, and Schaefer (Note 6), who had tested a random stratified sample of 300 kindergarten children. In other words, the children in this study, although not randomly selected, performed similarly to children who had been. While the results of this study cannot be generalized to all kindergarten children without considerable caution, they can be used as indications of how kindergarten children think about reading and writing with some degree of confidence.

When the Test of Linguistic Awareness was designed, it was not intended that the incorrect responses would be analyzed and classified. Consequently, for each type of question there is not an equal opportunity to make types 2, 3, 4, and UN errors. It is possible that the frequencies of error types reported in the study are in part a reflection of the frequency with which the various types of errors could be made. The consistency of the differences between the three groups and

the consistency of the similiarities within each of the three groups with respect to error types suggests that the frequencies of error types are not merely artifacts of the test instrument but are in fact related to level of linguistic awareness.

The classroom observations were not conducted in a strictly systematic manner, and thus it is not possible to report group differences with a high degree of confidence. It must be remembered, however, that this aspect of the study was only intended to be an exploration of the ways in which the kindergarten classroom environment encourages the development of linguistic awareness. The findings do highlight several important features of the kindergarten environment which can be studied systematically in future studies.

CHAPTER V

Discussion

Several general conclusions can be drawn from the data:

(a) the ability of the kindergarten children in the study to recognize literacy behaviors, to understand the purposes of literacy, and to use the technical language of literacy and the nature of their cognitive confusion concerning these literacy concepts was related both to their overall level of linguistic awareness and to the type of question being asked;

(2) in general, the children understood the functional concepts of written language better than they understood the featural concepts, although the relationship was more complex than originally anticipated; and

(3) the kindergarten environment could be described in terms of those factors which had been found to be important in stimulating preschooler interest in written language in the home environment; moreover, the children interacted differently with this environment, according to their level of linguistic awareness.

In other words, the findings supported, and even elaborated, the hypotheses. More importantly, they were consistent with what is predicted by Downing's (Note 1) cognitive clarity theory of learning to read. Each of these conclusions is discussed below.

1. Cognitive Confusion Concerning Literacy Concepts

From the children's performance on Subtest A, Recognizing Literacy Behaviors, it was possible to infer their concepts of reading and writing, that is, the criteria by which they judged whether or not an activity was an instance of reading or writing.

Most of the children in the high group and many in the middle group defined reading in terms of the nature of the written symbol rather than its context. They knew that letters and words are necessary in order for reading to occur, and that the decoding of letters, and words constitutes an act of reading regardless of whether these symbols occur in books or on signs or elsewhere. These children had developed appropriate concepts of reading, and this was reflected in the fact that they made few if any errors on type A1 and type A2 questions. The other children in the high and middle groups and some from the low group realized that reading must involve literacy symbols, that is, letters and words, but they often con-

fused the printed word with its context, a type 3 error. Mason (1979) has also observed this phenomenon, and she suggests that it is an important stage in learning to identify words. The least sophisticated concept of reading involved confusing literacy and non-literacy symbols (e.g. equating looking at a picture with reading and indicating that the picture is the part of the book that people read, both of which are type 4 errors) and requiring the presence of books or book-like materials. Reid (1966) has noted that learning that pictures and words are two different kinds of written symbols is an early stage in the development of linguistic awareness. Few children held this concept of reading, and all were from the low group. Most of the children had a clear enough understanding of the concept of reading to realize that what they did when playing with books was not the same as what their parents did when they read.

The children's concepts of writing were not as highly developed as were their concepts of reading. For some children, mainly those from the low group, the major criterion for recognizing an instance of writing seemed to be the presence both of a writing instrument (which none of the children had difficulty in identifying) and of a piece of paper or some other material on which to write. The nature of the symbol which was produced did not

appear to be an important factor. Thus these children circled people who were drawing and painting as well as people who were writing when asked to identify the people who were writing. Children in the high and middle groups seemed to define writing in terms of the use of specific writing instruments, namely, pens or pencils. They still confused the activities of writing and drawing, but they did distinguish between using a pen or pencil and using a paintbrush - only the former was termed writing. None of these children consistently identified an act of writing solely on the basis of the nature of the symbol produced.

It seems, then, that the children became aware of the essential characteristic of reading before they became aware of the essential characteristic of writing. The development of both concepts was similar, however, in that it involved (1) focusing on the nature of the written symbol rather than on some secondary characteristics of the acts of reading and writing such as where the symbol occurred or how it was produced; and (2) distinguishing between literacy and non-literacy symbols.

There are at least two possible explanations of why the concept of reading developed before the concept of writing. The first is that the children have had more experience with reading than with writing. Most of them have been read to since they were very young, and are still

being read to, both at home and at school. Most were probably given books and other reading materials to play with before they were given writing materials. And it is likely that they have observed more instances of people reading than of people writing. The second explanation is that it might be easier for the children to infer the essential characteristic of reading than of writing. Parents often point to the print when reading to their children, who may gradually realize that the same words are always associated with the same page of print. Also, the children learn that the signs and labels always say the same thing. This degree of consistency, however, is not connected with the act of writing. Often, any kind of mark the children make on the paper is called writing, and the children are encouraged to make up stories based on their drawings. These practices limit the opportunities available to the children to distinguish between the acts of writing and drawing.

One last point concerning the concepts of reading and writing must be made. Many of the errors made by children in the high group on Subtest A involved circling instances of both reading and writing when asked for only one. From their comments it appears unlikely that they were confusing the acts of reading and writing. They recognized the relationship between the two activities, that one reads what has been written and that one writes so that it can

be read. Their incorrect responses can probably be attributed to their lack of skill in answering questions precisely, especially questions of this nature.

From the children's performance on Subtest B, Understanding Literacy Functions, it was possible to infer what purposes of literacy were most salient to them.

All the children were more familiar with the entertainment function of literacy than with the other two functions examined. This is not surprising since much of their experience with written language has consisted of having stories read to them and of trying to read these stories on their own. The entertainment function of literacy was emphasized in the kindergarten as well.

None of the children, but especially those in the low group, consistently associated written language with receiving and sending messages or with finding out and remembering information. This, too, is not surprising because they have had little need or opportunity in their lives to be concerned about such activities, other than through observing their parents writing messages, using phone books, referring to T.V. guides, making lists, and the like. The mnemonic purpose of literacy was emphasized in the kindergarten classroom, however, and this might heighten the children's awareness in this respect.

Certainly the children's poor performance on this subtest can be attributed to their limited understanding of the purposes of literacy, but there were some indications that some of the difficulty was due to the wording of the questions. For example, during the individual interviews it became apparent that the word "telling" was associated with oral language, that is, with reading a story out loud or with making up a story and saying it out loud.

From the children's performance on Subtest C, the Technical Language of Literacy, it was possible to make some inferences about the order in which the featural concepts of written language are developed.

The distinction between literacy and non-literacy symbols, and between letters and numbers had been made by most of the children, but few could distinguish between upper and lower case letters. This is related to the observations that only a couple of children used both cases in their writing attempts, and that while the teachers used both cases when printing on the blackboard, they seldom brought this to the children's attention.

In everyday conversation the word writing is frequently used to indicate an example of printing. Certainly the two teachers in the study often said that they were writing when in fact they were printing. They also referred to the printed part of a book as the writing. It is not surprising

that the children, even those in the high group, had great difficulty distinguishing between examples of printing and writing.

Almost all the children could identify the front of the book and the order in which the pages were turned, but only those in the high and middle groups knew which directional rules to apply when reading several lines of print. Certainly both teachers frequently demonstrated the use of these directional rules, but it seems likely that the children's awareness of them is limited by the extent to which they focused primarily on the pictures. Only children in the high group were able to answer questions involving first, first two, last, and last two, but the more steps required to answer a question, the less likely it was that even these children could answer it correctly.

Those children who had mastered the distinction between literacy and non-literacy symbols and between letters and numbers could generally distinguish between letters and words, but not between words and names nor between words and sentences. Most could identify punctuation marks which occurred at the end of sentences, but not those which occurred within sentences.

It appears, then, that the children first made rather broad, global generalizations about the featural concepts of written language. As their initial generalizations

became firmer, the children were able to make finer distinctions. Reid (1966), Francis (1973), and Forester (1975, 1977) drew similar conclusions about how children learn the technical language of literacy. The findings of this study also suggested that there is a pattern to the order in which the featural concepts were developed. The children's first distinctions were concerned with the general features of written language - for example, how it differed from other written symbols, what its basic components were, when a unit of print began and ended. Next the children began to explore the specific features of written language, to consider units of print in more detail - for example, how letters were organized into words and words into sentences, the role of punctuation marks. The more the children focused on written language, the more likely they were to explore its specific features, and the finer the distinctions between featural concepts they were able to make.

To summarize, the data supported the conclusion that the nature of the children's cognitive confusion concerning functional and featural concepts of written language was related both to their level of linguistic awareness and to the type of question. Children in the high group had a good understanding of many of the concepts tested (i.e., the percentages of correct responses were very high), and their

errors in these cases reflected confusion between closely related aspects of the task (type 3 errors). On those concepts which were less well developed (i.e., those for which the percentages of correct responses were not as high), these children made errors which were only loosely or distantly related to the task (type 4 errors). They never resorted to responding indiscriminately, however, which suggests that all the questions were sufficiently meaningful to them that they could try to reason out the answers. The children in the middle group performed similarly to those in the high group, but their response patterns suggested that the concepts were less well developed. The children in the low group, on the other hand, had a good understanding of only the simplest concept, the identification of things people write with. They showed some understanding of a few concepts, and little or no understanding of most of the concepts. This was reflected in the high percentages of type 4 errors, and the increasingly high percentages of indiscriminate responses as the questions became more difficult.

2. Relationship Between the Development of Functional and Featural Concepts

In general, functional concepts were better developed than featural concepts, that is, the children developed some notions of what the acts of reading and writing entailed and

of the purposes of literacy before they were able to develop notions of how the writing system operated. The findings of this study suggested that the relationship between functional and featural concepts is more complex than that, however, with basic functional and featural concepts facilitating the development of higher-order concepts.

The first functional concepts the children developed were related to the identification of acts of reading and writing, although the concept of writing in particular was not well developed, and to some understanding of the entertainment function of written language. This was accompanied by the development of the featural concepts related to the basic symbols of written language and the distinction between these symbols and other kinds of written symbols, and to the directional rules of written language. Some awareness and understanding of these basic functional and featural concepts seemed to be necessary for the development of the other functional and featural concepts. In other words, it appears that the development of basic functional concepts facilitated the development of basic featural concepts, which in turn facilitated the development of more complex functional concepts, and so on.

Two interesting generalizations about the pattern of development of functional and featural concepts are suggested by the data. The first is that the pattern was the same for all three groups and the second is that the development of

the concepts seemed to be a gradual process, with the concepts which were developed early continuing to be refined while other concepts were just in the early stages of development. Both generalizations are based on the findings that the order in which the concepts were developed was not related to level of linguistic awareness, but that the degree of development of the concepts and the types of errors associated with the concepts were. Francis (1973) concluded that as one concept in the hierarchy was mastered, the preceding one in the hierarchy was further clarified, and her conclusion is supported by the results of this study. Also, Downing (Note 1) has postulated that cognitive confusion continues to arise and give way to cognitive clarity as new subskills are added to the student's repertory, and that, too, is supported by the results of this study.

3. Literacy Environment of the Kindergarten Classroom

The kindergarten classroom did seem to support and encourage the development of linguistic awareness in much the same way as the home environment has been found to. In addition, the opportunity to interact with many other children at different levels of linguistic awareness seemed to be an important aspect of the kindergarten environment not readily found in the home. The children did appear to

learn from and be challenged by one another. For example, one child in the high group was observed helping a child in the low group print her name. On another occasion, one child in the high group discovered that the only difference between the words drip and drop was that drip has an 'i' in it. She pointed this out to a child in the middle group, who countered with the observation that the only difference between drip and drop was that drop had an 'o' in it. This was a significant observation on the part of that child, because she had not previously shown any interest in words other than her own name and she probably would never have compared two words in that detail without having been motivated to by her friend.

Perhaps the outstanding feature of the kindergarten environment was that the children could react to the stimuli according to their level of linguistic awareness. For example, when a particular letter of the alphabet was being studied, children at the lower levels of linguistic awareness spent much of their time practicing printing the letter while the children at the higher levels were copying lists of words beginning with that letter and trying to think of additional words on their own. The children did not appear to feel any pressure to move on to more difficult tasks and so they took whatever time they needed to consolidate their learning.

Another observation which deserves comment was that all the children appeared to have a positive attitude toward written language. They all chose to engage in literacy-related activities during at least some of their free time and they seemed to enjoy these activities. The children in the middle and high groups did engage in literacy-related activities more frequently than did the children in the low group, however, which means that they had more opportunity to increase their understanding of written language. A possible implication of this is that the differences between the groups will become more pronounced.

Implications

The findings and conclusions of this study have several implications for the instructional practice of kindergarten teachers. They must be sensitive to the large differences in level of linguistic awareness which exist among the students. One of the children in this study had had so little experience with books that she did not know in which direction and order to turn the pages, while another child was attempting to read a first grade arithmetic text. Clearly the kinds of activities and the amounts of teacher supervision required by these two girls are very different if each is to be challenged but not frustrated. Teachers must be aware of the nature of the children's cognitive

confusion about literacy concepts and plan activities which will help the children clarify these concepts. In addition, they must be concerned about using technical terms as unambiguously as possible and in as concrete a context as possible so that the children can develop criteria by which to judge what is and what is not an instance of the concept. Finally, they must create an environment in which literacy activities play a salient and meaningful role in order that the children can develop the functional and featural concepts of written language in an integrated and purposeful manner.

Further investigation of the relationship between level of linguistic awareness and nature of cognitive confusion about the functional and featural concepts of written language, and of the relationship between the development of both the functional and the featural concepts of written language is needed to confirm and refine findings of this study. Such research would probably require modification of the Test of Linguistic Awareness so that for each type of question the opportunity of making the various kinds of errors is controlled. Also, the results of the classroom observation part of the study seem to justify a systematic investigation of the kinds of literacy-related activities kindergarten children engage in during their free and structured classroom time and the frequency with which they

engage in these activities. These data would not only further our knowledge about the development of linguistic awareness but would also have implications for instructional practice.

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APPENDIX A

Letter Requesting Parental Permission For Student Participation

Douglas Hill
R.R. #3
Cobble Hill, B.C.
V0R 1L0

Dear Parents:

As a primary teacher in the Cowichan School District and a graduate student of the University of Victoria, we are investigating kindergarten children's concepts of reading, to complete our Master of Arts degree. The Cowichan District School Board, the Superintendent of Schools, the school principals and classroom teachers involved have approved our proposed research.

We will be interviewing the kindergarten children at Bench and Alex Aitken Elementary Schools during the months of October, November and December as well as observing in the kindergarten classroom. We would also appreciate meeting with you.

As the young child's concept of reading is often very different from an adult's, it is valuable to understand children's ideas about reading and about how they learn to read. This awareness will then enable people working with young children to provide optimum pre-reading experiences.

We will be contacting you to arrange an interview and would encourage you to ask any questions about this project at that time.

If you do not wish your child to participate in this study, please return the bottom portion of this letter to the school.

Thank you for your assistance and we look forward to meeting you in the near future.

Sincerely,

(Mrs.) Virginia MacCarthy

(Ms.) Linda LaRocque

I do not wish my child to participate in this study.

_____
Signature

APPENDIX B

Test of Linguistic Awareness in Reading Readiness (Ayers, Downing & Schaefer, 1977): Instructions and Questions

SUBTEST A1

AFTER THE TEST BOOKLETS HAVE BEEN DISTRIBUTED, FOR SAMPLE EXERCISE (a) SAY:

> We are going to play a game. Please turn the page and put your finger on the pail.

POINT TO THE PAIL IN THE TEST BOOKLET. CHECK TO SEE THAT EACH CHILD HAS FINGER ON THE CORRECT PLACE.

> Now listen carefully while I tell you how to play the game. Look at the big box with the picture in it. Which things can you ride in?

PAUSE.

> Yes, you can ride in the two cars. Now to play the game you must draw a circle around each car.

DRAW CIRCLES ON THE TEST BOOKLET CLEARLY SHOWING THE CIRCLING OF ONE CAR AND THEN THE OTHER.

> Now, in the same picture, circle the part that people can read. Circle the part that people can read.

PAUSE.

> Yes, you should have circled the sign on the store.

DEMONSTRATE THAT YOU ARE CIRCLING THE BOX WHICH SAYS VICTOR'S HARDWARE. ENSURE THAT EACH CHILD HAS CIRCLED THE SIGN BOX.

FOR SAMPLE (b) SAY:

> Now, put your finger on the ring.

MAKE SURE THAT ALL OF THE CHILDREN HAVE MOVED THEIR FINGER TO THE RING.

> In the row of boxes, circle each thing that you can write with. Circle each thing that you can write with.

PAUSE.

Yes, you should have circled the pen in the first box because you can write with it, and you should have circled the pencil in the last box because you can write with it too. You should not have circled the baseball or the leaf because you do not write with them.

Now that you know how to play the game, let's look at some more pictures and stories. After this I will not help you play the game. You must do it all by yourself. Remember to look carefully at the pictures and listen to the story to find out which pictures to draw a circle around. Just try to do the best you can by yourself.

Now turn the page.

1. Put your finger on the balloon. Circle the part of the T.V. screen that people read. Circle only the part that people read.

2. Put your finger on the dog. Circle the part of the cereal box that people read. Circle the part that people read.

   Now turn the page.

CHECK THAT EACH CHILD HAS TURNED THE PAGE.

3. Put your finger on the banana. Circle the part of the book that people read. Circle the part that people read.

4. Put your finger on the pail. Circle each thing in the large picture that tells you the address of someone's home. Circle each thing that tells you the address.

   Now turn the page.

5. Put your finger on the desk. Circle each thing on the bus which someone can read. Circle each thing that someone can read.

6. Put your finger on the snake. Circle each thing in the kitchen that someone can read.

   Now turn the page.

7. Put your finger on the fork. In the row of boxes circle each thing that someone can read. Circle each thing that someone can read.

ENSURE THAT THE STUDENTS ARE MARKING THE BOXES ACROSS THE PAGE.

8. Put your finger on the chair. In the row of boxes circle each thing that someone can read.

9. Put your finger on the clock. Circle each thing that someone can read.

10. Put your finger on the girl's face. Circle each person who is reading. Circle each person who is reading.

    Now turn the page.

11. Put your finger on the bird. Circle each person who is reading.

12. Put your finger on the mouse. Circle each person who is reading.

13. Put your finger on the sock. Circle each person who is reading.

14. Now put your finger on the shoe. Circle each thing that someone can write with. Circle each thing that someone can write with.

    Now turn the page.

15. Put your finger on the cup. Circle each thing that someone can write with.

16. Put your finger on the ring. Circle each thing that someone can write with.

17. Put your finger on the fish. Circle each person who is writing. Circle each person who is writing.

18. Put your finger on the candle. Circle each person who is writing.

    Now turn the page.

19. Put your finger on the brush. Circle each person who is writing.

20. Now put your finger on the hand. Circle each person who is writing.

21. Put your finger on the broom. Circle each person who is writing.

22. Put your finger on the flag. Circle each person who is writing.

SUBTEST B1

THERE ARE NO SAMPLE EXERCISES FOR THIS SUBTEST BECAUSE THE CHILDREN'S TASK IS VERY SIMILAR TO THAT OF SUBTEST A.

Now we are going to play another game like the one you played before. (IN SUBTEST A).

In this game there are rows of boxes too. To play the game listen carefully and circle the things you are told to.

Now turn the page.

CHECK THAT EACH CHILD HAS TURNED THE PAGE.

1. Put your finger on the banana. Some of the people in the row of boxes wanted to enjoy a story about spaceships. Circle each person who is enjoying a story about spaceships.

2. Put your finger on the table. Some of the people in the row of boxes wanted to enjoy a story. Circle each person who is enjoying a story.

3. Put your finger on the candle. Some of the people in the row of boxes found how to make a model ship. Circle each person who found how to make a model ship.

4. Put your finger on the comb. Circle each person who is learning how to build a birdhouse.

   Now turn the page.

5. Put your finger on the pail. Circle each person who is finding what shows are on television.

6. Put your finger on the watch. Circle each person who is finding what time the bus goes.

7. Put your finger on the saw. Circle each person who is learning that there is a sale on.

8. Put your finger on the balloon. Circle each person who is finding what music to listen to.

   Now turn the page.

9. Put your finger on the plane. Circle the children who asked people to pay money for the drinks.

10. Put your finger on the rabbit. Circle each person who got a message.

11. Put your finger on the lamp. Circle each person who is telling someone a story.

12. Put your finger on the tree. Circle each person who is telling their friend what they made for dinner.

    Now turn the page.

13. Put your finger on the broom. Circle each person who is telling someone a story.

14. Put your finger on the elephant. Circle each person who is helping their brother remember what groceries to buy.

15. Put your finger on the duck. Circle each person who knew how to remember a recipe.

16. Put your finger on the flower. Circle each person who knew how to remember their favourite story.

    Now turn the page.

17. Put your finger on the leaf. Circle each person who is sending a message.

18. Put your finger on the banana. Circle each person who is giving directions.

19. Put your finger on the dog. Circle each person who is telling the class about going to the fair.

20. Put your finger on the snake. Circle each person who is leaving a message.

SUBTEST C1

AFTER THE TEST BOOKLETS HAVE BEEN DISTRIBUTED, FOR SAMPLE EXERCISE (a) SAY:

> Now, we are going to play another game. Remember, you must look and listen carefully so that you will know how to play the game.
>
> Open the booklet. Find the apple in the first box. Put your finger on the apple.

POINT TO THE APPLE IN THE TEST BOOKLET, THEN CHECK THAT EACH CHILD HAS THE CORRECT PLACE.

> Now look at the things in the long box.

POINT TO THEM.

> Here, here, here and here. I want to find each thing that is an animal. Which is the animal?

PAUSE.

> Yes, this one,
>
> the rabbit.
>
> To play the game you draw a circle around your choice of the things I tell you to look for. I told you to look for each thing that is an animal. So draw a circle around the rabbit because it is an animal.

DRAW CIRCLE AROUND THE RABBIT IN YOUR TEST BOOKLET. CHECK THAT EACH CHILD MADE ONLY THE ONE CIRCLE.

FOR SAMPLE (b) SAY:

> Now, put your finger on the flag in the next small box.

POINT TO THE FLAG IN THE TEST BOOKLET. CHECK TO SEE THAT EVERY CHILD HAS FINGER ON THE RIGHT PLACE.

In the long box beside the flag find each thing that someone can eat. Then circle each thing that someone can eat.

PAUSE.

Did you find the things that someone could eat?

PAUSE.

Yes, someone could eat the banana, the apple and the strawberry. So you should have made a circle around the banana.

DRAW A CIRCLE AROUND THE BANANA IN THE TEST BOOKLET.

and around the apple.

DRAW A SECOND CIRCLE AROUND THE APPLE IN THE TEST BOOKLET.

and another circle around the strawberry.

DRAW A THIRD CIRCLE AROUND THE STRAWBERRY. CHECK THAT EACH CHILD HAS MADE THREE CIRCLES.

Now that you know how to play the game let's play it with some other things.

1. Put your finger on the tree. Look at the other things in the long box. Circle each thing that you think is a number. Circle each number.

2. Put your finger on the ring. Look at the things in the long box. Circle each thing that you think is a number.

3. Put your finger on the fork. Circle each number.

4. Put your finger on the shoe. In the long box circle each thing that is a letter. Circle each letter.

5. Put your finger on the bird. Circle each letter.

Now turn the page.

CHECK THAT EACH CHILD HAS TURNED THE PAGE.

6. Put your finger on the goat. Circle each letter.

7. Put your finger on the house. Circle each thing that is printing. Circle each piece of printing.

8. Put your finger on the saw. Circle each piece of printing.

9. Put your finger on the leaf. Circle each piece of printing.

10. Put your finger on the sock. Circle each thing that is writing. Circle each piece of writing.

11. Put your finger on the pencil. Circle each piece of writing.

12. Put your finger on the watch. Circle the top line of the story. Circle the top line of the story.

13. Put your finger on the mouse. Circle the bottom line of the story. Circle the bottom line of the story.

    Now turn the page.

14. Put your finger on the pail. Circle each thing that is a word. Circle each word.

15. Put your finger on the brush. Circle each word.

16. Put your finger on the fish. Circle the first word in the box. Circle the first word.

17. Put your finger on the broom. Circle the first word in the box.

18. Put your finger on the rabbit. Circle the first two words in the box. Circle the last word.

19. Put your finger on the flower. Circle the last word in the box. Circle the last word.

20. Put your finger on the snowman. Circle the last two words in the box. Circle the last two words.

21. Put your finger on the chair. Circle each thing that is a capital letter. Circle each capital letter.

    Now turn the page.

22. Put your finger on the hand. Circle each capital letter.

23. Put your finger on the banana. Circle each thing that is a period. Circle each period.

24. Put your finger on the cup. Circle each period.

25. Put your finger on the candle. Circle each thing that is a question mark. Circle each question mark.

26. Put your finger on the cat. Circle the first letter in each word. Circle the first letter in each word.

27. Put your finger on the tricycle. Circle the last letter in each word. Circle the last letter in each word.

28. Put your finger on the radio. Circle each thing that is a sentence. Circle each sentence.

29. Put your finger on the bear. Circle each thing that is someone's name. Circle each name of someone.

APPENDIX C

Student Interview Schedule

IDENTIFICATION NUMBER: _____ DATE: _____

PART I: NATURE OF COGNITIVE CONFUSION

Show each of the ten cards separately and ask the child to point to the answer. Record which picture(s) the child pointed to and his/her explanation.

1. Point to each person who is writing.

   Answer: (a) (b) (c) (d)

   Comments:

2. Point to each person who knew how to remember what jobs had to be done.

   Answer: (a) (b) (c) (d)

   Comments:

3. Point to each thing that someone can read.

   Answer: (a) (b) (c) (d)

   Comments:

4. Point to each person who is reading.

   Answer: (a) (b) (c) (d)

   Comments:

5. Point to each thing that someone can write with.

   Answer: (a) (b) (c) (d)

   Comments:

6. Point to each person who got a message.

   Answer: (a) (b) (c) (d)

   Comments:

7. Point to each person who is learning a friend's phone number.

   Answer: (a) (b) (c) (d)

   Comments:

8. Point to the children who asked people to pay money for the kittens.

   Answer: (a) (b) (c) (d)

   Comments:

9. Point to the person who is telling someone a story.

   Answer: (a) (b) (c) (d)

   Comments:

10. Point to the person who found a story.

    Answer: (a) (b) (c) (d)

    Comments:

PART 2 - THE SAND TEST

	1,0		1,0
1.	identifies front of book	13.	notices letter order change
2.	points to print	14.	notices letter order change
3.	points to top left	15.	names or explains "?"
4.	left to right	16.	names or explains "."
5.	return sweep	17.	names or explains ","
6.	exact spoken and written word matching	18.	names or explains " "
7.	concept of first and last	19.	matches upper and lower case M & H
8.	indicates bottom of picture	20.	points out both "no" and "was"
9.	"The" is starting point	21.	shows one, then two, letters
10.	notices line order change	22.	shows one, then two, words
11.	indicates left page	23.	shows first and last letter of word
*12	notices word order change	24.	shows a capital letter

*Omit No. 12 - 20 at your discretion if No. 10 is answered incorrectly.

Comments:

PART 3 - READING STRATEGY

SHOW ME HOW YOU PLAY WITH YOUR LIBRARY BOOKS.

_____ makes up story inspired by the pictures

_____ recites story from memory, using pictures as cues of what to say for that page

_____ recites story from memory, using the print as cues of what to say for that page

_____ actually reads most of the words (letter-sound correspondences)

Comments:

APPENDIX D

Sand "Concepts About Print" Test (Clay, 1976): Instructions and Questions

Administration and Scoring

Before starting, thoroughly familiarize yourself with this test.

Say to the child, "I'm going to read you this story but I want you to help me."

Cover

Item 1 Test: For orientation of book. Pass the booklet to the child holding the book vertically by outside edge, spine towards the child.

Say: "Show me the front of this book."

Score: 1 point for correct response.

Pages 2/3

Item 2 Test: Concept that print, not picture, carries the message.

Say: "I'll read you this story. You help me. Show me where to start reading. Where do I begin to read?" (Read the text.)

Score: 1 for print. 0 for picture.

Pages 4/5

Item 3 Test: For directional rules.

Say: "Show me where to start."

Score: 1 for top left.

Item 4 Say: "Which way do I go?"

Score: 1 for left to right.

Item 5 Say: "Where do I go after that?"

Score: 1 for return sweep to left.

(Score items 3-5 if all movements are demonstrated in one response.)

Item 6 Test: Word by word pointing.
Say: "Point to it while I read it." (Read slowly, but fluently.)
Score: 1 for exact matching.

Page 6

Item 7 Test: Concept of first and last.
Read: the text.
Say: "Show me the first part of the story."
"Show me the last part."
Score: 1 point if BOTH are correct in any sense, i.e. applied to the whole text or a line, a word or a letter.

Page 7

Item 8 Test: Inversion of picture.
Say: "Show me the bottom of the picture."
(Do NOT mention upside-down.)
Score: 1 for verbal explanation. OR, for turning the book around.

Pages 8/9

Item 9 Test: Response to inverted print.
Say: "Where do I begin?"
"Which way do I go?"
"Where do I go after that?"
Score: 1 for beginning with "The" and moving right to left across the lower and then the upper line. OR 1 for turning the book around and moving left to right in the conventional manner.
Read: the text now.

Pages 10/11

Item 10 Test: Line sequence.
Say: "What's wrong with this?" (Read immediately the bottom line first, then the top line. Do NOT point.)
Score: 1 for comment on line order.

APPENDIX E

Contingency Tables and Summary of Analysis of Variance Table

Table 11

Summary of Analysis of Variance

Subtest Comparisons[a]	Mean[b]	Standard Deviation	t value	degrees of freedom	1-tail probability
Comparison 1					
A	56.69	25.36	6.94	34	0.00
B	37.29	21.81			
Comparison 2					
A	56.69	25.36	4.92	34	0.00
C	40.34	25.01			
Comparison 3					
B	37.29	21.81	-0.80	34	0.21
C	40.34	25.01			

[a]number of subjects = 35

[b]expressed as percentage score

Table 12

Contingency Table of Level of Linguistic Awareness and Sex

Level of Linguistic Awareness	Number	
	Males	Females
High	2	9
Middle	8	5
Low	5	6

$\chi^2(2) = 4.61$, n.s.

Table 13

Contingency Table of Level of Linguistic Awareness and School

Level of Linguistic Awareness	Number	
	School A	School B
High	7	4
Middle	6	7
Low	5	6

$\chi^2(2) = 0.95$, n.s.

Table 14

Contingency Table of Student Performance on Subtests A and B

Subtest A	Subtest B	
	High	Low
High	12	14
Low	0	9

$x^2(1) = 4.43$, $p < .05$

Note: High was defined as a score of at least 50% correct; low, of less than 50% correct.

Table 15

Contingency Table of Student Performance on Subtests A and C

Subtest A	Subtest C	
	High	Low
High	13	12
Low	0	10

$x^2(1) = 6.19$, $p < .05$

Note: High was defined as a score of at least 50% correct; low, of less than 50% correct.

Table 16

Contingency Table of Student Performance on Subtests B and C

Subtest B	Subtest C	
	High	Low
High	7	5
Low	6	17

$x^2(1) = 2.26$, n.s.

Note: High was defined as a score of at least 50% correct; low, of less than 50% correct.

APPENDIX F

Student Responses to the Test of Linguistic Awareness and to the Sand Test

Table 17

Student Responses to Questions on Section A1 of the Test of Linguistic Awareness

Group	Question									Response Summary						
	1	2	3	4	5	6	7	8	9	1	2	3	4	NR	UN	IN
High																
1	1	1	1	1	1	1	1	1	1	9						
2	1	1	1	1	1	1	1	1	1	9						
3	1	1	1	1	1	1	1	1	1	9						
4	1	1	1	2	1	1	2	3a	1	6	2	1				
5	1	1	1	1	1	2	1	1	1	8	1					
6	3a	3a	1	3a	1	1	1	1	1	6		3				
7	1	1	1	1	1	1	1	3a	1	8						
8	1	1	1	1	1	1	1	1	1	9						
9	3a	1	1	3a	1	1	1	3a	1	6		3				
10	1	1	1	2	1	2	1	1	1	7	2					
11	1	1	1	1	1	2	1	1	1	8	1					
Middle																
12	1	1	1	2	1	1	1	3a	1	7	1	1				
13	3a	1	1	1	1	1	1	3a	1	7		2				
14	1	1	1	2	1	1	1	1	1	8	1					
15	3a	2	1	1	1	1	UN	3a	1	5	1	2			1	
16	3a	1	1	UN	1	2	2	2	1	4	3	1			1	
17	1	2	1	3a	1	1	1	1	1	7	1	1				
18	3a	3a	1	3a	1	1	3a	3a	1	4		5				
19	1	1	1	2	2	2	1	1	1	6	3					
20	1	3a	1	1	1	1	1	3a	1	7		2				
21	3a	1	1	1	1	1	2	3a	1	6	1	2				
22	3a	3a	1	2	1	2	2	2	2	2	5	2				
23	3a	2	1	1	2	1	3a	1	2	4	3	2				
24	1	1	1	1	1	1	1	1	1	9						
Low																
25	3a	1	3a	UN	1	1	1	1	1	6		2			1	
26	3a	3a	1	2	2	1	3a	3c	2	2	3	4				
27	3a	3a	3a	2	2	2	3a	3a	1	1	3	5				
28	UN	1	3a	1	UN	2	2	1	1	4	2	1			2	
29	3a	3a	3a	UN	UN	2	3a	3a	2		2	5			2	
30	3a	UN	3a	UN	UN	1	3a	UN	1	2		3			4	
31	IN	IN	IN	IN	IN	IN	IN	IN	IN							9
32	3a	UN	3a	1	2	1	UN	3a	2	2	2	3			2	
33	3a	3a	1	UN	2	2	3a	NR	2	1	3	3		1	1	
34	3a	3a	3a	UN	UN	2	NR	NR	2		2	3		2	2	
35	3a	3a	3a	UN	UN	2	3a	3a	2		2	5			2	

Table 18

Student Responses to Questions on Section A2 of the Test of Linguistic Awareness

Group	Question				Response Summary						
	10	11	12	13	1	2	3	4	NR	UN	IN
High											
1	1	1	3b	1	3		1				
2	1	1	3b	1	3		1				
3	1	1	1	1	4						
4	1	1	1	1	4						
5	1	1	1	1	4						
6	1	1	3b	1	3		1				
7	1	1	3b	1	3		1				
8	1	1	1	1	4						
9	1	1	3b	1	3		1				
10	1	1	3b	1	3		1				
11	1	1	3b	1	3		1				
Middle											
12	4a	1	3b	1	2		1	1			
13	1	1	3b	1	3		1				
14	1	1	1	1	4						
15	1	1	1	1	4						
16	1	1	2	1	3	1					
17	4a	1	3b	1	2		1	1			
18	1	1	3b	1	3		1				
19	1	1	1	1	4						
20	4a	1	3b	4a	1		1	2			
21	1	1	3b	1	3		1				
22	1	1	3b	1	3		1				
23	1	1	3b	1	3		1				
24	1	1	3b	1	3		1				
Low											
25	1	2	3b	1	2	1	1				
26	4a	1	3b	1	2		1	1			
27	1	1	3b	1	3		1				
28	4a	1	3b	1	2		1	1			
29	1	1	3b	1	3		1				
30	1	1	3b	1		3		1			
31	4a	2	2	2		3		1			1
32	2	IN	2	2		3					
33	2	2	2	2		4					
34	2	IN	IN	IN		1					3
35	2	2	2	IN		3					1

Table 19

Student Responses to Questions on Section A3 of the Test of Linguistic Awareness

Group	Question			Response Summary						
	14	15	16	1	2	3	4	NR	UN	IN
High										
1	1	1	1	3						
2	1	1	1	3						
3	1	1	1	3						
4	1	1	1	3						
5	1	1	1	3						
6	1	1	1	3						
7	1	1	1	3						
8	1	1	1	3						
9	1	1	1	3						
10	1	1	1	3						
11	1	1	1	3						
Middle										
12	1	1	1	3						
13	1	1	1	3						
14	1	1	1	3						
15	1	1	1	3						
16	1	1	1	3						
17	1	1	1	3						
18	1	1	1	3						
19	1	1	1	3						
20	1	1	1	3						
21	1	1	1	3						
22	1	1	1	3						
23	1	1	2	2	1					
24	1	1	1	3						
Low										
25	1	1	1	3						
26	1	1	1	3						
27	1	1	1	3						
28	1	1	1	3						
29	1	1	1	3						
30	1	1	1	3						
31	1	IN	IN	1						2
32	1	NE	1	2					1	
33	1	2	1	2	1					
34	1	IN	IN	1						2
35	IN	IN	IN							3

Table 20

Student Responses to Questions on Section A4 of the Test of Linguistic Awareness

Group	Question						Response Summary						
	17	18	19	20	21	22	1	2	3	4	NR	UN	IN
High													
1	UN	1	4b	4b	4b	1	2			3		1	
2	1	1	4a	4b	4b	1	3			3			
3	1	1	4a	4a	4b	4a	2			4			
4	1	1	4b	4b	4b	1	3			3			
5	1	4a	4a	4a	4b	1	2			4			
6	1	1	1	1	1	1	6						
7	1	1	4a	1	3b	1	4		1	1			
8	1	1	4b	4b	4b	1	3			3			
9	1	1	4q	4b	4b	1	3			3			
10	1	1	4b	4b	4b	1	3			3			
11	3b	1	4a	4b	4b	2	1	1	1	3			
Middle													
12	1	1	4a	4b	4b	4a	2			4			
13	1	1	4a	4a	4b	1	3			3			
14	1	1	4a	1	1	1	5			1			
15	1	1	4b	4b	4b	1	3			3			
16	1	2	1	1	4b	1	4	1		1			
17	1	1	4a	4b	4b	4a	2			4			
18	1	2	IN	IN	IN	IN	1	1					4
19	1	1	4a	1	1	1	5			1			
20	IN	IN	IN	IN	IN	IN							6
21	NR	1	4a	4a	4b	4a	1			4	1		
22	1	1	4a	4b	4b	1	3			3			
23	1	1	4a	4b	4b	1	3			3			
24	1	1	4a	4a	4b	4a	2			4			
Low													
25	1	1	4a	4a	4b	4a	2			4			
26	3b	4a	4a	4b	4b	4a			1	5			
27	1	2	4a	1	4b	4a	2	1		3			
28	3b	4a	4a	4b	4b	1	1		1	4			
29	3b	1	4b	4b	4b	4a	1		1	4			
30	IN	IN	IN	IN	IN	IN							6
31	IN	IN	IN	IN	IN	IN							6
32	IN	IN	NR	IN	IN	NR					2		4
33	IN	IN	IN	IN	IN	IN							6
34	IN	IN	IN	IN	IN	IN							6
35	IN	IN	IN	IN	IN	IN							6

Table 21

Student Responses to Questions on Section B1 of the Test of Linguistic Awareness

Group	Question				Response Summary						
	1	2	11	13	1	2	3	4	NR	UN	IN
High											
1	1	1	1	1	4						
2	1	1	1	1	4						
3	1	1	1	1	4						
4	1	1	1	1	4						
5	1	1	1	1	4						
6	1	1	1	1	4						
7	1	1	NR	NR	2				2		
8	1	1	2	4c	2	1		1			
9	1	1	1	1	4						
10	1	1	1	4c	3			1			
11	NR	1	NR	NR	1				2		
Middle											
12	1	4c	1	1	3			1			
13	1	1	1	4d	3			1			
14	1	1	2	1	3	1					
15	1	1	1	4c	3			1			
16	UN	2	2	1	1	2				1	
17	1	1	1	UN	3					1	
18	1	1	1	1	4						
19	NR	1	NR	NR	1				3		
20	IN	IN	IN	IN							4
21	1	1	1	1	4						
22	1	1	1	4x	3			1			
23	1	1	NR	NR	2				2		
24	1	2	1	1	3	1					
Low											
25	IN	IN	1	1	2						2
26	1	4c	4c	UN	1			2		1	
27	UN	4c	1	4c	1			2		1	
28	1	1	1	1	4						
29	NR	1	1	1	3				1		
30	1	IN	NR	NR	1				2		1
31	UN	2	2	1	1	2				1	
32	NR	IN	IN	IN					2		2
33	IN	IN	IN	IN							4
34	IN	IN	IN	IN							4
35	IN	IN	IN	IN							4

Table 22

Student Responses to Questions on Section B2 of the Test of Linguistic Awareness

Group	Question							Response Summary						
	10	9	12	17	18	19	20	1	2	3	4	NR	UN	IN
High														
1	3b	4c	4c	1	1	1	1	4		1	2			
2	3b	4c	4c	1	1	1	3b	3		2	2			
3	3b	4c	4c	1	1	1	1	4		1	2			
4	3b	4c	4c	1	1	UN	3b	2		2	2		1	
5	3b	4c	4c	2	UN	1	3b	1	1	2	2		1	
6	3b	4c	1	2	2	1	1	3	2	1	1			
7	1	4c	NR	1	1	NR	1	4			1	2		
8	3b	4c	2	IN	IN	IN	1	1	1	1	1			3
9	3b	4c	4c	1	1	4c	1	3		1	3			
10	1	4c	1	1	1	4c	1	5			2			
11	3b	2	NR	2	2	1	NR	1	3	1		2		
Middle														
12	3b	4c	4c	3b	1	1	1	3		2	2			
13	3b	4c	4c	1	1	1	3b	3		2	2			
14	3b	4c	4c	1	UN	1	1	3		1	2		1	
15	3b	4c	4c	1	2	1	1	3	1	1	2			
16	3b	2	4c	2	2	1	3b	1	3	2	1			
17	3b	4c	4c	3b	1	1	3b	2		3	2			
18	3b	4c	4c	3b	NR	1	UN	1		2	2	1	1	
19	1	4c	NR	2	2	1	2	2	3		1	1		
20	IN	IN	IN	3b	1	UN	36	1		2			1	3
21	3b	4c	4c	3b	1	4c	1	2		2	3			
22	3b	2	4c	1	2	1	1	3	2	1	1			
23	3b	4c	4c	NR	2	1	1	2	1	1	2	1		
24	3b	4c	4c	1	2	1	1	3	1	1	2			
Low														
25	3b	4c	4c	3b	1	1	1	3		2	2			
26	3b	4c	1	2	UN	1	3b	2	1	2	1		1	
27	3b	4c	4c	2	2	1	2	1	3	1	2			
28	UN	4c	4c	1	UN	1	3b	2		1	2		2	
29	3b	4c	2	NR	UN	1	3b	1	1	2	1	1	1	
30	3b	4c	NR	IN	IN	4x	3b			2	2	1		2
31	3b	4c	4c	2	2	1	2	1	3	1	2			
32	NR	IN	IN	IN	NR	1	2	1	1			2		3
33	IN	IN	IN	IN	IN	IN	IN							7
34	IN	IN	IN	IN	IN	IN	IN							7
35	IN	IN	IN	IN	IN	IN	IN							7

Table 23

Student Responses to Questions on Section B3 of the Test of Linguistic Awareness

Group	Question									Response Summary						
	3	4	5	6	7	8	14	15	16	1	2	3	4	NR	UN	IN
High																
1	1	4c	3b	1	NR	1	1	1	1	6		1	1	1		
2	1	1	2	2	UN	2	1	1	1	5	3				1	
3	1	4c	1	1	1	2	1	1	1	7	1		1			
4	1	1	2	1	1	2	1	1	1	7	2					
5	1	4c	1	2	1	2	1	UN	1	5	2		1		1	
6	NR	4c	3b	1	1	2	1	1	1	5	1	1	1	1		
7	1	4c	2	NR	1	2	NR	UN	1	3	2		1	2	1	
8	1	1	3b	1	UN	2	1	2	1	5	2	1			1	
9	UN	4c	2	2	NR	2	1	1	1	3	3		1	1	1	
10	1	4c	2	UN	1	2	1	1	1	5	2		1		1	
11	NR	4c	1	NR	1	2	NR	2	NR	2	2		1	4		
Middle																
12	1	1	1	1	1	2	1	1	1	8	1					
13	2	4c	2	2	1	1	1	1	1	5	3		1			
14	UN	4c	3b	1	1	2	2	2	1	3	3	1	1		1	
15	2	4c	2	2	1	2	1	2	1	3	5		1			
16	2	4c	2	2	UN	2	2	2	2		7		1		1	
17	2	2	2	2	1	2	UN	1	1	3	5				1	
18	1	4c	1	2	1	2	1	2	1	5	3		1			
19	2	2	1	1	1	2	NR	2	2	3	5			1		
20	IN	IN	IN	1	UN	1	IN	1	1	4					1	4
21	1	4c	2	2	UN	2	1	1	1	4	3		1		1	
22	UN	4c	2	2	NR	2	2	2	1	1	5		1	1	1	
23	2	2	1	2	1	2	1	1	2	4	5					
24	UN	4c	2	NR	NR	2	1	1	1	3	2		1	2	1	
Low																
25	IN	4c	IN	IN	IN	2	2	1	1	2	2		1			4
26	NR	1	3b	UN	UN	2	UN	UN	1	2	1	1		1	4	
27	NR	4c	2	NR	UN	2	UN	2	2		4		1	2	2	
28	2	4c	3b	1	NR	UN	2	2	1	2	3	1	1	1	1	
29	2	2	1	1	UN	UN	UN	2	1	3	3				3	
30	IN	4c	NR	UN	UN	2	IN	IN	1	1	1		1	1	2	3
31	2	4c	2	2	UN	2	2	2	2		7		1		1	
32	UN	4c	NR	NR	NR	2	IN	IN	NR		1		1	4	1	2
33	IN	IN	IN	IN	IN	IN	IN	IN	IN							9
34	IN	IN	IN	IN	IN	IN	IN	IN	IN							9
35	IN	IN	IN	IN	IN	IN	IN	IN	IN							9

Table 24

Student Responses to Questions on Section C1
of the Test of Linguistic Awareness

Group	Question								Response Summary						
	1	2	3	4	5	6	21	22	1	2	3	4	NR	UN	IN
High															
1	1	1	1	1	1	1	1	1	8						
2	1	1	1	1	1	1	NR	3d	6		1		1		
3	1	1	2	1	1	1	3d	3d	5	1	2				
4	1	1	1	1	1	1	3d	3d	6		2				
5	1	1	1	1	1	3c	2	1	6	1	1				
6	1	1	1	1	1	1	1	1	8						
7	1	1	1	1	1	1	2	1	7	1					
8	1	1	1	1	2	1	3d	3d	5	1	2				
9	1	1	3c	1	1	1	4d	3d	5		2	1			
10	1	3c	1	3c	1	1	3d	3d	4		4				
11	1	1	1	1	1	1	NR	3d	6		1		1		
Middle															
12	1	1	2	3c	1	1	UN	3d	4	1	2			1	
13	1	1	1	2	2	1	3d	3d	4	2	2				
14	1	1	1	1	1	1	3d	3d	6		2				
15	1	1	1	1	1	1	3d	3d	6		2				
16	1	1	1	1	1	1	1	1	8						
17	1	1	1	1	1	3c	3d	3d	5		3				
18	1	1	1	1	1	1	UN	UN	6					2	
19	1	1	2	2	2	2	NR	3d	2	4	1		1		
20	1	3c	1	1	3x	1	3d	1	5		3				
21	1	1	NR	3c	1	1	3d	3d	4		3		1		
22	1	3c	3c	3c	2	3	4d	3d	1	2	4	1			
23	1	3c	3c	2	2	3c	IN	IN	1	2	3				2
24	1	3c	3c	2	3c	3c	NR	NR	1	4		2			
Low															
25	1	IN	IN	IN	IN	IN	IN	IN	1						7
26	1	1	1	3c	1	3c	2	3d	4	1	3				
27	1	3c	3c	3c	1	1	IN	1	4		3				1
28	1	IN	IN	IN	IN	IN	IN	IN	1						7
29	1	IN	IN	IN	IN	IN	IN	IN	1						7
30	1	3c	1	3c	1	1	IN	IN	4		2				2
31	1	1	2	2	2	3c	2	IN	2	4	1				1
32	1	1	IN	IN	IN	IN	IN	IN	2						6
33	IN	IN	IN	IN	IN	IN	IN	IN							8
34	1	IN	IN	IN	IN	IN	IN	IN	1						7
35	1	IN	IN	IN	IN	IN	IN	IN	1						7

Table 25

Student Responses to Questions on Section C2 of the Test of Linguistic Awareness

Group	Question					Response Summary						
	7	8	9	10	11	1	2	3	4	NR	UN	IN
High												
1	3e	1	1	1	1	4		1				
2	1	1	1	1	1	5						
3	3e	4e	4e	1	4e	1		1	3			
4	3e	1	1	3e	3e	2		3				
5	3e	1	1	3e	3e	2		3				
6	3e	1	1	3e	3e	2		3				
7	3e	4e	4e	3e	3e			3	2			
8	3e	1	1	1	4e	3		1	1			
9	3e	1	1	1	1	4		1				
10	3e	1	1	2	1	3	1	1				
11	1	1	1	1	1	5						
Middle												
12	3e	1	1	3e	3e	2		3				
13	3e	NR	1	3e	3e	1		3		1		
14	3e	4e	4e	1	1	2		1	2			
15	3e	1	1	3e	3e	2		3				
16	2	1	1	1	1	4	1					
17	3e	1	1	3e	3e	2		3				
18	3e	4f	4e	3e	4e			2	3			
19	3e	1	1	3e	3e	2		3				
20	3e	1	1	1	1	4		1				
21	3e	1	4e	3e	3e	1		3	1			
22	3e	1	1	1	1	4		1				
23	3e	4e	1	1	1	3		1	1			
24	3e	NR	4e	3e	1	1		2	1	1		
Low												
25	IN	IN	IN	IN	IN							5
26	3e	4e	4e	1	4e	1		1	3			
27	3e	4e	4e	3e	1	1		2	2			
28	IN	IN	IN	IN	IN							5
29	IN	IN	IN	IN	IN							5
30	3e	4f	4e	3e	4e			2	3			
31	2	1	2	2	3e	1	3	1				
32	IN	1	IN	IN	IN	1						4
33	IN	IN	IN	IN	IN							5
34	IN	IN	IN	IN	IN							5
35	IN	1	IN	IN	IN	1						4

Table 26

Student Responses to Questions on Section C3 of the Test of Linguistic Awareness

Group	Question									Response Summary						
	12	13	16	17	18	19	20	26	27	1	2	3	4	NR	UN	IN
High																
1	1	1	1	1	1	1	1	1	1	9						
2	1	1	1	1	1	1	3f	1	1	8		1				
3	1	1	1	1	3f	1	3f	3f	3f	5		4				
4	1	1	1	1	3f	1	3f	3f	1	6		3				
5	1	1	1	1	1	1	1	3f	3f	7		2				
6	UN	UN	1	1	3f	1	3f	NR	3f	3		3		1	2	
7	1	1	1	1	1	1	1	3f	1	8		1				
8	1	1	1	1	1	1	3f	1	1	8		1				
9	1	1	1	1	1	1	1	4g	4g	7			2			
10	1	1	UN	1	1	1	3f	4g	4g	5		1	2		1	
11	UN	1	1	1	1	1	1	1	1	8					1	
Middle																
12	1	1	UN	1	3f	1	3h	4g	3f	4		3	1		1	
13	1	1	1	1	1	1	1	3f	3f	7		2				
14	UN	1	4g	4g	4g	4g	4g	UN	UN	1			5		3	
15	UN	UN	1	1	3f	1	1	UN	UN	4		1			4	
16	1	1	1	1	1	1	UN	3f	3f	5		3			1	
17	1	1	1	1	1	3h	3h	3f	3f	5		4				
18	1	UN	4g	4g	1	4g	1	1	1	5			3		1	
19	1	1	UN	3g	1	4g	4g	3f	3f	3		3	2		1	
20	1	1	UN	4g	1	1	1	1	3f	6		1	1		1	
21	1	1	UN	1	3f	3h	3f	3f	3f	3		5			1	
22	1	1	UN	1	1	1	1	4g	4g	6			2		1	
23	UN	NR	IN	IN	IN	IN	IN	IN	IN					1	1	7
24	UN	UN	3h	3h	3h	3h	NR	3f	3f			6		1	2	
Low																
25	1	1	IN	IN	IN	IN	IN	IN	IN	2						7
26	UN	1	IN	IN	IN	IN	IN	3f	3f	1		2			1	5
27	1	1	IN	IN	IN	IN	IN	IN	IN	2						7
28	IN	IN	IN	IN	IN	IN	IN	IN	IN							9
29	IN	IN	IN	IN	IN	IN	IN	IN	IN							9
30	IN	IN	IN	IN	IN	IN	IN	IN	IN							9
31	1	1	3h	3h	3h	3h	3h	4g	NR	2		5	1	1		
32	IN	IN	IN	IN	IN	IN	IN	IN	IN							9
33	IN	IN	IN	IN	IN	IN	IN	IN	IN							9
34	IN	IN	IN	IN	IN	IN	IN	IN	IN							9
35	IN	IN	IN	IN	IN	IN	IN	IN	IN							9

Table 27

Student Responses to Questions on Section C4 of the Test of Linguistic Awareness

Group	14	15	23	24	25	28	29	1	2	3	4	NR	UN	IN
High														
1	1	1	1	3i	1	NR	3k	4		2		1		
2	1	1	1	3i	1	UN	3k	4		2			1	
3	1	1	3i	3i	1	1	UN	4		2			1	
4	1	1	1	3i	1	UN	3k	4		2			1	
5	1	1	1	3i	1	1	UN	5		1			1	
6	1	1	1	1	1	NR	UN	5				1	1	
7	1	1	1	3i	1	NR	NR	4		1		2		
8	1	1	UN	UN	UN	3j	3k	2		2			3	
9	1	1	UN	NR	UN	UN	3k	2		1		1	3	
10	1	NR	UN	UN	UN	4h	UN	1			1	1	4	
11	1	1	1	3i	1	NE	NR	4		1		2		
Middle														
12	1	1	1	3i	UN	UN	3k	3		2			2	
13	1	1	UN	UN	UN	UN	UN	2					5	
14	1	1	UN	UN	1	3j	3k	3		2			2	
15	1	1	UN	UN	UN	UN	1	3					4	
16	1	1	1	3i	1	UN	3k	4		2			1	
17	1	1	UN	UN	UN	UN	3k	2		1			4	
18	4e	1	UN	UN	UN	3j	3k	1		2	1		3	
19	NR	2	2	NR	1	NR	1	2	2			3		
20	1	1	UN	1	UN	UN	3k	3		1			3	
21	3h	3h	2	3i	2	UN	UN		2	3			2	
22	1	1	UN	UN	UN	NR	3k	2		1		1	3	
23	1	1	1	3i	3i	1	3k	4		3				
24	3h	3h	1	ei	NR	UN	3k	1		4		1	1	
Low														
25	IN	IN	IN	IN	IN	IN	IN							7
26	1	1	2	ei	2	1	UN	3	2	1			1	
27	IN	IN	IN	IN	IN	IN	IN							7
28	IN	IN	IN	IN	IN	IN	IN							7
29	IN	IN	IN	IN	IN	IN	1	1						6
30	IN	IN	IN	IN	IN	IN	IN							7
31	IN	IN	IN	IN	IN	IN	IN					1		6
32	IN	IN	IN	IN	IN	IN	IN							7
33	IN	IN	IN	IN	IN	IN	IN							7
34	IN	IN	IN	IN	IN	IN	IN							7
35	IN	1	IN	IN	IN	IN	IN	1						6

Table 28

Student Responses to Questions on the Sand Test

Subject	Question																							
	19	21	24	2	1	3	4	5	7	8	9	11	23	6	10	12	13	14	15	16	17	18	20	22
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						1	1
2	1	1		1	1	1	1	1	1	1	1			1										
3		1		1	1	1	1	1	1	1	1	1								1				
4		1		1	1	1	1	1	1		1	1	1											1
5		1		1	1	1	1	1	1	1	1	1	1											1
6		1		1	1	1	1	1	1	1	1	1	1	1										1
7	1	1	1	1	1	1	1	1	1	1	1	1	1							1				1
8		1		1	1	1	1	1	1	1	1	1	1											1
9				1	1					1		1												
10		1		1	1	1	1	1	1	1														
11		1		1	1	1	1	1	1	1	1	1	1											1
12	1	1	1	1	1	1	1	1	1	1	1	1	1						1	1				1
13		1	1	1	1	1	1	1	1	1	1	1												
14		1		1	1	1	1	1	1	1	1	1												
15		1		1	1		1			1	1													
16	1	1	1	1	1	1	1	1	1	1		1	1	1										1
17		1		1	1	1	1	1	1	1		1												
18		1		1	1	1	1	1	1	1	1	1	1	1										
19				1	1	1	1		1	1	1													
20		1		1	1					1														
21		1		1	1							1												
22					1	1	1	1	1			1												
23		1			1	1	1	1	1	1		1												
24		1		1	1				1	1		1		1										
25	1	1		1	1	1	1	1	1	1														
26					1							1												1
27		1		1	1					1		1												
28		1			1					1														
29		1			1				1	1		1												
30		1		1	1	1	1	1	1	1	1	1												
31		1		1	1		1	1	1	1	1	1												
32				1	1	1	1	1	1	1	1													
33		1			1		1	1	1	1														1
34		1		1	1	1	1	1																
35		1								1		1												

Note: The questions are grouped according to type of question.

APPENDIX G

Group Responses to Individual Interview Questions

Table 29

Frequency of Responses to Question 3 (Type A1)
by Level of Linguistic Awareness

	Responses	Level		
		High	Middle	Low
(1)	Identified things people read with presence of words/letters.	10	9	6
(2)	Identified things people read with presence of books or book-like materials.	1	1	1
(3)	Could not articulate reasoning.	-	2	3
(4)	Did not appear to understand the question.	-	1	1

Table 30

Frequency of Reading Strategies by Level of Linguistic Awareness

Strategy	Level		
	High	Middle	Low
(1) Used graphic cues; closely followed story theme.	1	-	-
(2) Used pictorial cues; closely followed story theme.	10	12	6
(3) Used pictorial cues; loosely followed story theme.	-	-	2
(4) Used pictorial cues; did not follow story theme.	-	1	1
(5) Strategy could not be determined.	-	-	2

Table 31

Frequency of Responses to Question 4 (Type A2)
by Level of Linguistic Awareness

	Responses	Level		
		High	Middle	Low
(1)	Identified reading with looking at letters/words.	2	-	-
(2)	Identified reading with looking at books or book-like materials.	2	1	4
(3)	Related the activities of reading and writing.	2	2	-
(4)	Could not articulate reasoning.	5	10	5
(5)	Did not appear to understand the question.	-	-	2

Table 32

Frequency of Responses to Question 1 (Type A4)
by Level of Linguistic Awareness

Responses		Level		
		High	Middle	Low
(1)	Identified writing with making letters/words.	3	1	-
(2)	Identified writing with using a pen or pencil, but seemed to distinguish between making letters/words and making pictures.	1	3	2
(3)	Identified writing with using a pen or pencil, but not a paintbrush.	7	9	6
(4)	Did not appear to understand the question.	-	-	3

Table 33

Frequency of Responses to Question 10 (Type B1)
by Level of Linguistic Awareness

Responses	Level		
	High	Middle	Low
(1) Identified finding a story with reading or looking at a book.			
(2) Could/did not articulate reasoning.			
(3) Did not appear to understand the question.			

Table 34

Frequency of Responses to Question 9 (Type B1)
by Level of Linguistic Awareness

Responses		Level		
		High	Middle	Low
(1)	Identified telling a story with writing.	8	6	8
(2)	Related the activities of reading and writing.	-	2	2
(3)	Could not articulate reasoning.	3	3	-
(4)	Did not appear to understand the question.	-	-	1

Table 35

Frequency of Responses to Question 6 (Type B2)
by Level of Linguistic Awareness

Responses	Level		
	High	Middle	Low
(1) Identified receiving a message with reading.	6	7	4
(2) Identified receiving a message with having a piece of paper.	4	1	4
(3) Could not articulate reasoning.	1	3	1
(4) Did not appear to understand the question.	-	2	2

Table 36

Frequency of Responses to Question 8 (Type B2)
by Level of Linguistic Awareness

Responses		Level		
		High	Middle	Low
(1)	Identified sending a message with writing.	2	-	-
(2)	Did not appear to understand question.	9	13	11

Table 37

Frequency of Responses to Question 7 (Type B3)
by Level of Linguistic Awareness

Responses	Level		
	High	Middle	Low
(1) Identified finding out information with reading.	6	6	4
(2) Related the activities of reading and writing.	5	3	1
(3) Did not appear to understand the question.			

Table 38

Frequency of Responses to Question 2 (Type B3)
by Level of Linguistic Awareness

Responses	Level		
	High	Middle	Low
(1) Identified remembering information with writing.	6	3	1
(2) Identified remembering information with doing the chore.	4	6	6
(3) Did not appear to understand the question.	1	4	4

Table 39

Frequency of Literacy-Related Behaviors By
Level of Linguistic Awareness

	Literacy Related Behavior	Level		
		High	Middle	Low
(1)	reciting the alphabet	-	-	-
(2)	asking to have letters identified	-	-	-
(3)	pointing out and naming letters	4	6	4
(4)	copying letters	-	-	-
(5)	printing letters from memory	2	2	2
(6)	pringing in both upper and lower cases	2	1	-
(7)	asking to have letter sounds identified	15	12	2
(8)	playing with books	2	7	3
(9)	asking to have printed words identified	1	1	-
(10)	asking about the meaning of words	-	-	-
(11)	identifying printed words	13	5	-
(12)	copying one's name	1	5	3
(13)	copying other words	6	2	2
(14)	printing one's name from memory	5	3	1
(15)	printing other words from memory	11	4	-
(16)	copying discourse	1	-	-
(17)	printing discourse from memory	1	-	-

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Assisted in Preparation of:

Oberg, A. Implications of the research on teacher decision-making for curriculum-makers. A paper prepared for presentation to the second annual symposium on "Curriculum-Making in Canada," Laval University, P.Q., April, 1980.

Oberg, A. Implications of research on teacher decision-making for curriculum-makers and administrators. A paper prepared for discussion at the CEA symposium on "Quality Education," Banff, Alberta, May, 1980.

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