ORAL MISCUE ANALYSIS OF GRADE 3 FRENCH IMMERSION CHILDREN LEARNING TO READ IN ENGLISH

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HELEN R. SINCLAIR

ORAL MISCUE ANALYSIS OF GRADE 3 FRENCH IMMERSION CHILDREN LEARNING TO READ IN ENGLISH

BY

© Helen R. Sinclair.

A thesis submitted to the School of Graduate Studies in partial fulfillment of the requirements for the degree of Master of Education

Department of Curriculum and Instruction
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Abstract.

The English reading strategies of Grade 3 French immersion children were studied to discover any changes between those used before reading instruction in English began and after six months of reading instruction.

Nine children reading at grade level were selected and tested in October, 1986 and again in March, 1987 using the Reading Miscue Inventory devised by Goodman and Burke (1972). The first text used was at the Grade 3 level and the second at the Grade 4 level to minimize the effects of text difficulty.

At the first testing the children relied heavily on graphic and sound cues, using semantic and syntactic cues infrequently. The low scores in the categories of comprehension and the use of grammatical relationships suggested that they were not reading efficiently. At the second testing, while the children still used graphic and phonic cues to a great extent, the use of semantic and syntactic cues increased. These findings, in conjunction with improved scores in comprehension and the use of grammatical relationships, demonstrated an improvement in the quality of the children's reading.

No instances of French semantics or syntax interfering with the English reading of the children were found, but there were cases of French pronunciation of parts or all of English words. French interference miscues dropped from

thirty-four at the first testing to five at the second testing, again indicating an improvement in the reading quality.

Some possible explanations were given for the changing reading strategies of the children. The emphasis of the reading instruction in French was on phonics, and in English on context. Studies have shown that the type of reading instruction children receive affects the miscues they make and this is one factor to be considered. Another factor which may have affected the changes was the children's progress through the stages of reading development. The stages which Cohen (1974-5) proposed uphold the findings of the present study. The children's developmental stage may also have affected the reading strategies they used.

The results of the study were compared to bottom-up, top-down, interactive, and interactive-compensatory models of reading. The best fit was found to be the interactive-compensatory model.

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Chapter One

Introduction

The Problem

There has been considerable research, using standardized testing, into the English reading achievement of French immersion children, but little has been done to establish what strategies the children use as they tackle the reading task in English. Several researchers have speculated that reading strategies are being transferred from French reading to English reading but have not suggested what these skills might be (Tucker, 1975; McDougall and Bruck, 1976; Genesee, 1979). In their study, Kendall, Lajeunesse, Chmilar, Shapson, and Shapson (1987), do suggest that the evidence points to the children transferring their knowledge of decoding strategies from French to English and being able to incorporate their knowledge of the English language.

In 1977 an early French immersion program was instituted by the Roman Catholic School Board in St. John's, Newfoundland. It was evaluated each year in the Primary school and, among other things, the students' achievements in English reading were assessed using the Gates-McGinitie Reading Survey (Netten and Spain, 1983). In their summary Spain and Netten stated that in general the progress of the children in English was following the expected pattern for children in this program. This pattern is that the children lag behind their English counterparts until instruction in

English reading begins, whereupon they rapidly catch up to and may surpass the levels of the English monolingual children (D'Anglejan and Tucker, 1971; Lambert and Tucker, 1972; Barik and Swain, 1978; Genesee, 1978-9; Swain and Lapkin, 1984).

Children in the early French immersion program in St. John's, Newfoundland receive no instruction in reading in English until Grade 3, although many children can read in English to some extent as they enter this grade. Reading instruction in French begins in Grade 1. This study will help to determine what cues the children do rely on before instruction in English reading begins in Grade 3, and if their strategies change after six months of English reading instruction.

Children and Learning

Before the reading process of Grade 3 children is discussed specifically, the subject of young children's learning in general will be addressed. Both theories of knowledge and theories of child development are relevant to such a discussion.

Theories of knowledge fall into two main categories. The rationalist theory of knowledge states that knowledge is absolute, unchanging, and independent of human experience, while those holding the empiricist view would argue that knowledge is not immutable but changes as new discoveries are made. Those holding the empiricist view would claim

that what was believed to be true is now demonstrably untrue so for the child to learn what are believed to be facts today may not stand him or her in good stead tomorrow. The empiricist would argue that the process of learning is more important than the content of the learning. Many educators have held this view including Rousseau, Pestalozzi, Froebel, and Montessori (Blenkin and Kelly, 1981). Content cannot be ignored because there is little point in using inaccurate, trivial material, but content should not be the main focus of education. Children who are taught how to learn for themselves can master any content they choose

If children are to be taught how to learn, an understanding of the nature of the child is a prerequisite and psychologists have addressed this issue. Piaget did not believe that the child's cognition was entirely innate or that it was entirely due to the circumstances in which the child grew. His theory was that intellectual development was dependent on the interaction of the two. Piaget believed that children act upon their environments and develop hypotheses to explain their experiences. As new information is obtained, new hypotheses are formulated. This process continues throughout life (Blenkin and Kelly, 1981). Similarly Montessori (1967) believed that the cognitive development of the young child was due to, "...an intense and specialized sensitiveness in consequence of which the things about him awaken so much interest and so much en-

thusiasm that they become incorporated in his very existence" (p.24).

Bruner (1968) concurred with the beliefs of Piaget and Montessori, stating that cognitive development is a process by which humans increase their ability to achieve and to use knowledge by solving problems presented by the environment. In this way the child constructs and reconstructs his or her view of the world.

Piaget and Bruner postulated similar stages through which children pass as they develop. In the first stage Bruner stated that children learn to make sense of the world through action, in the second stage through visual or other sensory organization, and in the third stage through language. Piaget divided children's intellectual development into four stages. He maintained that the infant is at the sensori-motor stage in which he or she tries to make sense of the world by overt actions such as touching, looking, and tasting. In the second stage, which lasts to about seven years, children are able to represent the world with symbols and so can go beyond the immediate but they cannot yet reason logically. The third stage, according to Piaget, is characterized by the children still being rooted in the concrete but being able to hypothesize to a limited extent. At about twelve years, when learners are no longer dependent on the concrete but can reason and deal with ideas, they have reached the final stage of intellectual development.

Instruction has therefore to be suitable to the stage of the child and to prepare him or her for future learning. The chronological ages of the children in this study suggest that they can reasonably be expected to be towards the end of Piaget's second stage and entering the third stage he described. According to Bruner's theory they would likely be at the second of his stages. Their theories suggest that it is reasonable to expect children at this stage of development to be fairly fluent readers because they can deal with symbolic representations such as print and are no longer completely dependent on concrete experiences. By the same token they should be able to make the connection between oral and written language, since written language is the symbolic representation of the spoken word.

Both Bruner and Piaget maintain that children are constantly trying to make sense of the information they glean from the world. New information has to be explained in conjunction with information they already have. Having been taught to read in French, the children in Grade 3 early French immersion programs in St. John's are now presented with print in the English language. The theories of Piaget and Bruner would suggest that the children could be expected to try to make sense of written English using their knowledge of written French, since that is the information they have available to them. Errors of French pronunciation and intonation are to be expected as they try to accommodate the

new stimulus (print in English) into the structures they have already formed to deal with information (print in French) they already have. The children can also bring their knowledge of oral English to the reading task and incorporate this knowledge with the knowledge of the representational character of print, so that while some French interference is to be expected, such errors should not predominate.

Definition of Terms

Cueing Systems

These are sources of knowledge contained within the text or knowledge that the reader can bring to the reading task (K. Goodman, 1965. "Goodman" in future references will be used to refer to the works of Kenneth Goodman. "Y. Goodman" will refer to the works of Yetta Goodman).

Early French Immersion Program

The usual pattern is one in which anglophone kindergarten and Grade 1 children are taught totally in French. In Grade 2 or 3, one period of English language arts per day is introduced, leading to approximately 50 per cent of instruction in English by Grade 5 or 6. Reading is introduced in French, usually in Grade 1 (Cummins, 1983).

Miscue Analysis

This is an analytical procedure designed to discover what cueing systems the reader is using. The expected responses of a reader are compared to the actual responses as the

subject reads a story orally. Unexpected responses are called 'miscues' and these miscues are analyzed to provide clues to strategies a reader is using as the oral reading takes place (Goodman, 1975).

Grapho-phonic Cues

These consist of the information contained in the relationships between letters and sounds (Smith, 1971).

Psycholinguistic Theory of Reading

This model states that reading begins with a linguistic surface representation encoded by the reader and ends with meaning which the reader constructs. There is thus an essential interaction between language and thought in reading (Goodman, 1975).

Semantic Cues

These consist of information derived from the meaning of language (Smith, 1971).

Syntactic Cues

These consist of information derived from the reader's knowledge of the interrelationships among elements of language (Smith, 1971).

Theoretical Framework

Before the middle 1960s there was no clearly articulated theory of the reading process, and research was based on common sense and assumptions (Goodman, 1982a; Leu, 1982). Reading was assumed to be a precise process involving exact and sequential perception of language units, usually the

letter or word (Weber, 1968; Shuy, 1975; Beebe, 1976; Gutknecht and Keenan, 1978). Because of this notion of the reading process, research involving oral reading error analysis assumed that the best readers were the most exact readers and so errors were equated with lack of comprehension. Further, because the linguistic function of each error was not considered, it was assumed that all errors were equally undesirable (Weber, 1968; Y. Goodman, 1972; Pearson, 1976; Froese, 1977; Goodman, 1982b; Leu, 1982). The lack of a theoretical framework meant that researchers tended to use error categories that did not reflect the cognitive and linguistic abilities that are central to the reading process (Leu, 1982). Errors were seen as "...signs of imperfect learning marking the unsuccessful reader" (Weber, 1968, p.98).

Psycholinguistic Models of Reading

Top-down models.

Goodman (1975) criticized traditional concerns with word recognition in the teaching of reading, pointing out that the grammatical structure was entirely overlooked. He defined reading as, "...a psycholinguistic process in that it starts with a linguistic surface representation encoded by a writer and ends with meaning which the reader constructs. There is thus an essential interaction between language and thought in reading" (pp.19-20). He stated that to get meaning, the reader has to treat the language as

grammatical sequences and has to be aware of grammatical interdependencies. Therefore, he concluded that grammatical information has to be processed also.

In 1960, Goodman set out to examine from a linguistic perspective what happens when people read. In an attempt to avoid the negative connotations when unexpected responses were called errors, he renamed them 'miscues' and considered them as by-products of the reading process. His primary source of data was observation of oral reading and he found that miscue analysis was the most useful tool in the in-depth analysis of oral reading. Miscue analysis compared the actual response of the reader to the expected response. A key assumption is that what readers do is not random but is the result of the reading process (Goodman, 1975). He maintained that miscues allow the researcher to infer what the reader is thinking as the miscue occurs (Goodman, 1982c).

In his first study of reading using applied linguistics, the subjects were 100 children in Grades 1, 2, and 3. The children were asked to read a list of words, and then to read a story containing the words on the list. Goodman established that the children read more of the words in a story than they did in the word list. From this he concluded that a theory of reading needed to be developed which had language as its focus and not words. He also found that regressions occurred very seldom in the reading of word

lists and almost always in story reading. He suggested that regression was being used as a correction strategy when cues could not be reconciled with each other (Goodman, 1965).

This study has been criticized on the grounds that the study's only measure of reading was oral fluency and comprehension was not measured (Blanchard, 1983). Blanchard further critigized it because there was no control group or other groups which received no training on the "words in isolation" task. This critique claimed that the report of the methodology was too scanty for Goodman to draw causal implications from the descriptive study, and claimed that is why the findings of the study have not been able to be replicated.

Goodman (1983) countered these criticisms by citing three studies which did replicate his findings. He denied that he claimed it was an experimental paradigm and maintained that it was legitimate for him to compare the performances of the subjects on the several tasks they were asked to complete, and to suggest a linguistic explanation for these results. Goodman explained in this article that he used story retelling to measure comprehension, but, because this was not the focus of this particular article, these figures were not reported. No training or control groups were used because there was, he claimed, no training. He disputed the claim of Blanchard that reading the words in isolation could be defined as training, and stated that he

was puzzled by Blanchard's claim that insufficient methodological information was given, saying that the methodology was quite simple and all research procedures and statistical procedures were reported.

Goodman (1983) never claimed or expected classic status for this study. It was descriptive and Goodman's first attempt to find out how children read a whole story. This was a pilot study and succeeded in giving some valuable information on the reading process of young children.

Goodman stated that in his early studies he tried to fit each miscue into only one of several categories but became aware that there were grammatical relationships involved and that miscues could belong to more than one category. This realization led to the development of an analytical taxonomy which considered the relationships between expected responses and observed responses, each miscue being considered on all pertinent variables such as graphic similarity, grammatical acceptability, and semantic acceptability. No attempt was made to establish a single cause-effect relationship. This taxonomy was used with children and constantly modified to deal with phenomena found in the actual reading of children (Goodman, 1973). <u>The Goodman Taxonomy of Miscues</u> is very detailed and a modified version was developed by Y. Goodman and C. Burke, which included what they considered to be its most important questions, and is suitable for use in the classroom. This

version was called The Reading Miscue Inventory (Beebe, 1976).

From insights gained from miscue analysis, Goodman developed a model of reading. He believed that the information available to the reader comes from three sources. These are grapho-phonic, semantic, and syntactic sources. Readers select as much information as is necessary for them to predict what is written. They make predictions of the grammatical structure, using the control over language structure learned when oral language was learned. Readers supply semantic concepts to get the meaning from the structure. In turn, readers' senses of syntax and semantics make it possible to predict the graphic input so they are highly selective, sampling the print to confirm the prediction. The reader's goal is meaning, and so as much or as little of each of these sources of information as is needed is used. The reader makes predictions of the grammatical structure drawing from knowledge of oral language. The reader also supplies semantic concepts to get the meaning from the structure, and his or her sense of syntactic structure makes it possible to predict the graphic display. The graphic display is then sampled to confirm or disconfirm the prediction. As reading becomes more efficient, graphic input is used less and less. Meaning is the most crucial factor in reading according to Goodman, and readers use their knowledge of language to make sense of what they read. They

test their predictions by considering whether or not there is meaning. Goodman believed that the extent to which a piece of text has meaning to a reader depends on the conceptual background of that reader and therefore the amount of meaning that he or she can bring to the text (Goodman, 1973).

Smith (1971) concurred with Goodman's ideas about reading. He believed that reading had to involve meaning. He stated, "To my mind, reading is something that makes sense to the reader, and always should" (p.6). Smith (1975) maintained that prediction is routinely practised by fluent and beginning readers because there are too many possibilities in print among which to choose given the number of words in the English language. If readers made no prediction, so much time would be needed to decide what each word was that memory would be overloaded and efficient reading would not be possible. By the prior elimination of unlikely alternatives the brain's rate of information processing is increased, as short term memory processes chunks of meaning instead of isolated letters or words. He believed that phonic information is easier to decode if the reader already has a good idea of what the word is likely to be. Smith stated that, "... it is through such prediction that a mastery of useful phonic skills is acquired" (p.33).

Froese (1977) also made this point, stating that slow reading results in poor comprehension, since one's short-

term memory capacity is limited. The human memory is generally considered to consist of three elements: the sensory register, short-term memory, and long-term memory. The sensory register stores about twenty-five items for a fraction of a second, after which the information is either lost or passes into short-term memory (STM). STM can hold about seven items for between six and fifteen seconds, a duration which can be extended by rehearsal, after which the information is either passed into long-term memory (LTM) or is lost. If additional items are passed into STM, items already there will be lost. LTM takes about five seconds to process each item of information from STM but each item, in the context of the reading act, can be letters, words or chunks of meaning. If chunks of meaning are processed, the speed and comprehension of the reader are increased. Poor readers may not read quickly enough. If the reader has to decode the text word by word, then the beginning of the sentence has passed from STM and been lost before the end of the sentence is reached, so no meaning can be extracted from the text. Reading has to be fast enough so that STM is not overloaded but not so fast that LTM cannot process it (Smith, 1971).

Smith (1971) stated that there are four sources of information available to a reader. These sources (visual, orthographic, syntactic and semantic) overlap to some extent. He pointed out that if the reader has information

from the last three sources then less visual information is needed than if the word occurred in isolation. He claimed that in the initial stages of reading it is, "...the ability of children to make sense of the printed word that will enable them to make use of the mechanics we have to offer" (1976, p.299).

Smith (1971) maintained that people who read without ever making an error are not reading efficiently because they are processing more information than is necessary. Shuy (1975) also criticized exact reading, believing that the skill to be developed should be one of learning to ignore as much of the printed page as possible while still getting the general meaning.

Smith and Goodman both consider reading from a psycholinguistic perspective and in a joint article expressed their belief that:

> reading is not a process of combining individual letters into words, and strings of words into sentences from which meanings spring automatically. Rather the evidence is that the deep-level process of identifying meaning either precedes or makes unnecessary the process of identifying individual words .... Experiments have already shown that even beginning readers look for and use orthographic, syntactic, and semantic redundancy in written language... (1971, pp.179-80).

This seems to be an extreme statement suggesting almost that words are not necessary for reading.

Other researchers support the views that Goodman and Smith hold on the reading process. Garman (1977) believed that comprehension precedes word identification. She summarized Smith's work and quoted other sources to support his theory. Koler's experiments were cited, in which bilingual subjects were asked to read silently a passage in which the language changed from English to French. Comprehension tests showed that subjects could understand the mixed passages as well as they could understand unilingual ones. When the subjects were asked to read aloud a passage of mixed language as quickly as they could, translation errors were noted, the vast majority of which were made on the first word of the second language after a sequence in the first language. Garman claimed that this shows the subjects were concerned more with meaning than with the graphic display. The subjects may have made errors in the actual words but the meaning remained unchanged.

Garman, in the same article, also cited the work of Cohen who studied search times for visual, semantic, and phonic categories. Garman reported that Cohen found no significant change in the search time when semantic processing was added to acoustic or visual searches. The suggestion from these results was that during the reading process the subjects were able to comprehend meaning. The article

by Goodman (1965), discussed above, is also quoted by Garman as evidence to support her contention. She believed that because the subjects could read more words in context than in isolation it demonstrated that comprehension was necessary for a high degree of accuracy to occur in the identification of words. None of these three studies were reported in detail by Garman but the information she did supply upholds the notion that comprehension precedes word identification. She urged teachers to be less concerned with words and more with readers who are seeking meaning.

Allen (1972) discussed the use of phonic, semantic and syntactic cues in relation to the beginning reader. He maintained that such a reader has command of oral language and can apply this knowledge to written language. He supported his contention with the results of studies, described as spinoffs from Goodman's work at Wayne State University, which he said have defined and delineated the three cueing systems. All the studies used <u>The Goodman Taxonomy of Miscues</u> as a methodology. Allen emphasized the importance of correction strategies in integrating the cueing systems, stating that the evidence from the Wayne studies suggests that readers tend to correct miscues that lack syntactic and semantic acceptability.

Downing (1982) rejected the notion that reading can be learned as a set of subskills and quoted the results of several studies which upheld this view. He claimed that one

study done by Guthrie demonstrated that certain subskills had been mastered by good readers but not poor ones. Downing also discussed one done by McNeil in which 150 children were tested on their knowledge of fifteen reading subskills. The results showed that seven of these had been mastered by the good readers and not the poor ones. Downing maintained that these studies demonstrate that the reading process is so complex it cannot be reduced to its component parts, and that reading involves an integration of systems which cannot operate independently. It is unfortunate that Downing gave no details of the studies he used to support his argument. Neither did he describe the subskills that were tested or what methodology was used, and this has considerably weakened his argument.

Interactive models.

Not all educators agree that the top-down psycholinguistic models of reading espoused by Goodman and Smith are accurate in all reading acts. Their notion that readers develop hypotheses about upcoming words using their sensitivity to semantic and syntactic redundancy and then check these hypotheses by sampling the graphic aspect of the print, does not explain the results of studies which have tested this idea, especially with beginning readers. The method of reading instruction has been found to affect the strategies the children use (Dank, 1977; Norton and Hubert, 1977; Cohen; 1974-5). The stage of development has also

been found to affect the strategies used by children as they learn to read (Biemiller, 1970; Cohen, 1974-5; Burke, 1976; Billard; 1984). The results of these studies refute the idea that Goodman's model of reading was applicable to all readers. Criticism has also been leveled at those who espouse the bottom-up model of reading. This model portrays reading as a linear processing of perceptual information before the final stage which is reaching meaning.

Several researchers have addressed the shortcomings in Goodman's model of reading and the bottom-up model of reading. Rumelhart (1976), while not mentioning Goodman in particular, stated that a theory of the reading process must be rich enough to represent all sources of information available to the reader and their interaction. He believed that these sources of information were sensory, syntactic, semantic, and pragmatic. Bottom-up models of reading were discussed by Rummelhart and found to be inadequate because he claimed that they do not allow for interaction among the various sources of information, thus limiting each level to dependence on only the one immediately below it. Studies such as that of Nash-Weber (1975), who demonstrated that identical ambigubus graphic information is interpreted in different ways according to the context, were quoted to uphold the view that reading is not a linear process but that higher level processes are used at different stages. Rumelhart introduced the idea of an interactive model of

reading in which, "... all the various sources of knowledge, both sensory and non-sensory, come together at one place and the reading process is the product of the simultaneous joint application of all the knowledge sources" (p.20). Rumelhart then proceeded to develop a means of representing a set of parallel processes. He did not mention top-down models of reading such as that proposed by Goodman and Smith, which is a curious omission considering that model was about eight years old when this article was written. Presumably the criticisms levelled at the bottom-up model could also apply to the top-down model since neither has the flexibility of the interactive model suggested by Rumelhart.

Danks (1978) rejected the bottom-up model of reading also but in addition he rejected the top-down model. He maintained that both models were too inflexible to accommodate reading different types of material. After reviewing top-down and bottom-up models of reading and finding them inadequate to explain the results of various pieces of research, he recommended "constructive models" which he describes as: "... parallel, interactive and flexible" (p.189). In constructive models, according to Danks, the comprehension process involves phonic/graphic identification, lexical access, semantic and syntactic integration, and textual integration, all these factors having access to the information contained in the memory structures. The reader then responds on the basis of the infor-

mation that is available. Danks stated, there is no one comprehension process but rather, "... there are many processing components that are adapted strategically for particular comprehension situations" (p.190).

Oldford-Matchim (1986) also criticized bottom-up and top-down models of reading, claiming that neither can account for research results which contradict both reading as processing of perceptual information and reading as primarily a process dominated by cognitive factors, particularly when the reading process of beginning readers is being considered. She maintained that the interactive reading models, which provide an explanation of the reading process based on the integrative utilization of knowledge from both perceptual and cognitive sources, are better suited to provide an explanation of the reading process of beginning readers.

An extension of reading as an interactive process was suggested by Stanovich (1980) who proposed that a compensatory element should be added to the model. He too rejected bottom-up and top-down models as complete explanations of the reading process, citing the results of several studies which he claimed could not be explained by either model. Stanovich discussed the interactive model in light of theories on the nature of differences in reading fluency and proposed that, in addition to readers synthesizing information from several knowledge sources, if the readers

were, "... deficient in a particular process (they) would rely more on other knowledge sources regardless of their level" (p.36).

Psycholinguistic theories of the reading process stress meaning as essential. Without comprehension, reading has not taken place. The primary sources of information available to the reader are grapho-phonic, syntactic, orthographic and semantic, according to the literature. Those who perceive of the top-down model as accurate believe that the most efficient readers employ a minimum amount of phonic information, using only enough to confirm predictions that have been made based on the reader's knowledge of the language and the previous content of the reading material. Interactive models of the reading process suggest that the strategies used will depend on the sources of information the reader has available and are not always dominated either by processing graphic information or by cognitive processes, which allow predictions to be made before the resulting hypothesis is tested against the graphic information available. The interactive-compensatory model suggests readers will compensate for sources of information that are not available by relying on sources that are available, regardless of its level.

Miscue Analysis as an Investigative Procedure

The use of miscue analysis as an investigative procedure presupposes that a psycholinguistic model of reading has

been accepted, and in recent years studies have been done which employ this method of evaluating the reading process. As a person reads, he or she uses cues from the text to extract meaning from the print. If the reader reads correctly, the researcher cannot tell what cues are being employed, but oral miscues are believed to have the same source as correct responses, and by studying the miscues the strategies the reader is using can be inferred (Beebe, 1976). Typically, when miscue analysis is used, readers are asked to read a text which is moderately difficult for them and which they have never seen before. As the reading takes place, the researcher marks the reader's oral miscues on a scoring sheet and the reader is asked to retell the story. The subject's reading and retelling are taped. The scoring can be done from the tape instead of during the reading, thus alleviating some of the stress on the reader. The retelling is scored as a measure of the reader's comprehension of what has been read.

The categories used to class miscues vary from study to study. Some use the taxonomy devised by Goodman or the miscue inventory adapted from that taxonomy by Y. Goodman and Burke (1972). Others have devised their own systems to suit their particular study but are generally based on the same principles as those of Goodman's <u>Taxonomy of Reading Miscues</u>. Cziko (1978) devised a category to include interference of one language by another in children reading in

more than one langauge. Roderiguez-Brown and Yirchott (1983) adapted this taxonomy to accommodate Spanish interference when Spanish-speaking children read in English as bilingual and monolingual children's reading strategies were studied. The Reading Miscue Inventory (Y. Goodman and Burke, 1972) adapted from Goodman's taxonomy is commonly used in the classroom.

Miscue analysis can be used to analyze in great depth the reading of one person, pinpointing the strengths and weaknesses of the strategies being used by that person. It can also be used to identify strategies common to one particular group has in common allowing comparisons to be made between and among groups. The most common comparisons are between good and poor readers or readers of different ages, but the reading of children taught by different strategies has also been compared. Very little has been done to investigate the oral reading strategies of French immersion children reading in English.

While miscue analysis is an improvement on merely counting errors in reading, it is not a perfect system and several writers have criticisms to make. Leu (1982) believed there are methodological weaknesses which need to be overcome. He stated that in general inadequate attention is given to the effect of relative passage difficulty on error type, and that there is difficulty in distinguishing which of several possible sources may have been used in the case

of multiple source errors. He also suggested that the chain of reasoning from oral reading error analysis to the making of instructional decisions is based on inference and assumptions. He stated that one portion of reading behaviour (the errors) is used to infer other reading behaviour (the nature of oral reading processing). This inference is then used to infer the nature of the silent reading process, which is in turn used to determine appropriate classroom instruction.

Groff (1980) criticized oral miscue analysis on the grounds that it equates oral and silent reading, and quoted studies which he claimed suggest that oral and silent reading do not involve the same processes. He further suggested that it is not as objective an assessment as its originators claim it to be. According to Groff, in the retelling section when the tester has to decide on such things as major incidents, key aspects of the story, and the basic sense of the story, inconsistencies can occur among the assessments of observers when listening to the same tape.

Wixon (1979), while recognizing that miscue analysis had made positive contributions to research in reading, also had some criticism to make of this method of assessing the reading process. She believed that there are many variables which affect the oral miscues of readers such as instructional method, the reader's skills and background, the nature of the text, and the conditions surrounding its presentation. She stated that the exact nature of the

relationship between oral reading errors, as measured by miscue analysis, and the reading process remains unclear. Wixon recommended that additional research be done to try to account for the many sources of variance which seem to be operating in the production of miscues, and to compile normative data to guide the interpretation of a particular reader's miscue pattern.

It should be noted that miscues only allow inferences to be made about the strategies, that the reader is using and do not constitute proof. While miscue analysis is not a perfect method of establishing reading strategies as the writers referred to have pointed out, it is the best available at the present time and a considerable improvement on merely counting errors. Miscue analysis has the advantage of assessing reading as an actual story is read under relatively natural conditions in schools today. Research into reading using miscue analysis has promoted awareness of reading as a language process, and it is the entire process that miscue analysis attempts to assess.

Chapter Two

Review of the Literature

Literature pertinent to the study is reviewed in two sections. The first deals with research using miscue analysis and the second with English reading in early French immersion programs in Canada.

Research Using Miscue Analysis

Miscue analysis can serve different needs in reading research and in the classroom. It can be used to identify common strategies used by groups of readers. In an attempt to improve the curriculum of the Kamehameha Early Education Program, Au (1977) analyzed errors made by second grade children in the program. By comparing the types of errors made by good and poor readers in this grade, the researcher was able to suggest what type of instruction might improve the achievement of the poor readers.

The Effect of Reading Programs on Types of Miscues

Miscue analysis can also be used to compare the effects of reading programs on the reading strategies and comprehension of children. Dank (1977) compared the miscues of two groups of second grade children each taught by a different method. Each child's miscues were analyzed using the Reading Miscue Inventory devised by Y. Goodman and Burke (1972). It was found that the children's miscues reflected the type of instructional strategies they had received. The group which was taught by an instructional approach which emphasized letter-sound correspondences produced more non-

words, had fewer omissions, and scored higher in graphic and phonic similarity than the group taught by an integrated reading-language approach. In contrast, those taught by the integrated approach had more contextually constrained errors and understood more of what they read. Dank concluded that for these second grade children oral reading deviations showed a resemblance to the emphasis of the reading instruction they had received.

On the basis of the miscues of the small group that were studied, Dank's conclusion seems to be reasonable, but only ten children from each program were studied and this is much too small a sample to allow her findings to be generalized to a wider population. The subjects were selected randomly and no attempt was made to match subjects between the groups. The age range of the children is reported but no other information is given such as their reading ability or background. Factors other than method of instruction could have affected the results.

While the results of Dank's study cannot be generalized, other results support her findings. Norton and Hubert (1977) compared the oral reading strategies of 60 first grade students being taught to read by an eclectic basal approach to 60 similar students being taught to read by a phonics approach. The Reading Miscue Inventory of Y. Goodman and Burke (1972) was used and the results were similar to those of Dank (1977). It was found that children taught

by a predominantly phonics approach to reading had higher numbers of miscues with high graphic proximity, and with high phonic proximity. More non-words were produced by this group. In contrast, the group taught by an eclectic approach had a higher number of miscues which were semantically acceptable and a higher number which were syntactically acceptable. This group also had more self-corrections. Norton and Hubert stated that instructional programs emphasizing phonics produce more students who have higher word recognition scores than comprehension scores, and vice versa, in the programs which used an eclectic approach.

A comparison of studies by Weber (1970), Cohen (1974-75), and Biemiller (1970), each using miscue analysis to diagnose the strategies the children were using, also upheld Dank's findings that the type of reading instruction the child received affected the miscues produced. These three researchers studied Grade 1 classes as they learned to read.

Weber analyzed reading errors made by a Grade 1 class as they learned to read in order to determine from the correct features of these errors what strategies the children were using to identify words. The class was taught using a basal reader with the word as the basic unit, then the sentence, and finally, during the second half of the year, some letter-sound correspondences were introduced. Errors made by the good readers were compared to errors made by poor readers and errors made early in the year were

compared to those made late in the year. Weber studied twenty-one children who had been divided by the teacher into four ability groups. The top two groups comprised Weber's group of good readers and the other two groups were considered the group of poor readers. Errors were classified as units of words in terms of omission, substitution, insertion, and regression or scrambling. Her analysis concentrated on errors insofar as they reflected failure to recognize letter-sound correspondences or to use grammatical or semantic context.

The results of the study show that substitutions accounted for 80 per cent of the errors, insertions and omissions for 10 per cent each, and that regressions or scrambles were rare. From the beginning of the year to the end, the only noticeable shift in distribution was an increase in omission errors and a decrease in substitution errors. Using a graphic similarity index which she devised, the extent to which a substitution approximated the printed word was calculated. It was found that the better readers more closely approximated the printed word than did the poor readers. At the syntactic level it was found that 91 per cent of the errors were syntactically acceptable and there was little difference between the good and poor readers. In both groups about 66 per cent of the errors were semantically acceptable.

Weber concluded that the readers used what information they had available to them. She found that they seemed to know the structure of language and expected what they read to conform to it. Most semantic errors were appropriate, which Weber suggested demonstrated that they transferred their ability to use spoken language to the reading task.

There are some criticisms that can be levelled at Weber's study. The graphic similarity index was based on the letters shared by the error and the expected response. These were weighted before a score was calculated. This weighting seems to be intuitive on Weber's part and needed to be justified. The recording of errors was not done under controlled conditions and children read varying amounts of material. As a result standard statistical tests could not be used. She categorized children as good or poor readers after they had been in Grade 1 for only one month and used only the teacher's estimation of their reading abilities which was based on their pre-reading performance. It seems inappropriate that children, especially the average children, could be divided so rigidly. Results at the end of the year show that only one child in the high group was reading below grade level while all in the low group were reading at or below grade level. This suggests that the teacher's treatment of the two groups may have had some effect. It is also possible that the results were affected by the instruction each group received but this information is not report-

ed. Weber said only that each group progressed at its own pace.

Biemiller also studied a group of Grade 1 children being taught to read by a whole word approach, to try to establish changes children made in their use of graphic and contextual information as they learn to read. During the school year observers were supposed to observe each reading group once a week, but the observations ranged from 8 to 42. The total number of errors ranged from 12 to 114. Deviations from the text were classified as non-response errors, substitutions, insertions, or omissions. Use of contextual information was inferred if an error made sense semantically and grammatically in terms of the preceding part of the sentence. Use of graphic information was inferred if the first letter of the substitution was the same as the expected response.

Biemiller predicted that the children would pass through three stages. The first he called pre-non response (pre-NR) and was characterized by a reliance on predominantly contextual information. The second stage he called non response (NR). In this stage, Biemiller suggested that the child concentrates on decoding and temporarily abandons the use of contextual information. It is followed by the post-non response (post NR) stage and at this time the child uses both contextual and graphic information. He concluded that all children learning to read using contextual material

follow a similar pattern of these three phases. Biemiller theorized that to begin with children use the knowledge they have of language and therefore rely on contextual cues. When they begin to use graphic cues, NRs are common until they learn to integrate graphic and contextual cues.

Biemiller found that there was an increase from 19 to 39 per cent in graphic substitutions from pre-NR to NR stages, suggesting that the child's concentration on graphic cues and non responses are linked. In the post-NR stage graphic errors dropped to 15 per cent. At this stage the biggest shift was towards errors that used both graphic and contextual information and non response errors decreased. Biemiller theorized that the first stage is characterized by the use of contextually constrained errors because the child can use words that have been learned aurally rather than graphic skills not yet mastered. As it becomes apparent to the child that a spoken word is represented by one set of symbols, the child attends closely to each word. Eventually the child's efficiency in using graphic cues increases to the point where there is attention to spare for contextual information, and both can be incorporated in reading. The children in this study were from different backgrounds and were of different abilities but all appeared to be progressing through the same stages, although at different rates.

This study can be criticized on several grounds. The number of observation varied from 8 to 42 and the number of

errors varied from 12 to 114. The number of errors per observation was not reported so the reader does not know if a low number of errors was related to a low number of observations or, if a child was only observed eight times during the year, how these observations were distributed over the year. He did not explain the method of reading instruction used in these classrooms or even report if they were similar. The reader was referred to an unpublished manuscript for this information. Biemiller's terms were not well defined. The idea of non response errors was dealt with in one sentence, "the child stops reading before a word it is assumed he does not know" (p.81). This statement needs to be elaborated upon. From the figures given Biemiller's idea of the three stages beginning readers pass through seems to be valid but this study needs to be replicated before any definite conclusions can be drawn.

In contrast to the above two studies Cohen (1974-5) set out to find trends in error type, use of graphic information, and grammatical information when beginning reading instruction emphasized the letter-sound associations and their blends. The classes chosen for the study were taught by sequential teaching of all letter sounds within a whole class instruction format. The children were taught to associate the letters with their sounds and then blend them in the context of a phonetically consistent vocabulary. Each child was tested in the first or second week of each

month and the top quartile was considered the group of good readers while the bottom quartile comprised the group of poor readers. She used a modified version of Biemiller's category system to assess the children's reading The modification was necessary because of "sound out" and "nonsense" errors which seemed to be typical of children being taught by a phonic approach. At first NRs predominated; then the good readers made mostly nonsense errors before word substitutions became the most common error. Cohen related this pattern to the type of reading instruction the children were receiving.

Cohen stated that good and poor readers enter school able to use semantic and syntactic information, but good readers learn to integrate the use of graphic information also. She believed that the shift from no response to nonsense and word substitution errors is a demonstration of the child's growing efforts to deal phonetically with written language. Good readers made the highest percentage of nonsense errors in the first few months; which then declined to a very low level. Poor readers made an increasing number of nonsense errors and then reached a plateau.

This study was well constructed and analyzed. One criticism that can be made is the failure to link the teaching of the reading strategies to the reading performance of the subjects. Any change in reading strategy used by the children could possibly have been a result of new informa-

tion that the reading instruction had made available to them. Had Cohen reported the presence or absence of such a link, more information would have been produced.

From the three studies quoted above it appears that the teaching strategies used by the teacher affect the type of errors the children will make as they learn to read. Cohen reports almost no omission or insertion errors but in Weber's study they accounted for 20 per cent of errors. These results uphold those of Dank (1977) and Norton and Hubert (1977).

Children taught by a code emphasis approach make more graphically constrained miscues initially, while children taught by a whole language approach make more contextually constrained errors. One question that should be raised is the type of material the children were asked to read. Were the children taught by a code emphasis approach asked to read only text produced for such programs, or who were they given material where context cues were available to them? Similarly, were the children who were taught by a whole language approach given a text in which there were few contextual cues?

The Effect of Development of Reading Skills on Miscues

Burke (1976) used miscue analysis to try to determine the reading strategies used by children as they develop their reading skills. In this study six children age 7, 8, and 9 were selected at random from twelve primary schools

and all were asked to read the same story. Miscues were then scored according to their graphic, syntactic, and semantic acceptability. According to Burke the results showed that semantic and syntactic miscues increased substantially with age, demonstrating that in the reading of connected material syntax and meaning play an increasingly important role. The graphic category showed a U-shaped trend across the age groups, with a statistically significant decrease in graphic miscues at age 8, followed by a statistically significant increase at age 9. No explanation for this trend is offered.

This study provided useful information on the changing strategies of readers as they develop their reading skills. One variable was not controlled and that was the difficulty of the text. Children of 7, 8 and 9 all read the same text. The possibility that the different strategies used at different ages might be caused by text difficulty and not stage of reading development is not considered by Burke. While both this study and Biemiller's study described above deal with the development of children's reading skills they cannot be directly compared because each deals with different time spans.

In addition to comparing the miscues of readers taught by different methods, the miscues of children of different ages can be considered. Beebe (1976) used Y. Goodman and Burke's Reading Miscue Inventory (1972) in her study of two

good readers from Grade 4 and two good readers from Grade 2. The study attempted to find the most prevalent category of miscues in each group, and the extent to which the type of miscue affected each reader's comprehension. Three major findings resulted from this study. The percentage of miscues was higher for the Grade 2 subjects than the Grade 4 subjects. Beebe stated that this suggests miscues are a natural part of learning to read. She believed that beginning readers are not as efficient as mature readers at eliminating alternative guesses and consequently check quesses more often, regressing to correct more often also than mature readers. A higher percentage of the miscues made by the Grade 4 children were grapho-phonetically similar to the expected response than were the miscues of the Grade 2 children, which suggests, according to Beebe, that the widely held belief that beginning readers rely heavily on graphic cues is not upheld. She also stated that the Grade 4 children were moderately effective in their use of reading strategies while the Grade 2 children, who were almost a year apart in age, varied considerably in their ability to use such strategies effectively. Beebe suggested that this is because as maturation progresses, reasoning and thinking abilities also progress.

This study was well constructed and evaluated but there are two criticisms that can be made. The major criticism of it would be the size of the sample. While each child's

miscues were studied in depth, it is hard to accept that a sample of two children from each grade could fulfill one stated purpose of the study which was, "to determine whether Grade 2 and Grade 4 pupils interact with reading materials in different ways" (p.51). Because of the small sample, the findings on the comprehension of the subjects could not be generalized to a grade level, and each child's performance was considered in isolation. This contributes to the field of knowledge but by itself is of limited value. The second criticism is that the difficulty of the passages each pair of children read was not discussed. A piece of text which is relatively more difficult than another could well produce different miscues even from the same child. While it is a difficult variable to control, it should have been mentioned in the article.

Miscues Made by Good and Poor Readers

Billard (1984) studied good and poor readers to assess similarities and differences in the reading strategies of each. Five poor and five good readers from Grade 4 were studied using the Reading Miscue Inventory (Y. Goodman and Burke, 1972). It was found that poor readers produced more graphic miscues than did the good readers but both groups used graphic cues extensively. It was also found that good readers used more syntactic and semantic cues than did the poor readers. The good readers made more corrections and produced fewer miscues which resulted in meaning change than

did the poor readers. This study was well designed but the relative difficulty of the reading material was not taken into account in the discussion. While it is a very difficult variable to control it is possible it has an effect on the results.

Weber (1970), in the study discussed above, compared the miscues of good and poor Grade 1 readers taught by the same approach. She found that both groups used semantic information to the same extent and syntactic information to the same extent. A difference was found in their use of graphic cues. The graphic miscues of the good readers more closely approximated the printed word than did the graphic miscues of the poor readers.

Brody (1973) also used The Reading Miscue Inventory of Y. Goodman and Burke (1972) to determine whether qualitative differences exist in the reading of good and poor readers at Grade 4 level. Three good readers and three poor readers, all of whom were reading at a Grade 4 level, were tested. Brody found that the poor readers made more miscues and showed less efficient use of graphic and phonic cues than did the good readers. During the first third of the text the poor readers used semantic and syntactic cues as efficiently as the good readers but in the rest of the text this use declined markedly.

Use of Self-Correction, Semantic and, Syntactic Cues

Some research has focussed on one of the aspects of miscue analysis. In a study comparing third grade, sixth grade, and college students Schwantes, Boesl, and Ritz (1980) attempted to assess differences in rates of word identification when differing amounts of contextual information were made available to the subjects. It was found that the youngest readers' rates of word recognition were affected to a much greater degree than the other subjects. The authors suggested that this indicated that by third grade readers rely more heavily on contextual information than do adults. Schwantes, Boesl, and Ritz also suggested that adult readers have a greater facility with automatic word recognition than do children and this may have had a effect on the results.

West and Stanovich (1978) conducted a similar study using fourth grade children, sixth grade children, and adults. The results of this study are similar to those of Schwantes, Boesl, and Ritz. According to the authors, sentence context did affect the reading performance of all the subjects, but the more fluent readers used rapid word recognition more than did the less fluent readers.

The two studies just described, while producing useful data, did not assess reading in a relatively normal situation. The test material was a series of unrelated, very short sentences. While the subjects did have some context

to use, it is a different situation from reading continuous, coherent text where more syntactic and semantic cues are available from the reading material.

The effect of semantic context on children's word recognition was investigated by Schvaneveldt, Ackerman, and Semlear (1977). The subjects were 24 second grade and 24 fourth grade children who were asked to decide if a word flashed on a screen was a word or a non-word under two conditions. In the first the words were presented in unassociated pairs and in the second in associated pairs. It was found that when the child's knowledge is assured by using simple pairs which even the youngest child can be expected to know, the effect of semantic context on word recognition for younger readers is at least as great as it is for older and better readers.

Thompson (1981) also considered the semantic aspect of the reading of young children but in contrast to the study described above, he used continuous text with differing amounts of semantic information. Twenty-four children age 6.5 years read each of two passages. One was text from a basal reader and the other was also from a basal reader but the text was altered to be syntactically but not semantically correct. The children were warned that the text might seem silly to them. Reading time and errors of oral reading were used as measures of performance. The reading of normal text was faster and had fewer errors than the text with low

semantic constraints, which suggested, according to Thompson, that these subjects were using semantic cues as they read continuous text.

Thompson did not evaluate the errors which the children made but merely counted them. The results would have been improved if the types of errors that were made had been evaluated. Not all errors are equally important in the child's reading. This study upholds the results of that done by Schvaneveldt, Ackerman, and Semlear already discussed. Both show that young children use semantic information as they read.

Clay (1969) investigated the self-correction behaviour of 100 five-year-old beginning readers assessed weekly over the school year, and found that the children were able to respond to dissonance or consonance in the syntactic and semantic aspects of language. The good readers made many errors but these were surrounded by large quantities of correct responses. Clay stated that the long stretches of context with a full measure of syntactic, semantic, and story sequence cues provided a detailed background to the error when it occurred. These children then became progressively better at self-correction.

Recht (1976) also addressed the question of self-correction strategies but in this study the subjects were forty-seven children in Grades two, three, four, and six. Each subject read a 250 word passage and then was given a

cloze test on it. The study analyzed the successfully corrected miscues made by the child and compared them to the child's comprehension, grade level, ability, and total number of mistakes. It was found that all readers corrected some of their mistakes but the number varied. Recht claimed that correction was a skill which became more efficient as the reader's ability, comprehension, and grade level increased. Proficient readers made fewer miscues and corrected more of them than did less proficient readers; this supports the findings of Clay discussed above. The miscues most likely to be corrected, according to Recht, were those that interfered with comprehension, suggesting that the proficient readers are concerned mainly with meaning.

Beebe (1980) tested 46 Grade 4 boys using a modification of the Reading Miscue Inventory (Y. Goodman and Burke, 1972) in an attempt to determine how different types of miscues affected their reading comprehension. The three types of miscues studied were corrections, syntactically-semantically acceptable miscues, and syntactically-semantically unacceptable miscues. Beebe found that in general, as the number of substitutions increased, the comprehension and retelling scores decreased. But as the number of acceptable or corrected miscues increased so did the comprehension and retelling scores. Beebe claimed it was obvious that only unacceptable miscues were detracting from understanding and successful retelling. This study

demonstrated that correction is a necessary strategy for comprehension.

From consideration of the above studies some conclusions can be drawn.

1. There is a general consensus that all readers make miscues which can be categorized as grapho-phonic, syntactic, or semantic. Not all readers make the same proportions of the various types of miscue but it should be possible to identify similarities within groups of readers.

2. The type of reading instruction used is likely to affect the miscues made by beginning readers. Those taught by a code emphasis approach tend to make more nonsense errors, more grapho-phonic miscues, fewer syntactic and semantic miscues, and gain less meaning than children taught by a whole language approach.

3. The age and stage of reading development of the reader will affect the types of miscues made. There is no consensus on what these miscues are. Some claim the young reader relies more on grapho-phonic information and others claim that the young reader relies more on contextual information than the older reader. Obviously more studies are needed to determine which variables are responsible for the discrepancies in findings.

4. Good and poor readers make different miscues, but again there is dispute about exactly what these differences are. Not enough information is available on readers of

different ages and levels of reading ability to reach a conclusion.

English Reading in Early French Immersion Programs

One of the most radical changes in education in Canada in the last twenty years has been the introduction of immersion programs to the public school system (Stern, 1978; Cummins, 1983). Early total immersion, with which this study is concerned, involves all instruction in the first two, three or four years of school being in a second language. The distinguishing feature of such programs is the opportunity given to the children to learn the French language through its use rather than by explicit instruction. English language arts are usually introduced in Grade 2 or 3, leading to about 50 per cent of instruction in English by Grade 6. Reading is introduced in French in Grade 1 (Cummins, 1983).

The first early total French immersion program in a public school system in Canada was begun in St. Lambert, Quebec in September, 1965 and the aim of this program was to promote functional bilingualism in English speaking children (Lambert and Tucker, 1972). Because of the concerns of parents and educators with regard to the possible negative effect on the linguistic, intellectual, and attitudinal development of the children, this program was evaluated from the beginning by Professor W.E. Lambert, head of the Language Research Group at Mc Gill University and other members

of that group (D'Anglejan and Tucker, 1971). The English reading evaluation was taken from the Metropolitan Achievement Tests (1959) and attempted to establish the achievement levels of the children in word knowledge, word discrimination, and reading skills. The tests were also administered to an equivalent group of pupils who were in a regular English program (Lambert and Tucker, 1972). The results were summarized by D'Anglejan and Tucker (1971) who state that the testing revealed no retardation in English language skills after Grade 4.

Swain and Lapkin (1982) synthesized the research that had been done by the Bilingual Education Project which had been concerned with French immersion programs in the Carlton, Ottawa and Toronto Boards of Education. In their overview they stated that the most common tests used to measure English reading achievement were the Metropolitan Achievement Tests, The Canadian Tests of Basic Skills, and The Peabody Picture Vocabulary Test. They also reported that a clear pattern can be discerned in the results of the studies. From kindergarten to Grade 3, French immersion students lag behind their English peers in some aspects of English language skills, but by the end of Grade 5 the immersion students score as well as, or better than, monolingual students on all aspects of English language arts as measured by standardized tests, with only a few isolated exceptions.

An overview of the research that has been done on the French immersion programs of the Protestant School Board of Greater Montreal was presented by Genesee (1978-9). He concluded that in achievement tests on English language arts the results show French immersion students scored lower than their English counterparts in kindergarten, Grade 1, and Grade 2. Generally, by the end of Grade 3 the French immersion children had achieved parity with the children in the regular English classes in all English language skills except spelling. By Grade 5 parity had been reached.

Genesee, Holobow, Cleghorn, and Walling (1985) reported on the impact of education in French on the English language development of anglophone children. Four groups of Grade 4 children were studied. One was a group of twenty anglophone children in a regular French school, the second was a group of thirty children who entered French immersion in Grade 4 and acted as the control group, the third group was of twenty-three early French immersion children, and the fourth was of twenty-six francophone children. The first three groups were tested, using sub-tests of the Canadian Achievement Tests (1981), to measure their achievement in reading and spelling. By the end of Grade 4 there were no significant differences in the three groups except for spelling, in which the two early French immersion groups scored below the late immersion group.

The consensus of opinion from the studies described above is that children in early total French immersion programs tend to lag behind their monolingual English counterparts in reading abilities until instruction in English language arts begins, after which the French immersion students rapidly catch up to, and frequently surpass the levels of their peers. Swain and Lapkin (1984) surveyed the research done up to 1983 and pointed out that, while results from one study can only be generalized to other students in that school board, for early total immersion the pattern of results has been so consistent in programs across Canada that the limited generalizability of each study is outweighed by the consistency of the results.

The ability of French immersion pupils to read in English before instruction begins, and the rapidity with which they learn to read in English, raises interesting questions. Some researchers suggest that one possible explanation is that parents, concerned about the lag in English reading, teach their children to read in English at home (Cummins, 1977; Barik and Swain, 1976; Chmilar, Kendall, and Obadia, 1984). Others suggest that the ease with which most children in early French immersion programs read in English is because they are transferring skills from French to English (Lambert and Tucker, 1972; Tucker, 1975; McDougall and Bruck, 1976; Genesee, 1979; Cummins, 1983).

Kendall, Lajeunesse, Chmilar, Shapson, and Shapson (1987) investigated the transfer of skills from French to English as part of a larger study of the English reading skills of kindergarten, Grade 1, and Grade 2 children. They found that the reading instruction in the French immersion classrooms concentrated on translating print to sound because the children's French language skills are not thought to be good enough to enable them to use context cues. The graphophonic skills are transferred to English reading and the children can incorporate their knowledge of the English language with them.

The testing discussed so far in relation to longitudinal studies measured achievement in reading, and did not try to detail what strategies the children were using as they read or how these strategies might change as instruction in English reading proceeded. These studies have measured the product and have not considered the process by which it has been achieved.

As part of the longitudinal study by the Bilingual Education Project of the Ontario Institute for Studies in Education to examine innovative bilingual education programs in Ontario, cloze tests were used to measure the children's language proficiency. The errors made by 91 Grade 5 French immersion children were compared to those made by 108 Grade 5 children in the regular classroom. The quality of errors made was judged by considering the following questions:

1. Was the number of errors the same for both groups?

2. Were the errors were of similar types (e.g. using an incorrect item, failing to respond, using an inappropriate part of speech, etc.)?

3. Did both groups have the same relative difficulty with the various parts of speech?

No significant differences were found between the groups either in the quality or the quantity of the errors (Lapkin and Swain, 1977).

In 1984, Chmilar, Kendall, and Obadia studied 50 French immersion and 56 English monolingual Grade 1 students to examine the strategies they used to read in English. The reading and decoding was based on McCormick and Mason's Language and Word Reading Test (1981) and Raucher's Language and Word Reading Test (1982). An oral reading and comprehension test was included and an examination of the French immersion children's reading errors was done to try to establish what reading strategies they used. It was found that the French immersion children did not read English as well as the English group. Twenty-four per cent used similar strategies to those used by the English children when reading in context, twenty-two per cent used only French decoding strategies, giving English words a French pronunciation, thirty-eight per cent used pre-reading strategies, and sixteen per cent had no reading skills in English or French.

In their investigation of English reading skills of 46 French immersion and 47 children in the regular English program as they passed through Kindergarten, Grade 1, and Grade 2, Kendall, Lajeunesse, Chmilar, Shapson and Shapson (1987) used McCracken's Standard Reading Inventory (1966) to assess oral reading and comprehension. By Grade 2 only nine French immersion children were unable to read at the pre-primer or primer level and only two of those used French decoding skills to try to read in English. The other seven used initial letters to produce an English word and the majority of their errors were substitutions. None of the children who read at a Grade 1 level used French decoding skills. "They seemed to be able to use English grapho-phonic skills well enough so that, in combination with context, they read meaningful English text" (p.22).

In the continuing investigation into the English reading of French immersion children, attention is turning from measuring only their achievement to examining the strategies they use also. Testing reading ability using standardized tests such as the Metropolitan Achievement Tests or Canadian Tests of Basic Skills has shown that the French immersion children frequently score higher on these tests than do children in the regular English stream. As has been discussed above, researchers have speculated that learning in French reading is being transferred to English reading, but exactly what is being transferred cannot be deduced from

tests designed to test achievement only. A few studies have compared the reading strategies of children in the regular English program to those of French immersion children reading in English, in attempts to find out what strategies are being employed as the children learn to read. But few studies have used miscue analysis as a methodology.

Dank and McEachern (1979) used miscue analysis to investigate the reading strategies of ten Grade 3 French immersion pupils and a similar number in a traditional program. The investigators hypothesized that there would be no qualitative difference between the two groups and that the French immersion group may be more effectively utilizing phonic, semantic, and syntactic cues during oral reading. Ten French immersion Grade 3 subjects and ten subjects from a traditional English language class were chosen randomly. There was a similarity in the socio-economic status of the parents and all the subjects were considered by their teachers to be normally intelligent.

Each subject was asked to read aloud the same piece of text and then retell the story in his or her own words. The Reading Miscue Inventory (Y. Goodman and Burke, 1972) was used to assess the miscues. The results showed that the French immersion group used graphic and sound cues slightly more accurately as measured by the comparison of the degree of similarity between the observed and expected responses, than did their English counterparts. They also used seman-

tic and syntactic cues more effectively than the English group. The French immersion children used correction strategies more effectively than did the others. They generated more semantically acceptable miscues, corrected their miscues more often, and altered the meaning less, thus demonstrating that their reading comprehension was qualitatively better than the English group.

The French immersion children were more fluent at recounting the theme than the English group. The authors concluded that, based on these results, the French immersion group was quite proficient at inter-relating graphophonemic, syntactic, and semantic cues; thus they were able to extract meaning from print, which the authors consider to be the primary purpose in reading.

This study was well constructed and executed but there are some flaws. An important variable that was not considered in this study was any differences in the type of reading instruction each group had received, and if teaching strategies were the same in English and in French for the French immersion group. As was demonstrated in the studies of Weber (1970), Cohen (1974-5), Biemiller (1970), Norton and Hubert (1977), and Dank (1977) described above, the type of reading instruction does seem to affect the miscues the child produces. There is some indication that French reading strategies are transferred by French immersion students to English reading (Kendal, Lajeunesse, Chmilar, Shapson,

and Shapson, 1987), but this was not considered in the study. Neither is it reported when, or if, reading instruction in English had been introduced to the French immersion children when the study took place. The stage of Grade 3 these children had reached is not reported, and this is important if reading instruction in English for the French immersion group began in Grade 3, as it does in many French immersion classes.

While the English reading achievement of early French immersion children is well documented and demonstrates that they are not retarded for long in their reading skills, little has been done to try to establish why this is the case and why they catch up so quickly to children who have had many more hours of reading instruction in English. It has been established that children enrolled in the French immersion programs in Canada read at least as well as their peers in the regular English programs. The product is important but the process is at least equally important if the reading of these children is to be fully understood. What needs to be investigated now is how anglophone children, initially taught to read in French, tackle the reading task in English.

Although interest has been shown in the reading of early French immersion children as yet there has been no published work which examines how their reading strategies change once formal instruction in English reading begins.

Comparisons have been made to the reading of children in the regular English programs. As yet, no research has been done to investigate changes in the reading strategies of children in early French immersion programs as they are formally taught to read in English.

The present study seeks to establish the following:

1. As the reading instruction these children receive changes in emphasis, changes occur in the types of miscue.

2. These children become more efficient readers as formal instruction in English reading proceeds. Changes in miscue patterns are expected to reflect this increased efficiency.

3. The children will not rely entirely on graphic and phonic cues but will use whatever strategies they have available, including semantic cues, syntactic cues, and self-correction strategies. Thus they will conform to the interactive-compensatory model of reading.

4. Because the children learn to read in French before they do in English, there will be some transfer of French phonemes, but it is anticipated that their number will decrease as reading in English becomes more proficient.

Chapter Three

Methodology

Introduction

Because this study was concerned with the strategies the children were using, and not only with achievement, the reading strategies of a small number of children were studied in depth using the Reading Miscue Inventory (RMI) constructed by Y. Goodman and Burke (1972). The study was necessarily a descriptive one, as the small number of subjects precluded the use of inferential statistical analyses.

Subjects

The subjects for this study were eleven Grade 3 French immersion children attending school in St. John's, Newfoundland. Because this was an exploratory study, as homogeneous a group of average children as possible was studied on the grounds that they are the most typical of Grade 3 early French immersion children. The subjects were chosen on the basis of their scores on the Gates-McGinitie test of English reading which was administered at the end of Grade 2, and on the recommendation of their Grade 2 teacher that these children were reading at grade level. The class teacher reserved the right to exclude some children from the study on the basis that they would be unlikely to cooperate. At the end of Grade 2 the reading level of the eleven subjects chosen for the study ranged from 1.9 to 3.2 with seven children between 2.4 and 2.8. Two children subsequently had

to be dropped from the study because the text they were asked to read was at their frustration level.

Context

The children in the study were enrolled in the early French immersion program of the Avalon Consolidated School Board. Reading instruction in French began in Grade 1. In Grades 1 and 2 the Le Sablier reading scheme was used, which included the Tic Tak Toc and Moustique series of books. These books were supplemented by the D'Un Mot A L'Autre reading books and levels one and two of the SRA reading lab in French. The Tic Tac Toc books in the Le Sablier series are based on a phonic approach to reading. Each sound is colour-coded and corresponds to a line drawing representing a word containing that sound. Books in the Moustique series have a controlled vocabulary and, while each phrase is related to the large colored picture on the page, the words can almost all be deciphered using the phonemes contained in the Tic Tac Toc series. Books in the D'Un Mot A L'Autre series lend themselves more to the use of contextual cues but again most words can be dealt with phonetically. The Grade 2 French teacher stated that she incorporated phonic and contextual reading instruction stressing context whenever possible (M. Greene, personal communication, Oct. 1, 1986). In Grade 3 English language arts these children had one teacher from Sept. 7, 1986 to Jan. 11, 1987, a substitute teacher from Jan. 12, 1987 to Mar 12, then the

original teacher again. The children had 45 minutes of English language arts instruction per day. The first teacher believed that the children were weaker in writing than reading and so concentrated on reading through writing. The reading scheme used was Treat Street and Wondertime with the accompanying workbooks but not the skill books. Supplementary materials were the SRA reading laboratory, which was used every fourth day of the six-day cycle, and library materials which suited the current theme. This teacher regards phonics as one small part of reading and not the major emphasis, but felt that some children needed extra help with phonics. Two of these children were part of this study. For these children the teacher prepared individual workbooks to suit the problems each was having. She stated that her first concern is with meaning and that she is concerned that the children read at an appropriate pace, in appropriate phrases, pay attention to punctuation, and read with expression. When children are unable to read a word she suggests that they sound the first few letters, then re-read the sentence (S. Harvey, personal communication, March 31, 1987).

The second teacher holds a similar view of reading instruction. She used a thematic approach and spent most of the language arts instruction time on reading activities. She emphasised context and dealt with such items as root words and endings as they came up. New words were always

introduced in context first. All stories read by the entire class were read silently first and then discussed (M. Parsons, personal communication, March 23, 1987).

The Testing Procedure

All subjects were tested individually using the RMI (Y. Goodman and Burke, 1972). Each subject was tested in the first week of October, 1986 and again in the last week of March, 1987. On each occasion the researcher asked the student to read an unfamiliar and relatively difficult story while being audio-taped. The first story was selected with the assistance of the class teacher and the Grade 3 English language arts teacher. The story conformed to these guidelines:

1. It had a discernible plot and theme.

2. The story was unfamiliar to the children but contained no new concepts and situations.

3. The story was difficult enough to generate at least 25 miscues but not so difficult that the child could not continue unassisted.

The story selected for the first testing was The Roundhouse Cat (Gould and Teague, 1972) which was at the Grade 3 reading level. The story selected for the second reading was The Raccoons That Rocked a Cradle (no author, 1967) which was at the Grade 4 reading level.

Before the child was asked to read each time, the researcher explained that the child would be supplying

information about how he or she reads and that there was no question of passing, failing, or being graded. The child was told that he or she would be asked to read a story and when he or she was finished to tell what the story was about. The subject was also told that the researcher could not help in any way if the child had a problem with a word. It was suggested that if this happened the child guess, try to work it out, use any other way that might be useful, and, if completely stuck, skip the word altogether. It was also explained that the session would be audio-taped.

After the child had finished reading and had retold as much of the story as possible, the researcher then asked questions, but supplied no more information than the child had already provided. The retelling is a measure of comprehension and is scored under the headings of character analysis, events, plot, and theme with a possible total of 100 points.

From the audio-tape the tester recorded the first twenty-five miscues made by the child and scored the retelling according to the method suggested by Y. Goodman and Burke (1972). As a measure of the accuracy of the coding and scoring, a second researcher coded and scored ten per cent of the miscues chosen at random and these were in agreement with the first reseacher's findings 88.4 per cent of the time. In order to verify instances of French language interference a bilingual person listened to all the

miscues designated by the researcher as French interference with English reading, and the two were in agreement 95 per cent of the time. In addition two of the nine tapes were chosen at random and the bilingual tester found no more miscues suggesting French interference with English reading than the original researcher had coded.

The Instrument

The data collected was analyzed using the RMI of Y. Goodman and Burke (1972). The following are the nine RMI questions:

1. Is a dialect variation involved in the miscue?

2. Is a shift in intonation involved in the miscue?

3. What is the graphic similarity of the miscue to the expected response?

4. How similar is the sound of the miscue to the expected response?

5. Is the grammatical function of the miscue the same as the grammatical function of the expected response?

6. Is the miscue corrected?

7. Does the miscue occur in a structure which is grammatically acceptable?

8. Does the miscue occur in a structure which is semantically acceptable?

9. Does the miscue result in a change of meaning? (pp. 49-50).

Question 1: Dialect.

Dialect miscues can be variations of sound, vocabulary or, grammar. Once the miscue has been marked as having dialect involved, all other miscues are scored with this in mind. When considering the grammatical and semantic acceptability of the miscue it should be within the context of the structure of the reader's dialect. As Goodman and Burke (1972), express it, "the issue, as it relates to reading, is the gaining of information and meaning - not the use of an approved dialect" (p.50).

Question 2: Intonation.

Intonation miscues are direct clues to the reader's processing of the language units and involve changes in pitch, stress, or pause from those that the text implies. The only time that intonation should be coded as a miscue is when it causes changes in the grammatical structure or meaning of the text. If the original intonation miscue causes confusion in the surrounding text items, causing them to change their grammatical function, the changes are coded as part of one complex miscue.

Questions 3 and 4: Graphic and Sound Similarity.

Readers can anticipate an item or analyze an unknown word either by recognizing the print as similar to a known word or assigning sounds to letters and letter combinations. In the RMI these are marked separately. Graphic and sound similarity are only coded when a single word or non-word is

substituted for a single text item. The expected response and the actual response are divided into three parts. The miscue is scored as having a high degree of similarity if two of the three parts of the miscue are similar. If one of the three parts is similar then it is scored as having some degree of similarity but if none of the three parts is similar, then it is scored as having no degree of similarity.

Question 5: Grammatical Function.

The variety of grammatical functions that can fit in any given position in a sentence are limited. Readers use their knowledge of the grammatical restrictions of their language to anticipate text. This category is marked only if the miscue involves the substitution of a single word or non-word. The actual and expected responses are compared to determine if the grammatical function of the two are the same. Occasionally the miscue will be too short or disrupted to determine the function.

Question 6: Correction.

When readers correct a miscue, the amount of text that is reread can suggest the size of language units that are being processed and the cues which cause the reader to correct. In addition, when corrections are examined in conjunction with grammatical and semantic acceptability, and with meaning change, the reader's ability to correct and the

reader's judgement as to which miscues should be corrected are indicated.

Questions 7 and 8: Grammatical and Semantic Acceptability.

The meaning of a sentence is limited by the grammatical structures of the language, but a sentence can be grammatically acceptable without having an acceptable meaning. When considering grammatical acceptability, the focus should be on the reader's ability to cope with the structure of the text sentences. Miscues can occur in grammatically acceptable sentences which differ from the text meaning. The semantic acceptability of the reading focusses on the extent to which the reader is producing understandable structures. Miscues can occur within semantically acceptable sentences which differ from the text meaning. Burke and Goodman (1972), stress that, "Because semantic structure is dependent on grammatical structure, semantic acceptability should never be marked higher ... than grammatical acceptability" (p.60).

Question 9: Meaning Change.

This question is the most important one of all, according to Y. Goodman and Burke, because it measures how much of the message of the text is altered by the reader's miscues. The degree to which the author's intended meaning is changed by the miscue is gauged as no change, minimal change, or an

extensive change. When assessing the meaning change only the miscue being coded should be read.

Analysis of the retelling

The retelling was scored under the following four headings: Character analysis, Events, Plot, Theme.
The researcher developed an outline of the story the children were to read using these categories. The child's retelling of the story and the outline were compared by assigning the child's information to the appropriate category.

Character analysis is divided into recall of the characters and development of the characters. Such information as the attitudes and feelings of the characters, their behaviour, and their relationship with other characters were considered. This category is assigned a maximum of 30 points. In the category of "events" the actual happenings as they occurred were considered. There is a maximum of 30 points assigned to this category. "Plot" deals with the plan upon which the sequence of events was organized and was assigned a maximum of 20 points. The category of "theme" deals with the generalization, truism, viewpoint, or perspective of the story and is assigned a possible 20 points. From the analysis of the first twenty-five miscues and the assessment of the retelling a detailed profile was compiled of the readings of each subject.

The RMI of Y. Goodman and Burke was used in this study but because the children have been taught reading initially

in French one more category of miscue was added. It was expected that some miscues would involve the interference of French language learning with reading in English, and a category was devised to accommodate such miscues. The tenth question to be answered was: "Does the reader use French pronunciation or syntax for English text?" This question is adapted from the coding system used by Roderiguez-Brown and Yirchott (1983) to compare the miscues of Spanish-speaking Americans and native English speaking Americans reading orally in English. Syntax which did not correspond to English but did correspond to the grammatical structure of French was considered a miscue involving French syntax. Each miscue was divided into its syllables and if any or all of them were pronounced using French phonic rules, some or all of the miscue was said to have been affected by the child's French languge learning.

The results were assessed using the guidelines for coding miscues as described in the RMI.

Limitations

1. Only ten children were studied but their reading was considered in depth. The results of the study will have high internal validity but will not be able to be generalized to a wider population.

2. The results were based on only one reading on each of two occasions and so may not have been representative of the child's reading ability.

3. Every effort was made to put the children at ease before they were asked to read, but the children may have felt shy or insecure with an unknown researcher and may not have read or retold the story as well as they were capable of doing.

4. The children may have felt inhibited by the tape-recording taking place as they read.

5. This study was descriptive and so no inferential statistical procedures could be used in the study.

6. Because the subjects were not all reading at precisely the same level, some may have found the text more difficult than others, and this may have affected the reading strategies each used.

Chapter Four

Analysis of Findings

This chapter will discuss the findings of the study under the headings of (a) graphic similarity of the miscue to the text word, (b) sound similarity of the miscue to the text word, (c) grammatical function of the miscue compared to that of the text word, (d) percentage of corrected miscues, (e) grammatical acceptability of the miscue compared to that of the text word, (f) semantic acceptability of the miscue compared to that of the text word, (g) meaning change, (h) extent to which grammatical relationships were used, (i) extent to which comprehension was lost, (j) miscues showing French interference, (k) number of non-words used, and (l) retelling scores. Differences and similarities in each of these categories between the first and second testings will be reported and analyzed.

Graphic Similarity

The graphic similarity of the miscue to the text word was determined. Each miscue was judged to have a high degree of similarity if two-thirds of the miscue was the same as the text word. If one-third of the miscue was the same as the text word some degree of similarity was said to exist, and if no parts of the words were similar, no similarity was said to exist. These criteria were established by Y. Goodman and Burke (1972, p.53).

In all instances the percentage of miscues with high graphic similarity was greater than the percentage of mis-

cues with no graphic similarity (see Table 1). The mean percentage score for miscues showing high graphic similarity at Time 1 was 77.44 with a range from 50 per cent to 96 per cent. In the second testing the mean was 70.44 per cent with a range from 61 per cent to 84 per cent (see Table 2). These results suggest that all subjects used graphic cues to a large extent while reading on both occasions.

Insert Tables 1 and 2 about here

In six cases the percentage of miscues showing high graphic similarity decreased between Time 1 and Time 2 and in three cases it increased. In one case it increased by 2 per cent, in another by 1 per cent, and in the third by 14 per cent with a mean of 5.67 per cent. In the six cases which showed decreases the range was from 1 per cent to 22 per cent with a mean of 13.33 per cent. The majority of the children used graphic cues less at the second testing and of those who used more, two of the three increased by a very small degree. This conclusion that the children relied less on graphic cues at the second testing is upheld when cues showing no graphic similarity are examined. At Time 1 the mean percentage score of miscues showing no graphic similarity was 7.11 with a range from 0 per cent to 16 per

Table 1

Percentages of Miscues With High, Some, and No Graphic Similarity To the Text Word

	Time 1			Time 2		
Student	High	Some	None	High	Some	None
A	83	13	4	61	11	28
B	80	13	7	82	0	18
C	68	16	16	67	11	22
D	75	10	15	62	15	23
E	96	4	0	81	19	0
F	50	45	5	64	9	27
G	79	17	4	68	25	6
H	83	9	9	84	0	16
I	83	13	4	65	15	20

Table 2

Range and Mean of Graphic Similarity Scores

Graphic Similarity		Range	Mean
High			
	Time 1	50 - 96	77.44
	Time 2	61 - 84	70.44
Some			
	Time 1	4 - 45	15.56
	Time 2	0 - 25	11.67
None			
	Time 1	0 - 16	7.11
	Time 2	0 - 27	17.78

cent, and at Time 2 the percentage had increased to 17.78 with a range from 0 per cent to 27 per cent (see Table 2). In all cases the percentage of miscues with no graphic similarity increased between the first and second testings, suggesting that while the children still relied heavily on graphic similarity, it was to a lesser extent at Time 2.

Sound Similarity

The sound similarity of the miscue to the text word was determined by judging the extent to which the sound of the miscue resembled that of the text word. If the sound of two-thirds of the word was the same as the text word then the miscue was considered to have high sound similarity. If the sound of one-third of the word was similar the miscue was said to have some sound similarity. If the miscue and the text word were completely different they were judged to have no sound similarity (Y. Goodman and Burke, 1972, p.53).

The figures in this category show similarities to those in the previous category. In all instances the percentages of miscues with high sound similarity to the text word were greater than those with no similarity, suggesting that the children used sound cues to a great extent (see Table 3).

Insert Table 3 about here

At Time 1 the mean percentage score for miscues showing high sound similarity was 70.89 with a range from 59 per

Table 3

Percentages of Miscues With High, Some, and No Sound Similarity To The Text Word

	Time 1			Time 2		
Student	High	Some	None	High	Some	None
A	83	13	4	50	33	17
B	60	33	7	82	9	9
C	74	11	16	61	17	22
D	75	10	15	62	8	31
E	75	25	0	56	44	0
F	59	36	5	64	0	36
G	71	21	8	65	24	11
H	70	22	9	63	26	11
I	71	25	4	60	20	20

cent to 83 per cent. At Time 2 the mean percentage score was 62.56 with a range from 50 per cent to 82 per cent (see Table 4). There is little difference in these figures when the first and second testings are compared.

Table 4

Range and Mean of Sound Similarity Scores

Sound Similarity	Range	Mean
High		
Time 1	59 - 83	70.89
Time 2	50 - 82	62.5
Some		
Time 1	10 - 36	21.78
Time 2	0 - 44	20.11
None		
Time 1	0 - 16	7.56
Time 2	0 - 36	17.44

In seven cases the percentage of miscues with high sound similarity decreased betwen Time 1 and Time 2 and in two cases it increased (see Table 3). This pattern suggests a slight tendency to rely less on sound cues at Time 2.

There is a slightly greater difference in the miscues which show no sound similarities when Time 1 and Time 2 are compared. The mean percentage score for Time 1 was 7.56 with a range from 0 per cent to 16 per cent and for Time 2, the mean was 17.44 per cent with a range from 0 per cent to 36 per cent (see Table 4). The change, although small, shows a trend towards relying less on sound cues at the second testing compared to the first. While the children relied to a great extent on sound cues as they read on both occasions, there is an indication they were using them slightly less on the second occasion.

Grammatical Function

According to Y. Goodman and Burke (1972, p.55), words in context can usually be assigned a grammatical function as readers make intuitive use of the grammatical restrictions of their language. The function of the miscue and the text word are judged to be the same or different. If the miscue is so short or disrupted that it is impossible to determine the function it is assigned to the category of "unable to determine".

When the grammatical function of each miscue was compared to the text word little difference was found between Time 1 and Time 2 (see Table 5). In Time 1 the mean percentage score for miscues with the same grammatical function as the text word was 71.78 with a range from 50 per cent to 93 per

cent. In Time 2 the mean was 72.22 per cent with a range from 47 per cent to 100 per cent (see Table 6).

Table 5

Percentages of Miscues With the Same or Different Grammatical Functions To the Text Word

	Time 1			Time 2		
Student	Same	Diff.	UTD*	Same	Diff.	UTD*
A	65	30	4	72	28	0
B	93	7	0	73	27	0
C	74	26	0	78	22	0
D	75	20	5	77	23	0
E	50	50	0	75	25	0
F	64	36	0	100	0	0
G	67	21	13	47	47	6
H	83	9	9	63	37	0
I	75	21	4	65	35	0

* Unable to determine

Table 6

Range and Mean of Grammatical Function Scores in Percentages

Grammatical Function		Range	Mean
Same			
	Time 1	50 - 93	71.78
	Time 2	47 -100	72.22
Diff.			
	Time 1	7 - 50	24.44
	Time 2	0 - 47	27.11

The mean percentage of miscues which differed in grammatical function from that of the text word at Time 1 was 24.44 with a range from 7 per cent to 50 per cent. At Time 2 the mean percentage was 27.11 with a range from 0 per cent to 47 per cent.

In all instances except two, the subjects replaced considerably more text words with miscues having the function than miscues having a different function (see Table 5). The mean difference of the sixteen instances in which this was the case was 52 per cent with a range from 26 per cent to 100 per cent. The two exceptions had the same score in each testing. These results suggest that the children

were able to use their knowledge of the grammatical restrictions of their language before reading instruction in English began and they continued to do so as instruction proceeded.

Corrections

The reader may or may not correct any miscues made. Miscues are recorded as being either corrected, or uncorrected. There is also a category for attempting unsuccessfully to correct a miscue or abandoning a correct form. (Y. Goodman and Burke, 1972, p.58). Corrections were considered in conjunction with grammatical acceptability, semantic acceptability, and meaning change later.

Considerably more miscues were corrected in Time 2 when compared to Time 1. All students corrected more miscues in the second testing than they did in the first testing (see Table 7). The mean percentage score for Time 1 was 15.56 while for Time 2 it was 36.89 (see Table 8). This is a fairly large difference and seems to reflect the increasing awareness of the subjects of their miscues. More information on the quality of the children's reading will be available when other factors are assessed in conjunction with the corrections.

Insert Tables 7 and 8 about here

Table 7

Percentage of Corrected and Uncorrected Miscues

Student	Time 1		Time 2	
	Corrected	Uncorrected	Corrected	Uncorrected
A	16	72	32	60
B	12	88	20	80
C	24	72	40	60
D	36	56	60	32
E	8	88	44	56
F	12	84	40	60
G	12	88	32	64
H	12	88	16	80
I	8	92	48	44

Table 8

Range and Mean of Corrected and Uncorrected Miscues in Percentages

	Range	Mean
Corrected		
Time 1	8 - 36	15.56
Time 2	16 - 60	36.89
Uncorrected		
Time 1	56 - 92	80.89
Time 2	32 - 80	59.56

Grammatical Acceptability

Y. Goodman and Burke (1972, p.60) maintain that grammar provides a framework for the sentence and that the grammatical structure can remain intact when the meaning is destroyed. Even nonsense words can be considered to be grammatically correct. If the miscue occurs in a sentence judged to be grammatically acceptable, the miscue is said to be totally acceptable. If the miscue occurs in a sentence which is grammatically acceptable up to the point where the miscue is made, it is said to be partially acceptable. If the miscue makes the sentence grammatically incorrect, the miscue is judged to be grammatically unacceptable.

All subjects in both testings had a greater percentage of totally grammatically acceptable miscues than grammatically unacceptable miscues (see Table 9). Between Time 1 and Time 2 there was a change in the mean percentage of totally acceptable miscues from 56.00 to 64.44 with the ranges remaining the same in both cases (see Table 10). The increase in means, although small, can be interpreted as a trend towards the children attempting to make their reading conform to the grammatical rules of English. This conclusion is reflected in the fairly large decrease in grammatically unacceptable miscues. The mean percentage score dropped from 26.67 to 13.78 and the range narrowed from 0 per cent to 40 per cent at Time 1, to 4 per cent to 24 per cent at Time 2 (see Table 10). In all cases except one, the

percentage of grammatically unacceptable miscues dropped between Time 1 and Time 2 (see Table 9). These figures seem to suggest that the children were more able to make their reading conform to the grammatical structure of English at Time 2 than Time 1.

Insert Tables 9 and 10 about here

Semantic Acceptability

The question of semantic acceptability focusses on the extent to which the reader is producing understandable structures (Y. Goodman and Burke, 1972). If the whole sentence is meaningful, the miscue is considered to be totally semantically acceptable. If the sentence is meaningful up to the miscue, the miscue is considered to be partially semantically acceptable. If the sentence is not meaningful the miscue is considered to be semantically unacceptable (Y. Goodman and Burke, 1972, p.59).

In all cases except one, the percentage of semantically acceptable miscues increased between Time 1 and Time 2. The exception showed no change between the two testings (see Table 11). The average difference of all nine cases between the percentage of semantically acceptable miscues at Time 1 and Time 2 was 25.78 which is a large increase. The average percentage score increased from 20.00 to 45.78 and the range changed from 4 per cent to 56 per cent, to 32 per cent

Table 9

Percentages of Miscues Which Are Totally Grammatically Acceptable, Partially Grammatically Acceptable, or Grammatically Unacceptable

	Time 1			Time 2		
Student	T.Accpt.	P.Accpt.	Unacc.	T.Accpt.	P.Accpt.	Unacc.
A	48	20	32	68	8	24
B	80	20	0	76	20	4
C	56	16	28	72	8	20
D	60	16	24	64	20	16
E	48	12	40	64	32	4
F	56	16	28	80	8	12
G	52	16	32	56	36	8
H	48	16	36	48	28	24
I	56	24	20	52	36	12

Table 10

Range and Mean of The Grammatical Acceptability of Scores in Percentages

Grammatical Acceptability	Range	Mean
Totally Acceptable		
Time 1	48 - 80	56.00
Time 2	48 - 80	64.44
Partially Acceptable		
Time 1	12 - 24	17.33
Time 2	8 - 36	21.78
Unacceptable		
Time 1	0 - 40	26.67
Time 2	4 - 24	13.78

to 68 per cent (see Table 12). These figures indicate that the children attended more to meaning relationships at Time 2 than at Time 1.

Insert Tables 11 and 12 about here

The percentage of semantically unacceptable miscues echces the trend for the child to attend more to the meaning of the text at Time 2 than Time 1. In all cases the percentage of seman-tically unacceptable miscues decreased betwen Time 1 and Time 2 (see Table 11). The average percentage decrease was 30.78. This is a large decrease and again indicates that more attention is being paid to meaning by the reader.

Meaning Change

The extent to which the meaning of the sentence is affected by the miscue can be classed in one of three categories. These are (a) causing no change in meaning, (b) causing minimal change in meaning, or (c) causing extensive change in meaning (Y. Goodman and Burke, 1972, p.61).

At Time 1, in all cases except one, there was a large difference between miscues which caused no meaning change and miscues which caused extensive change in meaning (see Table 13). The mean percentage score at Time 1 for no change in meaning was 26.67 with a range from 8 per cent to 48 per cent and for extensive change in meaning. The mean

Table 11

Percentages of Miscues Which Are Totally Semantically Acceptable, Partially Semantically Acceptable, or Semantically Unacceptable

	Time 1			Time 2		
Student	T.Accpt.	P.Accpt.	Unacc.	T.Accpt.	P.Accpt.	Unacc.
A	4	12	84	44	9	47
B	56	16	28	56	32	12
C	40	20	40	52	16	32
D	24	20	56	48	32	20
E	4	12	84	32	36	32
F	20	16	64	68	12	20
G	12	20	32	32	44	24
H	4	20	76	40	28	32
I	16	32	52	40	40	20

Table 12

Range and Mean of The Semantic Acceptability of Scores in Percentages

		Range	Mean
Totally Acceptable			
	Time 1	4 - 56	20.00
	Time 2	32 - 68	45.78
Partially Acceptable			
	Time 1	12 - 32	18.67
	Time 2	9 - 44	27.67
Unacceptable			
	Time 1	28 - 84	57.33
	Time 2	12 - 47	26.56

percentage score was 63.11 with a range from 48 per cent to 88 per cent (see Table 14).

Insert Tables 13 and 14 about here

At Time 2 the difference had narrowed, although extensive meaning changes still were greater than no meaning changes in three of the nine cases (see Table 13). The mean percentage score for miscues showing no meaning change at Time 2 was 42.22 with a range from 24 per cent to 52 per cent, while the mean percentage score for miscues showing extensive meaning change was 32.33 with a range from 16 per cent to 48 per cent (see Table 14). In all cases the number of miscues which caused extensive change in meaning decreased between the first and second testings. The number of miscues showing no change in meaning increased in seven of the nine cases, in one case it remained the same, and in the remaining case it increased only slightly. These figures indicate that the children were more successful at finding meaning from the text in the second testing than in the first.

Grammatical Relationships

The inter-relationships of the correction of miscues, the grammatical acceptability of miscues, and the semantic acceptability of miscues produce patterns which give insight into the concern of the reader that the reading sounds like

Table 13

Percentage of Miscues Resulting in No, Minimal, or Extensive Change in Meaning

	Time 1			Time 2		
Student	None	Min.	Ext.	None	Min.	Ext.
A	8	4	88	36	20	44
B	48	20	32	44	36	20
C	32	20	48	44	16	40
D	24	24	52	48	20	32
E	16	4	80	36	16	48
F	20	4	76	52	32	16
G	24	16	60	24	16	60
H	20	16	64	48	16	36
I	12	20	68	48	12	40

Table 14

Range and Mean of Meaning Change Scores in Percentages

		Range	Mean
None			
	Time 1	8 - 48	26.67
	Time 2	24 - 52	42.22
Min.			
	Time 1	4 - 24	14.22
	Time 2	12 - 36	20.44
Ext.			
	Time 1	48 - 88	63.11
	Time 2	16 - 48	37.33

language. Each miscue was examined for correction, semantic acceptability, and grammatical acceptability and assigned to categories showing strength, partial strength, weakness, or overcorrection in using grammatical and meaning cueing systems according to the system of Y. Goodman and Burke (1972, pp.71-5).

In all cases the percentage of relationships of miscues showing strength increased between Times 1 and 2 (see Table 15). The mean percentage score at Time 1 was 28 with a range from 12 per cent to 60 per cent, while at Time 2 the mean percentage score was 56.67 with a range from 36 per cent to 68 per cent, which shows a moderately large increase (see Table 16). At Time 1 only three students had a greater percentage of miscue relationships which showed grammatical strength than those which showed grammatical weakness. At Time 2 the percentage of scores showing strength in the use of grammatical relationships was greater than those showing weakness in all cases.

Insert Tables 15 and 16 about here

In all cases but two, the number of miscue relationships showing weakness declined between the two testings. In one of the exceptions there was no change (see Table 15). The mean percentage scores showed a drop from 35.56 at Time 1 to 19.10 at Time 2. The range at Time 1 was 8 per cent to

Table 15

Percentages of Miscues Showing Strength, Partial Strength, Weakness, or Overcorrection in Grammatical Relationships

Student	Time 1				Time 2			
	Str.	P.Str.	Weak.	Over.	Str.	P.Str.	Weak.	Over.
A	20	32	8	0	56	8	24	12
B	60	28	8	4	68	16	12	4
C	40	12	36	12	68	8	12	12
D	44	28	20	8	52	8	12	28
E	12	44	44	0	44	24	12	16
F	16	36	40	8	68	8	4	20
G	16	40	40	4	36	20	18	16
H	24	32	44	0	48	4	44	4
I	20	40	40	0	52	4	20	24

Table 16

Range and Mean of Miscues Showing Strength, Partial Strength, Weakness, or Overcorrection in Grammatical Relationships

	Range	Mean
Strength		
Time 1	12 - 60	28.00
Time 2	36 - 68	56.67
P. Strength		
Time 1	12 - 44	32.44
Time 2	4 - 24	11.11
Weakness		
Time 1	8 - 48	35.56
Time 2	4 - 44	19.10
Overcorrection		
Time 1	0 - 12	4.00
Time 2	4 - 48	15.11

48 per cent and at Time 2 from 4 per cent to 44 per cent (see Table 16). These results suggest that the children were more concerned that their reading sound like language in the second testing. The percentage of miscue relationships which demonstrated overcorrection increased between Time 1 and Time 2. This reflects the increase in the total number of corrections shown in Table 7.

Comprehension

The relationship of correction, semantic acceptability, and meaning change indicate the extent of any loss of comprehension by the reader. The guidelines set down by Y. Goodman and Burke (1972, pp. 75-6) were used to determine which combinations of correction, semantic acceptability, and meaning change resulted in no loss of comprehension, partial loss of comprehension, or loss of comprehenson.

In all cases except one the percentage of miscue patterns showing no loss of comprehension was greater at Time 2 than at Time 1 (see Table 17). The mean percentage score in this category at Time 1 was 35.1 and at Time 2, 63.1, showing a large increase in miscue patterns indicating no loss of comprehension. The range at Time 1 was from 20 to 64 per cent; at Time 2 the range was from 48 to 80 per cent, showing a shift towards increased comprehension (see Table 18).

Insert Tables 17 and 18 about here

Table 17

Percentage of Miscue Patterns Showing No Loss, Partial Loss or Loss of Comprehension

	Time 1			Time 2		
Student	No Loss	P.Loss	Loss	No Loss	P.Loss	Loss
A	24	0	76	60	20	20
B	64	20	16	56	32	12
C	44	16	40	76	16	8
D	56	20	24	68	20	12
E	24	4	72	60	8	32
F	28	0	72	60	8	32
G	28	12	60	48	8	44
H	28	8	64	48	24	28
I	20	16	64	72	16	12

Table 18

Range and Mean of Miscue Patterns Showing No Loss, Partial Loss or Loss of Comprehension

Comprehension		Range	Mean
No Loss			
	Time 1	20 - 64	35.10
	Time 2	48 - 80	63.10
P. Loss			
	Time 1	0 - 20	10.67
	Time 2	8 - 32	17.78
Loss			
	Time 1	24 - 76	54.23
	Time 2	4 - 44	19.11

In all cases the percentage of miscue patterns indicating loss of comprehension decreased between Time 1 and time 2 (see Table 17). The mean percentage score for Time 1 was 54.22 and for Time 2 it decreased markedly to 19.11. The range for Time 1 was from 24 to 76 per cent and for Time 2 the range was from 4 to 44 per cent (See Table 18). In six of the nine cases miscue patterns showing loss of comprehension were greater than those showing no loss of comprehension at Time 1. At Time 2 miscue patterns showing loss of comprehension were greater than those showing no loss of comprehension in all cases (see Table 17). These figures indicate that the children were considerably more successful in gaining meaning at Time 2 than at Time 1.

French interference

Because the subjects had been initially taught to read in French, the issue of whether they transferred strategies learned then to their reading in English was addressed. If a miscue did not conform to the English language but did conform to the French language grapho-phonetically, semantically, or syntactically it was considered a miscue resulting from French interference. No instances of French semantics or syntax affecting miscues were noted. All the miscues involved sound similarity to the French language.

There was a decrease in the total number of French interference errors from Time 1 to Time 2. At Time 1 the total was 35 with a range from one to eight. At Time 2 the

total was five with a range from zero to two (see Table 19). The children appear to be using the strategies they have available to them. At Time 1 they were using French graphic and sound cues more than they did at Time 2.

Table 19

Number of Miscues Showing French Interference

Student	Time 1	Time 2
A	4	0
B	1	0
C	1	2
D	2	0
E	8	1
F	3	1
G	6	0
H	8	1
I	2	0

Non-words

Words which did not belong to the English language were classed as non-words. Because the children were reading English text, French words would have been considered non-words but in fact no such words were produced.

The total number of non-words at Time 1 was 53 with a range extending from zero to eleven. At Time 2, the total was seven with the range from zero to two (see Table 20). There was a definite decrease in the use of non-words from Time 1 to Time 2. In all cases but one more non-words were produced at Time 1 than at Time 2. The exception showed only an increase from zero non-words to one between the two times (see Table 20). For the other eight cases the average decrease was 5.88 with a range from one to nine.

Table 20

Non-words

Student	Time 1	Time 2
A	8	0
B	2	1
C	0	1
D	5	0
E	11	2
F	4	0
G	8	1
H	9	0
I	6	2

Retelling Scores

Y. Goodman and Burke (1972) state that the concern in the retelling section of the testing is with the reader's ability to interrelate, interpret, and draw conclusions from the content. The retelling score gives another measure of the reader's ability to gain meaning from the text.

Six of the nine students showed an increase in their retelling scores and one of the exceptions showed a decrease of only two per cent (see Table 21). The mean percentage retelling score showed an increase from 51.22 at Time 1 to 56.94 at Time 2. This small increase does not reflect the large increases in the comprehension scores which have already been discussed. Although the differences in retelling scores between the two testings were small they were in the expected direction.

Insert Table 21 about here

Table 21

Retelling Score

Student	Time 1	Time 2
A	43.5	28
B	61.5	82
C	66	64
D	46.5	50.5
E	29	23.5
F	49	55.5
G	57	83.5
H	57	63.5
I	51.5	54.5

Chapter Five

Discussion of Findings, Conclusion and Recommendations for Future Research

Discussion of Findings

In this section the results of the two testings will be discussed and related to the results of other relevant research. The most distinct pattern which emerged was the high ratio of miscues which had high graphic and sound similarity to the text word. At the time of the first testing, which after the children had only had three weeks of formal instruction in English reading, the high graphic and sound similarity scores were not matched by the retention of comprehension scores on miscued words which were low, but at the time of the second testing, which was after six months of reading instruction, these scores had increased but the graphic and sound miscue scores remained high. A second major finding was the children's use of French grapho-phonic strategies to read in English. These decreased from a total of 34 (19.56%) at the first testing to 3 (1.33%) at the second testing. Perhaps the most impressive result was the ability of the children to read in English at the Grade 3 level with little formal instruction in school while in the fourth week of Grade 3.

Reading Ability Before Instruction in English

The children were able to read the Grade 3 text at the first testing before they had much reading instruction in English in school. There were several factors which made

this possible. The children were being asked to read in their native language with which they were familiar. They were already fluent in oral language and were being asked to read the written version. They had been surrounded by written and spoken English on a daily basis and so knew how it should sound.

The children had received two years of instruction in reading and were not complete beginners although the instruction had been in French. Many of the grapho-phonic elements of French and English are similar, which made transference of them from French to English relatively easy. The children had already mastered the metalinguistic concepts necessary for reading in English. They were familiar with such concepts as "word" and "sentence". They were also aware that reading in English proceeds from left to right and from the top to the bottom of the page. It is likely that the children in the study entered Grade 3 with a good knowledge of the metalinguistic concepts necessary before reading in English can be accomplished, and were able to apply this knowledge when asked to read in English before any formal instruction in English reading had begun.

Discussion of Miscue Analysis Findings

Graphic and sound similarity.

When the graphic and sound similarities of the miscues were examined a distinct pattern emerged. At the first testing high percentages of miscues showing high graphic

similarity and high percentages of miscues showing high sound similarity were noted in all cases. These corresponded to low percentages of miscues showing no graphic similarity and low percentages of miscues showing no sound similarity. The children were relying very heavily on the graphic and phonic aspects of the text. They still relied heavily on these cues at the second testing but the percentages were lower for miscues showing high graphic similarity and for miscues showing high sound similarity. There was also a definite increase in miscues showing no similarity to the text word in graphic or sound categories at that time. The children were moving away from an almost total reliance on the graphic and sound aspects of the text.

Some speculations can be made to explain this reliance on graphic and sound cues at both testings. These children had had very little formal instruction in English reading at the time of the first testing and so the strategies that were available to them were limited. Reading instruction in French had of necessity focussed on phonics, as the children could not be expected to have sufficient mastery of the French language to use semantic and syntactic cues to any great extent. Mes-Prat and Edwards (1981) quoted the results of a study of Grade 7 French students by Cziko which they claimed demonstrated that only the best French students could use French syntax as cues when reading orally and even they could not use French semantics as reading cues. The

chances that the children in the present study were capable of using French syntactic and semantic cues to any great extent in Grade 1 when reading instruction began are remote. The teacher reported using context when possible but opportunities were much more limited than had the children been learning to read in English, in which case they could have applied their extensive knowledge of oral English.

Research has shown that the reading strategies the children have been exposed to will determine to a great extent the types of miscue they will make. Children taught by a code emphasis approach tend to make more miscues which are graphically similar to the text word and fewer that are contextually constrained (Cohen, 1974-5; Dank, 1977). This is one possible explanation for their reliance on grapho-phonic cues at the first testing. The opinion of Mes-Prat and Edwards (1981) lends support to this view. They suggest that because French and English have many sounds in common, the children find it relatively easy to transfer their knowledge of French grapho-phonics to English. The children in the present study were not accustomed to relying on semantic and syntactic cues when reading, and appeared to transfer what reading strategies they could from French reading to English reading. Kendall, Lajeunesse, Chmilar, Shapson and Shapson (1987) made a similar observation in their study of Kindergarten, Grade 1, and Grade 2 children, noting that through reading instruction in French they learn

to transfer print to sound perhaps moreso because they do not have well developed French language skills on which to rely.

The strategy which the children seemed to transfer most easily from French reading to English reading was the use of grapho-phonic cues. They used them extensively during both testings but to a greater degree at the first.

Comprehension.

Related to the high number of graphic and sound miscues which were very similar to the text word at the first testing, were low scores on retention of comprehension of miscued words, suggesting that the children's reliance on the grapho-phonic aspect of reading was at the cost of comprehension. If the children had been concerned with meaning the percentages of miscues showing correction, semantic acceptability, and no change of meaning would have been higher than the low scores actually recorded.

More corrections would have been expected especially in cases where the meaning was distorted. Recht (1976) noted in her study of 47 children from Grades 2, 3, 4, and 6, that correction was a reading skill which became more efficient and highly developed as the reader's ability, comprehension, and grade level increased. This upholds the finding in the present study that the percentages of miscues which were corrected increased considerably between the two testings. The children's increased comprehension scores reflected

their increasing tendency to correct their miscues between the two testings. Consideration of instances of correction by itself is useful but when it is related to possible changes in meaning, and semantic and syntactic acceptability more information on the children's reading strategies can be gleaned.

The percentages of miscues which were totally semantically acceptable, and which did not distort meaning were greater in almost all cases at the second testing and the exceptions showed only small moves in the other direction. The percentages of miscues showing loss of comprehension decreased dramatically in all cases except one, demonstrating that the children were using context cues to a much greater extent than at the first testing. At the second testing the children were using strategies which emphasized graphic and sound similarity but they were also incorporating to a great extent syntactic and semantic cues. This change in the pattern demonstrated the children's greater use of context and a search for meaning as they read.

Grammatical relationships.

The patterns of miscues indicating strength, partial strength, or weakness in the use of grammatical relationships indicate the reader's concern that the reading sound like language. These patterns also allow inefficient use of correction strategies to become apparent. The increase in the percentage of miscues showing strength in grammatical

relationships and the decrease in the percentage of miscues showing weakness in grammatical relationships reflects the improvement in the quality of the children's reading in English over the six months between the testings.

The results of the first testing indicate that the children had little strength in the use of grammatical relationships. This seems to be related to their general reliance on the grapho-phonic aspects of the text and their largely ignoring other sources of information contained in it. There is some correspondence between the low scores in miscue patterns showing strength in grammatical relationships and the low scores in miscues showing loss of comprehension. The trends are the same in both cases. The children were not using semantic and syntactic cues effectively.

At the second testing there was an increase in patterns of miscues showing strength in the use of grammatical relationships corresponding to the increase in miscues showing no loss of comprehension. There was also a drop in the percentage of miscue patterns showing weakness in the use of grammatical relationships similar to the drop in patterns showing loss of comprehension. This is more evidence pointing to the children's greater facility with semantic and syntactic cues at the end of Grade 3 when compared to their use of these strategies as they entered this grade.

Retelling scores.

The retelling scores reflect to some degree the changing reading strategies of the children. While the differences are not as great as were anticipated, given the large differences between the two testings in the scores for comprehension and the use of grammatical relationships, they were in the expected direction. At the first testing the average score was 51.22 per cent and at the second 56.94. These figures can be explained partly by the scores for recall of the plot which were high at the first testing, perhaps because the outline of the story was very simple and no child scored less than ten out of a possible twenty. Five of the children scored twenty out of twenty and these scores raised the total average. In the second story the plot was more complex and this seems to be reflected in the lower scores of the children.

The first story which the children read was at a Grade 3 level. To control the variable of text difficulty the second story which the children read was at a Grade 4 level and consequently may have contained ideas which the children found more complex. While being able to cope with the Grade 4 text at a word and sentence level they seem to have had more difficulty with it at the story level.

French interference.

At no time did French interference miscues predominate and the children made no miscues involving French semantics

or syntax which demonstrates that they were aware they were reading in English. French interference was limited to graphic miscues. There were no real French words produced and only five words which were pronounced as if the whole word was a French one. One of these five had one syllable and two had the same pronunciation in French and in English but with a different stress on the syllables. Of the two remaining words, one had two syllables and the other three.

There was a dramatic drop in the number of miscues which showed some element of French decoding strategies between the first and second testings. Given the preoccupation of the children with graphic and sound cues, their relative indifference to meaning at the first testing, and the paucity of reading strategies available to them, it is not surprising that there was evidence of transfer of French decoding strategies to English text at the first testing. The probability that some English graphemes were unknown to the children has also to be considered. Given that the children were from the middle range of the class, had had almost no instruction in reading in English, were in the first four weeks of Grade 3 and were being asked to read a Grade 3 text, it is perhaps surprising that there were not more French interference errors. Mes-Prat and Edwards (1981) suggest that there must be transfer of reading skills from French to English otherwise children in French immer-

sion programs would be at the beginning level in English reading and this is not so.

The miscues made during the second testing show more concern with meaning. This fact in conjunction with the children's greater experience with written English at that time, would suggest that there should be fewer miscues showing French interference and this was the case; the number was insignificant. Although the text used at the second testing could be considered as difficult for the children as that used at the first testing since it was at the Grade 4 level, the number of miscues showing French interference almost disappeared at the second testing, demonstrating again that the quality of the children's reading had improved. When the increased use of context cues in conjunction with the high percentage of highly similar graphic and sound cues after the second testing is considered, it becomes apparent that the quality of the children's reading in English had improved over the six months between the two testings.

Factors Affecting the Changing Patterns of Miscues

Reading in their native language.

It is possible that the change in their reading strategies was related to the fact that they had had more experience with English reading between the two testings. The increased opportunity to deal with English text may have allowed the children to develop more varied strategies as

they realized that the ones they were using were inadequate. The fact that the children live in an English milieu has to be taken into account. They are in contact with oral and written English in almost every aspect of their daily lives and it would not be unreasonable to suggest that, once they became aware that semantics and syntax were sources of information that could be transferred from oral to written English, they could incorporate the two fairly easily with graphic and phonic cues. Chall (1967) quoted the observations of the principal of a French immersion school who stated that when the children were learning to read in English in Grade 2, a word pronounced with a French intonation was usually corrected by the child from the general sense of what was being read. Kendall, Lajeunesse, Chmilar, Shapson and Shapson (1987) noted that the children in their study were able to transfer much of their decoding knowledge from French to English and incorporate their competence with oral English with these grapho-phonic skills. Their competence with oral English played a large part in the strategies the children in the present study were able to use to read in English.

The effect of reading instruction.

The specific teaching strategies to which they were exposed almost certainly would enhance any natural tendency of the children to incorporate contextual cues with grapho-phonic cues. The children demonstrated that they were able

to use grapho-phonic strategies when they entered Grade 3. The two English language arts teachers they had during the year concentrated to a great extent on having the children use semantic and syntactic cues, giving instruction in the use of phonic strategies only if necessary. The children's changing pattern of miscues reflected the change in reading instruction. The English language arts teachers stressed syntax and semantics as the children read in English. It has been shown that the strategies children are taught determine the kind of miscues they will make (Biemiller, 1970; Weber, 1970; Cohen, 1974-5; Dank, 1977). As the reading instruction that the children in the present study received changed from one stressing phonics to one stressing context, the cues that they used changed from predominantly grapho-phonic cues to a combination of these and syntactic and semantic information also. While the actual differences in the percentages between the two testings were not very large there was a distinct trend.

Stages of reading development.

In addition to the teaching strategies the children had been exposed to, their changing use of reading strategies may be a result of the stage of reading development they had reached. Biemiller (1970) proposed that the children at the first stage of reading rely predominantly on contextual information. None of the children in the present study demonstrated this characteristic, but Biemiller was discuss-

ing beginning readers in Grade 1. It is arguable that the children in the present study had already passed through that stage.

The second stage in the development of reading skills which children pass through, according to Biemiller, is one in which they concentrate on graphic aspects of the text at the expense of meaning before being able to incorporate the two. Biemiller found this pattern in Grade 1 children who were learning to read but it was accompanied by a large number of non-responses, which is not the case in the present study. It is debatable whether or not the Grade 3 children in this study who are also beginning to read in English, can be expected to pass through the same stages in the same way as the Grade 1 children which Biemiller studied. The large percentages of highly similar graphic and sound miscues in conjunction with the high percentage of miscues showing loss of comprehension at the first testing, do correspond to the second stage of reading development he proposed. Biemiller's subjects were taught by a meaning approach which may account for the non-responses. In the present study the children had been taught mainly by a code emphasis approach up to Grade 2, so they were accustomed to reading every word in a sentence and using phonic strategies to decipher the word. The large number of non-words which the children in the present study produced at the first testing uphold this view. The production of non-words

suggests that the children were preoccupied with graphic cues and were not concerned primarily with meaning.

The third of Biemiller's stages in the acquisition of reading is one in which both graphic and context cues are incorporated. The subjects in this study would appear to be reaching that stage after seven months of reading instruction in English.

Cohen (1974-5) also investigated the changing reading strategies of beginning readers using a similar methodology to that of Biemiller discussed above. Her subjects had been taught by a code emphasis approach. In the first stage she proposed, the reading was dominated by non responses. The children in the present study did not show this but again it can be argued that since these children were in Grade 3 it is probable they had already passed this stage.

The second stage was characterized by a large number of non-words. In the present study 23.56 per cent of the miscues were non-words at the first testing which suggests that they were then at Cohen's second stage.

The third of Cohen's three stages was one in which the number of non-words dropped and the substitutions were predominantly English substitutions. At the second testing the percentage of non-words produced by the children in the present study dropped to 4 per cent. They seemed to be passing through the second and third stages which Cohen proposed.

Biemiller and Cohen studied children being taught by different approaches and reached similar but not identical conclusions about the characteristics of the stages of reading the children in their studies passed through. In the present study the children received instruction in both these approaches and the stages they passed through seemed to conform to those which Cohen proposed better than those which Biemiller proposed although many children in the study seemed to be reaching his third stage, in which both graphic and contextual information are incorporated.

Developmental stage.

Maturity may have played a role in this change. It has been suggested by Clay (1969) that the Piagetian notion of the centration of young children plays a role in the reading strategies they use. Piaget claimed that young children were unable to take into account more than one aspect of a situation at the same time. Efficient reading requires knowledge from various sources to be incorporated and a child at the pre-operational stage would not be able to do this, according to Piaget. The children in the study were as close to average in their reading ability as possible. It seems unlikely that average children of seven years of age would be unable to use more than one cue at a time. It is possible that the six months of maturation which occurred between the two testings played some role in the increased quality of their reading.

Conclusion

The increase in the use of context cues by the children at the second testing could be explained by the reading strategies they were taught during the six months of instruction they received in English. Efficient readers incorporate graphic and contextual information. The subjects in the study were able to use graphic cues as they entered Grade 3. After they had been encouraged to use context cues and given the opportunity to use them, they were able to incorporate the two. The relative contributions of exposure to English text in a school situation, the effect of the type of reading instruction, the maturity of the children, and the stage of reading development they had reached cannot be determined in this study but it is probable that each played some role in the changing strategies that the children were employing.

Models of Reading

The results of the present study cannot be explained by the bottom-up model in which reading is seen as a step-by-step progression from letter or word identification to the final stage in which meaning is reached. The children made a significant number of miscues in the second testing which were graphically and phonically different from the text word but which did not distort meaning, and this result cannot be explained in terms of the bottom-up model of reading. Neither do the results conform to the top-down model in

which it is claimed that meaning precedes word or letter identification. At the first testing many miscues were made which closely resembled the text word graphically and phonically but had no meaning, which contradicts the top-down model.

The way in which the children adjusted their strategies according to those that were available to them would uphold the interactive model of reading. To take the development of reading models one step further, the results of the present study suggest that the interactive-compensatory model of reading is accurate. When asked to read at the first testing the children depended more on grapho-phonic than any other reading strategies. They used the phonic strategies that they had learned when reading in French. Many of the phonemes in French and English are the same and the children were able to transfer them from one language to the other fairly easily. When this was not possible, the children reverted to the use of French phonemes although they must have been aware that the sounds they were producing were not English sounds. They used the strategies they had available to them regardless of the level of the strategies.

At the second testing the children had begun to incorporate semantic and syntactic cues with grapho-phonic cues, but still the majority of miscues were graphically constrained, which suggests that the children resorted to

graphic cues if they could not use semantic and syntactic information. This strategy on the part of the children upholds the interactive-compensatory model which Stanovich (1980) proposed.

Recommendations for Future Research

This study was an exploratory one. No research has used miscue analysis to examine changes which take place over time in the reading strategies used by French immersion children as they are introduced to reading in English. The first need is for the study to be replicated with Grade 3 children in other Grade 3 French immersion classes to see if the results are confirmed.

The present study was concerned with average children since there was no other data of this type available. It would be very helpful to determine if good readers and poor readers at the same grade level use similar strategies while learning to read in English.

While the results of this study show that the children were beginning to use semantic cues and syntactic cues successfully in their reading at the end of Grade 3, it would be interesting to see how their reading in English develops from this stage. A similar study of children at the beginning and the end of Grade 4 would supply useful information.

More information on the effect of the teaching method on the reading strategies that children use would be gained

if their strategies used while reading in French were studied. This study found that the type of reading instruction they had in French seemed to influence the strategies they used in English. It would be interesting and useful to find out if the reverse is also true.

Future researchers in this area may also consider some of the weaknesses that were found in the Reading Miscue Inventory of Y. Goodman and Burke (1972). The way in which graphic and sound similarity is scored is unclear. If two-thirds of a word are similar to the text word, the miscue has high graphic similarity. If one-third is similar it has some similarity. If no part is the same there is no similarity. Problems arise when words cannot be split into three parts. Do "if" and "of" have high similarity or some similarity given the criteria of Y. Goodman and Burke? The method of scoring the retelling of the story is not satisfactory. Many of the decisions are subjective ones. Should the recall of each of the characters be scored equally or should the main characters be awarded a greater proportion of the possible score than the more minor ones? Developing an outline for the scoring of the number of events recalled is also subjective as the researcher has to decide which are the main events. There is a provision made for scoring events which do not appear on the score sheet. Scoring the theme is also difficult. How does one decide what proportion of the allotted percentage should be given to a child

who cannot state the theme exactly but seems to have some notion of it? These types of subjective decisions need to be minimized in order to allow studies done by different researchers, in different places, at different times to be compared.

One problem which is difficult to resolve when conducting a longitudinal study is the effect of text difficulty on the reading strategies the children are using. In the present study a Grade 3 and a Grade 4 text were used but a more stringent measure of text difficulty needs to be devised.

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