THE IMPORTANCE OF ACTIVATING STUDENT PRIOR KNOWLEDGE:

ELEMENTARY TEACHERS' SPONTANEOUS AND CUED IDENTIFICATIONS

OF KEY CONCEPTS IN NARRATIVE PROSE

by

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ABSTRACT

Elementary teachers' spontaneous (unaided) and cued identifications of key concepts in narrative prose were examined. Measures of the influences of exposure to research and attitudes toward the importance of prior knowledge on their cued identifications were investigated. Data were analyzed to determine the degree to which elementary teachers identified cued key concepts and primary teachers' identifications were compared to those of intermediate teachers. Separate and combined measures of teachers' exposure to reading research and attitudes were compared to their cued key concept identifications. A post hoc exploratory content analysis of the spontaneous key concept identifications was undertaken to discover possible patterns or phenomena in the data.

Results of the analyses of cued concept identifications indicated: a) teachers were unable to successfully identify key concepts in narrative prose; b) there were no significant differences between primary and intermediate teachers' identifications; and c) exposure to reading research and attitudes towards the importance and use of prior knowledge and concept development influenced teachers' ability to identify key concepts.

An examination of spontaneous key concept identifications showed that: a) there was a lack of teacher consensus as to definition of a key concept; and b) teachers were unable to identify passage-relevant key concepts when left to their own resources.

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CHAPTER I. INTRODUCTION

A. STATEMENT OF THE PROBLEM

It is suggested that prior conceptual knowledge plays an important role in the interactive reading process. There appears to be a basis for urging teachers to aid students in activating and understanding passage-relevant key concepts. Teachers have long used basal reader manuals as sources of suggestions for reading lessons and concepts. It is not known a) whether or not teachers would be able to identify key concepts on their own if resources other than basal reader manuals were used; and b) if contact with current reading research or teachers' attitudes towards the importance and use of activating prior knowledge influences their identifications.

B. RATIONALE FOR THE STUDY

It has been suggested (Kant 1781) that all humans possess in memory a reservoir of world knowledge and experiences. As the learner thinks and reasons, he taps this resource of previous experience and relates it to new knowledge. Kant further states that understanding one's present experience requires relating it to past experiences, implying an ongoing interaction between the learner and novel information.

This notion of a dynamic interaction has been applied to the field of reading where interaction is proposed to take place between the reader and the text (Adams & Collins, 1977; Rumelhart, 1977). According to Tierney & Spiro (1979), a text can never be entirely explicit and authors often assume readers share a field of implied knowledge. They propose that the text acts as a

blueprint, guiding the critical reader as he gleans meaning by interpreting, inferencing, elaborating and filling in pieces of missing (implied) information with knowledge from previous experiences. In fact, Adams and Bruce (1980) state that interpreting text without prior knowledge would be a difficult and meaningless undertaking.

Numerous reading authorities have agreed that existing prior conceptual knowledge influences learning and have said that prior conceptual knowledge is a major determinant of reading comprehension (Adams & Bruce, 1982; Ausubel, 1963; Betts, 1959; Durkin, 1981; Durrell & Chambers, 1958; Gray, 1931, 1947; Harris, 1961; Hildreth, 1963; Huey, 1908; Kerfoot, 1916; Obah, 1983; Pearson & Johnson, 1978; Russell, 1956; Schank, 1982; Strange, 1980; Thorndike, 1917 Tierney & Spiro, 1979; Wilson, 1983; Wolfe, 1968). Pearson and Johnson (1978, p. 24) explain reading comprehension as "building bridges between the new" (the message on the page) "and the known" (the reader's prior conceptual knowledge).

Studies investigating how the quality and quantity of students' prior knowledge influences their ability to learn, understand and remember suggest prior knowledge: a) is a critical factor influencing reading (Chall, 1947; Davey & Kapinus, 1985; Hilliard & Troxell, 1937; Piekarz, 1956; Taft & Leslie, 1985); b) may facilitate understanding by enhancing and increasing readers' text recognition and recall (Callahan & Drum, 1984; Mathews, 1982; Pearson et al., 1979, 1982); c) may account for major variance in reading performance (Johnston, 1984; Rowe & Rayford, 1987); d) may compete for priority with text information, causing problems if it is inaccurate or inappropriate (Johnson, 1982; Johnston, 1984; Lipson, 1982; Nicholson & Imlach, 1981); e) can make ambiguous material comprehensible (Anderson et al., 1977; Bartlett 1932;

Bransford & Johnson, 1972; Bransford & McCarrell, 1974; Dooling & Lachman, 1971; Pichert & Anderson, 1977); f) is believed to employ inferences and elaborations, allowing the reader to read between and beyond the lines (Hansen & Pearson, 1980; Lipson, 1982; Micholson & Imlach, 1982) and g) can have practical application in the classroom through teacher use of instructional strategies to activate and build student experiences (Langer, 1984; Stahl and Vancil, 1986).

If one accepts the view that prior knowledge is central to reading comprehension, an understanding of concepts and their relations becomes important to the teacher because our prior knowledge experiences are purported to be housed in concepts which link current perceptions and ideas to past experiences (e.g., Bransford, 1979; Idol, 1988; Lapp, Flood & Gleckman, 1982; Pearson & Johnson, 1978).

Building on the definitions of cognitive psychologists (e.g., Bruner & Anglin, 1973; Bruner *et al.*, 1956; Vygotsky, 1962), reading educator Stauffer (1965, p. 105) explained a concept as a concrete or abstract "network of inferences" which was discriminated and categorized as an object, idea or event based on previous experiences or other inferences and acquired through higher levels of thinking rather than drill or rote memory. In language, a concept was believed to be housed in a word which represented a generalization (or set of generalizations) and, as such, was part of a hierarchical (superordinate, subordinate) system of relationships based on degrees of generality. In other words, it is hypothesized that our prior experiences are housed in concepts which in turn are housed in vocabulary (Johnson & Pearson, 1984; Pearson & Johnson, 1978) and that these "networks of inferences" are clustered and systematically

interrelated.

Furthermore it is postulated a learner's considerations of the relations of a concept provide hooks or anchors (Ausubel, 1965) for incoming information. When new information matches the reader's pre-existing knowledge, assimilation is said to occur; accomodation results if the novel information undergoes modification or alteration (Bransford, 1979; Nelson-Herber & Herber, 1984; Pearson & Johnson, 1978; Piaget, 1952).

Numerous reading educators have addressed the importance of concepts and their development in relation to reading comprehension (Adams & Bruce, 1982; Ausubel, 1965, 1968; Bransford, 1979; Braun, 1963; Durrell & Murphy, 1963; Marcum, 1944; Pieronek, 1979; Sims, 1938; Strang, 1968; Waters, 1934).

Others investigated the importance and benefits of concept instruction in the classroom (Chambers, 1904; Cunningham, 1987; Holmes, 1934; Horn, 1937; McCullough, 1959; McKee, 1948; Martorella, 1971, 1977; Serra, 1953; Smith, 1954; Stauffer, 1965), suggesting teachers need to be aware that prior knowledge influences concept development and that direct concept instruction enhances comprehension. It would appear that "concept development merits a first order rating in the teaching of reading as a thinking process" (Stauffer, 1965, p. 101).

This instructional aspect of developing prior knowledge, and specifically concept relationships, has appeared in reading methodology (Aulls, 1982; Durkin, 1970, 1980; Ekwall & Shanker, 1985; Gray, 1948; Harris, 1961; Karlin, 1980; McKee, 1948; Pearson & Johnson, 1978; Stauffer, 1969). In addition, methodology texts have revealed a shift from incidental mention of concepts and concept development to a recent stress of the importance of prior knowledge and its inclusion in instruction (Durkin, 1970, 1980; Karlin, 1971, 1980; Spache &

Spache, 1973, 1986). It would appear that current emphasis on the interactive aspects of reading comprehension led to stronger suggestions for teaching cognitive associations and concept relations in lessons. According to Stauffer (1969), concepts apparently go beyond a singular vocabulary definition, and it was further suggested (Pearson & Johnson, 1978; Beck, 1984) teachers need to be reminded that there is a difference between merely defining a word and owning a word in its fullest sense.

There appears to be a modest empirical basis for urging teachers to a) be aware of the connection between concepts and prior knowledge with respect to their relationship and terminology; and b) aid students in activating and understanding concept relations in reading. According to Pearson (1985), in order for a reader to comprehend an entire passage and understand relationships among words and ideas, he must have knowledge of its key concepts.

Teachers have long used basal reader guidebooks as sources of suggestions for reading lesson vocabulary, concepts and their development (Durkin, 1984; Mason, 1983). However, we do not know whether or not teachers would be able to identify key concepts on their own if resources other than basals were used. This aspect in instruction needs to be further explored.

This study endeavors to determine a) whether elementary teachers are able to identify key concepts in six narrative stories; and b) whether contact with current reading research and their attitudes towards the significance of students' prior knowledge influences their ability to identify those key concepts.

C. PURPOSE OF THE STUDY

It was the purpose of this study to examine whether a) elementary teachers could identify unaided or cued key concepts in narrative prose; and b) their cued identifications were influenced by their exposure to current reading research and their attitudes towards the importance of prior knowledge.

Specifically, the questions were:

1. Would elementary teachers be able to identify key concepts in six narrative prose passages unassisted?

2. Would elementary teachers identify cued key concepts in six narrative prose passages and would there be any differences between the identifications of primary and intermediate teachers?

3. Would elementary teachers' identifications of cued key concepts be influenced by a) their exposure to current reading research (courses, journals, in-service); b) their attitudes towards the importance of activating student prior knowledge; c) a combination of exposure to reading research and attitudes?

To answer these questions, four null hypotheses were formulated and are located in Chapter III.

D. SIGNIFICANCE OF THE STUDY

The study was considered to be potentially important for students, educators and publishers. Comprehension for narrative prose could be improved if teachers were aware of the importance of activating students' prior knowledge in pre-reading activities and if they were consistently able to identify the appropriate, passage-relevant key concepts necessary for that activation. The study

would also provide insight into the choices behind elementary teachers' initial, unassisted key concept identifications.

E. LIMITATIONS OF THE STUDY

Several limitations were anticipated:

1. The narrative passages were short and might not reflect the concept load typical of a full-length story used in regular classroom lessons.

2. The spontaneous (unaided) key concept identifications had no control and therefore would require an exploratory content analysis to discover any patterns or phenomena.

3. The population was limited to one school district and findings might not be generalized beyond the conditions of the study.

F. DEFINITIONS

concept:
> "A network of inferences that are discriminated and categorized as belonging to the same object or event (class or kind), which provides the bases for inferences about other categories, and is usually represented by word(s) or other symbol. Concepts may be defined on a subordinate and superordinate basis and classified as a part of a system. In addition, they may be classified as perceptual (concrete) or conceptual (abstract) depending on the source of the attributes being used." (Stauffer, 1965, p. 105)

cued identifications:
> supplied groups of passage-relevant concepts of which three are considered to be central to understanding the story

key concept:
> the superordinate, generalization or expectation which subsumes and incorporates subordinate concepts and is considered to be central to understanding the story

prior knowledge:
> a learner's experiences which are housed in concepts; also referred to as conceptual knowledge

prior knowledge activation:
> to actively engage the appropriate, relevant network of inferences (concepts) in the mind's store of prior experiences which will dynamically interact with the new incoming information; also referred to as concept development

spontaneous key concept identifications:
> the unaided, unassisted teacher suggestions for passage-relevant central concepts they would develop

CHAPTER II. REVIEW OF THE LITERATURE

The review of the literature is disussed under the following headings: Prior Knowledge Influences Reading Comprehension; Prior Knowledge Studies; Prior Knowledge and Concepts; Summary.

In the process of reviewing the related literature, it became increasingly evident that the notion of prior conceptual knowledge is not a new one. Its apparent strong re-emergence as a topic of concern for the 1980s is interesting. The rebirth of the importance and influence of prior knowledge is viewed by Strange (1980, p. 270) as a case of "finer and new wine in old bottles".

A. PRIOR KNOWLEDGE INFLUENCES READING COMPREHENSION

Numerous authorities have suggested that since reading is an interactive thinking and learning process, a reader's prior knowledge and experience influence reading comprehension at the literal level and beyond.

Huey (1908), whose interest was directed to the psychological and pedagogical aspects of reading, said students should acquire their own experiences and that over a period of time, they would assist in meaningful reading, for a text is considered to be secondary to the learner's thought.

Kerfoot (1916, p. 20) in *How to Read*, proposed:

> We read then quite literally, with our own experience. We read with what we have seen and heard and smelled and tasted and felt. We read with emotions we have had ... We read with the observations we have made and the deductions we have drawn from them; with the ideas we have developed and the ideals we have built into them.

In his classic study of mistakes in paragraph reading, Thorndike (1917) claimed that reading was not "mechanical" or "passive" (p. 434), but rather a process of organizing, elaborating, and actively making connections between ideas.

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This, he said, involved higher levels of thinking. He suggested that problems in reading may be due to the over-potency or under-potency of elements or misguided connections in meaning.

> Understanding a paragraph ... consists in selecting the right elements of the situation and putting them together in the right relations ... The mind ... must select, repress, soften, emphasize, correlate and organize (p. 431).

In other words, the reading process is considered to be interactive, incorporating reasoning and the weighing of appropriate elements, "their organization in the proper relations to one another, the selection of certain of their connotations and the rejection of others ..." (p. 425). It appears that the mind matches new information to old in order to reason and understand.

According to Starch (1919), who summarized studies in the psychology of reading, the meaning of a word is the result of its recurrence and connection to past experiences. Moreover, he believed the most critical step in the reading process may be the application of meaning into the incoming impressions based on mental and central neural activity. The speed with which a reader produces ideas may also depend on the store of vicarious or real experiences s/he is able to connect to the new material.

William S. Gray (a 1937,b 1941) stated (b,p. 27),

> the chief resource of the reader is his background of related experience. Only in so far as the reader's experiences relate in some form or other to the concepts or situations to which the author refers can the reader comprehend what is read... As meanings are aroused or discovered, they are so fused or related in the mind of the reader that the general meaning of the passage is understood.

Therefore, a reader's need for rich vocabulary and background of related experience would seem critical to comprehension. He continued, stating that

problems result when classroom materials presume children possess the necessary common, broad backgrounds of related experiences needed for the thinking processes in comprehension.

Durrell & Chambers (1958) focused on the need for further research in thinking as it relates to reading. They stated that thinking employs a variety of mental tasks and suggested it can be specifically taught, adding that association and elaboration may be key factors influencing reading comprehension because of their possible transfer value and their function in relating previous knowledge to new content. They suggested that instruction in elaboration may also increase retention and afford easier retrieval of prior knowledge in novel situations.

Russell (1958) supported the view that among factors which determine understanding of print is the role and active participation of the reader. He called for further research concerning the apparent process between text and reader, citing studies dealing with effects of both adequate and misleading prior knowledge and how attitude affects critical judgements, inferencing and the acquisition of new factual material.

Proposing that children can be instructed in how to think, Betts (1959) made a distinction between verbalism (a "false security" in mechanical word manipulation) and critically thinking about ideas. He provided suggestions about tactics and strategies to prepare and guide students, warning teachers that the quality of students' prior experience influences their ability to solve problems, make conceptual abstractions and generalizations, to evaluate and draw conclusions.

Harris (1961) was concerned with increasing reading ability and

postulated that stages (intermediate grades) in reading may incorporate complicated material, ideas that are beyond students' experience, unfamiliar vocabulary and a more complex language. Harris pointed out that a reader must therefore improve his vocabulary, build and expand concepts and ideas, and discriminate between story and information material in order to cope. Further, he said, a reader relates the new information to prior experiences in order to make comparisons and detect ambiguities.

Hildreth (1963) addressed the goal of reading as a search for meaning and comprehension incorporating principles of associative learning, promotion of active student participation in the reading process, roles of perception and the importance of students' experiential background. She postulated that a child who possesses a relevant rich background of experiences, that allows quick meaningful association and word recall, will learn to read with greater understanding.

Reading comprehension, according to Pearson and Johnson (1978) is "building bridges between the new and the known" and involves functioning concepts and prior experiences, their assimilation and accomodation. They suggested a distinction between word recognition and primacy of vocabulary meaning, seeking full "ownership" of a word in lieu of a superficial definition. Adhering to the belief that experience is the basis for inferences, for reading "between" and "beyond" the lines on a page, they proceeded to adopt Schank's (1973) term "scripts" to represent the dynamic everyday "take-for-granted knowledge" readers possess to interpret events and situations. Pearson (1985, p. 729) later emphatically stated that "A reader's knowledge about a topic, particularly key vocabulary, is a better predictor

of comprehension of a text than is any measure of reading ability or achievement".

Tierney and Spiro, 1979 believed in a contractual triad (shared-field) relationship between author, text and reader. Text is likened to a "blueprint" guiding a construction of understanding, since a text is never entirely explicit. They further stated that the extent of the reader's experiences, purposes, skills and attitudes will determine the extent to which the author's message will be understood. They warned teachers to be cognizant "that the old is required to understand the new" (p. 16), that influencing and interpreting are keys to understanding and procedural flexibility is necessary during instruction.

Michael Strange (1980) discussed the interactive conceptual theory of reading where (p. 269, 270) "We comprehend print in terms of existing knowledge and that this knowledge is changed at the point of contact between what we know and what is new... it assists a reader in making an inference." However, he believed these current ideas were presented in earlier research and that teachers are already aware of the need to build childrens' prior knowledge though they may require reminding. "It is not, however simply a case of old wine in new bottles, but rather, finer wines in old bottles and little new wine, too" (p. 269). He stressed the importance of activating students' prior knowledge in prereading activities, and emphasizing vocabulary and conceptual relationships in classroom instruction.

Durkin (1981) addressed the value of the recent resurgence of interest in reading comprehension undertaken in interdisciplinary research.

She adopted a response of cautious optimism and called for increased communication among educators and researchers. She agreed with Strange (1980), that the notion that a reader's prior experiences affects comprehension is not a novel idea but rather, has been labeled under new terminology. For many years, she said teachers were instructed to build and review relevant concepts, vocabulary and childrens' experiences before reading a story, because the more a reader understands a topic, the better he will comprehend what s/he reads. Unfortunately, Durkin (1979) found that teachers spend little classroom time in actual pre-reading instruction.

Successful communication involves the use of conceptual knowledge according to Adams and Bruce (1982), for a person constructs meaning from prior experiences. They pointed out that there must be a good match between the reader and the text material. They were in agreement with Tierney and Spiro (1979) when they warned of possible discrepencies between the actual knowledge a reader has and the presumed experiences expected by the author to evoke favourable influences and interpretations of his less than totally explicit text. Mismatches and short-circuits may occur do to irrelevant or inappropriate concept instantiation, incorrect property or characteristic association, or insufficient prior knowledge.

Again, from the standpoint of artificial intelligence, Shank (1982, p. 61) proposed a

child must have a well developed sense of the world around him in order to understand stories about the world ... it is world knowledge, and the processes that utilize that knowledge, that constitute the key issues in reading comprehension.

In other words, if children lack the appropriate, relevant background experiences,

they cannot be expected to comprehend. Readers, he said, use inferences to fill in gaps in a text and the knowledge of common, day to day situations (which is organized in "scripts") is an important source of those inferences. Scripts, he insisted, helped to define the context of a story and to "track" the characters' plans and goals in order to gain insightful understanding.

From A Third World perspective on reading, Obah (1983) posed the cultural dilemma that many Third World students possess different prior experiences than those encountered in our Western reading materials. She identified a conceptual and cultural gap, stating that a message will have no meaning if the learner is unable to relate the new to the old and reading performance will suffer. Insufficient prior knowledge she believed inhibited prediction and hypothesizing and slowed the reading rate.

According to Wilson (1983), it appears that teachers are not practising reading as a process techniques although recent research has focused on the interactive aspects between the reader's knowledge and text. In her interactive model, the learner's prior knowledge and inferencing skills were placed at the core, emphasizing the need to connect the new (text) information to background knowledge already in the reader's head. She asserted that connection may be one of the most crucial factors determining comprehension and proceeded to offer suggestions for instruction which include the activation of students' prior knowledge before reading as well as building concepts.

To summarize, the review of the literature lends support to the opinions of Strange (1980) and Durkin (1981) that the reader-text aspect of reading and the notion that a reader's prior knowledge influences comprehension are not entirely new concepts in reading education. Recent literature illustrates the current

resurgence of their importance in reading research. Though theorists may differ in their models or views about how prior knowledge is organized in memory, they appear to agree that reading is actively seeking meaning from print involving interactions, selection, construction, inferences and prediction. In other words, they have highlighted the reader's active role in reading comprehension and stressed the significance and influence of the reader's prior conceptual knowledge at the literal level and beyond. Table 1 provides a summary of the reading authorities and their viewpoints on the influence of prior knowledge on reading comprehension.

Table 1: Summary: Prior Knowledge Influences Reading Comprehension

Authority	Date	Viewpoint
Huey	1908	Students should acquire & develop experiences that will make reading a natural & meaningful process.
Kerfoot	1916	We read with our own experience.
Thorndike	1917	Understanding a paragraph consists of selecting right elements in right relations.
Gray	1937, 1941	The chief resource of the reader is his background experiences. If these relate to new information, comprehension results. Need to build rich vocabulary & concepts.
Durrell & Chambers	1958	Elaborative and associational thinking may be key factors in reading because they relate new content to prior knowledge.
Russell	1958	A reader has an active role in the reading process which determines the impact of print.
Betts	1959	Students' prior experiences affect their ability to think critically.
Harris	1961	A mature reader relates his prior knowledge and experience with the present material.
Hildreth	1963	A child who possesses a relevant, rich background of experience will learn to read with greater understanding.
Pearson & Johnson	1978	"Comprehension is building bridges between the new and the known."
Tierney & Spiro	1979	Text is like a blueprint, never totally explicit and guides construction of meaning. The old is required to understand the new.
Strange	1980	Print is comprehended at point of contact between what we know and what is new. Process requires inferencing. Need to build prior knowledge in pre-reading activities.

Table 1 continued

Authority	Date	Viewpoint
Durkin	1981	Idea that a reader's prior knowledge affects reading comprehension is not a novel one. Little instruction time occurs in classrooms, however.
Adams, Bruce	1982	"Without prior knowledge, a complex object, such as a text, is not just difficult to interpret, it, strictly speaking, is meaningless".
Schank	1982	Stories about the world cannot be understood unless a child has a well developed sense of the world. World knowledge & its processes are key issues.
Obah	1983	Third world students suffer in reading comprehension due to cultural & conceptual gaps between their prior knowledge & western educational materials.
Wilson	1983	Reading as a process is not reflected in classroom practice. Relationship between what a reader already knows and what is on the page is one of the most critical factors that determines comprehension.

B. PRIOR KNOWLEDGE STUDIES

A number of studies have added empirical evidence to the opinions expressed about the important role and influence of prior knowledge in reading comprehension, learning and remembering.

Bartlett (1932, 1958) suggested we use preexisting knowledge stored as "schemata" in memory to guide and reconstruct incoming information but that some distortions in the recall of prose may result. He asked adults to retell a culturally unfamiliar legend (The War of the Ghosts) in order to discover how errors occur in the reconstruction of details.

He identified three systematic distortions in recall, though subjects felt that they were accurately remembering. Flattening occurred when unfamiliar details such as proper names were not remembered. Elaborations and sharpening were evident in the retellings. Rationalization resulted as subjects reconstructed a shorter version of the story according to their cultural expectations, their prior knowledge and concepts.

Bartlett proposed that we do not merely retrieve stored constructions, but rather, remember the general idea or gist of a story and reconstruct the details as they conform to our idiosyncratic beliefs about the content. However, the study appears to lack the quantitative, objective methods of judging data (he used simple word counts) and replications of the distortions is not considered possible due to the absence of experimental manipulation of variables. As well, he did not show how "schemata" aid in the retention of prose.

In 1937, Hilliard and Troxell studied prior informational background as a factor in reading readiness and progress. Investigations of the background information of kindergarten children continued through to grade two to determine

how possession or lack of a rich experiential background influenced reading readiness tests.

Background knowledge was measured by results of a questionnaire to parents, Smith Vocabulary and Healy Pictorial Completion tests, while reading progress was decided by the Gates Primary Reading Test. Results indicated that the group of children who had a wealth of prior knowledge were well ahead of the "meager" group.

Ten years later, Chall (1947) investigated the influence of previous knowledge on reading abililty, believing that if a reader already knows the subject of a passage, s/he will be better equipped to read and understand. One hundred subjects (grades 6 to 8) read a Health Paragraph Test (HPT) which consisted of fifteen health passages (different for each grade) about tuberculosis. Four multiple choice questions for each passage tested the readers' ability to generalize, recall details and make inferences. Correlation measures between the HPT and Stanford Reading Test provided a reliable coefficient for the HPT as a reading test.

To determine prior knowledge about tuberculosis, an eight-item true/false test was administered before reading the HPT paragraphs. It was believed that students who scored high on the prior knowledge test would also score high on the HPT. Students were ranked on the basis of their HPT criterion scores, with their scores on the TB information test beside. Means for the upper and lower 27% of the distribution were computed for both tests showing significant differences at the $p < .01$ and $p < .05$ levels. However, Chall could not control for the intelligence factor as a major determiner of high scores, so she used Stanford Reading Test grade equivalent scores to rank pupils and to compare

"tuberculosis" scores. Though it was not found significant from the t-test, prior knowledge was identified as a factor in understanding, since the more a subject knew about tuberculosis concepts prior to reading, the better he was able to comprehend the Health Paragraph test about TB. Chall therefore emphasized the need to build students' experiences in the elementary grades.

Piekarz (1956) compared the case studies of two elementary students, one high level and one low level reader, based on their ability to derive accurate meaning from text. They were selected from a group of bright 22 6th graders who were involved in an investigation of the interpretive reading process and who were considered equal on standarized test scores but not in their interpretations of text content. The group had read an emotive passage about parent-child relationships silently, reread it orally in shorter units typed on cards, verbalized their thoughts and orally answered 30 experimental questions about the passage. The questions measured understanding of the selection and were distributed among nine interpretation areas (eg. details, main ideas, inference, definition of terms).

The high level (male) reader correctly answered 23 of the 30 questions and verbalized 93 responses (classified in all nine areas) compared to the groups' 52 answers. He was able to identify details to get at the broad meaning of the passage. The (female) low level reader had verbal responses in six of the nine areas (53% literal, 26% broad, 21% evaluative), contributing more details of activated personal experience and deriving narrow, biased and less accurate meanings.

Results suggested that high level readers remain objective, incorporating their background knowledge to enhance meanings or to prove a point, and

restrict answers to ideas expressed in the selection. Low level readers seemed to be unable to distinguish between personal opinions and those of the author, frequently allowing their prior knowledge to override the message.

To demonstrate the role of prior knowledge in comprehending and remembering linguistic materials and its necessary relevant activation during processing, Branford and Johnson (1972) undertook four experiments which manipulated subjects' prior knowledge. A comprehension seven-point rating scale followed by a seven minute recall measure was used.

Fifty male and female high school students were divided into 5 groups, ten in each, to hear a tape recorded passage about possible breakdowns in communication during a serenade. The prior knowledge needed to understand the contextual information was presented in the form of two pictures labeled appropriate context and partial-context. They were not considered to be a part of the subjects' prior knowledge before the experiment.

In Experiment I, The No Context (1) group only heard the passage before rating and recall; Context Before Subjects saw the appropriate picture before listening; Context After Subjects heard the passage, then were shown the appropriate picture; the Partial Context group saw the partial context picture in which objects and their relations were rearranged; the No Context (2) group listened to the passage twice to assess repetition effects in absence of context.

Results showed ratings of comprehensibility to be higher for the Context Before subjects than the other four groups ($p < .005$) and they recalled more ideas ($p < .005$). The other groups reflected some increased ratings but not as much as the Context Before group. It was concluded that focusing on prerequisite material is important for better understanding, especially when it provides meaningful

stimulus sentence connection and an organization for prior knowledge.

Experiments II, III, and IV utilized materials ("Washing Clothes" and "Making and Flying a Kite") considered to be part of the subjects' pre-experiment knowledge and a topic cue to assist in the activation of relevant context. In Experiment II, the No Topic group (17Ss) listened to a passage but received no information; the Topic After group (17Ss) were told the topic after listening and before rating or recall; the Topic Before group (18Ss) were given the topic prior to the passage. Experiments III and IV used various combinations of the condition groups.

Comprehension ratings were highest for the Topic Before subjects (p<.005) and recall was better (p<.005) than the other two groups in both Experiments II and III. Topic Before rating scores were higher in Experiment IV than the No Topic Scores (p<.05) as well as recall of the Topic Before Ss (p<.05).

Bransford and Johnson suggested prior knowledge must be activated to facilitate current understanding. Topics appear to prepare contexts which are important for passage comprehension. Further, the lack of appropriate semantic context seems to effect memory and recall. Their work reflected a constructive (versus Bartlett's reconstructive) comprehension process where remembered inferences and meanings are constructed. These may or may not differ from the message.

The Bransford and Johnson (1972) findings focused on linguistic inputs. To illustrate the belief that connections between prior knowledge and current information are also important in the comprehension of physical, visual inputs, Bransford and McCarrell (cited in Bradsford, 1979) presented subjects with pictures of incomprehensible objects. The subjects could see the objects but were

unable to understand them until another visual presentation provided contexts for the objects.

Bransford and McCarrell then presented a picture of five different pairs of scissors. Subjects recognized them as various types of scissors but did not fully understand their importance until a chart explaining the relationship between scissor structure and function was provided.

These illustrations support evidence that presenting relevant information that activates appropriate knowledge affects understanding.

According to Anderson *et al.* (1977), an individual's previous world knowledge and ability to analyse context influences the comprehension of a communication. They investigated whether people from different backgrounds would perceive passages in respectively different ways.

Thirty female music education and thirty male weightlifting students participated in two groups of 15. Two passages of approximately 450 words each were written. The first could be interpreted from either a prison break or wrestling perspective while the second passage could be perceived from a card playing or music rehearsal standpoint. Subjects read the first passage, completed a vocabulary test and free recall. Then they read the second, again worked on vocabulary and free recall, and completed two multiple choice tests (10 items each) on the two passages.

Results indicated a significant (p<.01) interaction between subjects' background (wrestling or music) and passage. The physical education students on the Prison/Wrestling test, t(58)= 5.60 provided more correct wrestling-perspective answers than music students. Music students' answers were music-consistent on the Card/Music test, t(58) = 6.53. Each passage was given one distinct

interpretation or the other. A mean proportion of .36 of total idea units were recalled in the Card/Music passage and .31 of the units in the Prison/Wrestling break, showing a main effect for passage.

Prompted by Bartlett's (1932) identification of intrusions and distortions, the authors found theme-revealing intrusions (phrases or sentences unrelated to passage idea units) occurred in .26 of the recall protocols, while disambiguations (paraphrases) appeared in .69 recalls. Both were found to be significantly related ($p < .01$) to subjects' prior knowledge.

Analysis of autobiographical information supported the view that prior knowledge influenced the passage interpretations. Further, only 23% were aware of the possibility of an alternate interpretation for passages.

Pichert and Anderson (1977) continued study in the area of perspective and how it determines significant text elements. In Experiment I, 63 University of Illinois undergraduate students participated in rating the importance of idea units in two narrative passages read from different perspectives. The "House" passage could be interpreted from a burglar's or prospective homebuyer's view, while the "Island" story could be seen from an eccentric florist or shipwrecked person standpoint. On the basis of mean rating, idea units were rank ordered in each perspective with the mean coefficient .11, showing that idea units varied across perspectives.

In the second experiment 113 subjects in intact groups (3-25persons) were then randomly assigned to conditions. The procedure included reading the passage, working on a vocabulary test, completing a free recall test and a debriefing questionnaire.

A free recall was repeated one week later. Perspective X Learning and

Perspective X Idea Unit Importance were significant (p<.01), reflecting that a particular perspective determines the importance of ideas and whether they will be learned. This lends support to schema theory which proposes readers interpret a passage by matching and subsuming (Ausubel, 1965) new information into pre-existing high-level schema (perspective) in the head.

Idea units had a significant effect on memory in that the more important ideas were better recalled. Dated importance had a more powerful effect on the proportion of the more immediately recalled idea units (p<.05) than those remembered a week later.

Pearson, Hansen and Gordon (1979) assessed the effect of prior knowledge on the comprehension of explicit (directly stated) and implicit (requiring inference, synthesis) information. Subjects were 25 second grade students from four Minnesota classrooms who were individually administered an oral prior knowledge test (8 pretest questions) about spiders to determine the 10 highest (strong schema) and 10 lowest (weak schema) scores to be used in the experiment. The difference in means numbers of correct responses was significant (p<.001) but subjects were similar in measured I.Q. and reading ability.

One week later subjects individually read a grade-level passage on spiders and orally answered six implicit and six explicit interspersed questions. All responses were recorded and scored.

Results indicated a significantly better overall performance (p<.01) by the strong schema group. A within-subjects main effect for question type (p<.01) showed implicit (inferential) questions were more difficult than explicit. As well, Scheffe tests reflected a more pronounced prior knowledge effect for inferred, implicit questions (p<.025). The use of a simple passage in lieu of a population

passage and the possibility that question type effect was due to chance were acknowledged limitations of the study.

Pearson *et al.* suggest these data support the belief that prior knowledge facilitates comprehension, especially inferential comprehension. The stronger the prior knowledge (organized in a conceptual framework), the more likely concepts will be classified or remembered and retrieved to fill in gaps in the text.

Hansen and Pearson (1980, 1982) later tested a training strategy using 24 second grade students of average or slightly above average reading level and 20 good, 20 poor 4th graders. They found that making connections between text information and prior knowledge and practice in answering inferential questions, increased children's ability to draw inferences. Instruction appeared to especially assist poor readers who outperformed the control group. The strategy appears to be successful. It may be that differences between the performances of children and adults may be explained by their differences in prior knowledge as determined by their ability to draw infererences and make make connections.

Prior knowledge is presumed to influence the kinds of inferences children make when answering questions about narrative stories. Nicholson and Imlach (1981) demonstrated that text data and prior knowledge compete during question answering. Though Experiment I dealt with the alteration of text through imbedded inconsistencies, Experiment 2 added a causal "preference" factor based on the premise that children were inclined to use certain types of inferences in narratives, overlooking explicit statements in favor of their own inferences about why events happen.

Forty-four (22 boys, 22 girls) eight year old, average and above average children from two schools read four narrative (two familiar and two unfamiliar)

texts. Predictable and unpredictable versions were created for each story, varying the causal preference (internal, external) factor within each version.

Results indicated a significant effect for causal preference ($p < .01$) with no effects for story familiarity or causal type. Children may overlook text reasons for events and impose their own explanations instead.

Johnson (1982) postulated that English as a Second Language (ESL) readers may depend more upon their prior knowledge than on linguistic text features while comprehending and may not recover from incorrect integrations and information, or inaccuracies of text. She studied the effects of cultural prior experience and exposure to difficult vocabulary words on a reading comprehension passage about Hallowe'en.

Seventy two University advanced-level ESL students representing 23 nationalities participated. The Hallowe'en passage consisted of a familiar and unfamiliar section and low-frequency words. Subjects completed a true/false sentence recognition task, were then assigned to one of four test conditions and asked to recall the passage in written form. Two weeks later they were administered a cloze test on the passage.

Results indicated real, direct cultural prior experience affected ($p < .05$) ESL students' understanding of the Hallowe'en custom. Written recall of familiar information was significantly better ($p < .01$) than unfamiliar information. Familiar information was also recognized more accurately than the unfamiliar ($p < .01$). Effects of background knowledge were more clear than effects of vocabulary difficulty and Johnson proposed that written recall language problems may be the result of a lack of prior knowledge about the topic.

Lipson (1982) investigated the relationship between prior knowledge and 28

(14 average and 14 below average) third graders' comprehension of 8 expository passages from primary science and social studies texts. A pre-test session assessed prior knowledge of the topics. Pupils read the passages a week later, completed an intervention task, and chose the best answer for each of six paired sentences.

A main effect for question type $(p<.005)$ was found and subjects significantly $(p<.01)$ identified more explicit than inferential information. Event and causal inferences appeared to be more difficult than attribute or goal inferences $(p<.01)$. Prior knowledge of the topics was significantly different $(p<.01)$ for subjects from one passage to another and prior knowledge as a precondition was considered to be a source of variance $(p<.001)$ in post-test performances.

Lipson found that correct pre-test answers predicted correct post-test answers and that a child was more likely to get an item correct when information was unknown at pretest than if they scored a pretest incorrect answer. Even when the text information conflicted with the reader's prior knowledge, subjects used their previous experience to answer questions. They resorted to text only when prior knowledge was unavailable. She further suggested that both groups could understand new incoming information when no wrong prior information "clutters" and confuses their schema.

In an effort to determine the influence of prior knowledge on prose information accessibility and availability, Mathews (1982) compared 34 fourth graders' free and probed recall (tested 24 hours later) of a target passage after listening to a related knowledge passage or one that was unrelated. "Accessible" information constituted the correct number of micropropositions freely recalled,

while answers to eight probed questions provided information "available" in memory.

There were no significant differences in free recall for the two conditions reflecting no information accessibility differences. However, an analysis of free recalls with respect to hierarchical text structure favored the prior knowledge group and suggested the qualitative impact of prior knowledge on accessing information. A greater availability of information was shown by the significantly higher scores of the prior knowledge group on probed recall.

Callahan and Dunn (1984) investigated the effects of level of prior knowledge and reading ability on the understanding of written prose. Ten days before reading three passages, twenty fifth and six graders of high (n-10) and average (n-10) reading ability were administered a twenty word free-association vocabulary test, which incorporated 12 key words from the passages. Scores for level of prior knowledge were obtained based on the meaning of the responses.

The passages represented three conditions: a) intact, b) the absence of the topic sentence, and c) the deletion of the topic and concluding sentences. Subjects read each of the passages in one of the conditions. Recalls (oral) were matched against the structural analysis of the passages. Subjects were requested to insert cloze sentences for the missing information which were scored on a five-point scale based on their relevance.

Prior knowledge best predicted recall, inference, and cloze insertions, as indicated by a step-wise regression analysis (which demonstrates the increment added by every predictor).

Johnston (1984) found that prior knowledge may bias information gained from reading comprehension tests. Eighth grade (207) rural and urban students

completed an 18-question reading comprehension test based on three 650-750 word expository texts. The test was comprised of 6 text explicit (directly stated), 6 text implicit (use of inferences, synthesis) and 6 script implicit (demanding use of background knowledge) central and peripheral questions which would demonstrate the qualitative and quantitative effects of prior knowledge. Subjects' content-related vocabulary knowledge was tested by 33 items. As well, they were administered the IPAT nonverbal reasoning test (Culture Fair Intelligence Test scale 2) to estimate general reading ability ($M=103$).

Four between-subject experimental conditions were established to answer questions. Group 1 was least dependent on long-term memory as they had text availability for reference; Group 2 could not refer to the text and answered questions immediately; Group 3 had no text availability and completed an imposed task between reading and answering questions; Group 4 was the control group, required to answer questions without reading the text in order to show prior knowledge effects on reading.

Results suggested prior knowledge, independent of IQ or other between-subject variables, influences reading comprehension ($p<.001$). Standardized reading tests seem to be biased toward readers who possess a greater general ability. Test bias may be lessened if a reader's prior knowledge can be estimated by a content-specific vocabulary test (answered by a within-subjects design) and if passage questions reflect information centrality.

It seems the best way to evaluate students' understanding of a passage is to ask central questions, but to assess their prior knowledge, scriptal questions are recommended. Question type contrasts ($p<.001$) reflected an easy (text explicit:$M=45\%$) to difficult (script implicit:$M=29\%$) progression. There was a

significant contrast (p<.01) between Group one and the other groups and a significant interaction (p<.005) between prior knowledge, centrality and text availability.

Langer, (1984) focused on the relationship between prior knowledge and comprehending expository passages, the usefulness of a background knowledge measure for teachers, and the effects on comprehension of a pre-reading activity (PReP) designed to elicit and elaborate students' existing prior knowledge. 161 Long Island sixth-grade students, categorized as above, on, or below reading level in reading achievement (ITBS, M=5.8; IQ, M=112) were randomly assigned to within-class small groups and treatment conditions.

In the first session students completed free association response measures for two grade six social studies passages (World War I, Stonehenge) or an unrelated distractor activity. One week later during the second and third sessions, they engaged in one of the pre-reading conditions: (a) PReP-association, reflection, reformulation of key concepts, (b) motivational general discussion, (c) no intervention. They repeated a free association task, read the passages and finished a twenty wh-question criterion comprehension test (equally divided into 2 groups of superordinate and subordinate, textually explicit and implicit questions).

Results indicated the free association background knowledge measure, a system which estimates the quality of a reader's prior knowledge about text-related key concepts before reading, is a significant predictor of total comprehension (p<.05). The PReP group performed better than the two other condition groups on passage-specific comprehension questions (P<.05). The PReP condition achievement level interaction reflected an overall significance (p<.005) with greatest gains for the on-level reading group and no effect on the

below-level group. The results suggest a positive value for the PReP in raising students' quality of prior knowledge and in turn aiding in comprehension, but puts the onus on the teacher to choose the relevant key concepts.

The effects of prior knowledge and information orderings on immediate and delayed recall of unfamiliar information were examined by Davey and Kapinus (1985). Effects of cognitive style and reading ability were covariates. Ninety-six high and average 8th grade readers were grouped according to high or low prior knowledge pretest scores and randomly assigned to either an unfamiliar (U) followed by a familiar (F) information passage order, or a familiar (F) followed by unfamiliar (U) order, both about computers. Cognitive style was measured by the Group Embedded Figures Test; reading ability was determined by the California Achievement test. Subjects were asked to complete an immediate 20 question multiple choice test of the unfamiliar information, then another form of the test one week later.

Immediate recall scores were higher than delayed scores. High prior knowledge subjects scored better on the unfamiliar, familiar information order. Immediate recall scores were higher with the unfamiliar, familiar ordering but no difference was noted for delayed recalls. Reading ability was identified as the main covariate contributor with a significant combined effect with cognitive style. A significant prior knowledge main effect was found when reading ability was deleted. All results were at the $p < .05$ level of significance. Interaction effects were significant for test time and passage order as well as prior knowledge and passage order.

Results suggested a possible over-reliance on prior knowledge by students while reading familiar material. Initial, novel encounters with unfamiliar text

appear to result in greater immediate recall but over time the ordering effect does not seem to hold. Perhaps students need to first engage in a more active, integrative, attentive process with familiar information to enhance delayed recall.

According to Taft and Leslie (1985), children with high prior knowledge made fewer comprehension ($p<.05$) and graphically similar ($p<.01$) oral reading miscues. Average third grade students ($n=50$) were divided into two groups depending on whether they had or had not finished a unit on the topic of food chains. To determine level of prior knowledge, subjects completed a seven key concept free association task based on the 281-word expository passage about food relationships. They then read the passage orally and were asked to retell (scored by the number of recalled propositions) as much as they could remember. Next, their miscues were scored according to their relevance, correctness and similarity to text criteria.

As oral reading accuracy was recorded at 90-94%, or 95-99%, ten subjects who scored below 90% were excluded from the analysis. Subjects were then to answer comprehension questions on the passages. The number of textually explicit, textually implicit and scriptally implicit comprehension questions answered was affected by subjects' level of prior knowledge ($p<.05$). The effect on probed recall supports Mathews' (1982) suggestion that high level prior knowledge affords greater availability of information.

Semantic mapping has been a popular strategy used to build prior knowledge and concepts. Stahl and Vancil (1986) summarized a number of studies which point to the beneficial significant effects of semantic maps presented through discussion, visual display or both. They studied the importance of the three components with 45 6th grade students from three classes in two Illinois

schools. Subjects were initially given the Gates-MacGinitie Reading Test, Level D, Form 1 and a vocabulary checklist of 12 content target words and distractors about weather chosen from two grade level passages on clouds and precipitation.

Subjects were randomly assigned to 3 treatment conditions: a) the Full group received the visual map display and extensive discussion; b) the Discussion Only group talked about the concepts and their relationships and c) The Map Only group were guided by a map display and were required to study word meanings with no discussion. Six words from a clouds passage were presented to all subjects during the first week using Full treatment. In the second week six target words about precipitation were introduced to students in their particular, assigned conditions, followed by three post test measures which included multiple choice cloze and sentence anamoly tests.

Favorable results of the discussion factor as a key semantic map component emerged. The Full and Discussion Only treatment groups scored higher ($p < .01$ for cloze, $p < .05$ for multiple choice) than the Map Only subjects. Anomalous sentences produced no significant differences.

Discussion appears to actively engage students in a deeper comprehension process where fully understanding a word goes beyond a simple worksheet definition. As well, it provides ample opportunity for students to bridge new and pre-existing information and for teachers to assist in the clarification of misinterpretations or ambiguities before students read independently.

Subjects (74) from grades one, six and ten participated in a study by Rowe and Rayford (1987) to describe the content and organization of their first responses to three high level purpose questions, appropriate to level, from a research edition of the Metropolitan Achievement Tests. Students were asked to

predict the related passage content corresponding to each question. Their individual interview responses were transcribed and analyzed to determine whether a relationship existed between the content of purpose questions and the responses, and whether there was evidence of schema elaboration.

Using a constant comparative method for data analysis, results indicate that including high order purpose questions prior to reading test passages may provide perspective and motivation, facilitating the activation of readers' prior knowledge and the understanding of the passages. Depending on their construction, purpose questions may differ in their value as content cues. Subjects' responses related to purpose question concepts, implied story slots and the interview task. Also, the number of familiar concepts in the purpose questions appeared to determine the content of the response information and serve to evoke more elaborations. Limitations of the study included differences between a guided interview task and a real test situation, and the tentative cross-grade comparisons.

In summary, the literature provides evidence about the importance and influence of prior knowledge on reading comprehension at the literal level and beyond. The activation of relevant knowledge before encountering the reading material can enhance understanding. Though many of the studies overlap, research suggests that prior knowledge: a) is a critical factor influencing reading comprehension; b) facilitates understanding by enhancing and increasing readers' text recognition and recall; c) accounts for major variance in reading performance; d) may compete for priority with text information, causing distorted understanding if it is inaccurate, conflicting or inappropriate; e) can make ambiguous material comprehensible; f) employs inferences and elaborations to read between and

beyond the lines; and g) can be activated and built as a beneficial instructional component in regular classroom settings.

Researchers have focused on the teacher's responsibility to choose relevant key concepts necessary to understand the gist of a story yet apparently have not perceived a need to determine whether teachers, left to their own resources, in fact are able to identify those key concepts. Table 2 provides a summary of prior knowledge studies.

Table 2: Summary: Prior Knowledge Studies

Researcher	Population	Results
Bartlett, 1932, 1958	Adults	Inaccuracies & rationalization in recall. Ss reconstructed story according to PKN cultural expectations.
Hilliard & Troxell, 1937	K children through to grade 2	Children who had rich experiential background made better progress.
Chall, 1947	100 Ss, grades 6 & 8	PKN is a factor influencing reading. The more PKN about a topic, the better the comprehension.
Piekarz, 1956	Case studies of 1-high level PKN, 1-low level PKN readers (from bright 6th graders)	HL-PKN reader performed better in verbalization & comprehension tasks. LL-PKN imposed PKN bias onto reading.
Bransford & Johnson, 1972	50 male & female high school students	Activation of PKN before reading provides context and improves comprehension, memory.
Bransford & McCarrell, 1974	high school students	Activation of relevant visual PKN improves comprehension
Anderson et al., 1977	30 female music & 30 male wrestling college students	PKN about a passage topic strongly influenced interpretation of passage.
Pichert & Anderson, 1977	a) 63 undergraduate students b) 113 undergraduate students	PKN perspective determines significance of idea in comprehension & recall.

Note: PKN = Prior Knowledge; Ss = Subjects; HL = High Level; LL = Low Level
       ESL = English as a Second language

Table 2 continued

Researcher	Population	Results
Pearson, Hansen & Gordon, 1979	25 grade 2 students from 4 classrooms	Strong schema (PKN) group performed better overall. PKN strongly influences inferencing. Implicit questions require inferencing and are more difficult than explicit questions
Hansen & Pearson, 1980, 1982	a) 24 average/above average second grade readers b) 20 good & 20 poor fourth graders	Activating students' PKN and instructional practice with inferential questions increased children's ability to draw inferences, especially for poor readers.
Nicholson & Imlach, 1981	22 boys, 22 girls (8 years old)- average/ above average readers from 2 schools	PKN influences kinds of inference. Children may overlook text reasons for events & impose their own explanations instead.
Johnson, 1982	72 university advanced-level ESL students representing 23 nationalities	Direct cultural PKN strongly influences reading comprehension of ESL students more than vocabulary.
Lipson, 1982	28-(14 average, 14 below average) 3rd graders.	PKN competes with text. Clarification of conflicting PKN-TEXT connections is crucial before reading. PKN employs various kinds of inferences.
Matthews, 1982	34 fourth graders	PKN directly enhances information availability & qualitatively effects information accessibility
Callahan & Drum, 1984	10 high, 10 average readers from 5th & 6th grade.	PKN is a strong predictor of inferences, cloze insertions & recall. Wealth of PKN predicts better comprehension.
Johnston, 1984	207-8th grade rural & urban students	PKN competes with text. PKN, independent of IQ, influences comprehension. Test bias may be lessened if PKN is estimated via content-specific vocabulary test or centrality questions.

Table 2 continued

Researcher	Population	Results
Langer, 1984	161-6th graders above/on/below-level readers	PKN strongly influences comprehension. Pre-reading (PReP) instructional strategy improves comprehension especially for on-level readers. Teachers must choose key concepts.
Davey & Kapinus, 1985	96 average/high average 8th grade readers	High PKN Ss scored better on unfamiliar-familiar information ordering. PKN was significant main effect when reading ability deleted.
Taft & Leslie, 1985	50 average 3rd graders	Children with high PKN made fewer oral reading miscues.
Stahl & Vancil, 1986	45-6th graders from 3 classes	Semantic mapping (via discussion & visual display) PKN strategy enhances Ss full understanding of vocabulary & clarifies PKN misinterpretations before reading.
Rowe & Rayford, 1987	74 Ss from grades 1, 6, 10	Including high level purpose questions before reading a test passage facilitates the activation of PKN and inferencing. Number of familiar concepts in purpose question serves to evoke more elaborations in responses.

C. PRIOR KNOWLEDGE AND CONCEPTS

The literature suggests that prior knowledge and experiences are important in developing the reading/thinking processes. Further, it has been suggested that there is a relationship between the more recent term prior knowledge and the established term concepts. Our prior knowledge and experiences are believed to be housed in concepts (e.g., Schank and Abelson, 1977; Pearson & Johnson, 1978) which are in turn, housed in vocabulary. The theory is based on the premise that language is conceptual and memory is organized by generalizations and expectations which are associated and related to novel information.

The literature reviewed in this section will focus on the cognitive and transfer aspects of concepts and the concept learning process as it relates to prior conceptual knowledge and the reading/thinking process.

Piaget (1926) systematically observed children and proposed four developmental stages in the concept formation process: the sensory-motor, the preoperational (active trial and error), concrete operational (internalized trial and error, reversibility) and formal operational (operation of hypothetical propositions). The latter stage requires the learner to go beyond given information, to engage in higher levels of thinking and abstraction. Piaget considered the construction of concepts and operations, where elements are related, to be more central to learning than making simple associations. He believed that if new information fit into a learner's cognitive structure, it was assimilated. Further, if the cognitive structure was modified or altered, accomodation of new information took place.

Horn's (1937) analysis of communication through reading led him to postulate that material, rather than actually conveying ideas, stimulates the reader to formulate them out of personal experience. The reading task is easy,

he added, if the learner already possesses the necessary experiences to be associated. He presented the example of a person who had lost his way in a blizzard. The blizzard information might have little meaning for an individual who resided in Florida.

Paul McKee (1948) suggested we read with our experiences where meanings for words are built by the mind of the reader, not found on the printed page. Concepts, he believed, are recalled based on experiences and may be expanded or modified. He further added that, although concept teaching is important in primary grades, intermediate reading tasks usually contain more unfamiliar, abstract concepts so the need to clarify, organize and relate those concepts to meanings the older students possess is critical.

Serra (1953) believed possessing factual knowledge without owning a functional concept and simply encountering words in print does not presume the acquisition of concepts.

Nila Banton Smith (1954) proposed teachers may not be sensitive to the influence and importance of experiences as bases for meaning in critical reading. She explained concepts (p. 161) as "crystallized experience which we draw upon in filling empty shells of word symbols with kernels of meaning" and suggested concepts may be more difficult to understand than vocabulary. Teachers are urged to carefully develop concepts in lieu of presenting specific word definitions.

In agreement with Serra (1953), McCullough (1959) reviewed concept research literature from 1938 to 1959 and discussed their classroom implications. She reported that concepts deal with objects, qualities and relationships, have numerous facets, and may or may not be qualitatively grasped depending on the reader's readiness or associations with prior experience. Concepts, she added, may

be simple or complex, developmental, require active discrimination, abstraction and generalization. Teachers are warned to be aware of the need for direct experiences, clarification of multiple word meanings, culturally deficient concept problems, developmental age aspects of concept acquisition, intelligence and individual differences among readers and concept load factors.

Bruner *et al.* (1956) asserted that a concept is a "network of sign-significate inferences". A learner apparently progresses from perceiving an object, observing its attributes, identifying it as belonging to a class, to formulating inferences and assumptions (new concepts and generalizations.) Generalizations are believed to be key factors in concept learning. The authors make a distinction between perceptual (concrete, observable attributes) and conceptual (abstract, cognitive attributes) development. As well, the authors proposed three classes of concepts: conjunctive, disjunctive, and relational which group or couple attributes in different ways. Concept formation, they said, involves sorting and classification, · whereas concept attainment calls for the search and testing of attributes. Twenty laboratory experiments were undertaken in which subjects were asked to divide items on a board into two distinct groups, each defined by a rule (concept) according to attributes, and to identify the classification rule. Subjects were able to state the rule, therefore the concept was attained.

Vygotsky (1962) focussed on the process of association where concepts are integral parts of an hierarchical system of relationships of generality. Generalization is said to involve forming a superordinate concept which in turn points to the existence of subordinate concepts and different levels of generalizations. For example, a learner may interchange "flower" and "rose" until, through experience, "rose" is subordinated as "flower" becomes more generalized,

leading to a systemization. He further differentiated between the above scientific (conceptual meaning) system and pseudo concepts which dealt with situational meaning.

A study by Braun (1963) suggested concept formation rather than intelligence was a main factor related to achievement in reading. She tested 139 under and over achieving boys of normal intelligence in grades three, five and seven, for their concept formation abilities. She found under achievers of normal intelligence were deficient in concept formation ability leading her to postulate growth in reading depended on an increased ability in concept formation.

Durrell and Murphy (1963) reviewed thirty years of reading research. With respect to reading readiness and concepts, they presented studies that suggested early readers needed experiential enrichment. They suggested a) discrepancies may occur between childrens' background and concepts in basal readers; b) positive correlations appear to exist between prior experiences and reading achievement; and c) the need to evaluate conceptual backgrounds of children in relation to concepts in basal reading series. All studies indicated a need to build concepts.

The acquisition of concepts and propositions is thought to be the result of inductive processing of empirical problem solving experiences (Ausubel, 1965, 1968) rather than rote learning. He postulated that new meanings result when concepts or propositions are related and merged within a learner's cognitive structure which incorporates first-order concrete and abstract high-order concepts. Teachers, he warns, must be aware that students rely on rote learning and often use apparently appropriate abstract terms in responses when they may not possess a true understanding of the fundamental concepts.

There exist at least two types of learning phenomena according to Gagne (1965). He stated concept learning is the acquisition of a common response to a class of objects and principle learning incorporates a combination of concepts into ideas or rules (requiring generalizations). He postulated that people use concepts in combinations and that Piagetian operations were more dependent on cumulative learning than developmental maturation. He continued to explain that a learner must be able to "generalize the concept to a variety of specific instances of the class that have not been used in learning. Otherwise, it is not a concept, but merely a collection of specific chains" (p. 136).

According to Stauffer (1965), concept development has been important since the time of Aristotle & Socrates and deserves a top priority position in teaching reading. He identifies concepts as integrative cognitive structures developed by thinking, not acquired by drill or rote memory. Varying definitions of a concept appear to agree on the importance of attributes, inferences and categories. His innovative Directed Reading-Thinking Activity (DRTA) strategy for instruction begins with the building of students' relevant conceptual background.

Strang (1968) suggested a positive relation between conceptual ability and competency in reading, postulating that difficulties encountered by intermediate grade students may be the result of deficient conceptual ability.

Wolfe (1968) proposed classroom instructional practices based on research findings in reading comprehension. High level thinking, he believed, incorporates the acquisition, organization and utilization of experiences. He suggested that if a reader understands concepts before reading, word recognition is easier and potential exists for new and broader concept development. Therefore, he encouraged teachers to begin lessons with students' experiences, building and

expanding them.

Martorella (1971, 1977) summarized research and various models for structuring concept development in teaching, and discovered some commonalities. Among them were the use of examplars and non-examplars, the employment of systematic and sequential instruction, emphasis on "hands-on" discovery/practice methods, and a sensitivity to the importance of students' prior knowledge. However, he noted that between 1960 and 1981 few concept development studies were undertaken in classrooms. He strongly recommended further research on concept learning in real teaching situations and in-service in concept oriented strategies. For example, if a learner holds rigid concepts that do not allow experiential assimilation or accomodation, overgeneralizations may occur. The teacher then must guide in the qualification of the overgeneralization through presentation of new, objective information required to modify the concept.

Another study by Bruner in association with Anglin (1973), addressed the importance of generic learning, its cognitive economy and transfer value to new situations. They concurred that, as properties of a category of functionally equivalent objects are defined, inferences may be made, allowing the learner to go beyond the given information. They argue that there is "no clockwork sequence of events" in a learner's development and call for educational activities which will challenge children.

Cermak (1976) emphasized the need to organize information to facilitate transfer. He experimented with lists of information to distinguish between rote memorization and the process of remembering. Categorization, according to principles, is believed to be the key to retention and retrieval of information though strategies that learners apply may differ.

Klausmeier's (1976) model of concept learning and development proposed four levels of concept attainment (concrete, identity, classificatory, formal), and their functions. He conducted longitudinal and cross-sectional studies with 300 children in grades two, five, eight and eleven to assess their attainment levels and use of four concepts (equilateral triange, cutting tool, noun, tree). Results supported attainment according to the four successive levels. He found higher level concepts were used in hierarchical supraordinate-subordinate relationships, in problem solving and understanding principles. Labeling concepts and provision of their attributes aided in concept attainment and concept functioning.

Bransford (1979) supported the previous view that developmental stages are not set, adding learners are also not bound by parameters of fixed capacity. Slow learners, he suggested can master difficult materials in a proper learning environment and difficulties may be the result of a deficiency of concepts.

From his reading perspective, Bransford addressed the importance of transfer in concept development. He proposed that although a reader may be able to remember information introduced at the time of acquisition, he may not understand new materials or identify new examples of the concept.

Citing numerous studies concerning factors that facilitate concept identification, he reported that: a) concrete concepts are easier to learn than abstract concepts; b) conspicuous characteristics (e.g. color) provide easier identification than less salient ones; c) stimuli may vary according to their dominance level; d) the more complex a concept rule, the more difficult the solution; e) idiosyncratic strategies are engaged by the reader determine speed of concept identification; and f) identification involves the active formulation and testing of hypotheses. However, he noted that traditional research used only

arbitrary concepts. Bransford believed learners may approach the identification of meaningful concepts with different strategies.

Bransford's summary of concept formation studies pointed again to transfer aspects and to Piaget's notions of assimilation and accomodation. It is postulated that the activation of relevant knowledge (which constrains inferences) together with experience with specific instantiations develops new concepts through the "reciprocal interplay" of clarification or modification. Words are more easily understood if they are related to what is known. As well, Bransford discussed conflicting research related to the effects of practice in concept development recommending that further research be undertaken in this area.

There is a possibility mismatches will occur in the reader-text relationship according to Adams and Bruce (1982) who believed authors presume readers possess the necessary concepts to understand a story. They suggested confusion may result due to the author's use of esoteric vocabulary, focus on a particular intensional word meaning to the exclusion of other aspects, or the reader's inappropriate instantiation due to a lack of experience or cultural gap.

Cunningham (1987) distinguished between "lunules" (novel names for known concepts) and "lupulins" (unknown concepts as well as unknown words). She proposed that teaching vocabulary belonging to the latter group is a difficult task requiring time and strategies involving frequent real, visual and analogous experiences.

In summary, a concept is considered to be a condensation of experience and prior knowledge. Though definitions may vary, all involve inferences, attributes and categories (Stauffer 1965). Concepts are believed to represent simple, concrete objects, events or high level abstractions and ideas which can be

classified, generalized, assimilated or accomodated within an hierarchical dynamic system of knowledge. Concepts apparently influence reading comprehension, have transfer value to new situations and incorporate higher levels of thinking. Teachers are encouraged to teach, develop and activate concepts in reading lessons.

Table 3: Summary: Prior Knowledge and Concepts

Authority	Date	Viewpoint
Chambers	1904	Children, like adults, sort new information into old pigeon holes. Meaning is the result of experience.
Piaget	1926	Concept construction is central to learning. Proposed developmental stages of assimilation, accomodation.
Holmes	1934	Direct instruction in meaning and use of words enable children to read more efficiently.
Waters	1934	Analyzed concepts in reading (primer) materials. Found most students were deficient in corresponding concepts.
Horn	1937	A text stimulates the reader to formulate ideas from his personal experience.
Sims	1938	Association of concepts with print gives meaning to reading. Teachers need to build concepts.
Marcum	1944	Concepts are retained understandings based on experience & influence reading comprehension. Concept load problems must be addressed.
McKee	1948	We read not only with our eyes, but with our experiences. Meaning is recalled and built by the mind of the reader.
Serra	1953	It is possible to possess factual knowledge without a functional concept.
Smith	1954	We draw upon experience to fill in empty shells of words with meaning. It is more important to develop life time concepts than to present singular vocabulary word definitions.
Bruner *et al.*	1956	A concept is a network of inferences. They distinguish between concrete, abstract concepts and concept identification, concept formation. Lab experiments used only arbitrary concept tasks.

Table 3 continued

Authority	Date	Viewpoint
McCullough	1959	Reviewed research (1938-1959). Prior knowledge influences concept development. Teachers need to be aware of importance of concepts in classroom practice.
Vygotsky	1962	Concepts are integral part of a hierarchical system of relationships of generality. Scientific and pseudoconcepts.
Braun	1963	Concept formation is major factor in reading achievement.
Durrell & Murphy	1963	Research indicates correlation between prior experience and reading readiness.
Ausubel	1965	Concept acquisition is result of inductive process, not mere rote learning; subsumption theory.
Gagne	1965	Concept and principle learning, generalizations are key
Stauffer	1965	Concept development deserves top priority in lessons.
Strang	1968	Positive relation between conceptual ability and reading competency. Intermediate students have heavy concept load.
Wolfe	1968	Teachers should begin with students' background & build experiences to the material to be read. Reading involves higher levels of comprehension.
Martorella	1971, 1977	Noted few studies in real classrooms, concerned with concepts in social studies
Bruner & Anglin	1973	Learning is generic. Transfer value is important. Inferences go beyond information given. Intellectual growth is not set.
Cermak	1976	Need to actively organize information, categorization of concepts is necessary
Klausmeier	1976	Labeling concepts and providing attributes aids concept attainment. Higher-level concepts used in problem solving.

Table 3 continued

Authority	Date	Viewpoint
Bransford	1979	Stressed transfer value of concepts. Assimilation and accomodation involve reader's prior knowledge.
Adams & Bruce	1982	Conceptual mismatches may be due to author's presumption the reader has relevant, appropriate concepts.
Cunningham	1987	Teaching vocabulary is very difficult if students lack both the word and concept. Real, visual, analogous experiences aid concept development.

D. SUMMARY

The review of the literature addressed three areas of research: the influence of prior knowledge on reading comprehension; studies in prior knowledge; and the relationship between prior knowledge and concepts.

The research related to the influence of prior knowledge on reading suggests several points. First, reading is viewed as an interactive process where prior knowledge is a critical factor in reading comprehension. The text supposedly acts as a blueprint and missing inferred slots of information are filled from the organized store of prior experiences and information in the reader's head. Secondly, prior knowledge is purported to be a critical factor influencing comprehension. A wealth of prior knowledge about a topic seemingly increases understanding while inadequate or inappropriate prior experiences may hinder comprehension. Thirdly, it is suggested that actively seeking meaning from print involves elaboration, selection, construction or reconstruction of ideas, inferences, predictions, and higher levels of thinking. Stated in another way, it is reading between and beyond the lines.

Prior knowledge studies addressed the influence of prior experiences on learning, remembering and reading. Studies provide evidence that: a) prior knowledge is a critical factor and accounts for a major variance in reading; b) facilitates comprehension by enhancing text recognition and recall; c) utilizes inferences and elaborations to make connections between the new and known; d) may compete with the text information and may hinder understanding if it is inaccurate or inappropriate; and e) can be a beneficial instructional component in a reading lesson, especially in prereading activities which activate relevant conceptual knowledge before meeting the text.

The third section of the literature review focused on the relationship between concepts and prior knowledge. Our prior experiences are suggested to be housed in concepts which are, in turn, housed in vocabulary. It is proposed that language is conceptual and that readers (as learners) possess an organized store of dynamic generalizations and expectations which are related and associated with new incoming information. Concepts are hypothesized to be parts of an interrelated hierarchical (supraordinate, superordinate, and subordinate) system and involve networks of inferences that discriminate and categorize objects or events.

It would follow that activating the appropriate, relevant generalizations or expectations associated with novel text information would enhance comprehension and provide bridges for connecting the known to the new. These generalizations (superordinate level concepts) are termed key concepts. Building on students' experiences and inferences and activating the key concept about a story enables the teacher to assess how much students know and need to know before reading and provides a forum for students to increase their conceptual networks and connections. Researchers have apparently expected teachers to choose the relevant key concepts that are important to understanding the gist of a story without perceiving the need to investigate whether teachers are able to identify key concepts.

CHAPTER III. METHODOLOGY

The purpose of the study was to investigate elementary teachers' spontaneous and cued identifications of key concepts in narrative prose. As well, it examined their exposure to recent reading research and their attitudes towards the importance of activating student prior knowledge and concepts as influences on those identifications.

This chapter will describe the a) selection and nature of the sample; b) materials; c) instruments; d) procedures; e) scoring; and f) design and data analysis.

A. SUBJECTS

Approximately four hundred elementary teachers from urban and rural schools in the Central Okanagan (Kelowna and area) School District were provided materials and invited to participate in the study. One hundred and three completed the tasks. The elementary school level was chosen because: a) every elementary teacher is considered to be a teacher of reading; b) depending on district need, an elementary teacher may be assigned to teach a primary grade one year and an intermediate grade the next; c) a limited number of prior knowledge studies focus on elementary classrooms and teachers; and d) most studies addressed key concepts in content areas or expository text with little attention to narratives which are predominant, especially in the primary grades.

B. MATERIALS

1. Selection of Passages

Initially, four, full-length narrative passages were selected from *Expressways*, an intermediate series, published by Gage Publishing Company (*Robin Run*, 1980, grade 4: *What Color is Danger?*, pp. 188-193; *Pokologan*, 1980, grade 5d: *My Mother Said Those Words*, pp. 194-200; *Lobstick*, 1981, grade 6: *Along the Snake Fence Way*, pp. 25-28; and *A Hard Winter*, pp. 134-137). Stories were chosen for interest, concept load and their similarity to actual classroom full-length reading assignments. The average Fry readability was at the grade six level.

These were distributed to eight elementary teachers (four primary, four intermediate) within one school to determine passage acceptability. The teachers stated that although passages were interesting and typical of student assignments, they were too long and tiring for use in a study.

Based on their recommendations, the following six short narrative prose passages were selected from two *ReadAbility* texts (*Levels D & F*), an intermediate series published by J.B. Lippincott Co. and distributed by Harper and Row, Inc., (*Level D*, 1980: *The Train Rescue*, p. 10; *Holding Pattern*, p. 36; and *Shark!*, p. 50; *Level F*, 1979; *In the Dark of the Night*, p. 12; *The Ride Home*, p. 32; and *Take a Chance*, p. 78). Stories were chosen for their interest and shorter length and had an average Fry readability at the grade six/seven level. All titles were omitted.

C. INSTRUMENTS

1. Elementary Teacher Questionnaire

As a group, the eight teachers who were involved in determining passage acceptability, were administered the initial teacher questionnaire (see Appendix A) for the purposes of checking timing, testing instructions and refining materials.

Based on their responses, a number of changes were made to the instrument, such as the reorganization of three sections into two, combining of sub-items for grade level, the use of a consistent five-point Likert scale for the attitude measure, and a shift in focus from a general reading lesson to the importance and use of concept development (prior knowledge) in pre-reading activities.

The intent of the final questionnaire was to a) obtain basic teacher information; and b) measure both teachers' exposure to reading research and attitudes towards the importance and use of prior knowledge and concept development in a reading lesson.

The final instrument (see Appendix B) was comprised of: a) an attached cover sheet which introduced the study to teachers, invited them to participate and provided general precedural instructions; and b) a 16-item questionnaire which was divided into two sections: Section A - Basic Information (9 items) and Section B - The Reading Lesson (7 items).

a. Section A

Section A addressed basic information and exposure to reading research. Basic information (items 1, 2, 3, 4, 9) included grade level, sex, teaching experience, educational qualifications and reading approach used. Exposure to reading research (items 5, 6, 7, 8) focused on reading courses taken, reading journals (or others) frequently read and recently attended in-service workshops on reading topics.

b. Section B

Section B (items 10-16) focused on teacher attitudes toward a reading lesson. It was hoped that responses would provide insight into whether teachers considered the activation of student prior knowledge through concept development to be important and if they felt teachers actually use concept development experiences and strategies to that end.

A five-point Likert response scale (strongly agree, agree, undecided, disagree, strongly disagree) was established for each of the seven items (45 sub-items). Information on attitude measures (p. 181) in the Encyclopedia of Educational Reasearch suggested the use of positive and negative statements to counterbalance response bias. Statements covered attitudes towards the importance of reading lesson components, use of guidebooks in planning, the importance and teacher use of pre-reading activities, concept development experiences and strategies.

The list of reading lesson components and pre-reading activities were adapted from those suggested by various reading educators and programs (e.g., Aulls, 1982; Pieronek, 1979). Concept development experiences were provided from

Dale's (1969) *Cone of Experiences*, while strategies were pooled from research and classroom practice.

Hence, the questionnaire was intended to supply: a) basic teacher information; b) data on their exposure to reading research; and c) their attitudes towards prior knowledge and pre-reading concept development.

2. Story Booklet

The story booklet (see Appendix C) consisted of a) procedural instructions; b) six short narrative passages described in the materials section; and c) two response sheets: Spontaneous (unaided) Key Concept Identification Response Sheet No. 1 and Cued Key Concept Identification Response Sheet No. 2.

a. Spontaneous (unaided) Response Sheet No. 1

Spontaneous Response Sheet No. 1 listed the six passages and provided three spaces for each so that teachers might suggest (unaided) the key concepts they considered to be central to understanding the story and that they would develop.

b. Cued Response Sheet No. 2
i) Identification of Concepts

To determine the key and other concepts used for the cued response sheet, the following procedures were followed. First, the investigator chose two practicing elementary teachers from different schools who had at least ten years teaching experience at varied grade levels and an interest in reading education. One teacher had secondary and elementary experience and was pursuing a

master's degree in curriculum and administration. The other had taught mainly at the elementary level and holds a B.A. (4 yr.) degree in education. Second, the teachers independently read the six narratives and were asked to list a) the three story-relevant concepts (ideas) they considered to be central to understanding and that they would develop in pre-reading activities; and b) other passage-relevant concepts considered important but less crucial than the key, central choices.

The majority (87%) of key and passage-relevant concepts were agreed upon and differences resolved by discussion. The resulting key concepts were those broad, scriptal concept generalizations and expectations which would subsume the related subordinate or less relevant contextual information and yet be content-specific enough to activate students' appropriate conceptual networks of relevant inferences in their store of prior knowledge.

Next, chosen passage-relevant concepts (other than key) were explored for relationships, similarities and differences with respect to the key concepts. As a result of distinct patterns that emerged, they were then independently assigned by the investigator and the two assisting teachers to four concept categories, (adapted by the investigator from Ausubel, 1963; Langer, 1984; and Vygotsky, 1962) on the basis of degrees of generality of passage-specific knowledge. Their characteristics are presented in Table 4. These categories range from the more general Supraordinate category to the Very Content-Specific level. The majority (90%) of classifications of the passage relevant concepts were agreed upon and differences again resolved by discussion. Table 5 presents the six story titles and their respective categorized concepts.

Table 4: Narrative Passage-Specific Concept Categories and Their Characteristics Based on Degrees of Generality

Degree	Category	Concept Characteristics
General	Supraordinate	genre, story type
	Superordinate	key concept, generalization or expectation central to understanding the story
	Subordinate	concept subsumed by and an integral part of the superordinate key concept
Very Specific	Very Content-Specific	particular single vocabulary definitions, details - least crucial to understanding story

Cued Response Sheet No. 2 listed the passages and required teachers to choose three key concepts from groups of passage-relevant concepts supplied for each story that they would develop. Each story listed twelve concepts, except Passage Four which had eleven.

D. PROCEDURES

All materials were color and number coded to facilitate distribution, completion and collection. Individual teacher packages, containing the a) cover sheet; b) Teacher Questionnaire; and c) Story Booklet, were distributed to schools through the central district mail system. Group leaders at each school assisted in the distribution and collection of completed packages over a three week period.

Teachers worked at their leisure but were encouraged to complete the package together in one sitting if possible and to refrain from discussion during

Table 5: Story Titles and Passage-Specific Concept Classifications for Cued Key Concept Response Sheet No. 2

Story Titles	Concept Categories			
	Supraordinate	Superordinate	Subordinate	Very Content-Specific
	(P4)	(P3)	(P2)	(P1)
Holding Pattern		space exploration, "world" peace, abandoned	flagship, radio signals, outer limits, holding pattern, orbit, ground control	inspection, maximized, receiver
In the Dark of the Night	folk tale	ritual, miser, robbery	old woman, hoard	peculiar, disgusted, ramshackle, cowardice, carding, abruptly
Shark!		sea creatures, night diving, marine biology	shark, research, current, meters, oxygen, lobsters	enormous, prehistoric, ebony
The Ride Home		adapting, family changes, personal relationships	circumstances, perspective	feign, probed, exotic, hestitated, upsetting, pattern
The Train Rescue		bridges, courage, trains	collapse, morality, storms, engineer	discern, rickety, treacherous, hostile, lantern
Take a Chance	mystery	time travel, carnival, self-awareness	populace, barkers, sideshows	buffeted, ancient, gnarled, haunting, quavered

the study. The general procedure involved the following steps:

1. Teachers were requested to complete Part One: Elementary Teacher Questionnaire and place it in the large brown envelope.

2. Then, they were asked to read carefully each of the six passages and to decide (unaided) which three key concepts they considered to be central to understanding the story, printing the concepts on Response Sheet No. 1.

3. After sealing Response Sheet No. 1 in the small white envelope provided, they were instructed to open the small brown envelope containing Response Sheet No. 2 and check (√) the three key concepts central to each story from the lists presented.

4. Finally, all materials were placed in the large brown package envelope and returned to the group leader. Completed teacher packages were forwarded to the board office for collection.

E. SCORING

1. Elementary Teacher Questionnaire

Section A focused on basic information. All items were considered of equal value and were entered either as a 1 or 0 value into respective columns. For example, there were four category choices for years of teaching experience: a) 0-5, b) 6-10, c) 11-15 and d) more than 15. The computer data entry program provides a column for each of the four categories. Therefore, a teacher with 8 years experience would be entered as 0-1-0-0 to identify placement in category b) 6-10.

A composite score for reading courses, journals read and in-service

attended (items 5, 6, 7, and 8) was computed. A score of 13 or greater out of a possible 17 was considered to reflect a high level of exposure to reading research.

Section B (items 10 to 16) was comprised of positive and negative statements which incorporated a five-point Likert scale (strongly agree to strongly disagree) for code responses. Positive statements were then assigned the following values: strongly agree = +2; agree = +1; undecided = 0; disagree = -1; strongly disagree = -2. Negative statements reversed the values so that strongly agree was -2, agree -1, and so on. Positive or negative attitude scores towards the importance of prior knowledge and concept development were computed.

2. Story Booklet

a. Spontaneous Responses

In a post hoc examination all spontaneous (unaided) key concept choices were listed, and patterns explored.

b. Cued Responses

First, all checked concepts were classified and scored as an incidence in one of the four passage-specific concept categories used for Cued Response Sheet No. 2 (Table 5). They included: Supraordinate (P4); Superordinate or Key (P3); Subordinate (P2); and Very Content-Specific (P1).

Second, teachers' Superordinate (P3) key concept identifications were scored out of a possible 18 (expressed as PT), three for each of the six stories. A score of 13 or above was considered to indicate a successful key concept

identification.

F. DESIGN AND DATA ANALYSIS

1. Design

The design of the study was descriptive, comparative and correlational, and data was collected from the same group of teacher responses. The independent variables were elementary teachers' key concept identifications (unaided, cued), exposure to reading research (high, low) and their attitude (positive, negative) towards the importance of prior knowledge.

The study employed three measures: a) a 16-item questionnaire to reflect exposure to reading research and attitude scores; b) a response sheet for teachers' unaided key concept identifications; and c) a cued response sheet to provide a score for key concepts chosen from lists supplied.

2. Questions and Hypotheses

Two questions and four hypotheses were formulated:

Qu_1:   Are elementary teachers able to identify the cued key concepts in six narrative stories?

Ho_1:   There will be no significant differences between primary and intermediate teachers in their mean scores on the cued identification of key concepts measure.

Ho_2:   There will be no relationship between measures of teachers' exposure to research and their cued key concept identifications.

Ho_3:   There will be no relationship between measures of teachers' attitudes towards the importance of prior knowledge and their cued key concept identifications.

Ho_4:   There will be no relationship between the combined measures of exposure to research and attitudes toward the importance of prior

knowledge and their identifications of cued key concepts.

Qu$_2$: Are elementary teachers able to spontaneously (unaided) identify the key concepts in six narrative stories?

3. Data Analysis

Scores from the data relevant to the first question were analyzed descriptively to determine measures of central tendency, variability and frequency distribution. A two-tailed t-test of significance for independent means was used to test the first hypothesis. The second and third hypotheses were tested using Spearman rho analysis to determine relationships. A multiple regression analysis was applied to test hypothesis four to determine the relationship between combined exposure to research and attitudes and cued key concept identifications. The second question required exploratory data analysis as a method for discovering patterns and providing insights into the response data. Histograms displayed frequency distributions of Spontaneous Concept Identification (S1 to S6) scores. The level of significance for testing all statistical analyses was set at $a = .05$.

The above analyses of the data employed the Statistical Package for the Social Sciences - Extended Version (SPSS-X).

CHAPTER IV. RESULTS

This chapter will present descriptive and statistical results in six categories: 1) basic teacher information (grade, sex, teaching experience and reading approach); 2) elementary teacher's cued key concept identifications (Qu_1) including a comparison of primary/intermediate teachers' cued key concept identifications (Ho_1); 3) the exposure to reading research measure and its test of relationship to cued key concept identifications (Ho_2); 4) the attitudes measure and its relationship to cued key concepts (Ho_3); 5) combined exposure and attitude measures and their relationship to cued key concept identifications (Ho_4); 6) elementary teachers' spontaneous (unaided) concept identifications (Qu_2). The two research questions and four hypotheses will be restated followed by presentation of relevant results.

A. BASIC TEACHER INFORMATION

Of the 103 participants, 47 were primary teachers, 48 were intermediate, 7 taught combinations of primary/intermediate, learning assistance or kindergarten through high school, and one teacher did not designate a level of expertise.

Female teachers reflected 72% of the 103 participants and 28% were males. The majority of instructors had more than eleven years of teaching experience, 24 had six to ten years, eight had taught less than five years. The majority of teachers held a Bachelor of Arts or Bachelor of Education degree (n=64) with smaller numbers reflecting Certificate (n=19), Master's degree (n=17) and Doctorate (n=1) levels. Table 6 presents a comparison between the sample elementary teacher group and British Columbia teachers with respect to years of teaching experience and education qualifications. The sample appears to

be representative of British Columbia teachers.

Table 6: Years of Teaching Experience and Education Qualifications for the Sample and B.C. Teachers[1]

	Sample(%)	B.C. Teachers (%)
Years of Teaching Experience		
0-5	8	14
6-10	24	23
11+	68	63
Education Qualifications		
Certificate	19	11
B.A./B.Ed. 4&5	64	69
Post Graduate	18	20

[1]Source: B.C. Ministry of Education, Annual Report 1985/86.

With respect to reading approach, 43% used a basal series, 25% whole language, 2% language experience, 30% employed combinations of a basal series with whole language, novel studies or language experience.

B. ELEMENTARY TEACHERS' CUED KEY CONCEPT IDENTIFICATIONS

Cued key concept teacher scores, out of a possible 18, were analyzed descriptively to reflect teachers' general ability to identify key (P3) concepts.

Qu_1: Are elementary teachers able to identify the cued key concepts in six narrative stories?

Elementary teachers (n=98) did not successfully identify the cued key concepts in six narrative passages ($\bar{x}=10.15$, sd=1.89) when a score of 13 or above was considered a "successful" (75%) score. Table 7 provides a frequency distribution for elementary teachers' cued key concept scores. Scores ranged from 3 to 14. Eighteen percent of scores were below pass (9) level; 12% were at

pass level. The majority of the sample (63%, n=62) scored from 10 to 12; the

remaining 6% (n=6) had scored either 13 or 14.

Table 7: Frequency Distribution and Measures of Central Tendency for Elementary Teachers' Cued Key Concept Identifications

Teachers (n=98)	Score (maximum=18)	Histogram
1	3.00	*
0	4.00	
1	5.00	*
1	6.00	*
5	7.00	*****
10	8.00	**********
12	9.00	************
20	10.00	********************
27	11.00	***************************
15	12.00	***************
3	13.00	***
3	14.00	***

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|. . . . . . . . .|. . . . . . . . .|. . . . . . . . .|
0              10              20              30
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Mean: 10.15 Median: 10.00 Mode: 11.00
Std. Dev.: 1.89 Minimum: 3.00 Maximum: 14.00

Of all the checked concepts (n=1736, key and other choices), 10% were

in the P1 very content-specific category, 25% were P2 subordinate, 57% were P3

superordinate-key and 8% were P4 supraordinate.

Ho_1:   There will be no significant differences between primary and intermediate teachers in their mean scores on the cued identification of key concepts measure.

Table 8 presents the numbers of teachers in each group, the means and

standard deviations. A two-tailed t-test of significance yielded no significant

difference (0.423, $a=0.05$) between primary and intermediate teachers' cued key

concept identifications. The null hypothesis was accepted.

Table 8: Number of Teachers, Means, Standard Deviations and t-test for the Primary and Intermediate Cued Key Concept Identification Groups

Group	n	Mean	SD	Two-tailed t-test
Primary	45	10.04	2.28	
Intermediate	46	10.37	1.48	0.423[1]

[1]Not significant at $a = 0.05$

C. EXPOSURE TO READING RESEARCH

The exposure to reading research measure included reading courses taken, journals frequently read and recent reading in-service attended. Table 9 provides the percentages of teachers for each of the three exposure to reading research categories by degree of exposure.

Table 9: Percentages of Teachers Classified in Each of the Three Exposure to Reading Research Categories by Degree of Exposure

Category		Degree of Exposure			
	0	1	2	3	>3
Reading Courses 1982-1987 (n=101)	61	23	8	2	6
before 1982 (n=100)	15	10	20	16	39
In-Service Workshops in last 3 years (n=100)	21	21	11	14	33
Journals frequently read (n=102)	70	20	7	1	2

Results indicate 61% of the teachers have not completed a reading course during the last five years and 39% had taken more than three reading courses prior to 1982. Seventy percent of teachers do not read reading journals regularly. Of reading journals frequently reviewed (n=47), *The Reading Teacher* ranked first (38%) followed by *Language Arts* (21%), *Reading Research Quarterly* (9%) and the *Journal of Reading (6%)*. *Other journals or references (26%) read included Instructor and Learning* magazines, *Prime Areas, Education Today, Grade Teacher, Journal of Learning Disabilities, Reading Canada Lecture, Canada Journal for Counselors, B.C. Counselor* and *Whole Language Newsletters*. During the past three years, 33% of the teachers attended more than three workshops on reading with 21% undertaking none.

The cumulative exposure to reading research scores (n=102, $\bar{x}$=5.75, sd=3.17, range=1-16, mode=6.00) were obtained from the three categories: courses, journals, and in-service. Ninety-six percent of the sample scored below 13 out of a possible 17. Therefore, scores for most teachers reflect a low level of exposure to reading research.

Ho$_2$:   There will be no relationship between measures of teachers' exposure to research and their cued key concept identifications.

A Spearman rank (rho) correlation test yielded a significant (rho=-.19, p=0.03) negative correlation between the measures of exposure to reading research and elementary teachers' cued key concept identifications. The null hypothesis was rejected.

D. ATTITUDES

Teacher responses to the seven statements in the attitude measure are presented in Table 10. The initial range was -90 to +90.

Results (n=101) of the cumulative scores on the attitude measure indicated a mainly positive (range of +1 to +81 out of a possible range of 0 to 90) teacher attitude toward the importance and inclusion of prior knowledge/concept development in reading lessons ($\bar{x}=35.19$, sd$=16.544$). Scores were also used as data in the testing of hypothesis three.

Ho$_3$: There will be no relationship between measures of teachers' attitudes towards the importance of prior knowledge and their cued key concept identifications.

A Spearman (rho) correlation test indicated no significant (rho$=.13$, p$=0.12$) relationship between the attitude and cued key concept identification measures. The null hypothesis was accepted.

E. COMBINED EXPOSURE TO RESEARCH AND ATTITUDE

Ho$_4$: There will be no relationship between the combined measures of exposure to research and attitudes toward the importance of prior knowledge and their identification of cued key concepts.

Results of the multiple regression analysis indicate that the exposure to research and attitude independent interaction variable was significantly ($F_{1,95}=0.4509$, p$=0.04$) related to the dependent cued key concept identification variable. Individually the exposure and attitude variables were not significant. The null hypothesis with respect to the exposure to research and attitude interaction variable was rejected.

Table 10: Teacher Responses to the Attitude Measure

Statement	Attitudes (%, n=101)				
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Q10. It is important teachers undertake:					
a) reading courses	0.0	7.1	12.1	44.4	36.4
b) reading journals	2.0	11.0	36.0	36.0	15.0
c) in-service in reading	1.0	6.1	6.1	48.5	34.8
Q11. These components are important to a reading lesson:					
a) background information (concept development)	2.0	0.0	0.0	40.6	57.4
b) new vocabulary	1.0	1.0	2.0	41.6	54.5
c) guided silent reading	2.0	4.0	6.9	51.5	35.6
d) oral re-reading	2.0	15.2	15.2	44.4	23.2
e) follow-up activities	1.0	2.0	0.0	49.0	48.0
f) enrichment	1.0	2.0	5.0	49.0	43.0
Q12. Teachers use manuals/guidebooks for planning and instruction of reading components:					
a) background information (concept development)	1.0	4.0	15.2	53.5	26.3
b) new vocabulary	1.0	7.1	16.2	49.5	26.3
c) guided silent reading	2.0	14.1	16.2	48.5	19.2
d) oral re-reading	7.1	23.2	31.3	32.3	6.1
e) follow-up activities	1.0	10.0	19.0	57.0	13.0
f) enrichment	3.0	21.0	20.0	46.0	10.0
Q13. Pre-reading activities important to reading lesson:					
a) new vocabulary (phonics, decoding)	3.0	13.0	9.0	28.0	47.0
b) new vocabulary (definitions, meanings)	1.0	11.0	8.0	33.0	47.0
c) provision of synopsis, summary	2.0	16.8	14.9	41.6	24.8
d) concept development	1.0	1.0	8.9	40.6	48.5
e) provision of purpose questions	1.0	2.0	7.9	56.4	32.7
f) student predictions	0.0	3.0	12.9	47.5	36.6

Table 10 continued

Statement	Attitudes (%, n = 101)				
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Q14. Concept development experiences are crucial in pre-reading activities:					
a) direct, concrete experience	1.0	19.8	16.8	38.6	23.8
b) dramatization	5.0	27.7	24.8	35.6	6.9
c) teacher demonstration	1.0	18.0	28.0	43.0	10.0
d) field trips, excursions	8.0	40.0	24.0	21.0	7.0
e) exhibitions, displays	2.0	29.6	18.4	40.8	9.2
f) audio/visual presentations	2.0	29.7	16.8	40.6	10.9
g) graphs, diagrams, charts	2.0	26.0	14.0	47.0	11.0
h) verbal discussions	1.0	5.9	4.0	36.6	52.5
Q15. Teachers use these concept development experiences:					
a) direct, concrete experience	1.0	9.0	15.0	51.0	24.0
b) dramatization	3.0	24.0	32.0	34.0	7.0
c) teacher demonstration	1.0	8.2	21.4	58.2	11.2
d) field trips, excursions	14.0	40.0	24.0	21.0	1.0
e) exhibitions, displays	7.9	28.7	13.9	43.6	5.9
f) audio/visual presentations	3.0	20.0	15.0	53.0	9.0
g) graphs, diagrams, charts	4.0	16.0	19.0	53.0	8.0
h) verbal discussions	3.0	1.0	1.0	31.7	63.4
Q16. Concept development strategies are frequently used in lessons:					
a) categorization	1.0	9.9	12.9	56.4	19.8
b) word mapping	2.0	11.9	23.8	40.6	21.8
c) brainstorming	0.0	3.0	4.0	47.0	46.0
d) direct, concrete experiences	1.0	6.9	16.8	50.5	24.8
e) inference training	0.0	4.0	16.8	60.4	18.8
f) verbal class discussions	0.0	0.0	1.0	34.7	64.4
g) script implicit questioning	0.0	5.0	11.9	49.5	33.7
h) Langer's Pre-Reading Activity	3.1	12.2	58.2	20.4	6.1

F. SPONTANEOUS (UNAIDED) CONCEPT IDENTIFICATIONS

Teachers had been requested to identify (unassisted) three key concepts they considered to be central and that they would develop for each of the six stories. All teacher-suggested concepts were listed; patterns, concept relationships and combinations were explored. The post hoc examination revealed that many of the concepts provided were the same as, similar or related to those passage-specific concepts (see Table 5) used in the cued response sheet and could therefore be classified according to the Passage-Specific Concept Categories based on degrees of generality (see Table 4) also used for the cued response sheet. The categories were expressed as S4 (Superordinate) to S1 (Very Content Specific).

Two more categories were later designed based on the response pattern that emerged. One category (S5) accounted for elements of story grammar while the other category (S6) contained elements such as comprehension levels, lesson components and teaching techniques. Table 11 presents the final scoring guide used for spontaneous, unaided teacher key concept identifications. Categories and their assigned concepts were later reviewed and discussed by the investigator and thesis advisor.

Table 12 presents the frequencies of concepts, expressed as percentages, in each of the six categories although teachers had identified them all as key (S3 Superordinate) concepts.

Qu$_2$:   Are elementary teachers able to spontaneously (unaided) identify the key concepts in six narrative stories?

Elementary teachers' key concept suggestions (n=1767) ranged from very content-specific vocabulary definitions to elements of story grammar, comprehension

Table 11: Concept Categories and Their Characteristics Used for Post Hoc
Spontaneous Key Concept Identification Scoring

Passage Specific (Degree)	Category	Concept Characteristics
Very Specific	Very Content-Specific	(S1) particular single vocabulary definitions or details
↓	Subordinate	(S2) concept subsumed by and an integral part of the superordinate key concept
	Superordinate	(S3) key concept, generalization or expectation central to understanding the story
V General	Supraordinate	(S4) genre, type
	Story Grammar	(S5) setting, mood, character analysis, plot, problem, sequence of events, climax, solution, conclusion, theme
	Other	(S6) a) Comprehension Objectives: literal and inferential comprehension, main idea, cause and effect, point of view, recall of details, drawing conclusions, etc. b) Elements: humour, suspense, coincidence, irony, foreshadowing, supernatural phenomena, etc. c) Lesson Components: providing background, purpose questions, silent and oral reading, enrichment activities, etc. d) Teaching techniques for activating prior knowledge and concept development

Table 12: Teacher's Spontaneous (Unaided) "Key" Concept Identifications
Classified (Post Hoc) According to the Six Concept Categories

Categories	Instances [1]	Percentages
S1 — Very Content Specific	221	12
S2 — Subordinate	453	26
S3 — Superordinate (key)	515	29
S4 — Supraordinate	65	4
S5 — Story Grammar	131	7
S6 — Other	382	22
Total	1767	100

[1] All instances (n=1767) had been suggested by teachers (n=98) to be key (S3) concepts.

and teaching techniques. Only 29% of their suggestions were categorized as key superordinate (S3) concepts compared to 57% identified in the cued responses (P3). Descriptive statistics are provided for each spontaneous (S1 to S6) category in Table 13.

Table 13: Frequency Distribution and Measures of Central Tendency for
Elementary Teachers' Spontaneous Key Concept Identifications

S1: Very Content Specific

Teachers (n = 98)	Score (maximum = 18)	Histogram
26	0.00	*************************
17	1.00	*****************
18	2.00	******************
12	3.00	************
10	4.00	**********
6	5.00	******
4	6.00	****
3	7.00	***
1	8.00	*
1	9.00	*

```
        |..........|..........|..........|
        0         10         20         30
```

Mean: 2.25	Median: 2.00	Mode: 0.00
Std. Dev.: 2.14	Minimum: 0.00	Maximum: 9.00

S2: Subordinate

Teachers (n = 98)	Score (maximum = 18)	Histogram
8	0.00	********
5	1.00	*****
5	2.00	*****
12	3.00	************
18	4.00	******************
12	5.00	************
18	6.00	******************
11	7.00	***********
3	8.00	***
3	9.00	***
1	10.00	*
0	11.00	
2	12.00	**

```
        |..........|..........|..........|
        0         10         20         30
```

Mean: 4.62	Median: 5.00	Mode: 4.00
Std. Dev.: 2.56	Minimum: 0.00	Maximum: 12.00

Table 13 continued

S3: Superordinate - Key

Teachers (n=98)	Score (maximum=18)	Histogram
8	0.00	*******
7	1.00	*******
3	2.00	***
10	3.00	**********
8	4.00	********
16	5.00	****************
11	6.00	***********
11	7.00	***********
12	8.00	************
4	9.00	****
4	10.00	****
3	11.00	***
1	12.00	*

```
|.........|.........|.........|
0        10        20        30
```

Mean: 5.25 Median: 5.00 Mode: 5.00
Std. Dev.: 2.98 Minimum: 0.00 Maximum: 12.00

S4: Supraordinate

Teachers (n=98)	Score (maximum=18)	Histogram
56	0.00	*****************************
23	1.00	************
15	2.00	********
4	3.00	**
1	12.00	*

```
|.........|.........|.........|
0        20        40        60
```

Mean: 0.66 Median: 0.00 Mode: 0.00
Std. Dev.: 0.88 Minimum: 0.00 Maximum: 3.00

Table 13 continued

S5: Story Grammar

Teachers (n = 98)	Score (maximum = 18)	Histogram
46	0.00	**********************
21	1.00	**********
14	2.00	*******
6	3.00	***
2	4.00	*
4	5.00	**
2	6.00	*
1	7.00	*
1	8.00	*
1	9.00	*

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|. . . . . . . . .|. . . . . . . . .|. . . . . . . . .|
0              20             40             60
```

Mean: 1.33	Median: 1.00	Mode: 0.00
Std. Dev.: 1.91	Minimum: 0.00	Maximum: 9.00

S6: Other

Teachers (n = 98)	Score (maximum = 18)	Histogram
20	0.00	*******************
21	1.00	********************
15	2.00	***************
6	3.00	******
5	4.00	*****
10	5.00	**********
1	6.00	*
3	7.00	***
1	8.00	*
2	9.00	**
2	10.00	**
3	11.00	***
1	12.00	*
2	13.00	**
2	14.00	**
0	15.00	
0	16.00	
2	17.00	**
1	18.00	*
1	19.00	*

```
|. . . . . . . .|. . . . . . . . .|. . . . . . . . .|
0            10            20            30
```

Mean: 3.89	Median: 2.00	Mode: 1.00
Std. Dev.: 4.64	Minimum: 0.00	Maximum: 19.00

CHAPTER V. SUMMARY, CONCLUSIONS, LIMITATIONS, IMPLICATIONS

This chapter presents a summary of the study, conclusions based on results, limitations and implications. The summary will review the rationale, purpose, design, materials and data analyses used. Conclusions will be discussed under two headings: 1) cued key concept identifications; and 2) spontaneous (unaided) key concept identifications. The first section will address descriptive and statistical results in relation to: a) elementary teachers' key concept identifications under cued conditions (Qu_1); b) primary and intermediate teachers' identifications (Ho_1); c) teachers' contact with exposure to reading research and their cued key concept identifications (Ho_2); d) teachers' attitudes toward the importance and use of prior knowledge/concept development in reading lessons and their cued key concept identifications (Ho_3); e) combined exposure to reading research and attitudes and key concept identifications (Ho_4). The second section will discuss the descriptive results of a post hoc analysis of elementary teachers' spontaneous (unassisted) key concept identifications (Qu_2). Limitations will be reviewed. Implications with respect to practical application and suggestions for future research will be presented.

A. SUMMARY

Reading is considered to be an ongoing interactive process between the reader and the text. Since a text can never be entirely explicit, it is believed the reader uses information from his mental store of prior knowledge and experiences to fill in pieces of missing information and to make inferences. Apparently, the more prior knowledge (housed in concepts) a reader possesses about a text's central topics (key concepts), the better s/he is able to fill in the

missing bits of information. It is further suggested that the activation of appropriate, text-relevant conceptual prior knowledge in pre-reading activities enhances comprehension, as bridges are built between what the reader knows and the new textual information.

The responsibility for choosing the text-relevant key concepts considered central to understanding a text or story rests with the teacher. The purpose of this study was to determine: a) whether elementary teachers could identify key concepts in six narrative passages under cued or spontaneous (unaided) conditions; and b) if their exposure to recent reading research and attitudes toward the importance and use of prior knowledge/concept development in a reading lesson influenced their cued key concept identifications.

Subjects were elementary teachers from schools in the Central Okanagan school district. The design was descriptive, comparative and correlational. Teacher packages consisted of instructions, a questionnaire and story booklet. The questionnaire was intended to gather basic teacher information and to measure teachers' exposure to recent reading research and attitudes toward the importance and use (inclusion) of prior knowledge/concept development in a reading lesson. The story booklet contained six narrative passages and two response sheets which provided data on teachers' cued key concept identifications and information for a post hoc examination of spontaneous key concept identifications.

Data collected for question one was analyzed descriptively. Hypothesis one was tested using a two-tailed t-test of significance. Hypotheses two and three were analyzed using the Spearman (rho) test of correlation. A multiple regression analysis was employed to test hypothesis four. A descriptive post hoc analysis of spontaneous key concepts was conducted for the second question.

B. CONCLUSIONS

1. Cued Key Concept Identifications

a. Elementary Teachers' Cued Key Concept Identification (Qu$_1$)

The first question addressed whether elementary teachers were able to identify key concepts in six narrative passages. Thirty-one percent (n=30) of the teachers (n=98) scored at the pass level (a score of 9 out of a possible 18) or below, while the majority (63%, n=62) obtained passing scores from 10 to 12. Only 6% (n=6) identified key concepts at the set success level (75%, a score of 13).

Researchers (e.g., Beck *et al.*, 1981; Bruner & Anglin, 1973; Lipson, 1982; Pearson, 1985; Pearson, Hansen and Gordon, 1979) have long expected and directed teachers to choose passage-relevant key concepts. The results of the present study show that elementary teachers are only marginally able to identify key concepts from a list of passage-relevant concepts provided. Perhaps information on how to choose central concepts gleaned from years of teaching experience (11+ years for the majority) and teacher training associated with education qualifications (B.A. or B.Ed. for most) was a factor contributing to successful identifications.

The fact that teachers were not highly successful in choosing key concepts from lists supplied, leads one to question their ability to select key concepts from vocabulary lists provided in guidebooks, since most of the sample teachers used the basal reader approach (alone or in combination) as the main vehicle for teaching reading. In addition, several other basal reader-related factors may affect

teachers' identifications of key concepts.

First, some manuals offer only brief, inadequate suggestions for vocabulary and concept development or pre-story background knowledge preparation (Durkin, 1981; Visser and Pelzek, 1984). Second, manuals often confuse teachers by a) combining words which are to be developed for meaning with those chosen for purposes of phonic analysis; and b) making distinctions between vocabulary and concept development lesson segments which perpetuates isolated vocabulary instruction (Durkin, 1978, 1979). Third, suggestions for singular word definitions recommended by guidebooks, may direct teachers to choose key words which focus on specific definitions rather than more meaningful and transferable passage-level concepts (Mason, 1983; Pearson, 1985). Fourth, even if guidebooks provided key concepts, teachers do not always follow manual recommendations (Durkin, 1984). Examinations of reading instruction (Blachowicz, 1987; Durkin, 1984; Mason, 1983) provide evidence that proper development of selection-related vocabulary and prior knowledge, which would lead students to a rich network of semantic connections and relationships, is often lacking.

Results indicate that teachers in this sample need assistance and guidance in selecting passage-relevant key concepts. The fact that elementary teachers identified 57% (n = 995) key and 25% (n = 439) related, subsumed subordinate concepts, from cued concepts provided (n = 1736), is at least encouraging and supports Beck's (1981) assertion that selection of appropriate key concepts is difficult and not entirely absolute. Possibly, teachers need to be reminded of the interactive reading process, the prior knowledge/concept connection and the critical role passage-relevant key concepts play in instruction (e.g., Tierney & Spiro, 1979).

b. Primary and Intermediate Teachers

The first hypothesis generated from question one predicted no significant difference between primary and intermediate teachers' identifications of cued key concepts. The hypothesis was accepted. One possible explanation for this result is that primary and intermediate teachers share commonalities with respect to years of teaching experience, qualifications, reading approach, and district in-service. As well, elementary teachers are regularly assigned to teach either at the primary or intermediate level and are therefore expected to possess the necessary expertise and transfer skills to adapt to their situation. However, teachers need to be cognizant of the importance of key concepts and concept load demands in the shift from a primary stress on learning to read to an intermediate emphasis on reading to learn (Harris, 1961; McCullough, 1959; McKee, 1948; Strang, 1968).

c. Exposure to Reading Research

Scores (n=102) on the exposure to reading research measure (courses, journals, in-service) were low. The majority of teachers (83%, n=85) scored below the mid point and 96% (n=98) below the success level set at a score of 13 out of a possible 17. Teachers' scores therefore reflected a low level of exposure to research.

Though they felt courses were important, 61% (n=62) of the 101 elementary teachers (the majority of which had over 11 years of experience) had not undertaken a reading course during the past five years while 73% (n=75) reported they had completed two or more courses before 1982. The type or duration of the reading courses was not known, nor did teachers indicate how

long ago the courses had been completed. Presumably, recent courses would reflect the current focus on prior knowledge, while earlier courses used concept development terms. Perhaps time constraints, job and curriculum demands, cost factors and distance from the Lower Mainland universities prevented recent course attendance. Elementary teachers are often expected to be specialists in all subject areas and therefore they may focus on courses, other than reading, which address their interests or perceived weaknesses.

Seventy percent (n = 71) of the teachers (n = 102) did not regularly review reading journals. Some considered journal reading to be important (51%), while others (36%) remained undecided. Teachers may feel they are already overburdened by reading material in the variety of subject areas they are required to teach. Journal memberships are expensive and current journal availability in individual schools may be a problem. Of the 30% (n = 31) who did read journals, most reviewed *The Reading Teacher*, *Language Arts*, and other publications which were instruction, specialist or subject area oriented. This suggests that teachers are seeking efficient, successful, practical teaching ideas which can be easily adapted to their classroom needs. The findings support a 1977 study (Cogan and Anderson) concerning the professional reading habits of teachers.

In-service in reading was considered to be important (84% agreement). The majority of teachers (79%) had attended at least one workshop in reading in the last three years though the topic and duration of workshops is unknown. One would expect in-service to be regular, relevant, current and appropriate to the teachers' needs but this may not be the case. Recent cut-backs in education funding have effected in-service offerings. Teachers are inundated with new

curriculum implementation demands yet are provided little time or opportunity to review, plan and learn. Many educators give of their free time and money to attend in-service reading workshops outside of school hours. If reading in-service has not been a priority, practical application of current prior knowledge-text theory may be lacking.

Hypothesis two stated there would be no relationship between teachers' exposure to reading research and their cued key concept identifications. An unexpected significant negative correlation was found. A possible explanation for this is that, although awareness has been building for the teacher as scholar (Chall, 1986; Manning, 1985), contact with current reading research (theory and methodology) may have a somewhat negative effect.

A teacher would expect to find a preponderance of theoretical and technical studies on prior knowledge or key concepts in research journals and a skilful blend of theory and methodology in course texts. However, Durkin (1986) found methods preservice and inservice textbooks were "flooded" with theoretical postulations and details and lacked direct, explanatory instructions or strategies on how to improve comprehension. Teachers are in need of practical, effective suggestions. Methods texts, like basal manuals, mislabeled comprehension assessment as comprehension instruction, fueling teachers' false security that they were teaching reading and did not need to pursue courses or research. As well, Durkin believes the recent over-emphasis on prior knowledge in texts has not explained the reader-text interactive process (Adams and Bruce, 1982; Rumelhart, 1977; Tierney and Spiro, 1979), or outlined appropriate models (e.g., Idol, 1988), procedures and prior knowledge strategies (e.g., Langer, 1984) carefully. As a result, teachers may overemphasize prior knowledge in the reader-text relationship

(Durkin, 1986).

If course or in-service instructors neglect to provide either balance between theory and practice or supplement text with ideas for practical classroom application, teachers will gain little from recent reading research literature.

d. Attitudes

Elementary teachers' (n = 101) attitudes toward the importance and use (inclusion) of prior knowledge/concept development were mainly positive.

Teachers considered concept development and new vocabulary to be an important component in a reading lesson but also identified follow-up and enrichment activities. Responses indicate teachers are believed to generally use manuals for the planning and instruction of concept development, new vocabulary and follow-up activities. Concept development, purpose questions and student predictions were the most positively identified pre-reading activities, yet classroom observations (Blachowicz 1987; Durkin, 1984; Mason, 1983) show that little instruction in these areas actually takes place.

Attitudes toward the importance and use of concept development experiences in pre-reading activities tended to be less positive than responses to other items. Verbal discussions were considered very important, followed by direct, concrete experience, use of diagrams, graphs and charts and teacher demonstration. Attitudes about audio-visual displays, exhibitions and especially dramatization and field trips were negative. Perhaps teachers are not aware of the importance of concrete, direct experiences in learning and the difficulty students have conceptualizing and interpreting abstract visual or verbal symbols (Cunningham, 1987; Dale, 1969; Stauffer, 1969; Strang, 1968). Planning for

these experiences also requires time, available resources and experimentation. Teachers may also not realize the crucial aspect of concept networks or the transfer value of "owned" concepts (Beck *et al.*, 1981; Bransford, 1979; Bruner & Anglin, 1973; Pearson, 1985).

Attitudes concerning concept development strategies used in lessons reflected a swing back to the more positive viewpoint. Verbal class discussions and brainstorming were considered the most frequently used, followed by script implicit questioning and inference training. Direct, concrete experiences, categorization and word mapping as well, were positive. These attitudes about strategies concur with prior knowledge research.

Apparently, teachers frequently use discussion to develop concepts. There is little preparation time involved and though students may encounter difficulty conceptualizing abstract concepts, they are involved in active comprehension. Stahl and Vancil (1986) suggested that a combination of verbal discussion and visual graphic display (word map) was a more effective strategy. Providing pre-reading purpose questions is believed to facilitate the activation of students' prior knowledge and concepts (Rowe and Rayford, 1987) but teachers need to be aware that script implicit questions are considered more difficult than explicit questions. Teachers' employment of inference training as a strategy is supported by research findings that prior knowledge involves (Hansen and Pearson, 1980, 1982; Lipson, 1982; Pearson, Hansen, and Gordon, 1979) and influences (Callahan and Drum, 1984; Nicholson and Imlach, 1981) inferences. Direct concrete experiences (Dale, 1969) apparently require more preparation time and resources which may not be readily available. Teachers were undecided as to whether Langer's (1984) pre-reading activity was used. Perhaps they did not know of her research and

practical strategy for activating prior knowledge since her work has been published mainly in journals or reading specialist texts which they apparently do not regularly review.

Hypothesis three predicted no relationship between teachers' attitudes toward the importance and inclusion of knowledge/concept development in reading lessons. Results were not significant. Although elementary teachers promote positive attitudes about prior knowledge and concepts and suggest teachers use strategies to activate and build concepts, they are not successfully identifying key text-related concepts. It may be that they do not know how prior knowledge affects comprehension or how to improve instruction (Pearson & Johnson, 1978; Tierney & Spiro, 1979).

If they consider concept development and vocabulary instruction lesson components equally as important as follow-up activities and enrichment, the teaching/assessing confusion may still exist (Durkin, 1981, 1984). Perhaps they over rely on commercial basal programs and their recommendations for instruction (Blachowicz, 1987). Teachers may feel prior knowledge, concept development and vocabulary are important but classroom scheduling and time constraints again limit proper instruction. However, effective instruction may not be a question of time but rather one of quality (Beck *et al.*, 1981; Blachowicz, 1987; Idol, 1988; Lapp, Flood, and Gleckman, 1982; Mason, 1983). Building on text-related key concepts affords better comprehension of text and provides students with a rich semantic network of connections that can be transferred to new situations.

e. Combined Exposure to Reading Research and Attitudes

The interaction of exposure to research and attitudes was found to be significantly related to cued key concept identifications. The finding may be explained in relation to an interaction between "teacher as scholar" (exposure to reading research), "teacher as teacher" (attitudes) and "teacher as manager" (cued key concept identifications).

Teachers have long adopted the role of manager in a reading lesson (Beck *et al.*, 1981; Manning, 1985; Pearson, 1985; Stern and Shavelson, 1983). The teacher as manager ensured a classroom environment was established and maintained, materials (commercial and teacher-made) were arranged, skills were practised by children and tests administered. Classroom observations (Blachowicz, 1987; Durkin, 1981; 1984; Mason, 1983) provide evidence to support the teacher as manager syndrome. Manning (1985) suggested teachers were unaware of lesson sequence, employed skill overkill tactics, and overemphasized testing due to pressures of accountability. Reading educators (Chall, 1986; Manning, 1985; Pearson, 1985) invite teachers to make a shift from the narrow managerial position to a role as scholar and active educator.

Manning (1985) characterized a scholarly reading educator as one who possesses a) an historical, current knowledge of reading research studies which improves instruction; b) knowledge about language and reading; c) knowledge of reading curriculum; and d) up to date knowledge of reading methodology and practical strategies for instruction. He suggested universities have a responsibility to ensure research and courses are relevant to practical classroom reading situations and that teachers need to collaborate by opening their doors to research investigations.

Pearson (1985) recognized a need for teachers to be more actively involved in providing instruction, role modeling, and guiding practice. Teachers and children were described as partners in a reading process, traveling together, teaching and learning, along a goal-oriented continuum. Teachers were reminded of the critical contribution they make (through assistance) to students' mastery learning.

The interaction of the two roles of scholar and educator illuminate the need to involve teachers directly in decisions affecting reading education and to relinquish a perceived adversarial relationship between researcher and classroom teacher. First, teachers are encouraged to take a more active part in a) research (theory and methodology) related to programs, texts and guidebooks and classroom reading instruction (e.g., Beck *et al.*, 1981); b) provincial, district and school based curriculum planning and implementation; c) in-service based on proven theory, teaching models and strategies (e.g., Idol, 1988) which recognize the teacher, student and text variables involved in the reading process. Teachers are advised (Stern and Shavelson, 1983) to be aware of their decision-making role with respect to programs and instructional strategies and to adapt goal-oriented transfer skills to a variety of materials (Durkin, 1981).

2. Spontaneous (Unaided) Key Concept Identifications

Teachers' responses revealed a lack of consensus as to a definition of a key concept. Suggestions (see Table 11) ranged from very specific vocabulary words to genre, comprehension levels, story grammar and teaching techniques. These results may reflect guidebook or novel study recommendations for developing specific word meanings, aspects of story (e.g., setting, character analysis, plot, climax), genre (e.g., mystery, fiction), comprehension levels (e.g.,

literal, inferential), and lesson components (e.g., enrichment activities, vocabulary). Of the choices (n=1767) suggested by teachers (see Table 12), only 29% (n=515) were considered key superordinate passage-related concepts in comparison to a 57% (n=995) identification of cued key concepts (n=1736). Combined key and subordinate categories yielded 55% (n=968) of the concept choices. It seems that teachers are unable to successfully identify key concepts when left to their own resources.

Since the concepts used in the cued measure were more passage-specific than words suggested by manuals or guidebooks, the results of teachers' marginal identifications (57%) may be somewhat inflated. In light of the fact that the teachers in this study reported that they employed other approaches to teach reading (whole language, language experience, novel studies, trade books), either alone or in conjunction with basal reading series, their ability to consistently and successfully identify key text-relevant concepts becomes even more questionable. It would seem that teachers need explicit models, procedures and strategies for choosing passage-related key concepts in program guidebooks and more importantly, in pre-service and in-service methods texts (Blachowicz, 1987; Durkin, 1986).

Teachers appear to need in-service on a) the interactive process of reading; b) the importance and influence of prior knowledge on reading comprehension; c) the prior knowledge-concept-vocabulary connection; d) the selection of text-related key concepts; and e) the activation and building of students' prior knowledge concepts to connect the known to the new.

C. LIMITATIONS

Although the sample seems to be representative of British Columbia teachers in terms of years of teaching experience and education qualifications, generalizations should be made with caution. It is possible that the exposure to research and attitude factors may differ among the sample, other school districts and the population. Results may have been afffected by years of teaching experience. The six narrative passages were short and may not reflect the typical concept load associated with stories in basal readers. Spontaneous responses had no control and therefore could only be content analyzed descriptively.

D. IMPLICATIONS

The results of this investigation suggest that: a) while teachers are marginally able to identify key concepts under cued conditions, they are not able to identify key concepts on their own; and b) exposure to reading research and attitudes influence their identifications. These results are potentially important to the teaching of reading and in-service programs for teachers.

Sensitizing teachers to the importance and influence of prior knowledge in the interactive reading process through pre-service and in-service training could enhance their selection of passage-relevant key concepts. Explicit models and strategies on how to choose text-related key concepts should be included in methods texts. Program guidebooks or manuals could provide key concepts for passages in pre-reading segments. Appropriate key concept choices could then be used in lesson direction-setting and the activation of students' related prior knowledge which would in turn provide scaffolding and connections for new

incoming information.

Future research should be conducted in this area including the investigation of: 1) samples from more than one district; 2) primary and intermediate teachers at each grade level; 3) the in-service instructional effects of sensitizing teachers to identify passage-relevant key concepts; and 4) identification of key concepts in expository material.

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APPENDIX A

INITIAL ELEMENTARY TEACHER QUESTIONNAIRE

APPENDIX A

Dear Colleague,

The attached INDEX and BOOKLET is part of a study I am conducting to help identify what aspects of a reading lesson elementary teachers consider to be important. As a full-time teacher myself, I am aware that your time is at a premium. However, the most valuable classroom resource is you, the educator. Your input will help provide information about classroom reading lessons which can be used in developing reading and in-service programs. Individual responses are coded only to keep track of the survey and will be held in strict confidence. Participation is voluntary. Thank you for you co-operation.

J. M. Tonski

EXPLANATIONS OF TERMS FOR PART ONE – INDEX

The following are various components of a reading lesson model. Explanations are provided as a reference for the questions in Part B of this index.

COMPONENTS OF A READING LESSON

A. BACKGROUND INFORMATION:
>   -concept development
>   -activating students' background knowledge and experience relevant to story content

B. VOCABULARY DEVELOPMENT:
>   -presentation of new vocabulary and review of previous words in isolation and context
>   -decoding skills
>   -word meanings

C. GUIDED SILENT READING:
>   -fosters word recognition/comprehension skills and strategies through discussion and questioning (literal level and beyond)

D. ORAL REREADING:
>   -includes rereading activities to improve reading fluency
>   -to prove a point, justify interpretations, etc.

E. FOLLOW-UP ACTIVITIES:
>   -independent student tasks
>   -reinforcement for skills presented (e.g., workbook exercises)
>   -evaluation of word recognition or comprehension skills (e.g., post reading comprehension questions)

F. ENRICHMENT:
>   -activities which involve creative uses of language

PART ONE

ELEMENTARY TEACHER INDEX

A. BASIC INFORMATION

Please circle the appropriate response.

1. Grade level you are presently teaching:

    a) 1   b) 1/2   c) 2   d) 2/3   e) 3   f) 3/4   g) 4   h) 4/5

    i) 5   j) 5/6   k) 6   l) 6/7   m) 7

2. Sex: a) Male   b) Female

3. Years of teaching experience (as of June 1986):

    a) 0-3   b) 4-7   c) 8-11   d) 12-15   e) more than 15

4. Education Qualifications:

    a) Certificate   b) B.A./   c) B.A/   d) M.A/   e) Ph.D/
                 B.Ed.(4yr)   B.Ed.(5yr)   M.Ed.   D.Ed.

B. THE READING LESSON

Please circle the appropriate response.

1. To what degree are the following components important to a reading lesson?

	Important	Undecided	Not Important
A. BACKGROUND INFORMATION	1	2	3
B. VOCABULARY	1	2	3
C. GUIDED SILENT READING	1	2	3
D. ORAL REREADING OF STORY	1	2	3
E. FOLLOW-UP ACTIVITIES	1	2	3
F. ENRICHMENT ACTIVITIES	1	2	3

2. Do you use a basal reading manual or guidebook for planning and instruction?

        yes   no

3. How often do you refer to the basal manual or quidebook for the following components?

	usually	sometimes	never
A. BACKGROUND INFORMATION	1	2	3
B. VOCABULARY	1	2	3
C. GUIDED SILENT READING	1	2	3
D. ORAL REREADING OF STORY	1	2	3
E. FOLLOW-UP ACTIVITIES	1	2	3
F. ENRICHMENT ACTIVITIES	1	2	3

4. Please rank (1-6) the components in order of importance (1=most important, 2=second most important, 3=next most important, etc.).

A. BACKGROUND INFORMATION   .....

B. VOCABULARY   .....

C. GUIDED SILENT READING   .....

D. ORAL REREADING OF STORY   .....

E. FOLLOW-UP ACTIVITIES   .....

F. ENRICHMENT ACTIVITIES   .....

5. Often regular classroom time constaints influence the selection of components that you are able to use in a lesson. Which three of the following steps would you delete if you did not have time to use all steps? (1=first to be deleted, 2=2nd to be deleted, 3=3rd deleted)

A. BACKGROUND INFORMATION   .....

B. VOCABULARY   .....

C. GUIDED SILENT READING   .....

D. ORAL REREADING OF STORY   .....

E. FOLLOW-UP ACTIVITIES   .....

F. ENRICHMENT ACTIVITIES   .....

C. READING EDUCATION INFORMATION

Please circle the appropriate response.

1. Reading courses taken prior to 1981:

    a) none   b) one   c) two   d) three   e) more than three

2. Reading courses completed during the last 5 years:

    a) none   b) one   c) two   d) three   e) more than three

3. Do you read journals about reading education?   a) yes   b) no

4. If "yes", please circle the journal(s) that you read at least three times a year:

    a) The Reading Teacher   b) Journal of Reading   c) Language Arts

    d) Reading Research Quarterly   e) Other (please specify) ....
    ....

5. How many local or provincial workshops on reading have you attended during the past three years?

    a) none   b) one   c) two   d) three   e) three or more

APPENDIX B

PART ONE

FINAL ELEMENTARY TEACHER QUESTIONNAIRE

APPENDIX B

Dear Colleague,

This study is being conducted in the Central Okanagan school district to identify what aspects of a reading lesson (especially prereading activities) elementary teachers consider to be important. As a veteran Okanagan teacher, I am aware that your time is at a premium. However, the most valuable classroom resource is you, the educator. Your input will help to provide information about real classroom lessons which can be used in developing reading and in-service programs in the Central Okanagan. Responses are coded only to keep track of the survey and, of course, will be held in strict confidence. Participation is voluntary and participation or non-participation will not affect job standing in any way. Thank you for your cooperation.

J. M. Tonski

INSTRUCTIONS FOR THE STUDY

Please refrain from discussion during the completion of the tasks.

The study is comprised of <u>two</u> parts that must be completed in the following order:

PART ONE: TEACHER QUESTIONNAIRE (5-10 minutes)

Please complete the <u>yellow</u> Teacher Questionnaire and place it in the large brown envelope.

PART TWO: BOOKLET (20-30 minutes)

This section requires you to read six short narrative passages and to complete, in order, two brief identification tasks: a) <u>Response Sheet</u> #1 (which is to be sealed in the small white envelope provided after it is finished) and then b) <u>Response Sheet</u> #2 (which is in an enclosed small brown envelope).

PART THREE: RETURN PACKAGES

Upon completion, place all materials in the large brown envelope, seal, and return the package to the group leader or principal.

APPENDIX B

PART ONE

ELEMENTARY TEACHER QUESTIONNAIRE

A. BASIC INFORMATION: Please circle the appropriate response.

1. Grade level you are presently teaching:

   a) Primary (K-3)   b) Intermediate (4-7)

2. Sex: a) Male   b) Female

3. Years of teaching experience (as of June 1987):

   a) 0-5   b) 6-10   c) 11-15   d) more than 15

4. Education Qualifications:

   a) Certificate   b) B.A./   c) B.A/   d) M.A/   e) Ph.D/
                    B.Ed.(4yr)   B.Ed.(5yr)   M.Ed.   D.Ed.

5. Reading courses you have taken during the last 5 years (1982-1987):

   a) none   b) one   c) two   d) three   e) more than three

6. Reading courses you have taken prior to 1982:

   a) none   b) one   c) two   d) three   e) more than three

7. Which of the following journals do you read at least three times a year?

   a) The Reading Teacher   b) Journal of Reading   c) Language Arts

   d) Reading Research Quarterly   e) other (please specify)

---

8. How many local or provincial in-service workshops on reading have you
   attended during the past three years?

   a) none   b) one   c) two   d) three   e) more than three

9. Which reading approach do you mainly use?

    a) basal series   b) whole language   c) language experience

    d) eclectic   e) other (please specify)

    _____

B. THE READING LESSON:

Please circle the appropriate response according to:

Strongly Agree   Agree   Undecided   Disagree   Strongly Disagree

        1   2   3   4   5

10. It is not important that teachers undertake the following:

     a) Reading Courses   1   2   3   4   5

     b) Reading Current Journals   1   2   3   4   5

     c) In-Service in Reading   1   2   3   4   5

11. The following components are important to a reading lesson:

     a) Background Information   1   2   3   4   5
        (Concept Development)

     b) New Vocabulary   1   2   3   4   5
        (Decoding & Meaning)

     c) Guided Silent Reading   1   2   3   4   5
        (via discussion & questioning)

     d) Oral Re-reading   1   2   3   4   5

     e) Follow-up Activities   1   2   3   4   5
        (Reinforcing, independent tasks)

     f) Enrichment Activities   1   2   3   4   5
        (Creative, extension tasks)

12. Teachers do not use the manual/guidebook for the planning or instruction of the following reading lesson components:

    a) Background/Concept Development   1   2   3   4   5

    b) New Vocabulary   1   2   3   4   5

    c) Guided Silent Reading Questions   1   2   3   4   5

    d) Oral Re-reading   1   2   3   4   5

    e) Follow-up Activities   1   2   3   4   5

    f) Enrichment Activities   1   2   3   4   5

13. The following pre-reading activities are important to a reading lesson:

    a) New Vocabulary   1   2   3   4   5
       (Phonics, decoding skills)

    b) New Vocabulary   1   2   3   4   5
       (Specific definitions, meanings)

    c) Provision of Story Synopsis, Summary   1   2   3   4   5

    d) Concept Development   1   2   3   4   5
       (Building student experiences)

    e) Provision of Purpose Questions   1   2   3   4   5

    f) Student Predicitons   1   2   3   4   5

14. The following concept development experiences are not crucial in prereading activities:

    a) Direct, concrete experiences   1   2   3   4   5

    b) Dramatization   1   2   3   4   5

    c) Teacher Demonstration   1   2   3   4   5

    d) Field Trips, Excursions   1   2   3   4   5

    e) Exhibitions, displays   1   2   3   4   5

    f) Audio/Visual presentations   1   2   3   4   5

    g) Graphs, diagrams, charts   1   2   3   4   5

    h) Verbal discussions   1   2   3   4   5

15. Teachers frequently use the following concept development experiences:

    a) Direct, Concrete Experiences   1   2   3   4   5

    b) Dramatization   1   2   3   4   5

    c) Teacher demonstrations   1   2   3   4   5

    d) Field trips, excursions   1   2   3   4   5

    e) Exhibitions, displays   1   2   3   4   5

    f) Audio/Visual presentations   1   2   3   4   5

    g) Graphs, diagrams, charts   1   2   3   4   5

    h) Verbal discussions   1   2   3   4   5

16. The following concept development strategies are frequently used in lessons:

    a) Categorization (classification of data)   1   2   3   4   5

    b) Word mapping (visual display of word and its various meanings)   1   2   3   4   5

    c) Brainstorming   1   2   3   4   5

    d) Direct, concrete experiences   1   2   3   4   5

    e) Inference training (implied meanings)   1   2   3   4   5

    f) Verbal class discussions   1   2   3   4   5

    g) Script Implicit Questioning (open ended questions requiring students' experiences)   1   2   3   4   5

    h) Langer's Prereading Activity (concept development strategy)   1   2   3   4   5

PLACE THIS QUESTIONNAIRE IN THE LARGE BROWN ENVELOPE AND CONTINUE.

APPENDIX C

PART TWO

STORY BOOKLET

APPENDIX C

PART TWO - BOOKLET

INSTRUCTIONS

PLEASE REFRAIN FROM DISCUSSION WHILE COMPLETING THE BOOKLET.

1.   Read the six short passages in the booklet.

2.   For each story, choose three key concepts you consider to be important to
understanding the passage and print them on RESPONSE SHEET #1.

3.   Upon completion of RESPONSE SHEET #1, seal it in the small white
envelope provided.

4.   Open the small brown envelope containing RESPONSE SHEET #2 and
complete the checking (√) task.

5.   Place all materials in the large brown envelope, seal or staple, and return
to the principal or group leader.

Thank you for your cooperation.

PASSAGE ONE

1 ZR and XJ had just finished a regular inspection of Flagship Venus when they heard the radio signal. ZR glanced briefly at the last message. No further signals were due for another two days. ZR clicked on the receiver and waited for the typed message.

2 "It's been almost five years since we left Azid," she said to XJ. "Five years that we've been in space. Just a few more days and we're home."

3 "As she read the message, her hands started to shake. "Flagship Venus, do not finalize orbit entry until you receive an all clear. Problem with the planet Zenith. Will be resolved in a few days."

4 ZR and XJ recalled the last war with Zenith. Zenith had wanted to colonize a small planet near Azid, but the rulers of Azid had objected. As a result, half the surface of Azid had been destroyed. Its inhabitants had been forced to live underground for over two hundred years.

5 "But the fact that we survived is what matters," ZR said. "Besides, with our new weapons, we've maximized our strength."

6 "That's the problem," XJ said nervously. "They have, too."

7 "Well, the fact that Azid is sending messages is a good sign. There's nothing we can do but wait."

8 The crew had been looking forward to returning home. They had been exploring a newly discovered galaxy, which had billions of stars in it still to be studied. ZR and XJ had also helped colonize a planet on the outer limits of the galaxy.

9 Now Flagship Venus was returning home and would begin its descent in two days. If anything went wrong though, the spaceship's computer would automatically shift the spaceship into a holding pattern.

10 Another message began to come in. "Flagship Venus, our Southern Hemisphere has been lost. Wait for instructions."

11 Quickly, ZR started to focus the giant telescope on Azid. "Well, it's still there," she thought grimly. She reminded herself that she had been through this before, just 200 years ago.

12 Again the radio started to click, then stopped suddenly. Stunned, ZR returned to the telescope. The planet Azid was an orange ball of flame. It glowed for a few more seconds. Then there was total blackness. Azid was gone. Flagship Venus lurched slightly, causing ZR to stumble.

13 The spaceship had shifted into the holding pattern. ZR and XJ stared into space. The computer had received its final message from ground control. ZR and XJ would hear no more from Azid.

PASSAGE TWO

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1   Long ago, an elderly woman lived alone in an old log cabin. She had many peculiar habits, and people suspected she was a miser with a hoard of money stored away in her ramshackle old place.

2   The woman had a fancy for dried fish and at all times kept a large one hanging from a peg inside the fireplace. Whenever she wanted a snack, she would eat a piece of the fish. She called every fish that hung there *Old One-Eye* because she could only see one of its eyes.

3   The old woman maintained a nightly ritual. Every night, she would sit before the fire, preparing wool for spinning. As she began to yawn, she would count each yawn aloud, and after three yawns, she prepared herself for bed. But before retiring the old woman would always get her knife and cut off a piece of the fish.

4   One night three robbers, having heard the rumor of the old woman's money, sneaked up near her cabin. They planned to slip in after she fell asleep and steal her money. Since the leader of the gang had only one good eye, he sent one of the others to spy on the woman.

5   The first thief tiptoed up to peek through a crack between the fireplace and the log wall. He saw the old woman rocking and carding wool. Suddenly she yawned. "That's one!" she said, looking at her fish. "My knife is dull, but it will do the job!"

6   Not knowing about the fish, the robber thought she was looking straight at him, so he turned and ran. When he reached his friend's hiding place, he declared that nothing could ever make him go back to that weird place.

7   When the second robber bravely went to the cabin and peeked through the crack, he saw the woman rocking and combing her wool. Soon the woman yawned again. "That's two," she said, glancing at the fish. "I'll be getting my knife shortly!"

8   "She can see right through the wall!" gasped the thief, who abruptly turned and fled.

9   Disgusted with the cowardice of the other two, the leader went up to the cabin himself and applied his good eye to the crack. Just then, the old woman yawned again. "That does it," she sighed. "That's the third one tonight." Then looking sternly at the fish, the old woman said, "Old One-Eye, your time has come. I'm going to get my knife."

10   That was too much for the already nervous one-eyed villain! He took off, with the other two rogues close behind.

11   The old woman cut a big piece of fish and ate it hungrily. Then, as usual, she went to bed and slept soundly all night.

PASSAGE THREE

1   Maria and her partner swam deeper into the black depths of the cold ocean. One light shone from Maria's diving helmet, another from her partner's. The rest was darkness. Although cold and dark, the waters gave Maria a feeling of anticipation.

2   Maria was studying the habits of lobsters. This was her job, and there was nothing she would rather do. Because she studied life in the ocean, she was called a marine biologist.

3   She swam carefully around a large rock formation about ten meters below the surface. As she swam, she beamed her light into the cracks. Sometimes she wished she did not have to dive at night. But there was no choice. Lobsters are nocturnal, moving around and feeding at night. To observe these strange creatures that look so prehistoric, Maria had to work at night.

4   Maria was thinking that someday her research might lead to an important discovery. Suddenly she saw two huge, cat-like eyes beyond the rocks. Maria froze. Could it be? Yes, it was — an enormous shark!

5   Maria wanted to race for the surface. But her training took over, and she stayed perfectly still. The gentle current moved her slightly to and fro. She kept her eye on the shark.

6   Maria knew that any sudden movement would be dangerous. She remembered if she remained calm, the shark's curiosity might be satisfied and it would swim away. She concentrated on keeping her breathing slow and regular. Luckily, she still had plenty of oxygen in the tank she carried on her back. All she had to do was wait — and watch. If the shark attacked, she would have to fight for her life. Her best bet would abe to go for its gills.

7   After what seemed like hours, the shark moved out of view. Minutes passed. The only sound Maria could hear was the sound of her breath bubbling up through the ebony water toward the night sky above. Ever so slowly, Maria began to drift upward. After what seemed like forever, her head broke the surface, just a meter away from the boat.

8   Her partner was already at the surface, calling to her, "There's a shark down there! Did you see it?"

9   Maria nodded excitedly. "That's why I came up," she said. "I watched it and it watched me, and then it swam away. I guess it was just looking, but I didn't like the way it was staring at me."

10   Then Maria smiled. "I wonder if the lobsters we watch feel the same way about us?"

PASSAGE FOUR

1   The weekend was over, and they were headed home again. Miranda felt a lump in her throat. Without meaning to, she sighed wistfully.

2   "What's wrong?" her father questioned, his eyes steady on the busy highway.

3   "I don't know," she answered, trying to feign a smile — both for own and her father's sake.

4   Miranda had never been to the ocean before. Her father had taken her and her brother to the beach for the weekend. She had loved being at the beach, the view so golden at sunset, the surf pounding so rhythmically.

5   Miranda had collected exotic seashells for her aquarium back home. She and her little brother, Lonnie, had built a giant sandcastle, a city really, with underground tunnels. Their first morning there, the three of them had ridden the crashing surf into shore, and they had done it again and again. Last night, they had cooked a delicious dinner on an open fire and had traded funny stories.

6   "Come on, partner," Miranda's father probed, "you can tell me. That sounded like a sad sigh to me, and I know something's upsetting you."

7   "It's just that ..." Miranda hesitated and glanced quickly at her sleeping brother. "It's just that the weekends seem to end so quickly; then you're gone again." Miranda was having difficulty talking.

8   Her father put his arm around her and drew her close. "You know, it's difficult for me, too, and I can hardly wait to get through the lonely weeks when I don't see you. Because I don't live with you now doesn't mean that I love you less. It's just that things have changed."

9   "But Dad, couldn't you come home again?" Miranda strained to hold back the tears. She knew the answer and was sorry she had asked.

10   "Adapting to this new pattern of living, the new circumstances, has been difficult for all of us, Miranda. But you know your mother loves you. And, of course, I still love you and Lonnie very much."

11   "You have to try to look at this from a different perspective," continued her father. "Now, you have two families, not one; maybe you'll have twice as many adventures, too," he smiled. "This is not exactly what you want, but you and I — all of us — have to make the best of this sutuation. I know you're a strong person."

12   Miranda looked at her father. It made her feel better to talk about this. There were many things about her new family situation that Miranda was not comfortable with. But, in time, she thought it would become easier. It would never be the way it was before, but it would have to be easier than now.

PASSAGE FIVE

1   It was raining hard that night in 1881, harder than Kate Shelley had ever seen. While Kate and her family were listening to the rain, there came the sound of a train along the tracks near the house. As the train rolled onto the bridge over Honey Creek, there came a sudden crash! A loud, deafening roar! The rising waters of Honey Creek, combined with the weight of the train, had caused the bridge to collapse. The freight train had fallen into the creek!

2   Kate knew something had to be done. And quickly! Anxiously, she put on her raincoat and hat. She ran through the blinding rain to the creek. With a small lantern, she could barely discern two of the train crew clinging to something in the water. She shouted to them that she would get help.

3   As Kate turned to go, she suddenly remembered. The passenger train! It would soon be heading toward the creek. The passengers and crew needed to be warned of the bridge collapse. Kate knew she had to get to town immediately!

4   But the only path to town was across a small footbridge. It was a long, narrow footbridge, difficult to cross even in the daytime. Tonight it would be treacherous, perhaps impossilble. And how it was swaying in the wind!

5   Just as Kate started across, the wind blew out her lantern, leaving her in complete darkness. How could she get across the bridge with no light to guide her?

6   Kate decided that the only way to cross the bridge was to crawl. She was able to see where she was going only when the lightning flashed. Even though Kate's clothes became wet and torn, her hands and knees full of splinters, she knew she had to go on. She had to get to town before that passenger train passed through and raced toward the creek! Kate felt she would never reach the end of that rickety bridge.

7   But she finally made it! Kate rushed into town just in time to stop the train. At first the engineer and the passengers were hostile toward Kate. They were angry because she had halted the train. But when they heard why, they gave a loud cheer! Hurriedly, Kate guided a rescue group to the two men in the flooded waters of Honey Creek.

8   Overnight, Kate became famous. People all over America heard about her courageous deed. Songs and poems were written about her. And the rest of her life, whenever she wanted to go somewhere, Kate rode the train free.

PASSAGE SIX

¹ No one had seen the carnival arrive. Not until morning, after a violent April storm, did the people of tiny Yorkton discover it. But by sunset, all three big tents and sideshows were packed with what seemed like Yorkton's entire populace. After all, this was the first carnival of the spring of 1898.

² Clara Worley, a young farm girl, and two other girls from the Sherbrooke Farm were among the many people who came to participate in the fun. Clara was buffeted by the large, laughing crowd. Before she knew it, she was separated from her friends. The shouts of barkers selling chances at their games filled her already swimming head. Suddenly, she felt as though she were falling through space.

³ "Here, drink this water. You must have passed out," a thin voice said. Clara looked up into a pair of ancient eyes. "I've been waiting for you," the mysterious woman whispered.

⁴ "For me?" Clara asked in a voice that quavered.

⁵ "Yes, old friend, it's your turn to take a chance." With a gnarled finger, the stranger pointed to the banner draped across her dusty tent. The crowds walked past as if her show were invisible. "Enter the Future" the sign dared.

⁶ Just to escape the old woman's haunting grasp, Clara paid her nickel and entered.

⁷ Red, blue, violet flashing lights pulsated around her. It was a marvelous hall of mirrors! Her reflection swirled endlessly through glass. Clara laughed, wondering where the future was. Slowly she inched forward, feeling her way through the forest of expanding and shrinking reflections. At last, she stood before the final mirrors at the exit.

⁸ Clara stopped abruptly, frightened! In the mirror stood the oldest woman she had ever seen! Suddenly she felt weak and jittery. Horrified, Clara whirled about, facing another mirror. The ancient woman was there, too, copying Clara's every move.

⁹ Clara shook with fright! The realization of what had occurred struck her so violently she could hardly breathe. She understood! She had taken a chance on entering the future, but she had entered her own future! Somehow, within the maze of mirrors, her whole life had been lost. For some reason, a reason impossible to comprehend, Clara had become an old woman.

¹⁰ Her mottled hands shaking with apprehension, Clara opened the exit. Outside, the carnival was gone. The small town she had known had changed to a fast-paced, auto-choked city. Dazed, wandering aimlessly, Clara Worley vanished into a crowd.

APPENDIX C

SPONTANEOUS RESPONSE SHEET #1

A.   CHOOSE THREE KEY CONCEPTS (IMPORTANT TO UNDERSTANDING
     THE STORY) THAT YOU WOULD DEVELOP FROM EACH OF THE SIX
     PASSAGES AND PRINT THEM IN THE APPROPRIATE SPACES.

   1. PASSAGE ONE:

   ....

   2. PASSAGE TWO:

   ....

   3. PASSAGE THREE:

   ....

   4. PASSAGE FOUR:

   ....

   5. PASSAGE FIVE:

   ....

   6. PASSAGE SIX:

   ....

B.   PLACE THIS RESPONSE SHEET #1 IN THE WHITE ENVELOPE
     PROVIDED AND SEAL.

C.   OPEN BROWN ENVELOPE CONTAINING PINK QUICK RESPONSE
     SHEET #2 AND CONTINUE.

APPENDIX C

CUED RESPONSE SHEET #2

A. CHECK (√) THE THREE KEY CONCEPTS YOU WOULD DEVELOP FOR EACH STORY FROM THE LISTS PROVIDED.

1. PASSAGE ONE:

flagship	space exploration	maximized .....
radio signals	holding pattern	ground control .....
outer limits	orbit	receiver .....
inspection	"world" peace	abandoned .....

2. PASSAGE TWO:

old woman	ramshackle	carding .....
peculiar	folk tale	miser .....
ritual	cowardice	robbery .....
disgusted	hoard	abruptly .....

3. PASSAGE THREE:

shark	current	night diving .....
research	meters	ebony .....
enormous	prehistoric	marine biology .....
sea creatures	oxygen	lobsters .....

4. PASSAGE FOUR:

feign	family changes	perspective .....
probed	hesitated	pattern .....
adapting	circumstances	personal
exotic	upsetting	relationships .....

5. PASSAGE FIVE:

discern	rickety	storms .....
collapse	treacherous	engineer .....
bridges	courage	lantern .....
morality	hostile	trains.....

6. PASSAGE SIX:

populace	mystery	carnival .....
buffeted	gnarled	haunting .....
ancient	time travel	quavered .....
barkers	sideshows	self-awareness .....

B. PLACE ALL MATERIALS IN THE LARGE BROWN ENVELOPE, SEAL AND RETURN TO THE GROUP LEADER OR PRINCIPAL.