

AN INVESTIGATION INTO THE KNOWING AND REGULATING
COMPREHENSION BEHAVIORS OF SKILLED AND LESS SKILLED
SEVENTH GRADE READERS

by

Darlienne J. Black

A Thesis Presented to the Faculty of Graduate Studies
in Partial Fulfillment of the Requirements
for the Degree of
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Faculty of Education
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COMPREHENSION BEHAVIORS OF SKILLED AND LESS SKILLED
SEVENTH GRADE READERS

BY

DARLIENNE J. BLACK

A Thesis submitted to the Faculty of Graduate Studies of the University of Manitoba
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ABSTRACT

Verbal report methodologies, retrospection, and protocol analysis were employed in this study to investigate skilled and less skilled seventh graders' metacognitive knowledge and reading behaviors. Three skilled and four less skilled readers from one suburban junior high school served as subjects.

The purpose of the study was to determine what perceptions grade seven students hold about the reading process and to identify the types of strategies they use to regulate and monitor their comprehension. Since this study was to be exploratory research into metacomprehension using protocols as a basis for data collection, a case study approach to data analysis was employed. Specifically, this study examined the responses of these seventh grade skilled and less skilled readers on a pre-reading interview, think-aloud protocols produced across narrative and expository text passages, and retrospections on a post-reading task to determine whether observable differences existed in their metacognitive comprehension knowledge and behaviors.

Skilled readers provided more meaning-getting responses to questions about reading process. Although less skilled readers recognized the meaning-getting aspect of reading, they tended to emphasize decoding concerns at the expense

of understanding concerns. When reading the experimental passages, both groups were found to use the same types of strategies for the narrative and expository reading materials. All subjects depended heavily on using summarization, making inferences, visual imagery, and rereading to regulate and monitor their comprehension. In addition, subjects used more organizational strategies (analyzing text features and judging text quality) on the expository passage. Further, subjects were able to monitor relative difficulty between the narrative and expository reading passages and easily offered reasons for their judgments.

When compared directly, skilled and less skilled readers knew of and used the same basic strategies. The difference between the groups related to their ability (or willingness) to try a variety of strategies and also their persistence in trying strategies when faced with challenging material. Skilled readers were more able to vary their strategy use and more willing to persevere even when the task was difficult. The findings led the researcher to conclude that the differences between the groups was in regulation, rather than knowledge of comprehension strategies.

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Chapter I

NATURE OF THE STUDY

Part of being a good student is learning to be aware of the state of one's own mind and the degree of one's own understanding. The good student may be the one who often says that he does not understand, simply because he keeps a constant check on his understanding. The poor student who does not, so to speak, watch himself understand, does not know most of the time whether he understands or not. Thus the problem is not to get students to ask us what they don't know; the problem is to make them aware of the difference between what they know and what they don't.

(Holt, 1964, pp. 28-29)

How do you know what you know and how did you come to know it? The theoretical basis for asking this question lies in recent research into metacognition, or "one's knowledge concerning one's own cognitive processes and products or anything related to them" (Flavell, 1976, p. 232).

Cognition, the intellectual functioning of the human mind, is characterized by acts of remembering, comprehending, focusing attention, and processing information. Metacognition, conversely, refers to one's knowledge of and ability to monitor one's own cognition; in other words, metacognition means thinking about thinking. Brown (1980) defines metacognition as a person's knowledge of and conscious attempts to control his or her own cognitive processes. When applied to reading, this definition suggests that the reader is able to select skills and strategies

appropriate for the demands of the reading task; a sequence that begins with the reader's metacognitive knowledge and ends with the use of strategic reading behaviors.

Baker and Brown (1984) propose a hierarchical relationship between metacognition, cognitive monitoring, and comprehension monitoring. Metacognition represents a superordinate category comparable to Flavell and Wellman's (1977) metamemory; both metacognition and its subset, cognitive monitoring, apply to knowledge about thinking in general. Comprehension monitoring or metacomprehension, a subordinate category of metacognition primarily applicable to reading and limited to comprehension of connected discourse, is viewed as "an executive function essential for competent reading, which directs the reader's cognitive processes as s/he strives to make sense of incoming textual information" (Wagoner, 1982, p. 328).

Metacomprehension or "knowing about comprehending", which stems from Brown's (1980) descriptors of metacognition, involves a conscious process and appears to involve some kind of triggering mechanism or recognition by the reader of failure to understand the text's message. Flavell (1976) suggests that an awareness precedes and triggers this recognition and calls this a "metacognitive experience". The second aspect involved in metacomprehension, "knowing how to comprehend" (Brown, 1980), involves "fix-up" strategies which a reader employs

once the failure to comprehend has occurred.

According to Flavell (1976), the ability to monitor one's own comprehension is directly influenced by three factors, classified as person, task, and strategy variables, which represent the knowledge one has of oneself as a learner, the information available to the learner during the task itself, and the strategies used by the learner to monitor understanding. These variables act and interact during the reading process.

Flavell (1976) further hypothesized that the reader's adopted purpose determines the level of comprehension to be achieved, and that the type of task presented determines the quality of comprehension and the level of monitoring exhibited.

Thus, every act of reading requires the orchestration of many resources, including the text, the reader's characteristics and prior knowledge, and the demands and constraints of the reading situation. Although the goal of every act of reading - to construct a model of the text's meaning - is the same regardless of who is performing it, what varies across readers, situations, and levels of sophistication is exactly how readers orchestrate available resources.

In light of this variation among readers, it is essential to obtain information about individual students' comprehension strategies and thought processes if teachers

are to meet the objective of optimal learning for each and every individual. Such information would provide an index of the type and amount of support required to advance each student along the reading continuum from novice to expert comprehender.

Orientation to the Problem

In the last decade there has been a growing interest on the part of cognitive psychologists and reading researchers concerning the ability to monitor understanding in reading or reading comprehension. The focus has been on either the reader's ability to know or the ability to regulate. Winograd and Johnston (1980) labelled such reading research as inquiry about what readers know about the task of reading and inquiry about how readers regulate and monitor on-going processes during reading.

Most studies designed to investigate the knowing behaviors of readers have employed self-report measures such as interviews (Myers & Paris, 1978; Kobasigawa, Ransom, & Holland, 1980; Garner & Kraus, 1981-82; Gambrell & Heathington, 1981; Swanson, 1985; Dewitz, Carr, & Patberg, 1987) or questionnaires (Ryan, 1984; Hahn, 1984; Paris, Cross, & Lipson, 1984; Wixon, Bosky, Yochum, & Alvermann, 1984; Byrd & Gholson, 1985; Raykovicz, 1985). On the other hand, most studies posing questions about regulating

behaviors have involved presenting readers with incomplete, disorganized, or inconsistent text for the purpose of assessing reader ability to detect such deficiencies (Canney & Winograd, 1979; Baker, 1979; Owings, Petersen, Bransford, Morris, & Stein, 1980; Garner, 1981; Baker & Anderson, 1982; Paris & Meyers, 1982; Garner & Anderson, 1982).

While many of these studies have provided evidence that poor comprehenders differ from good comprehenders in either knowing or regulating, the findings of self-report studies should be interpreted cautiously as there is often a gap between what readers say they know and how they actually perform. Even when children indicate awareness of effective reading strategies, it does not necessarily follow that they apply such tactics (Flavell & Wellman, 1977). Ericcson and Simon (1980), therefore, argue that researchers using self-reports need to employ multiple measures of strategy awareness and production.

Because reading comprehension processes are not directly observable, research efforts have typically been post hoc. Lytle (1982), Johnston (1984), and Afflerbach and Johnston (1984) state that past attempts to study and evaluate self-regulating behaviors in reading have generally focused on comprehension as a product measured by some type of post-reading test of knowledge. Based on products such as retellings (Brown & Smiley, 1978; Smiley, Oakley, Worthen, Campione, & Brown, 1977), differential performance on

comprehension questions (Garner & Reis, 1981; Graves, Cooke, & La Berge, 1983; Raphael, Myers, Tirre, Fritz, & Freebody, 1981), or the ability to detect textual inconsistencies (Canney & Winograd, 1979; Garner, 1981; Garner & Taylor, 1982), inferences regarding the processes subjects use while reading have been drawn. Such product-centered research is, at best, speculative because it is once removed from the actual process of comprehension.

Simon (1971) concludes that product-centered research efforts have produced little knowledge of the basic processes of reading comprehension, and suggests that if there is to be progress to help us understand the nature of reading comprehension, research should focus more on the reading process than on the product. Echoing this view, Johnston (1984) states that:

although research findings of late have tended to emphasize the importance of process over product, educators and researchers persist in depending on the more conventionally obtained product data. Metacognition has also been recently stressed in instructional research, yet many researchers continue to ignore the metacognitive components of reading in their assessment and the importance of metacognitive aspects of assessment for instruction....Instead of a concern over response outcomes, right or wrong, there needs to be a greater concern over the reasons behind the responses; the bottom line is that we need to worry more about the assessment of process in the individual. (p. 173)

However, observing and understanding the comprehension process seems more easily proposed than actualized. As

reading is a cognitive activity, processing occurring during reading cannot be observed directly. Therefore, it is necessary to find a technique which will allow readers to externalize their thought processes during the act of reading.

One such way of gaining processing information is to employ the use of "think-alouds" (Olshavsky, 1976; Davey, 1983). The think-aloud approach requires the subject to verbalize his or her thought processes while reading. The protocols are recorded and later analyzed for evidence of strategy use. Johnston (1984) sees this technique as an extension of early reading behaviors and states that "in early stages of development, children naturally think out loud, and in early shared-book experience reading, it is hard to stop them from predicting and hypothesis-testing out loud" (p. 170). He advocates the use of think-alouds with older readers as a way of gaining insights into covert reading processes. Johnston's (1984) position is further supported by Duffy, Roehler, and Herrmann (1988) and Palinscar and Brown (1988).

An examination of the literature reveals few studies that have employed the think-aloud procedure as a means of externalizing, analyzing, and identifying readers' covert processing and regulating behaviors. Olshavsky (1976) used this technique to identify the strategies employed by tenth grade students to help them understand short stories. In a

1979 study, Kavale and Schreiner examined sixth graders' think-aloud protocols to establish the reasoning strategies they employed to answer post-reading questions. Seventh graders' think-aloud protocols were analyzed by Hare and Smith (1982) to compare strategy production across narrative and expository reading selections. Brown and Day (1983) asked university students to summarize texts in order to identify the overall strategies used by the subjects, while Lytle (1982) used think-aloud protocols to externalize the strategies used by twelfth graders to comprehend three non-fiction text selections. Johnston (1985) employed think-aloud protocols to gather extensive data on adult disabled readers while Lundeberg (1987) used think-aloud protocol analysis to identify metacognitive strategies used by legal experts and obstacles encountered by novices in reading legal cases. Afflerbach (1990) analyzed the think-aloud protocols produced by doctoral students to examine the influence of prior knowledge on these expert readers' use of strategies to construct main ideas.

Despite the paucity of research to support the use of think-aloud protocols as a technique for investigating the processes involved in regulating and monitoring reading comprehension, it would appear that focusing on ways that students think during the reading act can yield valuable insights into the mental processes that either facilitate or impede comprehension.

In any instructional program, a critical factor is the teacher's knowledge of the learner. Understanding how different types of students comprehend and monitor their comprehension is a necessary prerequisite to the effective teaching of reading. Consequently, more information must be compiled about the nature and characteristics of efficient and less efficient readers so educators can be better prepared to meet individual needs. Gaining access to readers' covert comprehension processing behaviors will foster better teacher awareness and understanding. If students can indicate directly what strategies they use to monitor and regulate their comprehension, both diagnoses and instruction will benefit.

Statement of the Problem

From a review of the literature, a key area for study was identified: an investigation into the metacognitive comprehension behaviors of skilled and less skilled seventh grade readers as revealed through responses to a pre-reading interview, think-aloud protocols across narrative and expository text passages, and retrospections on a post-reading task. These metacognitive behaviors, hereafter described as knowing and regulating behaviors, refer to the knowledge readers have about the reading process and the types of strategies they use to regulate and monitor their

comprehension. To provide a focus, four general questions were formulated:

1. What beliefs do skilled and less skilled seventh grade readers hold about the reading task?
2. What strategies do skilled and less skilled readers employ to regulate and monitor their reading comprehension?
3. Do seventh grade students apply different strategies when reading narrative as opposed to expository text?
4. What factors do skilled and less skilled readers identify as facilitating reading of narrative as opposed to expository text?

These general questions are considered under one main research hypothesis and several specific research questions.

Research Hypothesis

There will be observable differences in the knowing and regulating behaviors of seventh grade skilled and less skilled readers using narrative and expository textual materials as revealed through responses to a pre-reading interview, think-aloud protocols across narrative and expository text passages, and retrospections on a post-reading task.

Specific Research Questions

1. What beliefs do seventh graders hold about the goal or purpose of reading?
2. Are similar beliefs held by skilled and less skilled readers?
3. What strategies do seventh grade readers recognize as being available to them to regulate and monitor their comprehension?
4. Do skilled and less skilled readers recognize the same strategies?
5. What strategies do seventh grade readers actually apply during reading to regulate and monitor their comprehension?
6. Do skilled and less skilled readers apply the same general types of strategies?
7. Are there discrepancies between the strategy recognition and strategy production behaviors of seventh grade readers?
8. Do seventh graders apply different monitoring strategies when reading narrative as opposed to reading expository texts?
9. Do the different ability groups use similar strategies when reading narrative and expository texts?

10. What factors do skilled and less skilled readers identify as facilitating the reading of narrative and expository text?

11. Do skilled and less skilled readers identify similar facilitating strategies?

Delimitations

The scope of this research is delimited by the following factors:

1. This investigation was limited to analyzing data for only seventh grade students in a one-to-one situation.

2. This investigation was further limited to analyzing data for only seventh grade students of average to above average verbal ability and did not consider seventh grade students of low verbal ability.

3. Analysis of strategy production data for skilled readers was limited to analyzing data obtained across only one narrative and one expository text passage.

4. Analysis of strategy production data for less skilled readers was limited to analyzing data obtained across only two narrative text passages and one expository text passage.

Limitations

Limitations operating in this study include:

1. The research setting may have imposed certain limitations since the use of an audio tape recorder to collect data may have inhibited a subject's natural rapport.

2. Data collected in the interview task may have been distorted by the subjects' perceptions of the goals of the investigator.

3. Data collected in the retrospective task may have been distorted by the subjects' perceptions of the investigator's goals or by the retrieval strategies used by the subjects.

4. The reading processes of only a particular group of grade seven readers are reflected in this investigation and to generalize beyond them to all seventh graders would be presumptuous.

Assumptions

Underlying this study are three assumptions:

1. The interview format utilized actually tapped the strategy identification-giving ability of subjects to their maximum.

2. All processes operating within the reader's head were reported on the audio tape recordings.

3. The think-aloud process did not interfere with the reading comprehension process.

Definition of Terms

Operational terms which have been used throughout this study have been defined as follows:

Cognitive Processes. Cognitive processes is a term used to describe the intellectual functioning of the human mind. These processes, characterized by acts of remembering, comprehending, focusing attention, and processing information, are measured by the types of strategies employed by subjects during the think-aloud reading tasks.

Metacognition. This term refers to one's knowledge of and ability to monitor one's own intellectual functioning. For the purpose of this study, evidence of metacognitive abilities is assessed by an examination of pre-reading and think-aloud protocols to identify reading strategies recognized and produced by subjects.

Strategy. A strategy is a definite process employed by a reader to deal with the task of understanding what is read, as measured by the kinds of strategies reported in the pre-reading interview and the types of monitoring and regulating behaviors produced during reading think-alouds.

Self-Efficacy. Self-efficacy refers to one's personal judgments of performance capabilities in a given domain of activity that may contain novel, unpredictable, and possibly stressful features (Bandura, 1977, 1982; Schunk, 1985). In this study perceived self-efficacy is evidenced by subjects' verbalizations of personal competence as reported in the pre-reading interview, reading think-aloud, and retrospective interview protocols.

Comprehension Score. The term comprehension score is used in this study to represent the percentile ranking obtained by a subject on a standardized reading test. For the purpose of this study, percentile scores were determined by a subject's performance on the reading comprehension subtest of the Canadian Tests of Basic Skills, Form 5-12 (King, 1981) previously administered by the teachers in the same school year as this investigation took place.

Readability. Readability is a term used to designate the level of difficulty of printed materials, usually determined by the systematic application of an accepted readability formula and expressed in terms of grade levels. For the purpose of this study, the Fry Readability Graph (Fry, 1977) was applied to assess the reading difficulty of narrative and expository passages.

Intersentence Markers. This term is used to describe visual cues placed at predetermined intervals throughout

the text to signal subjects to report orally on their thought processes as represented in this study by red dots placed after every fourth or fifth sentence in the reading passages.

Reading Ability. This term is used to describe the level of reading proficiency demonstrated by a subject on a standardized reading test, as measured by the percentile ranking obtained by the subject on the reading comprehension subtest of the Canadian Tests of Basic Skills, Form 5-12 (King, 1981) previously administered by the teachers in the same school year as this investigation took place and verified by teacher judgment on the basis of classroom comprehension performance.

Verbal Ability. Verbal ability is used to describe the capability of subjects to express themselves orally, as determined by teacher judgment on the basis of oral performance within the regular classroom setting.

Narrative Text. Narrative text is a term used to describe passages in which a person tells a story, actual or fictional, in prose.

Expository Text. Expository text is a term used to describe informational passages from content area school textbooks written in a style that presents or explains facts and ideas.

Protocol. Protocol is a term used to describe a written record of a subject's on-going oral verbalizations. In this study, the term protocol refers to a written transcription of a subject's audio tape recorded think-aloud report carried out while reading either narrative or expository text.

Retrospection. The term retrospection refers to a report given after a subject has performed the experimental task in which the subject is asked to report on what he or she remembers doing or thinking. The subject will also be asked to theorize about his or her actions. For the purpose of this study, retrospection represents the subject's post-reading evaluation of passage difficulty and the reasons underlying that judgment.

Strategic Reader. Strategic reader, a term used by Paris, Lipson, and Wixon (1983), is used to describe a reader who selects appropriate strategies for the reading situation and who monitors and regulates his or her comprehension. Evidence of strategic reader behaviors demonstrated by subjects in this study was determined by the types of actions reported during the think-aloud reading tasks.

Think-Alouds. This term is used to describe the process of making one's thinking public by vocalizing thought processes while reading (Olshavsky, 1976). For the purpose of this study, subjects were asked to read silently, predetermined segments of a text and then, in retrospect, to describe, orally, their thought processes while reading.

Significance of the Study

Studies suggest that much energy has been devoted to examining the products of reading to discover what cognitive processes readers apply during reading. Considerably less effort has been spent asking readers to report what they do as they initiate, work through, and complete reading tasks.

This study uses think-alouds to examine cognitive processing while reading to determine what specific strategies students use to monitor their comprehension. A secondary but related issue is to explore whether differences in strategy use exist between skilled and less skilled readers.

Findings from this study will not only add further support to earlier strategy research (Olshavsky, 1976; Myers & Paris, 1978; Kavale & Schreiner, 1979; Brown, 1980; Garner & Kraus, 1981-82; Hare & Smith, 1982) but may also provide additional insights into readers' thought processes. Such insights should help classroom teachers determine how to teach less skilled readers to apply monitoring strategies while reading. It may also aid publishers in producing materials which promote or develop students' metacognitive abilities.

Overview of the Study

This study was designed to investigate the metacognitive comprehension knowledge and behaviors of skilled and less skilled seventh grade readers as revealed through responses to a pre-reading interview, think-aloud protocols across narrative and expository text passages, and retrospections on a post-reading task. The problem was to determine what perceptions grade seven students hold about the reading process and to identify the types of strategies they use to regulate and monitor their comprehension.

The first chapter delineates the nature of the problem. A review of the literature reporting related theory and research is found in Chapter 2. The design of the study is outlined in Chapter 3, including a description of the population, the research instruments, and data-gathering and analysis procedures employed, while Chapter 4 discusses and interprets the data. Chapter 5 consists of a summary of the findings, conclusions, and limitations of the study. In addition, relevant educational implications and research recommendations are presented.

Chapter II

REVIEW OF RELATED LITERATURE

To illustrate the broad base of the study, this section of the report examines theory and research related to metacognition and prose comprehension. The intention is to show linkages not only between schema theory, the study of metacognition, metacomprehension, and self-efficacy theory, but also to justify the use of verbal reports as a data source to support the qualitative findings that follow.

Theoretical Framework

A Schema-Interactive View of Reading and Learning

Reading comprehension is no longer thought to be a series of discrete skills that can be summed together to achieve comprehension ability. Rather, reading involves the orchestration of many skills that complement one another in a variety of ways.

A major contribution of recent research has been to articulate a strategic view of the process of reading. This view emphasizes the active role of readers as they use cues inherent in the print to construct a model of the text's meaning. It de-emphasizes the notion that progress toward

expert reading is the aggregation of component skills. Instead, it suggests that at all levels of sophistication, readers use available resources (text, prior knowledge, situational cues such as perceptions of self as a reader and learner, purpose, interest, motivation) to make sense of the text.

Progress toward expert reading is guided by the increasing sensitivity of readers to issues of, how, when, and why those resources can best be used. The strategic view also suggests that skilled, but not unskilled readers, can use knowledge flexibly; they can apply what they have learned from reading to new situations (Garner, 1987).

Based on this strategic view of reading, comprehension represents a "complex process involving interactions between readers and texts in various contexts and for various purposes" (Pearson, Roehler, Dole, & Duffy, 1992, p. 148). The schema-interactive theory of reading reflects the strategic nature of reading in that learning from text is represented as a process in which readers mobilize their resources to interact with print to create meaning.

This type of interactive view of reading comprehension is derived from schema theory (Anderson & Pearson, 1984). Schema theory is based on the premise that discourse does not in itself provide meaning. Rather, the construction of meaning is dependent upon the reader. The text simply provides direction for readers as they use previously

acquired knowledge to construct their own meaning.

A schema is an abstract knowledge structure developed from repeated experiences with objects and events. It is knowledge stored in memory that plays an important role in the interpretation of new information. Garner (1987) describes a schema as a set of expectations. When incoming information fits those expectations, the information is encoded in memory. Data that do not fit the reader's expectations may not be encoded or may be distorted. The expectations that guide encoding of information also guide its retrieval (Anderson & Pearson, 1984).

From a schema-interactive perspective, reading is seen as an active process of constructing meaning by connecting old knowledge with new information encountered in text. Readers build meaning by engaging in a series of recursive interactions. In each interaction readers generate a model that provides the best possible fit with the data perceived to be in the text. When text comprehension occurs, it does so because schema is activated to assist in processing the new information in text.

As Rumelhart (1980) notes, the process may fail in any of three ways: (1) the reader may lack the appropriate schema; (2) the reader may have the appropriate schema, but textual clues provided by the author may be insufficient to activate it; or (3) the reader may find a consistent interpretation of the text but may not find the one intended by the author.

Garner (1987) states that "when the fit between old in-head information and new on-the-page information is good but not perfect, learning from text can occur, and new schemata can be developed" (p. 9). Pieces of information can be added to an old schema, an existing schema can be modified, or a whole new schema can be developed. Rumelhart (1980) labels these three learning mechanisms "accretion", "tuning", and "restructuring", respectively.

Pearson, Roehler, Dole, and Duffy (1992) point out that the schema theory view of learning from text impacts not only on our understanding of how students comprehend text but also on our understanding of how students comprehend instruction. In the schema theory view, "both learning from text and learning from instruction are active processes of constructing meaning in which old knowledge is connected in sensible ways with new knowledge encountered in text or in class" (Pearson et al, 1992, p. 174).

Readers build meaning by engaging in a series of recursive interactions with text. In instruction, learners build meaning by engaging in a series of recursive interactions with the teacher. Students build a tentative model of meaning by making predictions about what the teacher will do or say. As new information is received from the teacher's talk or actions, students either incorporate it into their existing model or revise the model so the information fits. Thus, just as readers construct an

author's meaning during reading, so students gradually reconstruct a teacher's meaning during instruction.

Like the schema theory perspective of learning, the cognitive mediational paradigm (Winne & Marx, 1982) also characterizes students as active rather than passive. From this perspective, students are viewed as active interpreters of instructional cues provided by the teacher. They make sense of instruction by combining these cues with prior knowledge about both the curricular topic and ways to function within the classroom.

According to Winne & Marx (1982), when students are confronted with school tasks, they mediate them; that is, they combine incoming information with what is already known, make inferences about what is intended, and construct an interpretation that makes sense in terms of their prior experiences. Thus, students negotiate meaning for school tasks just as they negotiate meaning for text.

Winne and Marx (1982) report that the cue students most often use to make sense of instruction is the type of academic work teachers provide. For example, as a way to help students learn about main ideas in textbooks, teachers may assign worksheets requiring students to select the best title for brief paragraphs. Although the teacher may intend the worksheets to be a bridge to real application, the students may conclude that the reason for learning about main ideas is to complete the worksheets. Further, they may infer that

identifying main ideas is something that you do with paragraphs or worksheets, not with real text. Given this type of academic task and students' prior knowledge about how things work in their classrooms caused them to construct a meaning that does not reflect the teacher's intentions.

As Winne and Marx (1982) point out, "while teachers hope that skill activities will help students become better readers, students often mediate these activities to mean something quite different" (p. 497). Thus, learning is influenced greatly by students' interpretation of classroom procedures.

Cognition and Metacognition

Cognition refers to the intellectual functioning of the human mind and is characterized by remembering, focusing attention, and processing information. Metacognition generally refers to one's knowledge of this cognition.

Vygotsky (1962) describes two phases in the development of knowledge: first, its automatic unconscious acquisition, followed second by gradual increases in active conscious control over that knowledge. Brown (1980) argues that this distinction is essentially the separation between cognitive and metacognitive aspects of performance.

In a literal sense, the term metacognition means "transcending knowledge" (Brown, 1980). As used by cognitive psychologists, metacognition refers to both the knowledge

and the control an individual has over his or her thinking and learning (Brown, 1980; Baker & Brown, 1984).

Flavell (1976) describes metacognition as "one's knowledge concerning one's own cognitive processes and products or anything related to them" (p. 232). Further, he states that metacognition refers to the "active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective" (Flavell, 1976, p. 232). Brown (1980) defines metacognition as a person's knowledge of and conscious attempts to control his or her own cognitive processes. Paris, Cross, and Lipson (1984) explain metacognition as knowledge about cognition and self-directed thinking.

According to Baker and Brown (1984), metacognition involves two separate, though not necessarily independent, components: (1) an awareness of what skills, strategies, and resources are needed to perform a task effectively; and (2) the ability to use self-regulatory mechanisms to ensure the successful completion of the task, such as checking the outcome of an attempt to solve a problem, planning one's next move, evaluating the effectiveness of any attempted action, testing and revising one's strategies for learning, and remediating any difficulties encountered by using compensatory strategies.

Flavell (1976) identifies three metacognitive variables which interact and influence any learning situation. He names these: person, task, and strategy variables, respectively. Person variables refer to the knowledge one has of oneself as a learner; task variables refer to the information available to the learner during the task itself; and strategy variables refer to those strategies used by the learner to monitor understanding.

According to Brown (1980), three elements come into play in learning: (1) the activation and organization of knowledge, (2) the selection and application of cognitive strategies, and (3) the awareness and monitoring of factors that influence learning. Paris, Lipson, and Wixon (1983) categorize these three elements of learning behavior as declarative, procedural, and conditional (contextual) knowledge, representing respectively: "knowing that" (knowing about the topic, the purpose, and the task goals), "knowing how" (knowing how to perform various actions), and "knowing when and why" (knowing when and why to apply various strategies).

Declarative knowledge can include information such as the length of the task, the types of information needed to complete the task effectively, task goals, and beliefs about one's abilities. Procedural knowledge implies not only an ability to perform a particular action but also an understanding of the skills involved in performing it.

Conditional (contextual) knowledge involves knowing the utility of active intervention (why strategies are effective) and how to make appropriate plans (when strategies should be applied). Good plans coordinate one's effort with the goals and nature of the situation. According to Flavell (1976), cognitive strategies are invoked to make cognitive progress, metacognitive strategies to monitor it.

Metacognition and Reading

Metacognition refers to the ability to monitor one's own cognition; it is thinking about thinking. When applied to the act of reading, this definition suggests that the reader is able to select skills and strategies appropriate for the demands of the reading task.

In reading to learn, metacognition involves the knowledge of four major variables and how they interact to affect learning outcomes (Flavell & Wellman, 1977; Baker & Brown, 1984). These variables are: (1) text - the features of the reading material that influence comprehension, such as difficulty, topic familiarity, and organizational structure; (2) task - the purpose of reading and the storage and retrieval requirements of the task to be performed by the learner as evidence of learning; (3) strategies - the activities learners engage in to understand and remember information from the text; and (4) learner characteristics - personal attributes and states that influence learning, such

as ability, prior knowledge, interest, and motivation.

Metacognition in reading to learn also involves control or self-regulation. The effective learner must coordinate the complex interaction of the four variables. Learners who account for the four elements and the interactive effects of each element during a learning activity can be said to be exhibiting metacognitive behaviors.

When applied to reading, metacognition can be viewed as a sequence that begins with the readers' metacognitive knowledge and ends with the use of strategic reading behaviors. Babbs and Moe (1983) propose this sequence of activity to be as follows:

1. The reader consciously intends to control the reading act.
2. The reader establishes the goal of the reading act.
3. The reader focuses his or her metacognitive knowledge.
 - a. Knowledge of her/his own cognitive processes.
 - b. Knowledge of the demands imposed by different reading goals and by different types of reading material.
4. The reader strategically plans the regulation and monitoring of the reading act.
 - a. Consideration of metacognitive skills and strategies:
 - Rereading, skimming, summarizing
 - Paraphrasing, predicting
 - Looking for important ideas
 - Testing one's understanding
 - Identifying the pattern of text
 - Sequencing the events
 - Looking for relationships

Reading ahead for clarification
Mentally executing the directions
Relating new knowledge to prior knowledge

- b. Selection of metacognitive skills and strategies.
 - c. Implementation of the selected skills and strategies.
5. Periodic assessment of reading success.

(p. 423)

Babbs and Moe (1983) acknowledge that the skills and strategies included in this sequence of activities have long been taught by reading teachers as comprehension, critical reading, and study skills. However, they state that they are labeled here as metacognitive skills because "they can be consciously invoked by the reader to aid in focusing on the important content, in monitoring comprehension, in determining success in reaching goals, and in resolving breakdowns in comprehension" (p. 423). Further, Babbs and Moe (1983) argue that the value of viewing these skills within this metacognitive framework lies in "the increased emphasis on the reader's responsibility for this knowledge and control and on the teacher's role in developing such ability" (p. 423).

Thus, the development of students' metacognitive abilities, which appear to be associated with efficient reading, may provide the critical link in the transition from a novice to a sophisticated comprehender.

Metacomprehension

A vital component of reading comprehension is the ability to monitor or judge the quality of one's understanding. This awareness is a metacognitive skill called metacomprehension. It is viewed as an executive function, essential for competent reading, and entails "keeping track of one's ongoing comprehension success, ensuring the process continues effectively, and taking remedial steps when necessary" (Baker & Brown, 1984, p. 353).

Metacomprehension involves a conscious process and appears to involve some kind of triggering mechanism or recognition by the reader of failure to understand the text message. Flavell (1979) suggests that a sensitivity or awareness precedes and triggers this recognition and calls this event a "metacognitive experience". Anderson (1980) describes metacognitive experiences in reading as "clicks" (awareness of cognitive success, usually of understanding and remembering) and "clunks" (awareness of cognitive failure, usually of information confusion or forgetting).

A second aspect of comprehension monitoring involves fix-up strategies which the reader may employ once the failure to comprehend has been recognized and which may vary according to the level at which the failure to comprehend has occurred. Baker (1979) points out that the individual reader sets the criteria for judging whether or not comprehension

is adequate and then decides what, if any, remedial action to take.

Brown (1980) reports that often readers are not conscious of their own comprehending; they read on "automatic pilot" until an obstacle causes them to focus attention consciously on getting the meaning. These obstacles or "triggering events" (Brown, 1980) may be either unfamiliar concepts or unconfirmed expectations. Alvermann and Ratekin (1982) note that readers may also make conscious efforts to understand some types of texts, such as scientific or technical materials.

Whether comprehension occurs at the conscious or subconscious level depends on characteristics of the reader, the task, and the text. For example, readers' cognitive styles may lead them to monitor actively or may cause them to read passively (Johnston & Winograd, 1985). Their purposes, such as reading an assignment versus studying for a test, will affect how they will read (Baker, 1979). Also, readers will attend more closely to texts containing new information than to texts for which they have prior knowledge (Baker & Brown, 1984).

Accordingly, Winograd and Johnston (1982) view comprehending as a continuum with word for word attention representing one extreme and routinization of attention representing the other. Fluent readers are flexible about

where they place themselves along the continuum (Baker, 1979).

Self-Efficacy and Strategic Learning

Self-efficacy refers to personal beliefs about one's capabilities to organize and implement action necessary to attain designated levels of performance in a given domain of activity (Bandura, 1982, 1986; Schunk, 1985). Bandura (1977, 1982) proposed the notion of self-efficacy to explain how people's belief in their ability to cope with certain situations affects both their emotional reactions and their subsequent behavior. Central to the concept are (1) general outcome expectancy, which is a belief that actions will lead to desired outcomes; and (2) a sense of self-efficacy, which is a belief that one has the skills to bring about desired outcomes.

Bandura's (1977, 1982) primary assumption is that expectations of personal efficacy mediate people's actions. Bandura contends that these efficacy expectations influence: (1) individual's choice of activities, causing them to avoid activities they believe exceed their capabilities and undertake those they think they can perform; (2) how much effort people will expend; and (3) how long they will persist in the face of obstacles and aversive experiences. Further, Bandura (1986) points out that "perceived self-efficacy is a significant determinant of performance that operates

partially independently of underlying skills" (p. 390).

According to Bandura (1982), people acquire information about their self-efficacy in a given domain of activity from performance accomplishments, vicarious (observational) experiences, social persuasion, and inferences from physiological states. Performances are hypothesized to offer the most valid information for assessing self-efficacy. In general, repeated successes raise self-efficacy, whereas failures lower it. In classrooms, students acquire much information about their own capabilities through knowledge of how others perform (Schunk, 1985).

Information from these sources does not influence self-efficacy directly. Rather, the effect of such information depends on how the information is appraised cognitively (Bandura, 1986). Efficacy appraisal is an inferential process in which people weigh and combine the contributions of personal and situational factors (Bandura, 1982). Schunk (1985) notes that "in forming efficacy assessments, students take into account factors such as self-perceptions of task outcomes, ability, effort expenditure, task difficulty, situational circumstances, and the patterns of successes and failures" (p. 209).

Competent functioning requires both skills and self-beliefs of efficacy to use them effectively (Bandura, 1986). The cognitive processing that students employ during a learning activity should influence their self-efficacy.

From a self-efficacy perspective, the belief that one can effectively process information can convey a sense of personal control over learning outcomes, which further strengthens perceived self-efficacy for learning (Bandura, 1982). This sense of efficacy is validated through progress in developing skills. In contrast, students who encounter difficulty in cognitively processing new material come to doubt their capabilities.

Bandura and his colleagues have found that when presented with a difficult task, people who doubt their capability tend to give up. In contrast, those with a high sense of self-efficacy exert even greater effort to meet the challenge. These observations parallel descriptions of strategic and nonstrategic learners.

According to Bandura (1982), there may be times when efficacy expectations do not match performance. For example, if students underestimate the task demands, they may have high efficacy expectations but perform poorly on the task. This situation parallels a condition in which learners with limited metacognitive awareness fail to understand the nature of the task demands and overestimate their performance. From the self-efficacy perspective, students may not use strategies because they think the task is easy and does not require special effort.

Students' failure to use effective learning strategies may be due to the interplay of a variety of factors. Strategy

use may be affected by students' perceptions of their achievement. The student who perceives himself or herself as incompetent may be disinclined to attempt the use of any strategy. This type of behavior is consistent with learned helplessness behaviors demonstrated by passive readers (Johnston & Winograd, 1985).

Further, the match between students' perceptions of their own personal attributes and of strategy attributes subsequently may influence learners' decisions to use a strategy (Palmer & Goetz, 1988). For example, if a student perceives that a certain strategy requires a great deal of content-related knowledge and s/he knows that s/he lacks the necessary knowledge, s/he may be less likely to employ this strategy when difficulties are encountered.

In addition, perceived efficacy of learning strategies for obtaining a learning outcome may affect the decision for strategy use. Finally, learners' perceptions concerning strategy attributes may influence their decision concerning strategy use (Palmer & Goetz, 1988). For example, if a student believes that a particular strategy requires considerable effort, s/he may fail to use it.

Strategy use requires intentional, active, effortful investment on the part of the learner. Because engaging in strategies takes time and effort, students are unlikely to involve a routine unless they are interested in accomplishing a learning goal. Further, learners will not engage

strategies or persevere in using them if they do not believe themselves to be capable of completing the task at hand. To use strategies effectively and efficiently, students must have both "skill and will" (Paris, Lipson, & Wixon, 1983).

When confronted with academic tasks in instructional settings, students bring with them varying amounts of background knowledge and different histories of cognitive functioning and academic outcomes. These instructional and student characteristics, in turn, influence students' perceptions of themselves, the instructional tasks, and the cognitive and metacognitive strategies with which they are familiar and which they may employ.

Summary

Metacognitive ability appears to play a critical role in reading. In the context of reading this ability can be revealed in two ways: first, in the knowledge readers have of strategies for learning from text, differing demands of reading tasks, textual structures, and their own strengths and weaknesses as learners; second, in the control readers have of their own actions while reading for different purposes.

Successful readers monitor their state of learning. They plan strategies, adjust effort appropriately, and evaluate the success of their on-going efforts to understand. Poor readers, on the other hand, appear to be insensitive to

the need for resolving comprehension failures. Often they are unaware of task difficulty or of the efficacy of employing specific strategies for differing materials or goals. Most of all, they are unaware of the value of self-monitoring; of asking themselves, "Did I understand that?" or "Did that make sense?".

The research suggests that the development of metacognitive ability is related to proficiency in learning. In reading to learn, the research reveals a consistent pattern regarding metacognitive development. In general, younger and poorer readers have a less adequate understanding of how the variables involved in the learning situation (the characteristics of the text, the requirements of the task, appropriate strategies, and their own abilities and deficiencies) will affect their ability to learn from reading. In addition, younger and poorer readers tend to be less adept at using what knowledge they do have about the characteristics of the learning situation to enhance their learning. In other words, younger and poorer readers tend to be deficient in both components of metacognition: knowledge and control.

Another conclusion about metacognitive development is that knowledge precedes control. The research suggests that learners must have knowledge of the effects of the factors of text, as well as knowledge of the task and their own characteristics as learners, before they can strategically

control the learning process to optimize the influence of these factors. Students who are aware of how they make sense out of text can regulate sense-making. This awareness empowers them to access and apply appropriate cognitive processes when needed. As such, awareness is key to being in control of both comprehension and transfer of learning from one situation to another.

The research also indicates that motivation plays an important role in cognitive and metacognitive strategy use. Unless a learner wants to accomplish a particular goal, it is unlikely that he or she will spend the time and energy required to engage in cognitive and metacognitive strategies.

Further, student efforts to initiate and self-regulate learning may depend on their perceptions of personal competence about their use of learning strategies. Students who perceive themselves as incompetent may be disinclined to attempt the use of any strategy while those students with a high sense of self-efficacy for learning tend to expend greater effort and persist longer than those who doubt their capabilities. The research provides evidence that self-regulated learners view acquisition of proficiency as a strategically controllable process and accept greater responsibility for their achievement outcomes.

Related Research

Since effective readers must have some awareness and control of cognitive activities they engage in as they read, most characterizations of reading include skills and activities that involve metacognition and metacomprehension. These "knowing about knowing" issues (Brown, 1980) have attracted much attention in the reading and cognitive processing research conducted since the middle 1970s.

Researchers have explored various aspects of the relationship between metacognition and prose comprehension, both supporting and extending the view of theorists. This research has focused on three areas: (1) the validation of metacognitive ability as a factor in comprehension, (2) exploration of the effects of metacognition and cognitive monitoring on comprehension, and (3) the development of appropriate measures of comprehension processing.

However, the concept of comprehension as an active, constructive process is certainly not new. As demonstrated by the three exemplary studies which follow, researchers since the beginning of the 20th century have recognized that reading involves metacognitive activities.

Classic Studies of Comprehension Processing

This section reviews three exemplary studies that validate metacognitive ability as a factor in prose comprehension.

In his text, The Psychology and Pedagogy of Reading, E. B. Huey (1908; 1968) described reading as an information processing activity in which readers sample print to build the message being constructed in their mind. What the reader finds may reflect his or her knowledge beyond the text. Further, Huey (1908; 1968) argued that skilled readers vary their strategies according to the purpose and nature of the reading material and must be practiced in grasping the essential meaning of the text by selecting what they have for their purpose and ignoring irrelevant data.

E. L. Thorndike's (1917) classic study entitled Reading as Reasoning: A Study of Mistakes in Paragraph Reading revealed that many sixth grade readers did not test their understanding spontaneously. Although the students often felt they understood, they, in fact, did not. Such behavior, reflective of poor comprehension monitoring, led Thorndike (1917) to suggest that comprehension problems occur if the reader is not "treating the ideas produced by the reading as provisional so that he can inspect and welcome or reject them as they appear" (p. 326). Moreover, he argued that "the vice of the poor reader is to say the words to himself without

actively making judgments concerning what they reveal" (Thorndike, 1917, p. 332).

Thorndike's (1917) research procedure led him to conclude that reading comprehension was indeed a "very elaborate procedure" (p. 323). He pointed out that the skilled readers did not merely combine the meanings of individual words in order to arrive at the meaning of the passage. Instead, they tended to "select, repress, soften, emphasize, correlate, and organize the meanings of words according to purposes for reading" (Thorndike, 1917, p. 327).

A final exemplary study of comprehension processing that deserves mention was conducted by Kenneth Goodman (1965). Goodman (1965) analyzed children's oral reading of words that were both listed in isolation and placed within the context of a story. His findings revealed that children could read many words in context which could not be recognized in isolation. In fact, Goodman (1965) found that most children could read correctly in the story half of the words that were not identified in the word lists. In addition, Goodman (1965) also analyzed children's regressions, or lookbacks, while reading orally and found that children made frequent use of regressions in order to fix up inconsistencies while reading.

Goodman's (1965) study focused attention on the cuing systems of language that were outside of individual words.

It highlighted young readers' use of syntactic and semantic features of language and de-emphasized grapho-phonetic systems. Goodman's (1965) findings pointed out that young readers were attending to grammatical patterns of words and personal background experiences in order to obtain meaning from print. Noting letter-sound relations and recurrent spelling patterns were shown to be only part of the reading process. Goodman's (1965) study demonstrated that young readers were seeking after meaning by sampling, predicting, and confirming all the cuing systems of written language.

As evidenced by the preceding studies, it is apparent that researchers have long been aware that reading involves the planning, checking, and evaluating activities now regarded as metacognitive skills. Though the terms "metacognition" and "metacomprehension" may be relatively new, the knowledge and skills to which they refer have long been recognized.

Assessing Knowing Behaviors

Self-Report Techniques

Most studies designed to investigate the knowing behaviors of readers have employed self-report measures such as interviews or questionnaires. These measures produce retrospections of cognitive activity already completed or

predictive reports about how subjects would approach a task. Often the self-report was a separate phase of a study which also included a reading performance measure.

Application of Self-Report Methods to Reading

The following studies employed a self-report procedure to tap subjects' metacognitive awareness and their use of strategies to achieve comprehension.

Myers and Paris (1978) used a conversational, scripted interview to assess second and sixth grade students' awareness of person, task, and strategy variables which relate to metacognitive aspects of reading and use of strategies to restore comprehension. Clear differences in knowledge related to age and experience emerged. The younger children demonstrated far less awareness than the older children of the existence of various reading strategies and less sensitivity about when and how to use strategies.

Younger children were found to perceive reading as a decoding rather than a meaning-getting process. At the word level, younger readers indicated they relied more on sounding out while older readers indicated greater use of the dictionary. At sentence and passage levels, sixth grade students were able to suggest more strategies for resolving comprehension failure.

Although the younger children were aware of the influence of some dimensions (interest, familiarity,

length), they were less sensitive to the semantic structure of paragraphs, the goals of reading, and strategies for achieving comprehension. Based on their findings, Myers and Paris (1978) concluded that age-related differences in metacognitive knowledge may be correlated with acquisition of efficient memory, problem-solving, and reading skills.

In a similar interview, Gambrell and Heathington (1981) investigated adult good and disabled readers' understanding of the reading process and their awareness of repair strategies. Questions were read aloud to the poor readers and their responses recorded by the investigators. The good adult readers read each written question silently and recorded their own responses in writing. Although adult disabled readers were found to be sensitive to task variables, such as motivation, interest, and prior knowledge, they were less sensitive to paragraph and overall text structures.

In general, Gambrell and Heathington (1981) found that the adult poor readers were not aware of strategy variables or their role in facilitating comprehension. Rather, their metacognitive awareness about reading appeared to be more like that of beginning readers. The disabled adult readers, like the young readers in the Myers and Paris (1978) study, evidenced a decoding-oriented concept of reading and awareness and use of fewer strategies.

Canney and Winograd (1979) conducted a two part study with sixth and eighth grade good and poor comprehenders which involved both an interview and a reading task. The interview component of their study revealed that better comprehenders at the sixth grade level were more aware of the meaning-focused features of reading than poor comprehenders. However, all eighth graders, both the good and poor comprehenders, appeared to be aware of the fact that meaning-getting was the primary goal of reading. Meaning-oriented responses expressed by the subjects represented three categories: word, discourse, and beyond the text responses.

Canney and Winograd (1979) noted that poor comprehenders attended more to the mechanical, decoding aspects of reading, as evidenced by responses which frequently identified the purpose of reading to be saying all the words correctly. In addition, developmental differences between the emphasis placed on reading for meaning were found. Emphasis on reading for meaning was shown to increase with age. The findings of this study suggest that if learning is to occur, it is essential that readers know that the purpose of reading is to derive meaning from text.

Garner and Kraus (1982) found similar differences. Using an eight item interview in conjunction with a reading task, they examined seventh grade good and poor readers' awareness of comprehension difficulty and their knowledge of

comprehension strategies. Analysis of three selected interview items resulted in a significant difference between good and poor comprehenders in meaning-making responses. Good comprehenders' comments focused on meaning and overall comprehension, while poor comprehenders' responses reflected concerns with decoding, understanding of words, and oral fluency. On the basis of these findings, Garner and Kraus (1982) suggest that good and poor comprehenders appear to apply quite different criteria and strategies for monitoring and achieving comprehension.

Kobasigawa, Ransom, and Holland (1980) also included an interview component along with a reading task to determine students' knowledge of and ability to utilize skimming strategies. Following the reading task, fourth, sixth, and eighth grade students were interviewed to assess their awareness of the use of skimming strategies to locate text-specific information. Findings obtained from the interview showed that students at all three grade levels displayed knowledge of relevant text characteristics, such as the function of the first sentence of a paragraph, and how important information may be expressed in expository text. However, in comparing the interview data with the use of spontaneous skimming behaviors, the investigators noted that though students may have knowledge of specific strategies, they may be unaware that these strategies can be used to facilitate learning.

Prior to conducting a multi-stage instructional training study, Davey and Porter (1982) interviewed students from grades five through eight to determine the students' views of reading and their knowledge of effective reading strategies. The pre-training interview revealed that over two-thirds of the students lacked an awareness of specific "fix-up" strategies. Rather, they appeared to be highly dependent on others, such as teachers, to repair their comprehension failures.

Further, the investigators found that the students often identified strategies that they had been told they should use, not ones which they used regularly or effectively. Frequently reported strategies focused on word attack rather than on meaning-getting strategies; strategies such as "use a dictionary" or "sound it out" were often named. Davey and Porter (1982) point out that such responses indicate a high focus on word accuracy and suggest that many students are therefore bound by print. Students also indicated a definite preference for reading out loud as they felt they could understand more and were less distracted. However, all students, even those who lacked "fix-up" strategies, were quite confident that they would become effective comprehenders as they grew older.

Alvermann and Ratekin (1982) asked 98 seventh and eighth grade average readers to reflect on how they had processed the text used in the reading portion of the study. Using a

standardized interview format, the investigators interviewed each subject to determine what strategies each remembered using while reading. Subjects' retrospective reports were tape recorded and later transcribed. Responses were analyzed according to Olshavsky's (1976) method of identifying and classifying strategies.

The use of a single strategy was reported by 55 students, while 30 of the students reported two or more strategies. Thirteen subjects were unable to recall any specific strategy. "Rereading" and "reading carefully/slowly" were the strategies of choice. Alvermann and Ratekin (1982) suggest that over-reliance on these two strategies is somewhat disturbing because of their generally passive nature. Further, they note that the results of this study suggest that seventh and eighth grade average readers may have only a limited awareness of the entire range of strategic activities available.

As part of a dissertation study, Hahn (1984) used a self-rating questionnaire in order to identify weak comprehension monitors. The questionnaire, consisting of five positive and five negative reading behaviors, was given to 109 sixth grade students. Each statement was read aloud to a total sixth grade class. Students rated each statement on a four point scale designed to reflect how frequently they used the target strategies. Frequency of strategy use was reported as: always, almost always, almost never, or never. An analysis of

the results showed that many of the students identified by their teachers as weak monitors rated positive strategies as not being very helpful. Hahn (1984) points out that this questionnaire could be of assistance to classroom teachers in identifying students who could benefit from monitoring training.

Swanson (1985) used a scripted interview to examine children's perceptions of reading in terms of both developmental characteristics and implications for reading instruction. The interview questions were designed to elicit responses in four categories: (1) the definition of reading, (2) the purpose for reading, (3) the process of reading, and (4) the teacher's instructional intent. The subjects in this study were 18 kindergarten, 21 third grade, and 30 sixth grade students.

To determine whether children view reading as a process of deriving meaning from print, each subject was asked, "What is reading?". Responses indicated that only one-third of the subjects perceived reading as a meaning-making process. The majority of the children viewed reading as a process involving "sounding out" or "word calling". Further, almost all the subjects reported reading was an act to be performed in school, a school-related activity.

Grade level comparisons of responses indicating the purpose for reading showed that the younger students viewed reading as an activity necessary to learn to read. Older

students tended to view reading as a source of "fun" or a method of gaining information. However, Swanson (1985) noted that some sixth graders still thought reading was improving skills. In addition, students reported they read to answer teacher-posed questions. The majority of the children believed the teacher's reason for asking questions was to test them on material read.

The question "What do you do when you read?" was asked to determine subjects' views of the reading process. Developmentally, the responses by grade level showed a progression of overt action upon reading material (sound out words, talk out loud) to an internalized, covert action (think of words). Older students were found to be more cognitively aware of the internal processes needed to decode print.

Raykovicz, Bromley, and Mahlois (1985) interviewed fifth grade good and poor readers to determine what beliefs these students held about the reading process and their awareness and use of strategies available to process printed information. Open-ended questions were used for the purpose of eliciting as much information as possible. All responses were audio-taped and later transcribed for qualitative analysis.

Analysis of the data involved the development of a strategy code, in which students' tactics, techniques, and methods of accommodating the reading task were examined, in

order to identify regularities and patterns of responses. The investigators note that although there was no significant difference in the length of responses between the two groups, there was a difference in the quality of language produced, which made it easier to extract meaning from responses of good readers than that of poor readers, and is a limitation of the findings.

Good and poor readers were found to approach the reading task in significantly different ways. The good readers tended to rely on memory, intuition, and mental images to aid them in comprehending. They appeared to be self-motivated and not only preferred, but also enjoyed reading silently. In addition, the good readers were found to require a minimum of outside reinforcement and guidance. Generally, the good readers found reading interesting and seemed to get involved in the material by placing themselves in the story. Reading was regarded not only as a source of information, but also as an enjoyable, leisure time activity.

Poor readers, on the other hand, viewed reading as a task and indicated they read because it was required of them in school. They appeared to need continual guidance and external reinforcement to complete reading tasks. When asked to define reading, poor readers frequently referred to it as "just reading" sentences, paragraphs, or books, or learning the pronunciations and meanings of new words. A minority viewed reading as a source of information and seldom reported

reading to be an enjoyable or pleasurable activity.

In summary, the Raykovicz, Bromley, and Mahlois (1985) findings support previous metacognitive research which relates higher reading achievement with monitoring of one's own cognitive processes. Poorer readers do not appear to be able to control their own thinking processes as well as good readers. Raykovicz and her colleagues suggest that poor readers may need specific instruction in certain metacognitive strategies that enhance their comprehension of printed material. Further, they recommend that less classroom time be spent in reading orally and more time be spent in teaching poor readers how to improve their comprehension monitoring abilities, including memory and use of visual images.

Summary

All of the preceding self-report studies have produced consistent results of differences in strategic knowledge along the dimensions of age or reading proficiency; older, better readers have more knowledge of cognitive and metacognitive strategies than younger, less able readers. While the results of these studies have helped to identify strategies used by readers for monitoring comprehension and have helped to confirm a significant relationship between knowledge or use of these strategies and reader age and proficiency, there are problems with self-report studies

which preclude heavy reliance upon their results without other confirming evidence.

The most serious problem in these studies is that of asking for information which it is not clear that the subject can provide (Nisbett & Wilson, 1977). That is, the student may use strategies which he or she is totally unaware of using and may report strategies which he or she may have been taught but does not use spontaneously. Further, Garner (1987) points out that "superior knowledge of strategies is not necessarily accompanied by superior use of a range of strategies" (p. 64). Further limitations of verbal report data are discussed in detail later in this chapter.

In defense of this methodology, it must be noted that five sets of researchers, Canney and Winograd (1979), Kobasigawa et al (1980), Garner and Kraus (1982), Alvermann and Ratekin (1982), and Davey and Porter (1982), collected performance data which confirmed interview results. These studies provide convergent evidence that differences in knowing and regulating behaviors between younger/poorer readers and older/better readers do exist. The unique contribution of the interview studies is that they have aided in the identification of specific monitoring strategies used by readers which need further investigation.

Assessing Regulating Behaviors

Problem Detection Studies

Although some researchers have relied on subjects' use of lookbacks in text as evidence of comprehension monitoring, the dominant paradigm has been that of error detection (Winograd & Johnston, 1982).

The error detection method involves the introduction of inconsistencies into written discourse with the expectation that competent comprehenders would detect these textual inconsistencies while less proficient comprehenders would not. Studies employing this method have used measures such as disorganized passages, inappropriate linking words, unclear pronomial references, contradictory information, and incomplete instructions.

Because error detection techniques place greater emphasis upon awareness of comprehension failure than on use of strategies to repair such failures, they have not fully explained the processes which readers use to process text. Verbal report data gathered during typical learning situations can provide a richness that controlled studies cannot.

Think-Aloud Procedures

The think-aloud procedure provides investigators with a means to externalize readers' cognitive and metacognitive

strategies. Subjects report on thoughts and actions while engaged in cognitive processing. This procedure provides concurrent verbalizations about an activity that is temporarily interrupted for provision of the verbal report.

Verbal reports are elicited with instructions and probes that vary in generality. For example, subjects may be directed to tell what they are thinking and doing while reading a particular selection or to report any strategies they use while reading. The sustained verbalizations are typically recorded on audiotape for analysis and may be augmented by nonverbal behavior data.

Think-aloud procedures to track reading activities in the form of "running commentaries" (Baker & Brown, 1984) require interpretive decisions. As Garner (1987) points out, data must be transcribed and categorized. Decisions about relevant and irrelevant information in protocols must be made. Categorization of responses usually serves as a prelude to quantitative analysis of the number and frequency of different strategies reported by members of groups of interest such as poor readers/proficient readers.

Application of the Think-Aloud Method to Reading

The following studies employed the think-aloud procedure to examine readers cognitive and metacognitive processing.

Olshavsky (1976) applied the think-aloud technique to reading in an effort to identify comprehension strategies of tenth grade good and poor readers. In her study, reader interest, reader proficiency, and writing style of text were factors of interest. Subjects were required to provide a think-aloud response after reading each independent clause in the text. Practice was provided prior to the experimental task. Verbal reports were audiotaped. Though the processing of the story was interrupted frequently, no experimenter intrusion occurred after the introduction to the task.

Strategies noted in protocols a minimum of five times were tallied and labeled. The ten strategies that met this frequency criterion were then grouped into three categories: word level, clause level, and story level. Word level strategies included use of context, synonym substitution, and stated failure to understand a word. Clause level strategies consisted of rereading, inference, addition of information, personal identification, hypothesis, and stated failure to understand a clause. A single story level strategy, use of information about the story, was noted.

Although there was no evidence to suggest that good readers and poor readers use different sets of strategies, Olshavsky (1976) found that the good readers did use the strategies more frequently. Further, readers with high interest applied strategies more frequently than did readers with low interest. In addition, Olshavsky noted that both

groups of readers used more strategies with abstract style material. Though the results of this study were inconclusive, Olshavsky's (1976) investigation represented a first effort to use the think-aloud method in reading research.

Two somewhat similar studies followed Olshavsky's (1976) investigation, one with adults and one with children. Garner and Alexander (1982) also employed a reading interruption paradigm. Using Olshavsky's system of inserting red dots at predetermined stop points, Garner and Alexander investigated college students' processing of expository text. Subjects were asked to read a 4000 word article, stopping four times across the eight pages of text to report about how they were reading and preparing to answer an announced post-reading question.

Half of the adult subjects reported trying to figure out what the question might be. Scores on a question-answering task for these students were significantly superior to scores of students who did not verbalize such efforts. Garner and Alexander (1982) suggest that either a general active learning style of reading or specific activation of related strategies, such as rehearsal of information expected in the question, or rereading of portions of text perceived to be particularly important, might account for the superior performance of question formulators.

In a two part study, Hare and Smith (1982) used retrospection and protocol analysis to determine whether recall scores and reading achievement were positively related to the number of strategies produced by the reader. In the initial phase of the study sixth grade students were asked to read one narrative and one expository passage and respond to a set of predetermined questions designed to assess their recall. Following the recall task, students were asked to judge the degree of passage difficulty and justify their ratings. Students then reviewed both passages and identified the strategies they used to remember. A second review of the passages was completed to determine if students had employed any of five specific strategies. These target strategies included imagery, rereading, skimming, varying reading rate, and relating to prior knowledge.

In the second phase of their study, Hare and Smith (1982) used protocol analysis to investigate seventh grade students' strategy verbalizations while reading either a narrative or an expository selection of about 250 words. For this portion of the study, the passages used in phase one were rewritten in chunked segments. After approximately every 50 words, subjects stopped and talked about what they were doing and thinking to help them remember the material. After reading was completed, students verbalized their recalls and reported the strategies they had used to remember. Using a free recall production task, the seventh grade subjects were

then questioned about the use of the five target strategies noted in phase one of the study.

Hare and Smith (1982) found that all the subjects were able to monitor passage difficulty. Further, the investigators noted that all subjects recognized more strategies than they actually produced in their recalls. In addition, students' retrospections were found to correlate positively with their reading achievement scores. No significant differences were found in the total number of strategies produced and recognized across both the narrative and expository passages. Rereading was the strategy most frequently produced and recognized. Key strategies for recalling the narrative material were imagery, rereading, and relating to personal experience. For the expository text, rereading, changing reading rate, and relating to past events in the passage were the key strategies produced.

The findings in both phases of this study closely parallel one another. However, the investigators report that more strategies were both produced and recognized when the experimental passages were presented in segmented formats. Based on their findings, Hare and Smith (1982) suggest that think-aloud techniques have the potential of yielding valuable diagnostic information about individual readers.

Lundeberg (1987) conducted a series of three studies to investigate the strategies used by both expert and novice readers in the the study of case law. The first of these three

studies is pertinent to this discussion.

Lundeberg (1987) recruited ten novice and ten expert readers to identify the metacognitive strategies used by legal experts and the obstacles encountered by novices in reading legal cases. Expert status was assigned to law professors and practicing lawyers. Novice readers were individuals with a master's degree in another discipline. None of the novice readers had studied law, or were familiar with think-aloud procedures. Two legal case studies were selected for data collection. No think-aloud rehearsal was provided to avoid biasing subjects' reports.

Each subject was interviewed and observed individually. Subjects were asked to read the texts and to think-aloud as they attempted to determine the answers to three questions which Lundeberg (1987) describes as typical of the study of case law: (1) What are the relevant facts in the case? (2) What is the issue? (3) What is the rule (according to the judge's reasoning) of the case? Lundeberg did not require subjects to report at predetermined intervals. Rather, prompts were described by the investigator as being general, spontaneous, and based on each individual subject's actions.

Lundeberg acknowledged that by selectively prompting each subject she risked biasing their reports and collecting less data. However, she argued that this unstructured method of collecting protocols allowed for individual differences in processing. In addition to recording subjects' verbal

reports, Lundeberg also recorded each reader's time per page as well as his or her nonverbal messages.

Analysis of protocols involved three steps. In the first step, the investigator read the expert protocols, compared responses with the legal case text, and looked for patterns in responses. Second, the protocols of the novice readers were examined in the same manner. Five of the forty protocols were then randomly selected and reclassified to obtain intra-rater reliability ($r=.92$).

Six general comprehension strategies were identified in the protocols of the experts. These were labeled: use of context, overview, rereading analytically, underlining, synthesis, and evaluation. In addition, Lundeberg also identified five behaviors demonstrated by only the novice readers. These included: expressing confusion about legal terms, expressing confusion about English words having legal meanings, contextually defining words, adding incorrect information, and attempting to assign names to the plaintiff and the defendant.

Lundeberg noted that the novice readers, who were good readers in their own disciplines, appeared adversely affected by the confusion they experienced reading law. Verbally, novices indicated their discomfort through statements attributing their comprehension failures to defects in themselves. Nonverbal evidence of discomfort included behaviors such as frowning, sighing exasperatedly,

and placing hands to their heads.

In comparing allocation of time per text page, Lundeberg found that expert readers spent more time than novices in overviewing the case and reading the first page. Lundeberg noted that the novice readers failed to attach the same importance to the first page and did not spend any more time on this page than on the others.

Lundeberg suggests that this study is significant as it contributes to our understanding of reading strategies related to comprehension of legal texts. It demonstrates the importance of prior knowledge in reading: knowledge of law, knowledge of text type, and knowledge of case analysis strategies.

Afflerbach (1990) also employed a protocol analysis paradigm to examine the influence of prior knowledge on expert readers' use of strategies to construct main ideas. Eight subjects participated in the study. Expert reader status was assigned by virtue of the fact that subjects were doctoral students of either anthropology or chemistry. The experimental texts were excerpts from professional journal articles; one on anthropology and one on chemistry.

One week prior to participating in the investigation, the eight subjects were asked to reflect on the strategies they used in reading. Immediately before the think-aloud procedures, subjects were given three practice texts and written instructions for making the verbal reports. The

experimental passages were then presented in counterbalanced order. Subjects read the passages aloud and reported their thinking processes. Visual prompts in the form of red dots were placed at the end of every sentence to signal subjects to verbalize their thinking. Additional prompts were inserted at the end of each paragraph and at the end of the text. The purpose of these prompts was to cue subjects to produce main idea statements for each paragraph as well as for the entire selection. Data was audio-taped and later transcribed.

The protocols were examined in order to classify the statements into five main idea construction processes established in a pilot study by Johnston and Afflerbach. These processes were labeled: draft and revise, topic comment, automatic construction, initial hypothesis, and listing. To establish coding reliabilities, fifteen verbal reports were selected and read aloud to a second coder. Frequency of use of the main idea construction processes was also calculated.

Afflerbach (1990) found that readers' prior knowledge significantly influenced the efficiency of specific comprehension processes needed for main idea construction including prediction, derivation of word meanings, assignment of importance, and comprehension monitoring. He notes that these processes were executed more efficiently and more automatically for text that was in a familiar content domain. Reading unfamiliar text necessitated significantly

more frequent use of the construction strategies of draft-revise and listing. In contrast, familiar text allowed for significantly more automatic construction of the main idea, and more use of the initial hypothesis strategy.

Further, Afflerbach notes that as readers with relatively rich prior knowledge built an understanding of the text, fewer resources had to be allocated to fix-up strategies that were prompted by comprehension monitoring. For readers with relatively limited content domain prior knowledge, comprehension monitoring and use of fix-up strategies were crucial for comprehension. Afflerbach suggests that comprehension monitoring and application of fix-up strategies absorbed much of the reader's cognitive resources thus making fewer resources available for the main idea construction task. Afflerbach's findings, like those of Lundeberg (1987), demonstrate the importance of prior knowledge in reading.

Kletzien (1991) applied the think-aloud procedure on a modified cloze task designed to determine the strategies used by good and poor comprehenders when reading expository texts of differing levels. Subjects were tenth and eleventh grade readers identified as having average verbal ability. Each subject was required to read three expository passages of increasing difficulty. Passages were drawn from social studies books authorized for use in secondary schools. The good comprehenders read the original passages; the poor

comprehenders read versions revised so that the passages would be commensurate with the reading ability for both groups. The level of difficulty of the experimental passages was designed to correspond to subjects' independent, instructional, and frustration reading levels, respectively. To create a cloze instrument, twelve context-dependent words were deleted from each passage and replaced with blanks. The same words were omitted from both the original and simplified versions of the texts.

Each subject met individually with the investigator. A practice passage was used first to familiarize the subject with the verbal report technique and the audiotape recorder. Two sets of scripted directions were read to the subjects. The first set pertained only to the cloze task. Presentation order of the three experimental passages was varied to counterbalance practice effects. Immediately after completing each passage, subjects were asked to go back and explain the thinking processes used to choose their answers on the modified cloze task. Neutral probes were used by the investigator to clarify subjects' responses or to elicit further information. The protocols were audio-taped and then transcribed.

Responses for both correct and incorrect cloze responses were analyzed and categorized according to a classification scheme developed by Kletzien in a 1986 pilot study. Once the transcripts had been coded, the number of

strategies identified and the frequency with which each strategy was used were tallied for each passage. To verify the accuracy of the coding, another rater independently coded the responses of four randomly selected subjects. Inter-rater agreement was .90 and .87 for the good and poor comprehenders, respectively. In addition, a cloze performance score for each subject on each passage was calculated. Credit was given for exact word or close synonym replacement.

Subjects' processing strategies were grouped into seven categories. These included: rereading preceding text, rereading subsequent text, recognizing structure, using prior knowledge, using main idea, making inferences, and focusing on vocabulary. Kletzien noted that the good and poor comprehenders used the same strategies for each of the three reading levels. Differences between the groups related to their ability, or willingness, to try a variety of strategies and also their persistence in trying strategies when faced with frustration level material. When compared directly, the two groups were found to have used the same type and number of strategies on the easy passage. However, as passage difficulty increased, good comprehenders used more types of strategies and used strategies more often than did the poor comprehenders. The tendency of poor readers to rely on only a few of the many possible strategies available to them supports the findings of Alvermann and Ratekin (1982) in

their study of seventh and eighth grade readers.

Further, Kletzien noted that the subjects appeared somewhat sensitive to task demands; they partially adapted their strategy use to the level of passage difficulty. Subjects appeared to use a broad context to construct an understanding at the independent level, focused more on the passage at the instructional level, and concentrated on a narrow two to three word base at the frustration level.

Because the passages were of the same relative difficulty for both groups, and because both groups of readers appeared to be familiar with the same strategies, Kletzien suggests that the difference between the groups was in regulation, rather than knowledge of comprehension strategies. This interpretation is consistent with the conclusion reached by Zabucky and Ratner (1989) in their study of good and poor sixth grade readers.

Most think-aloud work has been conducted with adults or senior high school students. Hare and Smith's (1982) study is one exception. Studies by Kavale and Schreiner (1979) and Alvermann (1984) are yet others. Kavale and Schreiner (1979) used a modified protocol analysis technique to identify and compare the reasoning strategies employed by average and above average sixth grade readers as they responded to standardized measures of reading comprehension. All subjects were identified as having average to above average verbal ability. The students were directed to read a series of

questions following a passage and then to report their reasons for accepting or rejecting the answers following the questions. Four different question types were used. Questions were designed to measure verbal reasoning, ability to determine cause and effect, reading for inference, and ability to select main ideas.

It is important to note that the subjects in Kavale and Schreiner's study were first presented with an audio-taped model of the think-aloud procedure. Once the investigators felt that a subject understood the nature of the think-aloud task, two practice items were presented. Following the practice tasks, ten trial items were given. Subjects were seen individually for one-half hour each day for five consecutive days. Each subject responded to forty items which had either four or five choices following the stimulus passage. The resulting protocols were audio-taped and later transcribed for analysis.

Kavale and Schreiner found that the sixth grade subjects applied an identifiable sequence of reasoning strategies to achieve an answer. Further, they note that the application of the various reading strategies appeared to be influenced by the specific type of question to be answered. While ten different reasoning strategies were identified from the subjects' protocols, the majority of responses for both reader groups included extracting a word from the text and developing a strategy around its meaning, or synthesizing

information via processes of comparison, classification, definition, or expansion.

Both the average and above average readers in Kavale and Schreiner's study were found to use similar strategies. However, the above average readers applied them significantly more often, and achieved higher success rates. In addition, the more competent readers demonstrated greater flexibility in strategy selection and in their ability to think and reason verbally. The less skilled readers showed greater variability in strategy use and more application of less efficient reasoning strategies. Kavale and Schreiner suggest that these findings appear to reaffirm Thorndike's (1917) position of "reading as reasoning".

Alvermann (1984) employed the think-aloud technique with much younger children. Second grade students were asked to read aloud basal-reader stories and to report after each sentence what they were thinking and doing while reading. Like the subjects in Kavale and Schreiner's (1979) study, these students were also given individual practice sessions in thinking aloud prior to data collection. During the thirty minute practice session, investigators modeled think-aloud behaviors for a story that was very familiar to the children.

The protocols of these young children differ significantly from the protocols of older learners in that they provide less information about thinking and doing while

reading and more information about what is being read. In other words, the young children's protocols are quite close to text in content. Alvermann notes that the young subjects appeared to be very actively involved in reading the story. They expressed empathy, predicted upcoming text events, and detected time inconsistencies in the text. However, the children's verbalizations rarely mentioned their cognitive processing activities in any very explicit way. These findings are consistent with the notion that young subjects tend to evidence less awareness of their cognitive processes (Garner, 1987; Palmer & Goetz, 1988).

Summary

Studies of metacognition and metacomprehension have examined three characteristics of the reader: (1) the reader's ability to comprehend, (2) the reader's awareness of having comprehended, and (3) the reader's knowledge and employment of strategies to comprehend. The findings of these studies converge in identifying developmental trends and differences in reader proficiencies as sources of reading competence. Differences appear in terms of readers' knowledge about strategic behaviors, the kinds of behaviors reported, and the maturity of the strategies employed.

The research suggests that the developmentally young share a fundamental problem; they are "less conscious of the workings of their own mind, less facile with the

introspective modes necessary to reveal their mental states, and therefore, less able to exert conscious control of their own cognitive activity" (Brown, 1980, p. 471). These less able comprehenders have little knowledge of reading strategies and text variables, do not usually recruit and use good strategies for comprehension, tend to focus on decoding words and deriving literal interpretations of sentences, and do not regulate or check their own comprehension when reading (Golinkoff, 1975; Garner, 1980; Baker and Brown, 1984).

Many strategies are available to readers, but the individual's cognitive style, perceptions of competence, and perceptions of strategy efficacy significantly influence the strategies selected and used (Bandura, 1982, 1986; Johnston & Winograd, 1985; Palmer & Goetz, 1988). The literature suggests that strategies such as determining purposes, setting goals, activating prior knowledge, using context, rereading, increasing inspection time, looking back in the text, and using visual images are effective for regulating understanding.

Establishing a goal appears to be a prerequisite for making appropriate plans, directing attention to important information, and monitoring one's progress (Brown, 1980; Paris, Lipson, & Wixon, 1983). In order to reach a declared goal, readers need to select and apply effective strategies (Brown, 1980; Paris et al, 1983). Good readers constantly check their own understanding and evaluate the truth and

internal consistency of the information they have read (Sullivan, 1978; Lytle, 1982). Successful monitoring of comprehension requires the detection of unknown or inconsistent information and the repair of anomalies (Winograd & Johnston, 1982). To be successful, readers must respond actively to comprehension failures in a flexible manner and must generate alternative plans, hypotheses, and strategies (Paris et al, 1983; Johnston & Winograd, 1985).

The present investigation builds on the findings of metacomprehension research. The study examines how the quantity and quality of metacognitive knowledge influence students' ability to monitor and regulate their comprehension processing. It is anticipated that similar developmental and reader proficiency differences will be revealed.

Assessing Verbal Report Data

Wagoner (1983) points out that any research methodology is subject to a number of limitations and criticisms as it "operationalizes the researcher's understanding and definition of the construct being investigated" (p. 343) and may reflect the researcher's own personal interests and biases. In reviewing the literature on verbal reports as data sources, the following limitations and advantages have come to light.

Limitations

The use of verbal reports invariably raises some specific concerns about a study. These relate to: the inability of the subjects to tap automatically operated thinking processes (Ericcson & Simon, 1980; Garner, 1987); the subjects' lack of verbal facility (Garner, 1987; O'Brien, 1989); the subjects' susceptibility to the phenomenon of the socially acceptable answer (Nisbett & Wilson, 1977; O'Brien, 1989; Assor & Connell, 1992); and, in addition, concerns that verbal reporting may interfere with the task because it places a burdensome cognitive load on the subject (Afflerbach & Johnston, 1984).

Concerns about verbal facility are directed at young subjects and individuals with limited language skills. Young subjects tend to evidence less awareness of their own capabilities (Palmer & Goetz, 1988) and have difficulty responding in open-ended situations (O'Brien, 1989). Garner (1987) points out that young subjects tend not to be "formal definers", and are likely to respond to questions about cognition with information about just-experienced events. For example, when asked a general question such as "What is reading?", they may refer to a very specific classroom practice. When verbal report data are collected from individuals with limited language skills, verbalizing difficulties can mask strategic strengths (Garner, 1987; O'Brien, 1989). Subjects may lack adequate language to

describe the strategies they use.

Concerns about subjects' susceptibility to the phenomenon of the socially acceptable answer are directed primarily at validity and reliability of data collected in interview situations. Nisbett and Wilson (1977) indicate that learners on occasion tell more than they can know. That is, learners report using cognitive and metacognitive strategies they do not demonstrate using (Garner & Reis, 1981). Subjects may report what they perceive they ought to know or do, what they think expert readers know and do, not what they in fact know or do (Garner, 1987).

Related to this concern is the issue of inadvertent cueing: the cueing offered by instructions and probes. In other words, the investigator can provide a broad hint of the most desirable response. Minimizing the number of probes used and constructing questions to be quite undirected are the standard solutions for this problem (Ericcson & Simon, 1980; Garner, 1987).

A final concern is that the methodology of the data collection and reporting procedures may also be sketchy (Ericcson & Simon, 1980). Brown (1980) argues that this criticism focuses on research that assessed predictive reports only and does not apply to concurrent or reflective reports. It can be argued that concurrent and reflective reports deal with more task-related activities and are therefore more stable.

Advantages

The advantage of this type of data collection is founded in the ecological validity of the approach (Afflerbach & Johnston, 1984). Also, verbal reports are seen to address the complex influence of the context in which the research occurs (Nisbett & Wilson, 1977). Verbal reports allow task-specific investigation yielding rich data about unseen processes (Garner, 1987); processes which could not otherwise be investigated directly (Afflerbach & Johnston, 1984). Such self-reports highlight the complexity, variety, and flexibility of the strategies readers use as they attempt to comprehend (Baker & Brown, 1984). In addition, verbal reports allow an analysis of the affective components of reading processes (Afflerbach & Johnston, 1984).

The concurrent reporting used in think-aloud investigations is not prone to memory failure which could be an issue in retrospective reporting (Garner, 1987); strategies are available for introspection and conscious report (Paris, Lipson, and Wixon, 1983). Moreover, the issue of how cognitive processes are controlled during reading can be examined according to what is automatic and what requires conscious control (Winograd & Johnston, 1982). Garner (1987) indicates that automatic processes can be de-automated through the use of text that is challenging to readers but still within their grasp in terms of content and structure.

The Use of Verbal Report Data in the Present Study

This study makes use of seventh grade skilled and less skilled readers who have been identified by their language arts teachers as having average to above average verbal ability. In making this selection, it is acknowledged that a bias will occur in the amount and type of data collected in the protocols.

The main methodological problem in this study was to decide how to externalize readers' strategies and thought processes with minimal interference and interruption. A review of the literature supported the use of protocol analysis over retrospective and introspective techniques.

Olshavsky (1976) compared these three oral report methodologies and concluded that protocol analysis not only provides a close match between a subject's verbalizations and actual thought processes, but also eliminates problems associated with introspective and retrospective methods; that is, the confusion of past and present knowledge found in retrospective techniques and the subject's theorizing about reported behaviors involved in introspective methods.

Olshavsky (1976) conceded that the requirements of reading research make it necessary to modify the procedures of protocol analysis. Since subjects must read before they think aloud, the technique becomes partly retrospective. However, she concluded that once the stimulus material is

read, the procedure parallels the methods of protocol analysis. The resulting protocol represents a record of ongoing behavior. In light of the conclusions drawn by Olshavsky (1976), modified protocol analysis offered a viable means for externalizing thought processes during reading.

Major papers by Ericcson and Simon (1980), Afflerbach and Johnston (1984), and Garner (1987) have argued persuasively that such data, appropriately collected, can become an important source of information about cognitive processing. These researchers agree that valuable insights can come from well-designed verbal report studies and, as such, pose the following suggestions for using this method: (1) reduce memory confounds by minimizing the interval between processing and reporting; (2) probe for simple behavior descriptions in a non-specific, non-cueing manner; (3) offer clear directives to subjects which emphasize the procedures to employ; (4) refrain from explicitly modeling the oral reporting process to avoid biasing subjects' reports; and (5) collect other data and assess the consistency of these data with the self-report information.

In considering the methodological design for the present study, the following efforts were made to comply with the suggestions offered by Ericcson and Simon (1980), Afflerbach and Johnston (1984), and Garner (1987):

1. The use of a pre-reading interview, think-aloud protocols, and retrospections on a post-reading task provided multiple sources of data to assess subjects' knowledge and use of strategies.
2. Directives for all measures were scripted to insure consistency of information across subjects.
3. Interview questions were open-ended and neutrally worded to avoid cueing subjects' responses in a particular direction.
4. Neutrally-worded probes were used to elicit elaborations when subjects provided very brief responses to interview items.
5. Training sessions provided no modeling of the think-aloud procedure to control for investigator bias of subjects' reports. The sole purpose of the training sessions was to familiarize subjects with the think-aloud procedure and to provide them with an opportunity to become comfortable with the technique.

6. Intersentence markers were used to signal subjects to report their thought processes during the think aloud tasks. The use of predetermined probes not only eliminated the possibility of the investigator selectively probing but also ensured for consistency of reporting between subjects.
7. To ensure that subjects devoted their full attention to the task, the reading-reporting procedure was not interrupted by the investigator. The subjects were asked to read as though they were alone, although the investigator was present for the duration of each session to follow the subjects' reading and vocalizations.

To reflect the notion that think-aloud protocols represent records of on-going reader behaviors (Olshavsky, 1976), the following procedures were employed:

1. Subjects' think-alouds were inserted directly into the text to maintain the sequence of reading and think-aloud response when the taped protocols were transcribed.

2. The responses for each passage by each subject were mapped in sequence by strategy. This created a flow chart of the subjects' individual cognitive and metacognitive strategies over time.

The specific design of the study, including a description of the sample, the research materials, and data-gathering and scoring procedures, is discussed in detail in the chapter which follows.

Chapter III

PROCEDURES

The general purpose of this study was to determine what perceptions grade seven students hold about the reading process and to identify the types of strategies they use to regulate and monitor their comprehension. Specifically, the present study examined the responses of seventh grade skilled and less skilled readers on a pre-reading interview, think-aloud protocols produced across narrative and expository text passages, and retrospections on a post-reading task to determine whether observable differences existed in their metacognitive comprehension knowledge and behaviors.

Since this study was to be exploratory research into metacomprehension using protocols as a basis for data collection, a case study approach was employed. As the intent of the study was to elicit extensive oral reporting by subjects in order to provide multiple indicators from which inferences regarding reading processes could be made, the use of a small sample - four competent and four less competent readers - was necessary to ensure project manageability. While the small sample size limits the generalizability of results, it was deemed necessary to allow for the kind of in-depth analyses required to add to our knowledge base regarding metacognitive processing.

Method

Subjects

The subjects for this study were chosen from the total seventh grade population in one suburban junior high school. Grade seven students were selected for this study because they: (1) are able to articulate quite adequately, (2) have sufficient confidence and ability to introspect upon request, and (3) have prior experience with both narrative and expository text.

Permission to conduct this study was granted by the superintendent's department in one suburban Winnipeg school division. Administrators of junior high schools within the division who expressed an interest were then contacted. One junior high school was selected for the purpose of data collection. This school was situated in an average socioeconomic area and was seen as representing an average population of pupils at the seventh grade level. Students in 7 heterogeneous seventh grade classes served as potential subjects.

The language arts teachers for the grade seven students were asked to eliminate, from their class lists, the names of any students who: (1) had decoding problems which might interfere with comprehension processing, (2) had low verbal ability, and (3) were reading at grade seven level or at grade five level or lower. The remaining students were then rated

according to their verbal and reading performance abilities as demonstrated within the regular classroom setting. Students' ability to express themselves orally was rated as either average or above average. Reading proficiency was designated as skilled for those students estimated to be reading above grade seven level and as less skilled for those reading below grade seven level. Teacher judgment of reading proficiency was verified by the percentile scores on the reading comprehension subtest of the Canadian Tests of Basic Skills, Form 5-12 (King, 1981).

Based on the above criteria, 10 potential subjects were identified. Parents were then notified of the study and given the opportunity to exclude their child from the project. (See Appendix A for Consent Letter.) Of this group, parental consent was received for all except two students.

To confirm that none of the remaining 8 potential subjects lacked adequate decoding skill, the investigator met individually with each possible subject to administer one seventh grade oral reading passage from the Bader Reading and Language Inventory (Bader, 1983). (See Appendix B for Decoding Ability Check.) As word recognition performance on this measure was at or above 95 percent accuracy for all 8 students, none were eliminated from the final sample selection.

Initially, these 8 subjects (4 male, 4 female) began the project. However, one male skilled reader dropped out when parental consent was withdrawn two-thirds of the way into the study. A search of school records for a suitable replacement revealed no candidates who met the selection criteria. Therefore, the data represents 7 subjects, 3 skilled (1 male, 2 female) and 4 less skilled (2 male, 2 female) readers. Mean percentile score on the reading comprehension subtest of the Canadian Test of Basic Skills (King, 1981) was 86 for the skilled reader group and 38 for the less skilled group.

Research Instruments

Pre-Reading Interview. A scripted interview consisting of sixteen open-ended questions was used first to tap what the subjects knew about reading. Specifically, the purpose of the interview was to determine whether different attitudes and approaches to reading were employed by skilled and less skilled comprehenders. Open-ended questions were used for the purpose of eliciting as much information as possible. In the event of brief responses, neutral probes such as, "Is there anything else?", "Can you tell me more about that?" or "Please explain what you mean." were used to elicit further information.

The interview items were designed to provide information regarding seventh grade comprehenders' perceptions of: (1) their early reading experiences, (2) the

goal or purpose of reading, (3) the criteria students use to evaluate their own reading performance, (4) the number and types of strategies skilled and less skilled readers employ to monitor their own comprehension, and (5) the comprehension monitoring strategies which students indicate they actually use during reading. The interview data also provided one additional category of information. Responses to the question, "How good a reader would you say you are?" were used to match student's perceptions to teacher perceptions of ability levels. Questions contained in the interview were adapted from interview instruments used by Garner and Kraus (1981-82), Wixon, Bosky, Yochum, and Alvermann (1984), and Raykovicz, Bromley, and Mahlois (1985). (See Appendix C for Pre-Reading Interview.)

Reading Materials. The reading materials for this study consisted of six narrative and two expository passages. All passages were identified by the investigator from previously existing materials. Passages chosen were prototypic narrative and expository passages; that is, each narrative passage told a story while each expository passage conveyed information. All passages were adapted to produce selections of similar length (1100 - 1200 words) and modified according to readability criteria proposed by Fry (1988) to insure a readability level comparable to that of the subjects. Passages were then analyzed for readability and the number

of vocalization segments.

Visual prompts were added in the form of red dots to signal subjects to stop and give a verbal report. These prompts were inserted after approximately every fourth or fifth sentence and were positioned to prevent serious disruption of meaning flow. (See Appendix D for texts used in the study.)

Training Passages. To prepare subjects for the think-aloud task, two practice texts (one narrative, one expository) were used. The narrative passage was adapted from text found in Underground to Canada (Smucker, 1977) under the heading Separation. The expository passage, Lifelong Fitness, was adapted from text found in Houghton Mifflin Health (Getchell, Pippin, & Varnes, 1987) under the topic, Workout Choices. The Fry Readability Graph (Fry, 1977) showed the readability level of both training passages to be grade 7. The passages contained 23 and 18 think-aloud prompts, respectively.

Data Collection Passages. Two experimental texts were used with all 7 subjects in this study, one from each of the text domains. The narrative selection, First Kill, was adapted from a short story of the same name by Annixter and Annixter found in Reading Miscue Inventory: Reading for Taping (Goodman & Burke, 1972). The expository passage, Resources of the Earth, was adapted from text found in World Geography (Educational Challenges, Inc., 1982) under the

same topic.

The specific topics of these two passages were representative of sixth grade social studies and science curriculum topics. Thus the seventh grade subjects in this study would possess some degree of background knowledge. Both selections were rated at an upper grade 7 readability level (Fry, 1977) which suggested that they would be sufficiently challenging for both the skilled and less skilled readers. The passages contained 26 and 21 think-aloud segments, respectively.

In addition, the four less skilled readers in this study were given a third think-aloud task to complete. The purpose of this third task was to determine whether their metacognitive processing changed when reading easier text. To control for passage variability in interest, motivation, and concept load, the less skilled readers were asked to read and report on one self-selected narrative passage chosen from among four presented by the investigator.

The four self-selection passages were adapted from excerpts from trade books obtained from the library of the school in which the study took place. The texts included No Brakes from Falling Star (Eisenberg, 1980), The Money Game from The Money Game (Ericson, 1977), I Died Here from I Died Here (Shea, 1979), and Behind the Picture from I Died Here (Shea, 1979). The Fry Readability Graph (Fry, 1977) showed the readability level of all four passages to be grade 6. The

selections were approximately the same length (1200, 1100, 1100, and 1150 words, respectively) and contained approximately the same number of think-aloud prompts (24, 24, 23, and 20, respectively).

Retrospective Interview. Following completion of the think-aloud tasks, a scripted interview was used to clarify and obtain further information about subjects' metacognitive comprehension processing. (See Appendices E and F for Retrospective Interviews.) Subjects were asked to review both the narrative and expository passages, and then to respond to three open-ended questions designed to elicit information about their perceptions of passage difficulty. In the event of brief responses, neutral probes such as "Anything else?" or "Can you tell me more about that?" were used.

Data Collection Procedure

All data was collected by the researcher over a three week period during the month of November. Subjects met with the investigator individually in a private room in the school. Skilled readers were seen over five sessions; less skilled readers over six. Sessions were scheduled to minimize disruptions in the students' regular classroom activities. Each session lasted approximately forty-five minutes. All sessions were audio-taped on a voice-activated recorder and later transcribed for data analysis.

The first session began with a scripted explanation of the purpose of the study and the procedure. (See Appendix G for Orientation to the Study.) Following this, the sixteen item pre-reading interview was conducted to tap subjects' knowledge about reading.

Next, two training passages were used to familiarize subjects with reporting their reading comprehension processes verbally. Each subject read both practice texts (one narrative, one expository) silently, reporting their processing at each visual prompt, until the investigator decided that the subjects were comfortable with the demands of verbal reporting. Subjects read the narrative practice text in session two. The expository training passage was used in the third session.

Subjects then received the two experimental texts, read these silently, and reported at the prompts on the strategies they were using to comprehend the selections. To control for order effects, passage presentation was counterbalanced. One half of the subjects read the narrative passage in the fourth session and the expository passage in the fifth. The other half of the group read the passages in the reverse order.

Following the reading of the think-aloud selection in the fifth session, subjects were instructed to review both experimental passages and then to evaluate passage difficulty by responding orally to three open-ended questions read aloud by the researcher.

In the sixth session the investigator met with only the less skilled readers ($N = 4$) to administer one additional think-aloud passage. As previously stated, the purpose of this task was to obtain further information about the metacognitive reading behaviors of the less skilled readers and to determine whether their comprehension processing strategies changed when reading less demanding text. Subjects were asked to select one narrative passage from among four presented. Motivational statements for reading the passages were presented on a cover sheet attached to each passage. Students were then instructed to read their selections using the read and report procedure employed in sessions two through five. The session concluded with a readministration of the retrospective interview. Subjects were asked to review the three experimental passages they had read (two narrative, one expository) and then to evaluate passage difficulty.

The investigator was present throughout all sessions. No investigator prompts were offered during any of the think-aloud tasks. At the beginning of each think-aloud session, subjects were given the following instructions:

This is a selection which I would like you to read. You should read the selection silently, but stop reading when you come to a red dot. At the red dot, talk out loud about what happened in the passage and what you were thinking and doing as you read it.

If you get stuck or have any trouble understanding, I would like to hear about that too and try to figure out a solution to what's puzzling you. You should continue reading and talking this way until you finish the selection.

Read as though you were alone. You will not be interrupted. You will be tape recorded. You may begin when you are ready.

(adapted from: Olshavsky, 1976; Lytle, 1982).

Scoring the Data

All scoring was completed by the investigator. Verbatim transcriptions of subjects' oral reports were prepared. Students' responses on the pre-reading and retrospective interview tasks were inserted directly after the question to which they applied. Samples of transcribed responses on these measures are found in Appendices H, I, and J, respectively. When the taped protocols were transcribed, the think-aloud responses were inserted directly into the text to maintain the sequence of reading and think-aloud response. (See Appendix K for samples of transcribed passages.)

Pre-Reading Interviews. Interview responses were classified into six categories adapted from prior work (Garner & Kraus, 1981-82; Wixon et al, 1984; Raykovicz et al, 1985). The categories included: (1) goal or purpose of reading, (2) recollections of early reading experiences, (3) teacher-student perceptions of ability, (4) the criteria used by students for evaluating reading performance, (5) identification of strategies available to monitor comprehension, and (6) strategies students indicate using when reading. (See Appendix L for further description of interview response categories.)

Think-Aloud Protocols. As was previously stated, the transcriptions for each experimental passage and for each subject included the text which had been read silently and any think-aloud comments the readers made about the text. The comments were inserted directly after the portion of text to which they applied. Using the written transcripts and audiotapes together, the investigator reviewed the data and made notations as to the possible strategies being described by the subjects. This procedure was repeated three times.

Based on this analysis, a strategy classification scheme was developed. The classification system consisted of nine categories into which the readers' strategies for comprehending and monitoring text were organized. These behaviors were then subdivided into two general categories. The general categories were: (1) meaning-making processes

and (2) monitoring and regulatory processes. The think-aloud comments were then coded for each subject and for each reading passage using the nine strategy categories. Additional descriptors were added to the coding resulting in the generation of sub-categories.

Retrospection Task. Data generated in the retrospective interviews were analyzed in the following manner. Subjects' responses were inserted directly after the question to which they applied. The written transcripts and audiotapes were reviewed together three times and a two category classification scheme was devised by making inferences based upon the comments of the subjects. Students' perceptions of passage difficulty were then grouped into text-related and reader-related comments, respectively.

Rationale. The rationale for using posteriori classification of think-aloud protocol strategies and retrospective responses is based on advice given by Newell and Smith (1972). They point out that formulation of posteriori classification schemes allows for more precise categorization of responses and permits the investigator to devise a system that will best serve the particular needs of the research problem being addressed. A further reason is that this study did not attempt to replicate any previous research from which a pre-existing classification scheme could be drawn.

Analysis of the Data

The design of the study required, first: the use of a small sample (N=7) to ensure project manageability, and second, a case study approach to data analysis.

Descriptive analyses of transcribed responses was conducted to compare similarities and differences between skilled and less skilled readers. Quantitative data analysis involved calculations of frequencies to reveal similarities and differences both within and between subjects with comparisons drawn between the types of strategies identified and actually produced as a function of passage type and reader ability.

Summary

This chapter described the subjects who made up the sampling group and the methods used to implement the study. The research instruments and administration procedures were outlined, followed by a statement indicating the scoring procedures. Following scoring of the various research instruments, a qualitative analysis of the resulting data was carried out as described and tabulated in the following chapter.

Chapter IV
RESULTS AND DISCUSSION

This study was designed to explore the knowing and regulating comprehension behaviors of skilled and less skilled seventh grade readers. The purpose of the study was to address the following questions:

1. What beliefs do skilled and less skilled seventh grade readers hold about the reading process?
2. What strategies do skilled and less skilled readers employ to regulate and monitor their reading comprehension?
3. Do seventh grade students apply different strategies when reading narrative as opposed to expository text?
4. What factors do skilled and less skilled readers identify as facilitating reading of narrative as opposed to expository text?

Since this study was to be exploratory research into metacomprehension using protocols as a basis for data collection, a case study approach was employed. As the intent of the study was to elicit extensive oral reporting by subjects in order to provide multiple indicators from which inferences regarding reading processes could be made, the use of a small sample (N=7) was necessary to ensure project manageability. Measures of knowing and regulating

comprehension behaviors were obtained from 3 skilled and 4 less skilled seventh grade readers of average to above average verbal ability. Subjects were selected from among the total grade 7 population of one suburban junior high school.

Instruments to assess subjects' knowledge and regulation of comprehension processes were developed, administered, and scored by the investigator. All sessions were audiotaped. Verbatim transcriptions of subjects' oral reports were then prepared. Protocols examined in this study included the students' responses on the pre-reading interview and post-reading retrospection tasks, the text from the narrative and expository reading passages, and the think-aloud reports inserted sequentially after the portion of text read. This amounted to protocol information of 298 pages.

Data analysis was concerned with what similarities and differences existed between the comprehension knowledge and comprehension processing of skilled and less skilled readers. Descriptive analysis of transcribed responses was conducted to compare similarities and differences between the two reader ability groups. Quantitative data analysis involved calculations of frequencies to reveal similarities and differences both within and between subjects with comparisons drawn between the types of strategies identified and actually produced as a function of passage type and reader

ability. The purpose of this chapter is to present and discuss these findings.

Knowledge of the Reading Process

Analyses of Responses on the Pre-Reading Interview

A scripted interview consisting of sixteen open-ended questions was used to assess the students' attitudes and approaches to the reading task. Interview time required of each subject averaged eighteen minutes. The interviews were audiotaped and later transcribed for data analysis.

First, subjects' responses were transcribed verbatim and inserted directly after the question to which they applied. Next, each response was reduced to a summary phrase and reported under one of six categories adapted from prior work (Garner & Kraus, 1981-82; Wixon et al, 1984; Raykovicz et al, 1985). The categories included: (1) goal or purpose of reading, (2) recollections of early reading experiences, (3) teacher-student perceptions of ability, (4) criteria used by students for evaluating reading performance, (5) identification of strategies available to monitor comprehension, and (6) strategies students indicate using when reading. Last, patterns in the responses of each group were identified.

Overall differences were noted between the two ability groups. While differences were evident, some similarities

existed in the way the skilled and less skilled readers viewed the reading process. These findings have been organized and are presented under the six general categories previously noted.

The Reading Process as Viewed by Skilled
and Less Skilled Readers

Category One: Goal or Purpose of Reading

Definition of Reading. To determine whether the students viewed reading as a process of deriving meaning from print, each subject was asked, "What is reading?". Responses revealed that the majority of the subjects perceived reading to be a meaning-getting process. Typical meaning-oriented statements described reading as "a way to learn the meanings of the words" and "a way to get information".

Ability-level differences did occur, however. All of the skilled readers, but only two of the four less skilled readers, defined reading as a meaning-making process. Skilled readers, exclusively, reported that the text conveys a message and represents the author's ideas. Both the skilled and less skilled readers who viewed reading as a meaning-getting activity reported that they read to learn new information. The two less skilled readers who defined reading as a decoding process reported that reading meant "learning how to say new words".

Purpose for Reading. When asked "Why do people read?", skilled readers appeared to regard reading not only as a source of information and knowledge but also as an enjoyable leisure time activity. Responses such as "for fun", "to get a better vocabulary", and "to learn more information" were typical and frequent. In general, the good readers found reading interesting and seemed to get involved in the material by placing themselves in the story. For example, two skilled readers reported that they liked reading mystery stories and adventure books so they could "act out the characters".

Although the less skilled readers also reported reading as a method of learning new information, seldom did they refer to it as an enjoyable or pleasurable activity. Rather, less skilled readers generally thought of reading as a task and indicated they read because it was required of them in school to "pass tests", "get higher grades", "discuss a story", or "do book reports". In addition, the poorer readers viewed reading as an activity necessary to learn to read. As one less skilled reader stated, "People read to learn more words and practice their reading."

Reading in School. The question, "What do you do in your reading class in school?" generated very similar responses from both the skilled and less skilled reader groups. Both groups appeared to view reading as a formal instruction period requiring the use and practice of various skills. They

described reading as an activity followed by questions from the teacher, completion of exercises from worksheets, test taking, and completing various individual projects and assignments.

The majority of the subjects indicated that they usually read silently and were seldom asked to read aloud in class. However, one skilled and one less skilled reader stated that in their reading classes students met in small groups to read aloud to each other. Additionally, only one of the seven subjects reported having sustained silent reading time during language arts classes. This student indicated that the classroom teacher did not read during this time choosing instead to "organize stuff" or to "go out of the classroom to do something". Another finding was that only one subject reported being read to on a regular basis by the classroom teacher. The majority of the students stated that "the teachers hardly ever read to us".

Leisure Time Reading. To determine the role of interest as a motivational factor in reading subjects were asked, "What do you do when you read in your free time?". Although skilled and less skilled readers reported an interest in similar types of recreational reading materials, significant differences in leisure time reading habits were expressed.

Materials of choice included mystery, horror, and adventure stories with mysteries being the most popular genre. While the skilled readers viewed reading as an

enjoyable and worthwhile leisure time activity, the majority of the less skilled readers reported that they seldom read outside of school and only read in their free time at school because "that's what you have to do when you have free time".

School-Related Reading. To further assess the role of motivation in the reading process each subject was asked to examine a basal reader, a content area textbook, and a trade book and identify the most important reason for reading each type of material. In addition, subjects were asked to speculate why both a teacher and a friend might want them to read each particular book.

When asked to explain the most important reason for reading a basal reader, skilled readers' responses reflected both a meaning-getting and a "word-calling" perspective. Although the good reader group indicated that basal readers were designed to "help you read better" and were meant for "reading out loud", the majority of their comments stressed the meaning-getting aspect of the reading process. On the other hand, less skilled readers' comments reflected only a "word calling" viewpoint. While the good readers viewed basal readers as a source of information, the poorer readers all agreed that basals were designed to help them become familiar with "reading harder words" and were intended to "give you a chance to practice reading out loud".

In contrast, ability to explain the most important

reason for reading a content area textbook followed a similar pattern for both reader groups. All of the subjects stated that the primary function of content area texts was to "teach you new information". A secondary purpose was to "help you learn how to study".

Similar response patterns also emerged with respect to the importance attached to reading a trade book. Skilled and less skilled readers all agreed that trade books were intended to be read for enjoyment.

Speculations offered by subjects as to why teachers might ask them to read a basal reader were varied. The majority of the skilled readers suggested that teachers would view basals as tools to "develop good reading habits" and as vehicles for "practicing oral reading". In contrast, only one of the four less skilled readers echoed similar sentiments. Two of the poorer readers felt teachers would use basal readers to test them, that is, to ask questions on the material read. An interesting finding was that all the less skilled readers believed that teachers would consider basal readers to best match their students' reading ability levels. Representative comments included the following: "kids would understand it more", "easier for kids to read", and "fits the grade level I'm in".

When asked to consider why teachers would ask students to read a content area textbook, all interviewees voiced similar opinions. Reasons for reading content area materials

in order of frequency were: to find out more information on a topic, to answer questions, to learn more vocabulary, and to understand how to read diagrams and charts.

Similar viewpoints were also expressed by both ability groups with regard to teachers' reasons for wanting students to read trade books. To familiarize students with reading novels was the most frequently reported reason and "for enjoyment" the least. Having students answer questions about the story was the second most frequently reported reason, and "doing book reports" was third.

Category Two: Recollections of Early Reading Experiences

To gain insights into early reading experiences which may have helped to shape subjects' perceptions of the reading process, two questions were posed. First, each student was asked to explain how he or she learned to read. Second, the question, "What did they/you do to help you learn?" was used to clarify and obtain further information about subjects' initial reading experiences.

All three skilled readers reported they could read prior to beginning formal schooling and attributed their early growth as readers to a variety of factors. These factors were: (1) being read to regularly by their parents, (2) participating in shared reading activities with parents, and (3) watching the program "Sesame Street" on television. In addition, the good readers indicated they had developed an

early interest in the print around them, that is, the words in books and the words they encountered in their environment. Evidence of early comprehension monitoring behavior was also noted. For example, one skilled reader commented, "I used the pictures and if I read the words right then the pictures matched the words."

In contrast, none of the less skilled readers reported being able to read prior to starting school and only one less skilled subject reported being read to by parents as a preschooler. Rather, the less able readers credited their grades one and two teachers with having taught them to read. Similar instructional methods were described by the less skilled interviewees with the most frequently reported instructional approach being "the teacher would sound out the words and make us repeat them". Parental involvement in the reading process appears to have increased once the less able comprehenders began attending school. For example, two of the poorer readers stated that their parents would listen to them read from their schoolbooks and tell them to "sound out the words" they didn't know.

Category Three: Teacher-Student Perceptions of Ability

Responses to the question, "How good a reader do you think you are?" were examined for match of student perception to teacher perception. A teacher ranking in the top half of the class order was considered a "match" to a positive

response about proficiency from the subject. A teacher ranking in the bottom half of the class order, on the the other hand, was considered a "match" to a subject response providing any mention of difficulty in reading, even if positive comments were also included. "Mismatches" were either top-half ranks tied to responses mentioning difficulty or bottom-half ranks tied to wholly positive statements. Among the subjects an equal number of mismatches occurred; one mismatch for each ability group.

Additionally, each subject was asked to consider what he or she would like to do better as a reader. Skilled reader comments reflected a meaning-getting emphasis; less skilled reader responses a decoding orientation. For example, two able readers reported a need to read slower as rapid reading interfered with comprehension while two less proficient readers expressed a desire to read faster so they could "go at a fast pace like the good readers". Poorer readers also reported a need to "learn more words" as well as a need to take an increased interest in reading.

Category Four: Criteria Used to Evaluate Personal Reading Performance

First, the question, "If I gave you something to read right now, how would you know if you were reading it well?" was posed to allow subjects to discuss the manner in which they judged their own oral and silent reading performance. Next, subjects were asked to explain what makes something difficult

to read.

Ability to explain the criteria used to evaluate personal reading performance followed a similar pattern for both skilled and less skilled subjects. Responses from both groups drew attention to decoding and meaning-getting aspects of reading. Criteria used to judge oral reading performance reflected concerns related to oral fluency, word recognition accuracy, and comprehension. Representative comments from subjects included the following: "read with expression", "didn't stutter on words", "knew the words and could say them", "understood what the story was saying" and "remembered what I read".

Criteria for evaluating silent reading performance indicated concerns with comprehension and reading rate. The most frequently reported criterion was "understood what it was about". Ability to recall what was read was the second most frequently reported criterion and "read it slowly" was third.

Similar opinions were offered by all interviewees in response to the question, "What makes something difficult for you to read?". Factors identified as contributing to reading difficulty in order of frequency were: (1) technical vocabulary, (2) lack of prior knowledge about the topic, (3) lack of interest in the topic, and (4) poorly organized text.

Category Five: Awareness of Strategies Available to Monitor Comprehension

One relevant aspect of reading is an individual's perception of the characteristics of an accomplished reader. Knowing the abilities of a competent reader could serve as a guiding concept to less skilled readers about their personal limitations and goals in reading. The question, "What makes someone a good reader?" was posed to determine subjects' perceptions about the qualifications of skilled readers. Specifically at issue was skilled and less skilled readers' awareness of the role of strategy variables in the reading process.

Responses to this question fell into two groups: (1) those which had a meaning-centered base and (2) those which had a non meaning-centered base. While none of the less skilled readers gave a meaning-centered response, all of the able readers saw comprehension as the central skill needed in reading. Representative comments from both skilled and less skilled readers appear in Table 1.

Table 1

Stated Perceptions of Good Reader Qualifications

<u>Skilled Readers</u>	<u>Less Skilled Readers</u>
Understand what you read.	Pronounce the words right.
Reread if you don't understand.	Know all of the words.
Slow down to understand better.	Read quickly.
Picture things in your mind to help you understand.	Practice a lot.
	Get help from someone with words you don't know.

As the sample comments in Table 1 on the preceding page illustrate, the skilled readers in this study were extremely sensitive to the strategy dimensions of reading while the less skilled readers lacked such sensitivity. The less able readers, like young beginning readers, appeared to perceive reading as a decoding process rather than as a meaning-construction task.

Category Six: Knowledge of Strategy Variables

The following questions were presented to further assess skilled and less skilled readers' awareness of the role of strategy variables in the reading process. Strategy variables which were addressed were: (1) reading mode, (2) resolving comprehension failure, and (3) aids to comprehension.

Reading Mode. When asked whether they preferred to read aloud or silently, two skilled readers reported a preference for silent reading stating that they could understand better when reading silently. To them oral reading was characterized by interruptions by other people or themselves for miscue corrections. It appeared that when reading orally these two able readers were more concerned with how the words sounded, whereas when reading silently they were able to concentrate on what the words meant. In contrast, the third skilled reader reported a preference for reading orally stating that it was "easier and faster to read out loud".

Further, this able reader reported that hearing himself read improved his understanding of the material.

Of the four less skilled readers, two expressed a preference for oral reading while two said they preferred reading silently. Those who preferred reading orally indicated that reading aloud improved both their concentration and comprehension while those who preferred reading silently were concerned with making mistakes or reading slowly when they read aloud.

Resolving Comprehension Failures. Determining the meaning of unknown words and sentences is a crucial aspect of reading. Even sophisticated readers encounter incomprehensible material and need to draw upon strategies to resolve those comprehension failures. Two questions were constructed to investigate subjects' awareness of their methods for determining unknown information.

To probe the word identification strategies of students when reading in context the following question was asked: "What do you do when you come to a word you don't know?". All subjects were able to report a strategy for determining an unknown word. In total, seven different word level strategies were reported by the interviewees. These strategic resolutions were: (1) read ahead in the text, (2) reread the sentence, (3) use context clues, (4) substitute a synonym, (5) sound it out, (6) use a dictionary, and (7) ask someone. While all subjects stated they would ask other

people for help, skilled readers reported this strategy as a last resort. The trend for the less able readers, on the other hand, was to refer to external sources first to resolve comprehension failure. The frequency of subject reports for each word level strategy are depicted in Table 2.

Table 2

Frequency of Subjects Reporting Strategies for Resolving
Word Level Comprehension Failure

<u>Strategy</u>	<u>Skilled</u> (N=3)	<u>Less Skilled</u> (N=4)
Read ahead in the text	1	2
Reread the sentence	2	1
Use context clues	1	2
Synonym substitution	1	1
Sound out the unknown word	2	2
Use a dictionary	3	1
Ask someone	3	4

In order to investigate subjects' awareness of strategies to resolve ideal level comprehension failures, students were asked, "What do you do when you don't understand a sentence or a paragraph?". Six strategies pertaining to resolution of sentence level comprehension failure were identified by the subjects. These strategic resolutions included: (1) read ahead, (2) look back in the text, (3) use a dictionary to look up unknown words in the sentence, (4) ask someone for help, (5) reread the sentence, and (6) put the

information into your own words. Table 3 illustrates the frequency of subject reports for each sentence level strategy.

Table 3

Frequency of Subjects Reporting Strategies for Resolving Sentence Level Comprehension Failure

<u>Strategy</u>	<u>Skilled</u> (N=3)	<u>Less Skilled</u> (N=4)
Read ahead in the text	2	1
Look back in the text	2	0
Use a dictionary	1	1
Ask someone for help	1	1
Reread the sentence	2	2
Put the information in your own words	0	1

Examination of Table 3 indicates that the most frequent strategy was to reread to comprehend a confusing sentence. Able readers who stated they would reread reported the justification that reading ahead, looking back, and rereading the sentence would provide information and contextual clues useful for determining the sentence meaning. However, the less skilled subjects who responded "reread" were unable to justify their responses.

In comparison to the number of strategies identified by subjects as being available to resolve word level and sentence level comprehension failures, the number of

strategies reported to resolve paragraph level difficulties was significantly less. At the paragraph level students were able to offer only three strategic resolutions. These strategies were: (1) use pictures, charts, or diagrams; (2) reread each sentence in the paragraph at a slower rate; and (3) ask somebody to explain it. The frequency of subject reports for each paragraph level strategy are shown in Table 4.

Table 4

Frequency of Subjects Reporting Strategies for Resolving Paragraph Level Comprehension Failure

<u>Strategy</u>	<u>Skilled</u> (N=3)	<u>Less Skilled</u> (N=4)
Use pictures, charts, and/or diagrams	1	1
Reread the paragraph at a slower rate	0	1
Ask someone for help	2	4

As indicated in Table 4, the most frequently reported strategy was to seek help from other people. While the less skilled readers were again unable to justify their responses, able readers who responded "ask someone" justified their position by stating that failure to understand a whole paragraph could not be resolved by rereading.

Aids to Comprehension. The question, "What helps you to understand something that you read?" was posed to obtain further information on factors which facilitate students' comprehension processing. Subjects' responses were classified into two categories: (1) processes used as aids to comprehension and (2) text features which foster comprehension. Five processes were reported to facilitate comprehension. These processes were: (1) relating material to past experiences, (2) making mental images, (3) using contextual clues, (4) asking oneself a question, and (5) reading aloud. Table 5 illustrates the frequency of subject reports for each process.

Table 5

Frequency of Subjects Reporting Processes Used as Aids to Comprehension

<u>Process</u>	<u>Skilled</u> (N=3)	<u>Less Skilled</u> (N=4)
Relating material to past experiences	3	2
Making mental images	1	0
Using context clues	2	1
Self-questioning	0	1
Reading aloud	1	1

Examination of Table 5 indicates that the match between what the reader knows and the text strongly influences the comprehensibility of the material. The majority of the

subjects felt that being able to relate the material to past personal experience was a significant aid to comprehension.

Additionally, interviewees identified seven text features which helped to facilitate their comprehension. These text features included the following: (1) headings and subheadings; (2) glossary and index; (3) charts, diagrams, and illustrations; (4) explanations of technical vocabulary; (5) use of simplified language structures; (6) larger print; and provision of dictionary pronunciations for difficult words. The frequency of subject reports for each text feature are depicted in Table 6.

Table 6

Frequency of Subjects Reporting Text Features Used as Aids to Comprehension

<u>Text Feature</u>	<u>Skilled</u> (N=3)	<u>Less Skilled</u> (N=4)
Headings and subheadings	2	0
Glossary and index	3	1
Charts, illustrations, diagrams	3	2
Explanations of technical vocabulary	3	3
Simpler words and sentences	1	3
Larger print	0	1
Dictionary pronunciations for difficult words	2	3

As illustrated in Table 6, students identified both internal and external organizational text aids as comprehension facilitators. Two internal text features which both able and less able readers reported using were: (1) explanations of technical vocabulary and (2) dictionary pronunciations of difficult words. Most subjects felt that the material was easier to understand if the author provided an adequate explanation of the meaning of the technical vocabulary as well as an indication of how to pronounce these terms. For less able readers the author's style (i.e. word and sentence length, sentence complexity) also appeared to affect their comprehension.

In contrast, use of external organizational aids, such as headings, glossaries, and diagrams, appears in skilled reader responses almost exclusively. As a group less skilled readers seldom mentioned using external text aids to facilitate comprehension.

Summary

The pre-reading interview was designed to tap what subjects knew about reading. Specifically at issue were good and poor comprehender differences in attitude and approach to the reading process. It was anticipated that interview data would show that there are some observable differences between the way skilled and less skilled seventh grade readers view the reading task.

Analysis of recorded comments supports this reader differentiation. Able readers provided more meaning-getting responses to questions about the reading process more often than less able readers. Although the less skilled readers in this study recognized the meaning-getting aspect of reading, more than their skilled peers, they appeared to emphasize decoding concerns at the expense of understanding concerns. In general, the less able readers tended to focus their remarks on words, on pronunciations of words, and on fluent oral rendering of words.

The skilled readers appeared to be sensitive to both task and strategy dimensions of reading whereas the less skilled readers appeared to lack such sensitivity, especially with respect to strategy dimensions of reading. The less able comprehenders reported fewer strategies and were not as sensitive as to how and when to use specific strategies. In addition, the less able subjects seemed to be unaware of many of the characteristics of good readers and the special strategies required for resolving comprehension failure. They tended to refer to external sources, such as another person, to resolve comprehension difficulties and were not as aware of independent, internally-generated strategies.

In general, the three skilled readers in this study appear to be self-motivated and not only prefer but also enjoy reading silently. They seem to require a minimum of outside

reinforcement and guidance. The four less skilled readers, on the other hand, generally view reading as a task and do it because it is required of them in school. They appear to need considerable guidance and external support to complete reading tasks. These findings are similar to those of Gambrell and Heathington (1981), Garner and Kraus (1981-82), and Raykovicz et al (1985).

Regulating and Monitoring Comprehension Processing

Analyses of Think-Aloud Protocols

When the taped protocols were transcribed, the think-aloud responses were inserted directly into the text to maintain the sequence of reading and think-aloud response. Applying the procedure of regrounding by making repeated searches through the data (Kamil, Langer, & Shanahan, 1985), the responses of the seven subjects were read through by the investigator on three separate occasions. A series of categories were developed to attempt to identify the comprehension monitoring and regulating processes described by the subjects. Nine categories into which the readers' strategies for processing narrative and expository text were identified. Eight of these were meaning-making (See Figure 1, p. 121) and one was regulatory (See Figure 2, p. 122).

The think-aloud comments were then coded for each subject and for each reading selection using the general categories. Additional descriptors were added to the coding for five of the nine general categories resulting in the generation of some sub-categories. (See Figure 1, p. 121 and Figure 2, p. 122.) The coded responses could include all of the comment made at the time the reader offered a think-aloud or parts of the comment could be separated. Think-alouds were separated into more discrete comments to indicate that the investigator believed the response was a series of self-reports about different processes. Each coding included a numerical identifier indicating the sequence of the comment in the protocol. The specific coding of the type of response was based upon the general categorization of the response. (See Appendix M for a description of the think-aloud response classification scheme.) For example, "6-1" indicated the response was the sixth think-aloud statement in the protocol and identified it as a visual imagery strategy. In those cases where the general category had been broken down into sub-categories, the general categorization was followed by a letter indicating the sub-type of the response such as a lower case "a", the "a" signaling that the response related to the first sub-category of the general category. Thus "5-8a"

indicated the response was the fifth think-aloud comment in the protocol and identified it as a word meaning strategy using context clues. Coding of the raw data involved marking the numerical sequence code for each response in the box for that subject, strategy, and passage. The summary sheet provided a cross-reference for the protocol, the subject, and the strategy. In addition, the responses for each passage by each subject were mapped in sequence by strategy to create a flow chart illustrating the subject's individual strategies over time.

Once the transcripts had been coded, the number of strategies identified and the frequency with which each strategy was used were tallied for each subject, each passage, and each reader ability group. In addition, a score was calculated for total strategy use, which consisted of the number of times any strategy occurred.

Comprehension Processing Categories

The examination of the approaches seventh grade skilled and less skilled readers used resulted in the development of two general comprehension processing categories as well as

a number of sub-categories that subsumed further specific strategies. The categories were identified as "meaning-making processes" and "monitoring processes", respectively.

The meaning-making strategies were divided into eight sub-categories or types of behaviors. The sub-categories were: (1) creating visual images of the text, (2) relating the author's ideas to readers' past personal experiences, (3) making inferences, (4) generating hypotheses, (5) analyzing text features, (6) judging the quality of the text, (7) applying summary techniques, and (8) determining word meanings. The sub-categories and specific processing strategies are depicted in Figure 1.

Figure 1

Sub-categories and Specific Processing Strategies Used for Meaning-Making

- ```

=====
1. Creating Visual Images
2. Relating to Personal Experience
3. Making Inferences
4. Generating Hypotheses
 (a) predicting
 (b) confirming
5. Analyzing Text Features
6. Judging
 (a) text ideas
 (b) text features
7. Applying Summary Techniques
 (a) paraphrase
 (b) restatement
8. Determining Word Meanings
 (a) using context
 (b) using synonym substitution

```

Comprehension monitoring, the second major category, described those behaviors observed when the subjects were checking their progress or appeared to encounter difficulty with the text. The behaviors categorized as being of the comprehension monitoring and regulating type included four sub-categories of behavior. These behaviors were: (1) rereading previous text, (2) reading subsequent text, (3) resorting to look backs in the text, and (4) identifying the nature of the comprehension breakdown, depicted in Figure 2.

Figure 2

Sub-categories of Processes Used in Comprehension Monitoring

- =====
1. Rereading
  2. Reading Ahead
  3. Look Backs
  4. Nature of Breakdown
- 

The frequency of subject reports for the categories and sub-categories is illustrated in Table 7 which appears on the following page.

The discussion has been organized according to the two text processing categories, with explanations and supporting evidence for the sub-categories and strategies. Discussion of findings in relation to each of the meaning-making sub-categories consists of eight separate sections which consider: use of visual imagery, relating to past personal

Table 7

Frequency of Think-Aloud Reports by General Strategy and Sub-Category: Narrative, Expository, and Less Demanding Narrative Passages

=====

MEANING-MAKING PROCESSES

-----

| Category     | Total Number of Reports |            |               | Percent of Total |     |
|--------------|-------------------------|------------|---------------|------------------|-----|
|              | <u>N.</u>               | <u>Ex.</u> | <u>L.D.N.</u> | <u>Total</u>     |     |
| Visualize    | 91                      | 15         | 57            | 163              | 14% |
| Personalize  | 27                      | 31         | 9             | 67               | 6%  |
| Inference    | 100                     | 23         | 46            | 169              | 15% |
| Hypothesize  | 35                      | 0          | 4             | 39               | 3%  |
| Analyze      | 4                       | 56         | 1             | 61               | 5%  |
| Judge        | 9                       | 45         | 15            | 69               | 6%  |
| Summarize    | 160                     | 90         | 123           | 373              | 33% |
| Word Meaning | 19                      | 23         | 0             | 42               | 4%  |

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COMPREHENSION MONITORING

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| Category                         | Total Number of Reports |            |               | Percent of Total |      |
|----------------------------------|-------------------------|------------|---------------|------------------|------|
|                                  | <u>N.</u>               | <u>Ex.</u> | <u>L.D.N.</u> | <u>Total</u>     |      |
| Reread                           | 25                      | 24         | 2             | 51               | 4%   |
| Read Ahead                       | 3                       | 1          | 0             | 4                | 0.4% |
| Look Back                        | 10                      | 4          | 2             | 16               | 1%   |
| Breakdown Type                   | 32                      | 55         | 0             | 87               | 8%   |
| Total Responses For Passage Type | 515                     | 367        | 259           | 1141             |      |

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experience, making inferences, generating hypotheses, analyzing text features, judging text quality, summarization, and determining word meaning. This is followed by a separate discussion of the monitoring and regulation of comprehension. Within each of these sections is a table illustrating the frequency of each of the reading behaviors found under that category and excerpts from the protocols that describe different elements of that reading

behavior. The excerpts are samples of the text and the think-aloud protocols. The excerpts are intended to be examples that best represent the processes used by the seven subjects.

### Meaning-Making Processes

#### Use of Visual Imagery

The strategy of using visual images to aid in the construction of meaning was observed in skilled and less skilled readers as they read the narrative and expository text passages. Use of visual imagery was coded as those responses subjects gave in which the subject indicated that a picture or a mental image had been formed. Use of visual imagery was the third most frequently reported strategy category. Visualization accounted for 14.2 percent of all think-aloud responses. Table 8 illustrates the frequency of the use of this strategy by the seven subjects.

Table 8

#### The Frequency of Use of Visual Imagery

| Ability      | Total in Each Passage |            |                          |
|--------------|-----------------------|------------|--------------------------|
|              | Narrative             | Expository | Less Demanding Narrative |
| Skilled      | 43                    | 2          | N/A                      |
| Less Skilled | 48                    | 13         | 57                       |

Readers appeared to use visual imagery as a means of providing a framework for organizing and recalling information from the text. Visualization appeared to be a strategy that allowed the reader to match information from the text to prior knowledge.

#### Excerpt 1

Reads: "The woman pushed back a lock of her thick brown hair. In a rich, low voice she said, "Miss Brewster, I'm Renee Dumont - Mrs. Guy Garrison. This is Watson, my butler, and this is my darling little Poof. I'm sorry you had to wait for me for so long. I see you've discovered Guy's special room.'"

Thinks-aloud: "...I pictured Mrs. Garrison... she had long, curlyish brown hair...it was put up that day...she has make-up on...she was wearing gold slippers and a gold silk ball gown...the butler was very tall and sort of bald with some greyish hair...he was wearing grey pants, a vest, and a white T-shirt underneath...I pictured Poof, the dog, as a small white poodle..."

#### Excerpt 2

Reads: "It was his father's fastest horse that Hawk sought out, a piebald with four white feet. Then he rode to the top of a hill to watch for the start of the hunt. Waiting, he thought of what he intended to do and how the thing must be done."

Thinks-aloud: "...I pictured that there was no trail...there was just grass and a big steep cliff with little jagged rocks sticking out and there's forest behind them."

In excerpts one and two, the readers have generated visual images in response to the text. Judging by the verbal reports, the readers appear to be using visual images to achieve a more complete understanding of the writer's

message. The less skilled subject who reported in excerpt one appears to have generated a visual image to achieve a more complete understanding of the characters in the text. In excerpt two, the skilled reader has generated a visual image to provide a richer description of the setting of the story. In both instances, the readers seem to have made determinations as to what background knowledge they had "fits" the schema for the text.

### Excerpt 3

Reads: "A resource may be defined as anything that people need. Limit that definition still further and a resource may be defined as anything a culture needs at a given time in history. Each culture - each nation of humans - makes its own decisions about what resources are. Those resources can include as basic a thing as water or they can be as complicated as the mind of a human being."

Thinks-aloud: "...when I was reading this I had a picture in my mind about elections where people have to make their own decisions on who they're going to elect...who they think would be the best prime minister for Canada..."

Excerpt three further illustrates the fashion in which ideas from the text and ideas from the reader's store of background information can combine to complete the process of organizing information in the text through the use of visual imagery. The think-aloud report offered in excerpt three suggests that the less skilled reader was motivated to fit the term "decisions" into his schema. The reader has generated a personal analogy, which constituted a visualizing statement, as a means of achieving a more complete understanding of the

writer's message. Other reports found in the protocols demonstrated similar reader behaviors. Evidence from the protocols shows that subjects often generated analogies to personal experience and reported them as part of their think-aloud visual imagery responses.

### Summary

Current theories of cognition in reading have taken a constructivist perspective, wherein reading is seen as selective, strategic, and meaning-seeking, and in which the reader is seen as constructing internal representations of the text. This type of interactive view of reading comprehension is derived from schema theory (Anderson & Pearson, 1984). Schema theory is based on the premise that discourse does not in itself provide meaning. Rather, the construction of meaning is dependent upon the reader. The text simply provides direction for readers as they use previously acquired knowledge to construct meaning. Rumelhart (1980) proposes that the reader's background knowledge serves as scaffolding to aid in encoding information from the text.

It would appear that visual imagery may relate to comprehension as an aspect of prior knowledge. Subjects

were observed to access and use their prior knowledge in imaginal format. The skilled and less skilled readers' use of visual imagery may be illustrative of several of the elements of the schema theory model. First, imagery may increase the capacity of working memory during reading by assimilating details and propositions into chunks which are carried along during reading. Second, imagery seems to be involved in making comparisons or analogies; that is, in matching schematic and textual information. Third, imagery seems to function as an organizational tool for coding and storing meaning gained from the reading. Think-aloud reports found in the protocols may support the argument that skilled and less skilled readers make use of visual images to provide them with a general pattern with which to follow text.

#### Relating to Personal Experience

Relating to personal experience was coded as those reports in which subjects indicated that they already knew something or had already experienced something. "Relating" included citing a correspondence between the text and the life, knowledge of the world, or literary experience of the reader. The frequency of usage of the strategy of relating to personal experience is depicted in Table 9.

Table 9

| The Frequency of Use of Relating to Personal Experience<br>Ability | Total in Each Passage |            |                             |
|--------------------------------------------------------------------|-----------------------|------------|-----------------------------|
|                                                                    | Narrative             | Expository | Less Demanding<br>Narrative |
| Skilled                                                            | 9                     | 9          | N/A                         |
| Less Skilled                                                       | 18                    | 22         | 9                           |

An examination of the protocols indicated that readers exhibited a tendency to use the text as a jumping off point for personal analogies. In some cases the purpose for the analogy could be easily identified as an attempt by subjects to relate their personal knowledge to the text, as a means of understanding the text. In others, the analogy was not directly related to using the correspondence as an aid to understanding.

## Excerpt 4

Reads: "The tall buildings of the city of Los Angeles lay below her. Far off to the west was Santa Monica where she lived. Past Santa Monica was the vast Pacific Ocean. For a long while, Laura gazed down at the city spread out below her. Then she turned and walked back to the front of the house."

Thinks-aloud: "This made me think about when I went to my grandma's...it's in St. Boniface...I can stand on her balcony and look outside...there's a whole bunch of nice buildings there, too...and different places you can see back and forth because you're up high...like you can see the Richardson Building and the hospital...things like that...the place where Laura is...like the setting...it seems like when I'm at my grandma's...I think Laura must be standing on a balcony, too...it says she looked down on the city and then went back inside...so she must have been standing outside to start with."

## Excerpt 5

Reads: "The most important factor affecting soil is climate. Heat and moisture acting on parent material and humus create certain types of soil. With many months of sunshine and rainfall, plant growth will be lush. Abundant humus will be produced and the soil will become rich in essential nutrients."

Thinks-aloud: "...this reminds me of my grade 5 science fair project...I did it on hydroponics...we had to find the different kinds of dirt and how much better hydroponics was for growing stuff...like for growing plants...it ended up that hydroponics was the worst thing you can use because the soil that nature makes is the best thing for growing stuff."

In excerpts four and five the readers appear to have generated personal analogies as aids to understanding the text. The less skilled subject who reported in excerpt four called up a personal experience to confirm an inference she made about the setting of the story. In excerpt five, the skilled subject used a personal analogy to validate the content of the text. The think-aloud concluded with a summary statement, which constituted a reader paraphrase, signaling the subject's agreement with the author's argument.

## Excerpt 6

Reads: "Soon he was ready - ready to play the game once more. Going outside he walked down the street, fast, but not too fast. He wanted to see what there was to see and who there was to see. You could never tell just what you might see out there on the street or who you might meet, so he kept his eyes wide open."

Thinks-aloud: "...when I was reading this it reminded me of a big city...how you have to keep your eyes open all the time because you could get mugged...that happened to a friend of my dad's...he had to get stitches because these two guys beat him

up when he wouldn't give them his wallet and stuff...that's pretty scary...sometimes that happens at school, too...like the big kids in grade eight pick on the little kids in grade seven."

#### Excerpt 7

Reads: "Today water, mineral, and biotic resources are being strained because of the uneven distribution and because of population pressure. Some of this strain can be relieved by wise resource management. Without such management, these resources will become severely depleted. Then man may have to search elsewhere. Some scientists predict that the stage is being set for the Ocean Age when man will be forced to exploit the last great resource of the planet earth."

Thinks-aloud: "...this is interesting...it reminded me of when I was in grade five...there was this cartoon that my teacher had up on the wall...it said where will you be when the earth runs out of gas...it had three pictures...it had one of this guy riding a donkey...one of this guy riding in a normal car...and one of this guy riding in a super dooper, high tech, motorized vehicle...then there was an arrow pointing to the one of the guy with the donkey...that meant there would be no more stuff so we won't live be able to live very good."

In excerpts six and seven, the readers have called up personal experiences in response to the text. In excerpt six, the less skilled subject has identified an unpleasant experience that he related to the text. The skilled subject who reported in excerpt seven appears to use a personal analogy to rationalize her interest in the content of the text.

### Summary

The interpretations of the reports given by the skilled and less skilled readers in this study appear to be compatible with current theory. The readers' use of the strategy of relating to personal experience may be illustrative of the schema theory model. Comprehension occurs as a result of the interaction between newly acquired information and knowledge already stored in memory (Anderson & Pearson, 1984), with the text providing the direction for readers as they use previously acquired knowledge to construct new meaning (Rumelhart, 1980). Readers build meaning by engaging in a series of recursive interactions. In each interaction readers generate a model that provides the best possible fit with the data perceived to be in the text. In generating personal examples the readers in this study seem to have made determinations as to what background they have "fits" the schema for the content of the text.

The schema-theoretic model suggests that readers with high prior knowledge map incoming information onto existing schema (Anderson & Pearson, 1984). Thus, readers with high prior knowledge may already in some sense "know" the text. Such a reader would need only to affirm or modify the knowledge which existed prior to the reading task rather than having to construct new knowledge (Afflerbach, 1990; Pearson et al, 1992). In contrast, when the text was unfamiliar and prior knowledge was lacking, the reader might have to

restructure an existing schema to accommodate the unfamiliar text, or construct a new schema. In either case, the reader would have to allocate cognitive resources to the task, and there is a greater chance of generating inaccurate analogies or inferences.

The suggestion that readers are able to use personal analogies to "fit" information into their schemata has support from other research. Lytle (1982) reports that in her qualitative analysis, analogy served to put less familiar text within a framework where it was better understood. Similar findings were reported in studies conducted by Hare and Smith (1982), Lundberg (1987), Afflerbach (1990), and Kletzien (1991).

#### Making Inferences

In an effort to organize and assign meaning to both narrative and expository text, skilled and less skilled readers were observed to use the processing strategy of making inferences. Inferences were coded as those reports in which subjects indicated that they had formed a conclusion about some aspect of the text based on their own knowledge and details from the passage. The strategy of making inferences was the second most frequently reported strategy category. Inferencing accounted for 14.8 percent of all think-aloud responses. Table 10 depicts the frequency of the use of the

strategy of making inferences by the skilled and less skilled readers who participated in the study.

Table 10

## The Frequency of Use of Inferences

| Ability      | Total in Each Passage |            |                          |
|--------------|-----------------------|------------|--------------------------|
|              | Narrative             | Expository | Less Demanding Narrative |
| Skilled      | 70                    | 15         | N/A                      |
| Less Skilled | 30                    | 8          | 46                       |

The general strategy of making inferences is based on what is known already and what is needed but not explicitly stated. Inferencing requires both scrutiny and contemplation. To make inferences readers must examine important details in a passage and relate these text-based clues to their prior knowledge. The following excerpts illustrate how the subjects in this study used inferences to enhance their understanding of the text.

## Excerpt 8

Reads: "It was as he had looked down at the great buffalo herd with his father that it suddenly came to Hawk that he could wait no longer to prove himself. He must join in the coming hunt. He had the bow and arrow in the lodge of Dead-Come-Back-Man. What he did not have yet was a grown man's strength. But he had the will."

Thinks-aloud: "...it says he had to prove himself so I think he wants to become a man because I know that in some Indian tribes to become a man you have to do some brave deed...so I think that's what he's planning to do."

## Excerpt 9

Reads: "From behind him he heard a sound. Turning, he spotted a large black dog charging at him. The dog appeared to be aiming for his throat. Its teeth sunk deep into Larry's arm as he struggled to fight it off."

Thinks-aloud: "...this black dog was charging after him in the graveyard...I think it was a guard dog to protect the graveyard...lots of places use guard dogs at night for protection."

The skilled reader who reported in excerpt eight has made an inference about the actions of one of the characters. The subject has combined her prior knowledge of aboriginal customs with the passage detail, "he has to prove himself", to infer that the character wants to become a man. In excerpt nine, the less skilled reader has also made an inference about the actions of one of the characters. The reader has inferred that the dog was a guard dog. In addition, the subject's comment, "lots of places use guard dogs at night", was taken as evidence that the reader had made a time inference about the setting.

Excerpt ten further illustrates the fashion in which ideas from the text and ideas from the reader's store of background information can combine to complete the process of making an inference.

## Excerpt 10

Reads: "Then his knife was in his right hand and risking death again, he reached far down to stab beneath the bull's straining neck. The animal's blood spurted, covering Hawk's arm. Still the young bull pounded on and would not die."

Thinks-aloud: "...I think Hawk must be feeling really mad because the bull would not die...it just keeps on going...it's kind of weird because usually they just die right away...it must have been a real tough bull."

In excerpt ten, the less skilled reader had developed two inferences in response to the text. In the first instance the reader noted the statement, "would not die", and used it to make an inference about Hawk's feelings. In the second instance, the reader made accessing prior knowledge apparent in calling up of the information "usually they just die right away". The prior knowledge allowed her to make an inference about the personal attributes of the bull.

#### Summary

Foremost in the recent research and theory on comprehension is the notion that comprehension is an interactive process wherein information from the text is integrated with the reader's schemata to achieve understanding (Pearson et al, 1992). Prior knowledge significantly affects readers' ability to elaborate content (Rumelhart, 1980; Anderson & Pearson, 1984). In drawing meaning from text, readers build their own elaborations; they "read" situational demands, review personal knowledge, and select what seems most appropriate and useful for the task at hand. Elaborating, embellishing what is read through inferencing, appears to be another way readers can use past experiences to reconstruct new information, enhance

comprehension, and improve recall.

In an effort to organize and assign meaning to the printed word, readers frequently make inferences. Readers must make inferences across sentences, such as connecting anaphoric terms with their antecedents. Readers must make slot-filling inferences, in which they insert unstated information, to make text comprehensible. Readers must also make elaborative inferences connecting text with prior knowledge (Anderson & Pearson, 1984). When a proficient reader progresses through a passage, he or she makes and modifies inferences. As such, inferencing is a process that is analogous to hypothesis testing. According to Taylor, Harris, and Pearson (1988), "inferencing is a process that occurs holistically as readers are making sense of text" (p. 215). Further, they state that inferences "serve as a window into what is going on in the reader's mind while processing text" (Taylor et al, 1988, p. 215).

The study's interpretations of the reports given by the skilled and less skilled readers appear to be compatible with current theory. The fashion in which the subjects made use of text-based clues and their background knowledge to elaborate content appears to be consistent with the schema-theoretic view of the use of inferencing as a strategy for reconstructing the author's message. As illustrated in excerpts eight through ten, the subjects in this study demonstrated the ability to make slot-filling and text-

connecting inferences as a means to achieving a more complete understanding of what was read. There is also consistency with the schema-theoretic notion that prior knowledge of text structure helps the reader anticipate the meaning of the text. An examination of the readers' protocols revealed that the strategy of making inferences was used significantly more often when subjects were reading familiar than unfamiliar text. This behavior is consistent with inferencing behaviors reported in earlier work by Lytle (1982), Lundberg (1987), Afflerbach (1990), and Kletzien (1991).

#### Generating Hypotheses

Two strategies pertaining to the use of hypotheses were identified in the examination of the skilled and less skilled readers' protocols. The hypothesizing strategies included predicting future events in the text and confirming a reader's theory. Table 11 illustrates the frequency of the use of these strategies by the subjects.

Table 11

#### The Frequency of Usage of Hypothesizing Strategies

| Sub-Category | Total in Each Passage |      |                     |      |        |
|--------------|-----------------------|------|---------------------|------|--------|
|              | <u>Skilled</u>        |      | <u>Less Skilled</u> |      |        |
|              | Nar.                  | Exp. | Nar.                | Exp. | L.D.N. |
| Predicting   | 15                    | 0    | 10                  | 0    | 3      |
| Confirming   | 10                    | 0    | 0                   | 0    | 1      |

### Making Predictions

The strategy of making predictions was coded as those reports in which subjects indicated they were making a forecast of future events in the text.

#### Excerpt 11

Reads: "It was his father's fastest horse that Hawk sought out, a piebald with four white feet. Then he rode to the top of a hill to watch for the start of the hunt. Waiting, he thought of what he intended to do and how the thing must be done."

Thinks-aloud: "...Hawk will probably go and wait behind a rock so he won't be seen...then when the other Indians ride by he can slip out and join them...you know...just kind of blend in..."

#### Excerpt 12

Reads: "He jerked up his legs so that for an instant he was crouched on all fours on the bare back of his galloping pony. Then he launched himself outward and fastened with clutching hands to the fur of the buffalo's hump. With a wild whinny his horse veered crazily off and Hawk was left there literally riding his prey."

Thinks-aloud: "...Hawk's in trouble...I think that his horse is going to come back to get him and Hawk's going to go back home and he's not going to touch that bull."

#### Excerpt 13

Reads: "Darkness had fallen when Hawk rode into camp with the hide, heart and tongue of his kill, his bare legs and arms crusted with blood. He was bone-weary but content, for the story of his triumph had gone before him through the camp so that there was awe in the eyes of his playmates who had run out to meet him. Trills and sighs came from the girls and young women as Hawk rode in among the tall tepees."

Thinks-aloud: "...Hawk probably gets down and says something like...Father, I am now a man...I have killed my first bull...here is the hide... I donate this...or something like that...that's what I think is going to happen..."

The subjects who reported in excerpts eleven through thirteen have generated hypotheses in response to the text. In excerpt eleven, the skilled reader has predicted a character's future actions. The subject's comment, "wait behind a rock", may also be interpreted as prediction pertaining to the setting for the upcoming action. The less skilled subject who reported in excerpt twelve has identified an implied problem and has generated a prediction which represents a possible solution to the problem. In excerpt thirteen, as in excerpt eleven, the skilled reader has predicted a character's upcoming actions. It is worthy of note that the skilled reader offered her prediction in the form of a character monologue. This behavior may provide an indication that the skilled reader seems to get involved in the material by placing herself in the story.

#### Excerpt 14

Reads: "At the end of the road lay the town - the same little Greek town that was always in his dream. Larry forced himself to keep driving all the while knowing what lay ahead. Before he knew it, Larry had reached his destination, just as he knew he would. Stopping the car, Larry slowly got out. It was almost dark as he walked to the cemetery gate. Cautiously he opened it and stepped inside."

Thinks-aloud: "...this ending is kind of stupid...it's not a real ending...I think he will go into the cemetery and he'll see the grave that says Nicholas Vanos and someone will come up behind him and kill him...then he'll mutter...like before he dies he'll say...I died here...and then he'll be dead...he'll be back in his grave again."

Excerpt fourteen provides an example of the reader generating a prediction to correct what he perceives to be a structural fault. The less skilled reader has identified the problem as being a concluding sentence in the text prior to the reader being prepared to conclude. To satisfy his apparent need for closure the less skilled subject has offered a prediction which represents a possible ending for the selection.

#### Confirming Predictions

Coding responses as confirmation of the reader's prediction occurred when the think-aloud indicated that the subject was verifying a hypothesis using later information in the text.

#### Excerpt 15

Reads: "At last the party of twenty-one young hunters came in sight, riding fast and in close formation. Hawk let them get well ahead, then followed at a fast lope, his deerskin shirttails flying and flapping as he cut a circle to the side."

Thinks-aloud: "...Ya...I was right...he was just blending in...he didn't want anybody to know he was there..."

#### Excerpt 16

Reads: "That night there was feasting in the Sioux camp and the dance of thanksgiving that followed a successful hunt. In the tepee of Standing Elk, around the small fire, visitors came and went. Hawk was asked and re-asked to tell the story of his hunt. He related it all simply and gravely."

Thinks-aloud: "Hey...I was right...I was right about the feast...I said that out loud as I was reading this ..."

The reports offered by the subjects in excerpts fifteen and sixteen illustrate the fashion in which skilled readers made use of subsequent text to confirm an earlier hypothesis. In both instances, the subjects confirmed predictions developed while reading earlier portions of the text. For example, the think-aloud report offered in excerpt fifteen provides confirmation of the prediction made by the reader in excerpt eleven. The rapid and spontaneous nature of the subjects' reports seemed to indicate that little effort was required to access the information needed to confirm the predictions. The regulation of comprehension strategies appeared to be occurring when monitoring indicated success.

Excerpt 17

Reads: "Even so it seemed an endless time before the animal's gait began to falter. Then suddenly the downthrust horns gored the earth, and Hawk was flung forward and free of the crashing fall. Instantly he was on all fours, scuttling back to lie in the lee of the now prone body of his kill while hundreds of buffalo coming from behind barely broke their ranks around the fallen one and the small figure huddled behind it."

Thinks-aloud: "...I guess I was wrong about him being far away from the other buffalo because it says here hundreds of buffalo barely broke their ranks..."

Excerpt seventeen illustrates a second pattern associated with the confirming strategy. In excerpt seventeen, the skilled reader reported a mismatch between the author's message in the twentieth segment of the text and the

hypothesis the reader developed earlier. While reading the fourteenth segment of the text the reader had an image of distance. In excerpt seventeen, the reader signals rejection of the initial hypothesis with the comment, "I guess I was wrong about him being far away from the other buffalo". The subject's subsequent comment, "it says hundreds of buffalo barely broke their ranks", indicates the subject has formed a new image. Comprehension monitoring occurred.

#### Summary

In the present investigation readers were observed to use the hypothesizing strategies of prediction and confirmation when reading the narrative, but not the expository, text passages. This finding is consistent with schema theory, which suggests that prior knowledge of the content domain helps the reader anticipate the meaning of a text. According to schema theory, certain cues in the text activate the reader's schemata. Once these schemata are activated, readers use them to generate hypotheses about the content and structure of the text. Thus, the richer the prior knowledge, the more opportunities the reader will have to elaborate on content. Readers with strongly developed schemata recall, predict, and monitor.

As reported earlier, a number of the skilled and less skilled readers used the hypothesis strategy when reading text in the familiar content domain. This strategy appeared

to help the skilled readers monitor their comprehension. For example, once a prediction was generated, it was checked for accuracy against subsequent information in the text. Using the feedback from the comprehension monitoring routine, skilled readers could verify or modify their predictions.

A further feature of comprehension monitoring can be addressed here. Skilled readers seem to be able to evaluate the success of their predictions. This may support the regulation of meaning-making processes by skilled readers. Afflerbach (1990) has described this as "process efficiency evaluation". He argues that statements of this type indicate the operation of executive control.

Although less skilled readers were observed to use the hypothesis strategy of prediction while reading the demanding narrative passage, an examination of their protocols for this passage provided no evidence of the use of the hypothesis strategy of confirmation. Several possible explanations for less skilled readers' failure to evaluate the success of their predictions are offered. One possible explanation is that the less skilled readers lacked the ability to exercise executive control. A second is that the less skilled readers' level of attention to the task and their level of involvement with the text was significantly lower than that of their less skilled peers. This explanation would support Johnston and Winograd's (1985) finding that skilled readers monitor actively while less skilled readers tend to

read passively. A third possible explanation is suggested by Laberge and Samuels' (1974) notion of automatic processing in reading. This notion is based on the supposition that, when cognitive capacity is committed to more specific reading tasks, there is less capacity available to make associations, integrate ideas, and process higher-level information. Thus, processing that is not automatic engages the limited capacity of working memory and may ultimately affect the overall quality of text processing and comprehension. Specifically, if a reader's cognitive resources are already taxed by the demands of processing difficult text, then he or she may have difficulty performing a cognitively demanding task such as monitoring of predictions.

#### Analyzing Text Features

With the repeated reviews of all eighteen protocols, it became apparent that readers were making evaluative comments of two kinds, about: the organization of the text itself and the concepts being presented. To accommodate the differences between the two types of responses, the evaluative comments about structure were coded under the heading of analyzing text features. The evaluative comments about the content or concepts were coded under the heading of judging text quality and will be addressed later.

Analyzing text feature usage was coded as those reports in which the reader made specific reference to features of the text, such as words, sentences, text structure, or writer's style, as a means of organizing the text. Two behaviors pertaining to the use of the strategy of analyzing text features were identified in the examination of the skilled and less skilled readers' protocols. These behaviors included use of: reader knowledge of text structure and reader knowledge of text genre. As evaluative comments about the genre were relatively few and, as reader knowledge of text structure appeared to be tied to the issue of how much knowledge of text genre a reader possesses, for the purpose of this study the two behaviors are reported as one strategy category rather than as two sub-categories of the general strategy category, judging. Table 12 illustrates the frequency of the general strategy of analyzing text features by the seven subjects.

Table 12

The Frequency of Use of the Strategy of Analyzing Text Features

| Ability      | Total in Each Passage |            |                          |
|--------------|-----------------------|------------|--------------------------|
|              | Narrative             | Expository | Less Demanding Narrative |
| Skilled      | 1                     | 32         | N/A                      |
| Less Skilled | 3                     | 24         | 1                        |

Examples of reader knowledge of text structure are represented in the excerpts which follow.

Excerpt 18

Reads: "A resource may be defined as anything that people need. Limit that definition still further and a resource may be defined as anything a culture needs at a given time in history. Each culture - each nation of humans - makes its own decisions about what resources are. Those resources can include as basic a thing as water or they can be as complicated as the mind of a human being.

Thinks-aloud: "okay...it's talking about a resource...first it explains what a resource is and then it chops it down into a better definition...and gives examples of a couple things that can be resources...like water or the human brain..."

Excerpt 19

Reads: "Other valuable metallic minerals are copper, lead, zinc, tin, and bauxite. Copper is often used in making electric wires and hardware. Lead can be molded into pipes and it is often an ingredient in paints, dyes, and pottery glazes. Zinc is used to galvanize or coat steel, a process that keep it from rusting. Bauxite is the chief source of aluminum."

Thinks-aloud: "alright...it's telling us more about what metallic minerals are...first it gives you examples like copper, lead, zinc, tin, and bauxite...whatever that is...I've never heard of that one before but it must be a metallic mineral of some kind...it just explains those things...like it tells what each one is used for."

Excerpts eighteen and nineteen illustrate how readers appeared to develop structural patterns, based upon a series of cues from within the paragraph, and then sample the text to test the validity of their self-constructed pattern. The behavior observed in validating the self-constructed structural pattern appeared to involve the reader examining

the within-text-match between text examples with the text's argument. Additionally, excerpts eighteen and nineteen suggest that readers appeared to use topic sentences to make an outline of the text's organization.

In excerpts eighteen and nineteen, the readers have identified patterns of writing with which they are familiar. The subjects who reported in these excerpts appear to be identifying a familiar structure used in expository writing, attribution. The subject who reported in excerpt twenty, below, seems to be familiar with a structural pattern used in narrative writing.

#### Excerpt 20

Reads: "At the end of the road lay the town - the same little Greek town that was always in his dream. Larry forced himself to keep driving all the while knowing what lay ahead. Before he knew it, Larry had reached his destination, just as he knew he would. Stopping the car, Larry slowly got out. It was almost dark as he walked to the cemetery gate. Cautiously he opened it and stepped inside."

Thinks-aloud: "...this ending is kind of stupid...like there's nothing really here...it's not a real ending...stories are supposed to have a real ending...like have a conclusion...I think he will go into the cemetery and see the stone..."

Reader evaluation of the text genre seemed to emerge when readers found their expectation of the text structure was not met. This interpretation is based upon think-aloud reports like those in excerpt twenty that express reader dissatisfaction. The less skilled reader in this moment of

dissatisfaction identified a feature of the text structure he believed to be problematic. The subject identified the problem as being a concluding sentence in the text prior to the subject being prepared to conclude. It is interesting to note that the subject went on to generate what he perceived to be a plausible ending to the selection. Think-aloud reports found in the protocols may support the argument that readers make use of their familiarity with genre to provide them with a general pattern with which to follow the text.

### Summary

The study's interpretations of the reports given by the skilled and less skilled readers appear to be compatible with current theory. Anderson and Pearson (1984) proposed that readers possess schema-theories for both text structure and for content. It is argued that the readers in this study demonstrated knowledge of narrative and expository text in both content and structure. Specifically, they showed knowledge of the roles of topic sentences, genre and writing patterns, and evaluated the structure of a passage.

There is evidence in the protocols that readers initially sought a framework for interpreting the text they read. The fashion in which the subjects made use of text to create a pattern and then sampled structural elements to verify or to change the pattern appears to be consistent with the schema-theoretic view of the use of structural cues as

strategies for determining main idea. Sampling to verify and change was a strategy Afflerbach (1990) labelled "draft and revise".

Additionally, subjects were observed to use topic sentences to make an outline of the text's organization. This may be a behavior consistent with the "topic-comment" strategy identified in the Afflerbach (1990) study, a strategy he considered to be related to main idea construction. Afflerbach (1990) reported that his subjects made use of text structure knowledge to determine the topic and then develop a comment related to the topic. The think-aloud report offered in excerpt eighteen may be an example of Afflerbach's (1990) "topic-comment" strategy. Afflerbach (1990) suggests that the topic-comment strategy appears to help readers negotiate the task of constructing the main idea within the limitations of working memory by transforming the construction task into two distinguishable sub-tasks.

Further, there is consistency with one of the five rules Brown and Day (1983) give for summary writing. When the main idea of the text was not stated explicitly, readers were observed to construct a statement to represent the main idea. Constructing a main idea statement was illustrated in excerpt nineteen. The report may be an example of Brown and Day's (1983) summarization rule of "invention".

Think-aloud reports that contained statements about reader dissatisfaction with the text structure were places

where the tension that existed between the reader and the text became clear. The report given by the subject in excerpt twenty may be illustrative of this tension. The protocols suggest that readers place a clear responsibility upon the text, or the writer, to present the material in a fashion that would make comprehension as fluid a process as possible. It is worthy of mention that in voicing their criticisms, readers frequently made communicative comments to the writer. These comments were found chiefly in three areas: (1) evaluating the text genre, (2) evaluating the content of the text, and (3) evaluating the features of the text. These evaluative comments suggest that the text was not regarded as an abstract thing, but as a means of communicating between individuals. In addition, readers frequently expressed the expectation that competent writers would keep the needs of the reader in mind. These attributions will be dealt with in more detail under the heading of judging text quality.

#### Judging Text Quality

Readers in this study were observed to exhibit the strategy of judging the value of the text. Judging text quality usage was coded as those reports that readers gave in which the reader appeared to be judging the value of the test's ideas or features. Table 13 illustrates the frequency of each type of evaluative comment by the subjects.

Table 13

## The Frequency of Usage of Judging Strategies

| Sub-Category  | Total in Each Passage |      |              |      |        |
|---------------|-----------------------|------|--------------|------|--------|
|               | Skilled               |      | Less Skilled |      | L.D.N. |
|               | Nar.                  | Exp. | Nar.         | Exp. |        |
| Text ideas    | 7                     | 26   | 2            | 12   | 15     |
| Text features | 0                     | 4    | 0            | 3    | 0      |

Evaluating Text Ideas

Both the skilled and less skilled readers in this study were observed to exhibit the strategy of evaluating the content of the text. Readers made statements that were interpreted as being judgments about the value of the text.

## Excerpt 21

Reads: "Besides water, people also use and need iron and zinc and copper. They need coal and oil and gas. These nonliving - or inorganic - things are called mineral resources. One type of mineral resource is metallic. Iron ore, for example, is an important metallic mineral. Without it, human society could not have the tools and machines needed by advanced civilizations. Iron ore is mined or taken out of the rock in which it is found. When it is mixed with other minerals, it forms an even stronger substance - steel."

Thinks-aloud: "I believe they're talking about our nonliving resources...I didn't quite understand inorganic but I think it means not living...like it doesn't have any cells...like living cells...and it says we need coal, copper, zinc, iron, oil, and gas...how we need to, uh...need them to make tools...but I have to disagree with that because we could use stone for our tools or we could still use plastic...most of our tools today are made out of plastic."

In the preceding excerpt, a comprehension breakdown seemed to have occurred in the form of a difference of opinion between the reader and the writer. The subject appeared to evaluate the logic or validity of the writer's argument. Other evaluations of the content that were reported included making note of similarities or differences in the experience of the subject and the argument of the text. Excerpts twenty-two and twenty-three demonstrate that, in such cases, the reader would support the text if the argument supported his or her experience or would take a different stance from the writer's argument if in the reader's opinion the writer's argument was not valid.

#### Excerpt 22

Reads: "Water is neither created nor destroyed by natural forces. It moves from clouds to the ground to plants to rivers to oceans. It then goes back to the clouds again. Water, therefore, is called a "recyclable resource". Recyclable means it can be used over and over again. The problem is that water is not evenly distributed across the face of the earth. In any one place or at any one time there may be too much or too little water."

Thinks-aloud: "...I think it's true that water is not evenly distributed all over the world because some places like Ethiopia don't have enough water and in other places there's floods..."

#### Excerpt 23

Reads: "Other valuable metallic minerals are copper, lead, zinc, tin, and bauxite. Copper is often used in making electric wires and hardware. Lead can be molded into pipes and it is often an ingredient in paint, dyes, and pottery glazes. Zinc is used to galvanize or coat steel, a process that keeps it from rusting. Bauxite is the chief source of aluminum."

Thinks-aloud: "...this is saying copper is used in electric wires and hardware but today I understand that they can run electricity through plastic tubes or glass tubes so we wouldn't really need copper any more...I can't disagree on lead though because it's the only thing I can think of that's used in those paints, dyes, and potteries..."

The following excerpts, twenty-four through twenty-six, illustrate that in some instances subjects would supply a summary sentences of their own to emphasize the similarity or difference.

#### Excerpt 24

Reads: "The side of the young bull was dripping red, the eyes rolling whitely now in panic and pain. This animal would suffer much, for it would be hours or days from now before he would die. Suddenly Hawk knew he could not let the young buffalo go."

Thinks-aloud: "...because it says it will take hours, maybe days to die, Hawk's going to try and kill it...it may sound cruel but I think that's the right thing to do for the sake of the animal."

#### Excerpt 25

Reads: "To show his appreciation of the honor to his son, Standing Elk gave away a horse to an elder who had recently lost his. To Hawk he gave the piebald pony. It was the father's privilege to give his boy a new name, had he wished, but Standing Elk decided against it. Hawk was a fine name and there was none he could think of that fitted the boy so well."

Thinks-aloud: "...I think Hawk is a very good name for him because hawks won't quit unless they have their prey and he kept on going until he got his prey...I think it's a good thing they didn't change his name."

## Excerpt 26

Reads: "Over thousands of years, weathering broke up the underlying rock - bedrock - into smaller pieces. Bedrock, from which soil is made, can be found beneath the soil or it can be found at the surface. One reason that soils differ is that parent material comes from a variety of rocks. Different kinds of rocks make different kinds of soils."

Thinks-aloud: "...hey...that's pretty neat...I didn't know that different kinds of rocks made different kinds of soils...ya...I guess there are different kinds of soils because there's red soil, black soil, choppy soil, moist soil...so I guess that could be true."

It was difficult for the purposes of the study to determine whether the provision of such a summary sentence should be reported as an evaluative comment or as a confirmation of a reader hypothesis. The summary statements reported were relatively few in number. Since these summary statements were a validation of the text, they have been reported as evaluative.

#### Evaluating Text Features

Skilled and less skilled readers were also observed to make statements that were interpreted as being judgments about the value of the text structure. However, evaluative comments of this type were relatively few in number and were found to occur only in the think-aloud protocols readers produced across the expository passage. In some instances readers reported satisfaction with the text structure. In other instances, readers expressed dissatisfaction. After an examination of the evaluative comments about structure

which readers reported in their think-alouds it seemed that often such a report was made at a time when comprehension broke down.

#### Excerpt 27

Reads: "But if it continues to rain, the nutrients from the humus can be washed down. When this happens, the soil becomes "leached", If rainfall is light, weathering will be slow. Plant growth will be sparse and nutrients already in the soil will remain. Calcium and magnesium will build up in the soil."

Thinks-aloud: "...this is sort of just scientific words in an easy way to say them..."

#### Excerpt 28

Reads: "Water is one resource which many people take for granted. It is something they use every day for drinking, bathing, and cooking. The fact is that people need water more than anything else, even more than food. A human being could probably live for a week or more without food but could not live forty-eight hours without some form of water."

Thinks-aloud: "this is talking about water and how important it is to people...how much they use it...there wasn't one word I got stuck on in here so this paragraph was good...I understood what they were talking about."

These excerpts suggest that readers initially sought a framework for interpreting the text. The behavior involved in validating the text structure appeared to involve the reader examining the match between domain-specific vocabulary and concepts and his or her schemata. The strategy of validating text structure illustrated in excerpts twenty-seven and twenty-eight has similarities to the previously considered sub-category, evaluation of content. However, as

these evaluative comments appeared to be sparked by the presence of domain-specific terms, they have been reported as evaluations of text features.

More often evaluation of the features of the text appeared to be a strategy that readers employed when comprehension did not occur. This interpretation is based upon think-aloud reports like those in the following excerpts that express reader dissatisfaction. The readers in this moment of dissatisfaction identified a feature of the text structure they believed caused them to have comprehension problems.

#### Excerpt 29

Reads: "A resource may be defined as anything that people need. Limit that definition still further and a resource may be defined as anything a culture needs at a given time in history. Each culture - each nation of humans - makes its own decisions about what resources are. Those resources can include as basic a thing as water or they can be as complicated as the mind of a human being."

Thinks-aloud: "it sounds like a definition but he's got culture and humans and resources all lumped together...why can't he just do it with one thing...this is confusing...it's too complicated."

#### Excerpt 30

Reads: "The third group of inorganic resources are energy fuels. These are coal, crude oil, and natural gas. These resources are also called "fossil fuels" and are found in rock. In fact, geologists consider these fossil fuels to be kinds of rock. Geologists do this even though fuels are not really minerals like copper, sand, and salt."

Thinks-aloud: "I was thinking about...what was I thinking about...what I was thinking about was nothing...this is hard to think about...it's a hard story...no, it's not a story..."

it's just a bunch of boring facts...this is hard to understand."

Excerpt 31

Reads: "Soil is also an essential resource, but it is neither a biotic nor a mineral resource. It is both. Soil is made up of two things - parent material and humus. The parent material of the soil is the rock from which the soil was formed. Tiny pieces are knocked off larger rocks by wind, water, and ice. Also, the actions of plants, people, and animals affect rock. This process is called "mechanical weathering". Chemical weathering also takes place when the minerals in rock undergo chemical change. These changes cause the minerals to eat away at the parent material."

Thinks-aloud: "...I had problems with the word humus...whatever it is...I didn't really know what it was and it didn't explain what it was I don't think...the way it was written I'm not sure what it is..."

In excerpt twenty-nine, which occurred early in the passage the subject identified the problem as being what the skilled reader regarded as a complicated way of presenting the concepts. The less skilled subject who reported in excerpt thirty appeared to voice a similar complaint. The comment, "it's not a story...it's just a bunch of boring facts", is taken as evidence of the reader's discomfort with the writer's style of presentation. In excerpt thirty-one, the subject identified the problem as being the writer's failure to provide an adequate explanation of a text-specific term.

### Summary

The interpretations placed upon the strategies demonstrated by the skilled and less skilled readers in this study have support in other research. Lytle (1982) uses the term "judging" to denote a strategy in which subjects appraise the quality of the ideas and features found within the text. There appear to be similarities between Lytle's appraisal strategy and this study's strategy of judging. Additionally, the evaluative strategies reported by the subjects in this study are similar to those in the Afflerbach (1990) study.

The evaluative strategies reported as content evaluation in this study relate closely to Afflerbach's (1990) sub-category of author-related strategies in which the expert readers evaluate the writer's command of the subject matter. This type of evaluation was illustrated previously in excerpt twenty-one. Afflerbach's (1990) text-related strategies were also observed in this study. These strategies have been characterized as "idea" or content strategies because readers identified their experiences as being similar or dissimilar with the content or theme described in the text. This type of evaluation was illustrated in excerpts twenty-two and twenty-three.

In addition, the strategy of evaluating the content provided some evidence to support the work of Brown and Day (1983). The evaluation of the content suggested as a strategy in this study provided examples, such as in excerpts twenty-four through twenty-six, in which the think-aloud statement generated a summary sentence for the paragraph. This resembles the fifth rule of summary writing, invention.

The evaluative strategies reported as evaluation of text features in this study are similar to the sub-categories of text-feature strategies reported in the Lytle (1982) study and the reader-related strategies in the Afflerbach (1990) study in that readers in all three investigations were observed to express a sense of comfort or discomfort with the text. Reader expressions of comfort or discomfort appeared to be tied to the issue of how much knowledge the reader possesses and how much knowledge the writer assumes the reader to have.

The most significant element of the reading behaviors of subjects in this study related to judging the quality of the text appears to be the evaluative statements made about text features. The think-aloud reports indicate that skilled and less skilled readers possess the ability to define the nature of the interference in their comprehension processes. As such, it may illustrate a regulation of cognition (Brown, 1980).

Application of Summary Techniques

Summarization was the category of strategies reported with the greatest frequency. Summarization accounted for 32.7 percent of all think-aloud responses. Two strategies pertaining to summarizing were identified in the examination of skilled and less skilled readers' protocols. The summarization strategies were paraphrase and restatement, respectively. Table 14 illustrates the frequency of the use of these strategies by the subjects.

Table 14

The Frequency of Usage of Summarization Strategies

| Sub-Category | Total in Each Passage |        |                     |        |        |
|--------------|-----------------------|--------|---------------------|--------|--------|
|              | <u>Skilled</u>        |        | <u>Less Skilled</u> |        | L.D.N. |
|              | Nar.                  | Expos. | Nar.                | Expos. |        |
| Paraphrase   | 71                    | 23     | 55                  | 42     | 90     |
| Restatement  | 1                     | 9      | 33                  | 16     | 33     |

Paraphrase

Paraphrases were coded as those responses that readers gave in which the text had been restated in different words.

Excerpt 32

Reads: "In spite of clutching hands and clamped legs he did

not know whether he could hang on to the pain-crazed bull or not. His buffalo mount was crashing through low brush and Hawk's legs and sides were cut with whipping branches till the blood ran. There was no give to that wide, rock-hard back, no let-up in the buffalo's pounding gait.

Thinks-aloud: "...the buffalo has sort of gone slightly crazy...it's going everywhere but the place it's supposed to go...Hawk's starting to get all scratched up and everything..."

#### Excerpt 33

Reads: "Scalding shame poured through Hawk. He was not strong enough to bring down the game, even with a man-sized bow and perfect arrows! The hunters would laugh and mock him, for no doubt they had seen. Even the girls would hear of it and titter as he passed."

Thinks-aloud: "Hawk was ashamed because he wasn't strong enough to bring down the buffalo...he had perfect arrows but it didn't help...even the girls would probably laugh at him."

#### Excerpt 34

Reads: "The figure of a man stood in front of her. It was the actor, Guy Garrison. Laura stepped back but the figure didn't move toward her. It was very still, its eyes looking directly at the doorway. Running a hand nervously through her hair, Laura moved toward the figure. As she drew closer she began to smile when she realized that the figure before her was only a mannequin. Suddenly she heard a noise on the iron steps."

Thinks-aloud: "she thought she saw Guy Garrison, the actor...when she entered he was standing right before her looking at the door...every time she moved back he didn't go toward her or anything...so she went forward and then she noticed it was just a dummy..."

Paraphrasing appeared to be a strategy that indicated the reader was able to accommodate the information successfully. Generally, subjects restated the information in their own words which seemed to function as a means of

emphasis in order to aid memory.

Restatement

As the subjects thought out loud in their efforts to determine meaning, there were examples of individuals repeating the text verbatim.

Excerpt 35

Reads: "As he drove around a bend in the road, something leaped in front of the car - a dark shape. Was it a person? An animal? Larry tried to stop before he struck it. Coming down hard on the brake, the car skidded off the road and lurched to a stop. He was all right. Looking at the road, Larry saw nothing there. Nothing!"

Thinks-aloud: "uh...as he was...uh...as he drove around a bend in the road something leaped in front of the car - a dark shape...right...he was wondering what the shape was..."

Excerpt 36

Reads: "The rush of the young bull never slackened. Hawk rushed after him, as if tied to his quarry by a leather thong. He fitted another arrow to the bow."

Thinks-aloud: "uh...it said that the young bull...uh...the rush of the young bull never slackened...I don't get that but I know that Hawk went after him."

Excerpt 37

Reads: "To show his appreciation of the honor to his son, Standing Elk gave away a horse to an elder who had recently lost his. To Hawk he gave the piebald pony. It was the father's privilege to give his boy a new name, had he wished, but Standing Elk decided against it. Hawk was a fine name and there was none he could think of that fitted the boy so well."

Thinks-aloud: "...and it says here that Hawk was a fine name and there was none he could think of that fitted the boy so well...that's telling me that it was a good name..."

Restating the text appeared to serve as a breathing space for the reader to refocus attention on comprehension. Reports that included restatements of the text also indicated some regulation of thinking. In excerpt thirty-five the text restatement appeared to be triggered by the subject's recognition of memory failure. By intentionally reaccessing the portion of the text that provided the needed information, the subject was able to prime her memory and go on to paraphrase the text segment. In excerpt thirty-six, the reader's restatement seems to have been triggered by an initial failure to comprehend and involved backtracking to the point of detected comprehension difficulty. In excerpt thirty-seven, the subject appeared to be using restatement to search for contextual clues to determine meaning.

### Summary

The interpretations placed upon the summarization strategies demonstrated by the skilled and less skilled readers in this study have support in other research. Garner (1987) views paraphrasing as a "text reduction" tool useful for both making and monitoring cognitive progress. As a cognitive strategy, Garner (1987) proposes that readers synthesize information as they progress through text. Since only a limited amount of information can be stored in working memory, readers make efforts to distinguish important from

unimportant information to reduce the amount of text to a manageable size that can be recalled readily.

The use of paraphrasing as it is described in this study can also be related to Anderson and Pearson's (1984) schema-theoretic model. Anderson and Pearson (1984) indicate that one function of a schema may be to allow readers to retain important propositions and eliminate trivial ones. It may be argued that, as a cognitive strategy, the paraphrasing strategy provided a means for skilled and less skilled readers to accommodate more significant parts of the text into their schemata. As a metacognitive strategy, paraphrasing allows readers to attempt synopses of what was read. If readers are unable to produce abbreviated versions of text, "this is an indication to them that a remedy must be applied" (Garner, 1987, p. 111).

The use of text restatement in this study appeared to offer such a remedy. As was indicated earlier, the findings of this study were that restating the text functioned in conjunction with readers' inability to generate condensed versions of the text. This study suggests that restating the text is a strategy used to create a focus for attention and perhaps to identify the point at which to attack a breakdown in comprehension. As such, it may illustrate a regulation of cognition (Brown, 1980).

This study suggests that summarizing was a sub-category of the meaning-making process used to focus attention on

content information. The think-aloud reports identified a focus upon content knowledge when paraphrase and restatement strategies were used. If this is the case, then readers may have identified the successful comprehension and potential interference that were content driven. As such, summarizing could be closely tied to regulation of cognition.

#### Determining Word Meaning

Two strategies involving word meaning were identified in the examination of skilled and less skilled readers' protocols. These were strategies determining meaning from context and determining meaning through synonym substitution. Other strategies related to meaning generally, have been discussed in the portions of the chapter dealing with visual imagery, relating to personal experience, making inferences, generating hypotheses, judging text quality, and summarization. Table 15 depicts the frequency of the use of these strategies by the skilled and less skilled readers.

Table 15

## The Frequency of Usage of Word Meaning Strategies

| Sub-Category       | Total in Each Passage |        |                     |        |        |
|--------------------|-----------------------|--------|---------------------|--------|--------|
|                    | <u>Skilled</u>        |        | <u>Less Skilled</u> |        |        |
|                    | Nar.                  | Expos. | Nar.                | Expos. | L.D.N. |
| Context            | 7                     | 13     | 1                   | 6      | 0      |
| Synonym substitute | 10                    | 2      | 1                   | 2      | 0      |

Context

Determining word meaning through context appeared to require the readers to have some schema for the content of the text. The reader appeared to have knowledge of terms within the sentence or in nearby sentences that aided in defining the unknown term. The way in which inferences regarding word meanings were made by the subjects is illustrated in the following excerpts.

## Excerpt 38

Reads: "Even so it seemed an endless time before the animal's gait began to falter. Then suddenly the downthrust head and horns gored the earth, and Hawk was flung forward and free of the crashing fall. Instantly, he was on all fours, scuttling back to lie in the lee of the now prone body of his kill while hundreds of buffalo coming from behind barely broke their ranks around the fallen one and the small figure huddled behind it."

Thinks-aloud: "...I didn't understand 'lee' but I thought it meant the stomach or the head around the neck...and 'prone'...maybe it means dead but not dead almost...like starting to die...that seemed to make sense..."

## Excerpt 39

Reads: "The combination of decayed material and broken rock - humus and parent material - is soil. Plants need both kinds of material in order to grow. Different combinations of humus and parent material form different types of soil. Some are clayey; some sandy and gravelly. Others are rich and loamy."

Thinks-aloud: "...it says some soils are loamy...I didn't really get that but it sounds like it has something to do with rich and soft soil...like it's easy to grow things in it."

In excerpts thirty-eight and thirty-nine it appears the context enabled the subjects to make more informed guesses about the meaning of the unfamiliar words and to monitor their predictions by checking them for semantic appropriateness.

## Excerpt 40

Reads: "Other valuable minerals are copper, lead, zinc, tin, and bauxite. Copper is often used in making electric wires and hardware. Lead can be molded into pipes and it is often an ingredient in paints, dyes, and pottery glazes. Zinc is used to galvanize or coat steel, a process that keeps it from rusting. Bauxite is the chief source of aluminum."

Thinks-aloud: "...I wasn't sure about 'galvanize' but I think it means a shiny covering or a kind of painting that you put on something to protect it..."

In excerpt forty, identifying "galvanize" appeared to focus comprehension monitoring on word meaning. Since the reader made no references to other portions of the text, the investigator inferred that the words "coat" and "keeps it from rusting" found in the context of the sentence, had been used to arrive at a definition of the term.

Synonym Substitution

Skilled and less skilled readers were also observed to use their schema for the content of the text as a strategy for determining word meaning through synonym substitution. Synonym substitutions were coded as those responses that readers gave in which the unfamiliar word had been replaced with one perceived by the reader to be of similar meaning.

## Excerpt 41

Reads: "Today water, mineral, and biotic resources are being strained because of the uneven distribution and because of population pressure. Some of this strain can be relieved by wise resource management. Without such management, these resources will become severely depleted. Then man may have to search elsewhere. Some scientists predict that the stage is now being set for the Ocean Age when man will be forced to exploit the last great resource of the planet earth."

Thinks-aloud: "...it says the resources need management...I think that mean they need caring...like they need caring to live and to stay alive."

In the preceding think-aloud the subject made a summarizing statement about the text. The substitution of the term "caring" for the term "management" found in the context of the segment and the second summarizing statement that follows were taken to indicate that the reader felt the initial summary was incomplete and required revision. Substituting "caring" for "management" appeared to focus comprehension monitoring on word meaning. Replacing the term "management" with one perceived to be of similar meaning appeared to enable the less skilled subject to arrive at the

definition of the unfamiliar term and to arrive at the more specific summary that concludes the think-aloud.

#### Excerpt 42

Reads: "Hawk was the first to reach the game. He did not stop at the fringe of the herd but lanced his mount into the thick of the mass as he had seen the boldest hunters do. Before him, and on both sides, buffalo milled and churned uneasily."

Thinks-aloud: "it says Hawk got there first and rode right into the middle of the buffalo herd...I wasn't really sure about two words but I thought 'fringe' would be 'back'...like the back of the herd...and 'boldest' would be the 'strongest' or the 'mightiest' hunter."

In excerpt forty-two the reader was also able to arrive at a definition by making use of synonym substitution. The spontaneous nature of the report seemed to indicate that little effort was needed to access this information.

#### Summary

Both the use of context and the use of synonym substitution appear to require at least a limited content knowledge. The fact that readers reported using definitions of word meanings as a strategy may indicate only partially developed content schema. In contrast, with highly developed content schema, word meaning would flow down from the top with reader attention devoted to instantiation of the details as the search for meaning progressed. In cases where the reader's content schema was highly developed, few reports of using word meaning strategies would be anticipated

indicating little attention to defining terms.

Further, readers having only partially developed schema would need to be more tentative in accepting or rejecting items from working memory. More processing would need to occur. In examining the preceding excerpts, the use of context appears to have required more processing attention than the use of synonym substitution. In both instances, readers may be defining a term through context in the hope of attaching the new term to another schema with a somewhat limited fit to the text content. This is what Afflerbach (1990) called the "foot-in-the-door" strategy.

#### Comprehension Monitoring and Regulation

The second major category of comprehension processing skilled and less skilled readers were observed to use was the monitoring and regulation of meaning-making processes. In determining the meaning of the narrative and expository passages, the subjects were observed to use the following four comprehension monitoring strategies: (1) rereading previous text, (2) reading ahead in the text, (3) looking back in the text, and (4) monitoring the nature of the breakdown. Table 16 illustrates the frequency and distribution with which the skilled and less skilled readers reported comprehension monitoring.

Table 16

## The Frequency of Usage of Comprehension Monitoring

| Sub-Category        | Total in Each Passage |      |                     |      |        |
|---------------------|-----------------------|------|---------------------|------|--------|
|                     | <u>Skilled</u>        |      | <u>Less Skilled</u> |      |        |
|                     | Nar.                  | Exp. | Nar.                | Exp. | L.D.N. |
| Reread              | 4                     | 4    | 21                  | 20   | 2      |
| Read Ahead          | 2                     | 1    | 1                   | 0    | 0      |
| Look Backs          | 1                     | 2    | 9                   | 2    | 2      |
| Word Breakdown      | 4                     | 2    | 8                   | 40   | 0      |
| Sentence Breakdown  | 1                     | 0    | 6                   | 3    | 0      |
| Paragraph Breakdown | 1                     | 1    | 12                  | 9    | 0      |

An examination of subjects' protocols indicated that the skilled and less skilled readers employed the following steps in resolving a comprehension difficulty: (1) a problem with comprehension is detected, (2) the nature of the problem is specified, (3) a fix-up strategy to alleviate the problem is proposed, (4) the proposed strategy is implemented, and (5) the effectiveness of the strategy is evaluated.

The relationship between comprehension monitoring and fix-up strategies is identified in statements that follow. These statements illustrate the cycle of events that occurred when readers detected a comprehension breakdown.

#### Rereading as a Monitoring Strategy

Correcting lapses of memory was one usage of rereading. Excerpt forty-three illustrates how skilled and less skilled readers used rereading to refresh memory. When a summarizing

statement followed the rereading, it was generally a restatement of the text. Restatement was described earlier as a strategy that was used to fix details in working memory. The strategy used in conjunction with rereading, therefore, seemed to confirm that the reader was simply retrieving an item from working memory.

#### Excerpt 43

Reads: "A resource may be defined as anything that people need. Limit that definition still further and a resource may be defined as anything a culture needs at a given time in history. Each culture - each nation of humans - makes its own decisions about what resources are. Those resources can include as basic a thing as water or they can be as complicated as the mind of a human being."

Thinks-aloud: "uh...they're talking about that every race...uh...the human race and their cultures and making decisions that we...uh...I forget...I have to read this back over again...okay...it says that a resources is anything that people need and that human beings decide what resources are...I've got it now."

In excerpt forty-three, the subject's comment, "I forget", is taken as evidence that the problem was a lapse of memory. The less skilled reader referred to the text a second time and reread the entire segment as a fix-up strategy.

A second usage of rereading as a compensatory strategy was to repair a detected comprehension breakdown. The rereading used in excerpt forty-four illustrates how readers used rereading to alleviate a comprehension failure.

## Excerpt 44

Reads: "The combination of decayed material and broken rock - humus and parent material - is soil, Plants need both kinds of material in order to grow. Different combinations of humus and parent material form different types of soil. Some are clayey; some sandy and gravelly. Others are rich and loamy."

Thinks-aloud: "um...this says...uh...I don't get this... I've got to read it again...okay...this talks about how the combinations of humus and parent material are made into types of soil that are sometimes loamy and gravelly and sandy..."

In the example above, the subject appears to have used rereading as a means of fixing up an incomplete understanding of the paragraph. Judging from the subject's comment, "I don't get this", the skilled readers attributed his problem to something within himself rather than to a problem originating from the text. After reading the paragraph a second time, the subject fixed up his incomplete understanding with a summarizing statement that constituted a paraphrase.

Other examples of the use of rereading as a strategy to repair comprehension failure reflected the reader's sensitivity to the effect the text could have upon comprehension. Rereadings accompanied by a statement about text features illustrate this. In the example represented by excerpt forty-five, the skilled reader indicated a problem with comprehension when she announced her need to reread. The evaluative comment that followed confirmed that the comprehension breakdown was attributable to text features.

The subject specifically identified the comprehension difficulty as due to the lack of familiarity with technical terms.

#### Excerpt 45

Reads: "A second group is nonmetallic minerals. Nonmetallic minerals used everyday include stone, cement, salt, and graphite, the lead in pencils. Glass is made from sand, another mineral. In addition, people mine and use mica and asbestos for insulation. They use potash and phosphate for making fertilizer."

Thinks-aloud: "...mica, asbestos, phosphate, and potash...I don't know what that is...first I thought it said potatoes but I knew that didn't make sense so I read it over again...I figured out how to say it but I still don't know what it means...there's some weird words in this one...I'll just go on to the next part."

It is important to note that identifying the nature of the breakdown and selection of a fix-up strategy is frequently followed by an evaluative comment. The importance of these evaluative comments to the regulation of comprehension strategies will be addressed later in the results under the heading of nature of the breakdown.

#### Summary

Kletzien (1991) uses the term "rereading" to denote a compensatory strategy in which subjects refer back to the text to seek key ideas or details. While the less skilled reader reports in this study appeared to support this notion, skilled reader reports suggested that "rereading" was used in

a broader capacity than that which Kletzien (1991) described. Excerpts forty-four and forty-five suggest that rereading works in conjunction with other strategies as well, especially in regard to the nature of the comprehension difficulty. It seems that for skilled readers, rereading may signal the beginning of a concerted effort to monitor and regulate comprehension.

#### Reading Ahead as a Monitoring Strategy

Reading ahead was coded as those responses that subjects gave which specifically mentioned reading subsequent text to seek further information. Reading ahead was the category of strategies reported with the least frequency. Reading subsequent text accounted for only 0.4 percent of all think-aloud responses.

An examination of the think-aloud protocols suggested that the sole purpose for reading ahead was to verify a reader hypothesis. For example, in excerpt forty-six the skilled reader makes a statement of hypothesis about the text and evaluates this match in relation to her schema for content. Her comfort with the knowledge match apparently led to the generation of an image and then to creating a hypothesis that anticipated the upcoming text content.

## Excerpt 46

Reads: "Darkness had almost fallen when Hawk rode into camp with the hide, heart and tongue of his kill, his bare legs and arms crusted with blood. He was bone-weary but content, for the story of his triumph had gone before him through the camp so that there was awe in the eyes of his playmates who had run out to meet him. Trills and sighs came from the girls and young women as Hawk rode in among the tall tepees."

Thinks-aloud: "...I get this picture...Hawk gets down and says something like Father...here is the hide...I donate this...that's what I think is going to happen...I'll just read ahead to see."

In excerpt forty-six, there is no evidence of a comprehension breakdown. Rather, the reader states that she has developed a hypothesis, but her comprehension monitoring requires that it be confirmed.

In contrast, excerpts forty-seven and forty-eight illustrate what readers did when a low degree of agreement between the content knowledge required by the passage and their own content knowledge caused them to experience comprehension breakdown.

## Excerpt 47

Reads: "This time as he came abreast of his game he reached under the horse's neck with his left arm, clinging with his right leg and right arm, his left leg far down under the belly of his horse. He let go a second shaft inches below the first. The young buffalo bellowed yet pounded on, big head low, liquid eyes gleaming wildly beneath the curled and matted fur."

Thinks-aloud: "I don't know what he's doing...he might be trying to get on the buffalo but I'm not sure...maybe if I read the next part I'll know."

## Excerpt 48

Reads: "The common clove is another example of how resources change. It is hard to imagine that this spice was once a precious resource. Before refrigeration, however, meat was preserved with salt. One of the few ways to improve its taste was to cook it with cloves. In addition, the oil from pressed cloves was used as medicine. Thus the clove became important to Europeans and was as important in its time as petroleum is today."

Thinks-aloud: "um...the clove...uh...now it's another...uh...I'm not quite sure what it is...some kind of spice I think but I don't think they use it any more...I'll read ahead to try to find out more about cloves."

In this excerpt, forty-eight, as in excerpt forty-seven, the subject identified the knowledge she had for the content of the material as being low. In both cases, the subject began with a statement indicating that a failure to comprehend had been detected. The next step was to identify the nature of the breakdown, the gap between the content of the text and her content knowledge. The third step was to use the strategy of hypothesizing about the content of the text. She then evaluated this strategy as ineffective and opted to read on instead.

Summary

Hare and Smith (1982) use the term "reading ahead" to denote a strategy in which subjects read on in the text to seek further details. It appeared from the skilled and less skilled reader reports in this study that "reading ahead"

was used in a broader capacity than that which Hare and Smith (1982) described. Excerpts forty-six through forty-eight suggest that reading ahead works in conjunction with other strategies as well, especially in regard to the nature of the comprehension difficulty.

In the present investigation, readers were observed to express concerns about the fullness of their schema for text content. Afflerbach (1990) has described this strategy as "prior knowledge evaluation". He suggested that evaluation is a strategy that establishes a realistic level for understanding the text and results in lesser allocation of resources in a futile task. In this study, use of this strategy, in conjunction with the strategy of "reading ahead", was illustrated in comments found in excerpts forty-six through forty-eight. Monitoring the knowledge match between the content knowledge required by the passage and readers' own content knowledge appeared to control not only the type of strategy selected for resolving comprehension failure but also the depth and breadth of the subjects' hypotheses. It appeared that in cases where readers were aware of the low level of their knowledge match they were prepared to make conscious sacrifices by not accommodating information from the text in their hypotheses. Also, they appeared to be aware that they had arrived at less elegant hypotheses.

Look Backs as a Monitoring Strategy

Look backs were coded as those reports which subjects gave that specifically mentioned going back to the text to seek key ideas or details. In the present investigation, correcting lapses of memory was one usage of look backs. Other look backs appeared to have been triggered by the readers' initial failure to comprehend the text's message. Look backs that dealt with lapses of memory appeared to require short allocations of attention and were often followed by summarizing statements that constituted paraphrases. Look backs that dealt with repairing comprehension failure were often followed by restatements of the text and indicated longer allocations of attention in order to regain comprehension.

The look backs used in excerpts forty-nine and fifty, below, illustrate how skilled and less skilled readers used look backs to refresh memory.

## Excerpt 49

Reads: "None of it made any sense, but it all seemed so real. Night after night, it tore at his mind. Finally, the dreams drove him here - to Greece. The more he thought about the dream the faster he drove. He took one wrong turn, then another until suddenly he realized that he was lost. It was growing darker by the minute. He was still somewhere in the mountains and there were no other cars on the road."

Thinks-aloud: "...he said that the more he thought about the dreams the faster he would get there...the faster he would drive...and...um...just saying that...uh...I have to look back for a minute...and he's just saying that he's somewhere

in the mountains and there was no cars or anything...he seems kind of nervous I think...probably because it's so dark and he knows he's lost...I get this picture of him..."

#### Excerpt 50

Reads: "Salt, like fresh water, is another of those resources that people need to live. In ancient times, salt was the most important resource of all. It was used not only to season but also to preserve food. The great trade routes were originally established to transport salt throughout the world. Long ago, Roman soldiers received part of their pay in salt. The Roman word for salt - salarium - became the English word for salary."

Thinks-aloud: "...salt for the people...uh, people in...what's that place...just a minute...let me check...oh, ya...in Rome...like in ancient times salt was the most important thing...Romans built trade routes and paid their soldiers with salt...that's how we got our word for salary...from the Roman word for salt...hey, that's neat!"

In excerpt forty-nine, as in excerpt fifty, the reader referred to the text a second time. It is interesting to note that neither the less skilled readers who reported in excerpt forty-nine nor the skilled reader who reported in excerpt fifty appeared to read through all of the text from the paragraph. Apparently each subject was able to narrow the search to a small portion of the text to access the needed information. The subjects' comments, "I have to look back for a minute" and "just a minute, let me check", coupled with the speed with which each subject resumed the think-aloud report are taken as evidence that the problem was a lapse of memory. In addition, the fact that each reader generated a summarizing statement that constituted a paraphrase suggests that the information had been accommodated successfully

after the first reading of the text.

The look back used in excerpt fifty-one, below, illustrates how skilled and less skilled readers use look backs as a means of repairing an initial failure to comprehend. When a summarizing statement followed a look back of this type, it was generally a restatement of the text. Restatement was described earlier as a strategy that was used to fix details in working memory. The strategy used in conjunction with a look back, therefore, seemed to confirm that the readers was attempting to accommodate key details into working memory.

#### Excerpt 51

Reads: "Gradually he kneed his mount closer, jerked an arrow from his quiver and snapped it to the string. With all his strength he bent the bow, drawing the arrow back to its flint head. Thwack! The feathered shaft sank half its length behind the shoulder, a bit too high for the heart."

Thinks-aloud: "...okay...he hit a ...it looks like...uh...I have to reread this...okay...it says...let me see here...the feathered shaft sank half its length behind the shoulder...so he hit the buffalo I think...I'm still not really sure though because it doesn't say exactly what he hit...I'm still confused...I'll just go on to the next part."

In excerpt fifty-one, the reader appears to have used a look back as a means of fixing up an incomplete understanding of the concluding sentence of the paragraph. The subject indicated a problem with comprehension when she announced her intention to reread. The comment, "...let me see here",

indicated the point where the reader initiated the look back. The subject then attempted to fix the information in working memory by restating a portion of the concluding sentence before offering a tentative inference. The evaluative comment that followed suggests that the comprehension breakdown was attributable to text structure. The subject's comment, "it doesn't say exactly what he hit", is taken as evidence that the reader attributed her problem to something within the text rather than to a problem originating within herself. Further, the reader's comment, "I'll just go on to the next part", suggests that the subject dropped the search for the relationship between this chunk of text and the gist of the entire text. It has been noted in the protocols that readers were prepared to eliminate unresolved elements to achieve a less developed schema for the text.

### Summary

Garner (1987) uses the term "text reinspection" to denote a monitoring and regulatory strategy in which subjects look back to the text to seek key ideas. Garner suggests that in cases where look backs are triggered by a recognition of memory failure, learners recognize that information once read is not now remembered and they intentionally reaccess the portions of the text that provide the needed information. In contrast, Garner states that look backs triggered by the recognition of failure to comprehend involve "backtracking

at a point of detected comprehension difficulty to reread to resolve confusion or to try an additional strategic action" (Garner, 1987, p. 128). Further, Garner argues that look backs may provide a valuable strategy in situations where memory overload is likely because of length or difficulty of text.

It appeared from the reader reports in this study that "look backs" were used in the capacity Garner (1987) described. Excerpts forty-nine and fifty suggest that look backs were used to refresh memory while excerpt fifty-one suggests that look backs work in conjunction with other strategies as well, especially in regard to the nature of the comprehension difficulty. It seems that look backs may signal the beginning of a concerted effort to regulate and monitor comprehension.

#### Monitoring the Nature of the Comprehension Breakdown

Discussion of comprehension strategies related to comprehension monitoring has alluded to "monitoring the nature of the breakdown". Monitoring the nature of the breakdown appeared as a declarative statement in which subjects verbalized what they believed to be causing the interference with successful comprehension.

## Excerpt 52

Reads: "The party was nearing the buffalo herd before Hawk was noticed. Hawk knew they would not drive him off for it was not the Sioux way to stop a boy bent on a feat of courage or name-hunting. But neither would they help or advise him, or make allowance for his youth and inexperience."

Thinks-aloud: "...um...they said the party was near the buffalo herd...I don't know...the first sentence didn't make any sense...I think they were at a party...I'm not sure what party...the buffalo herd party I guess...but I'm not sure what kind of party that would be...I read over the first row but I still didn't know what it meant...I never did figure it out."

In this excerpt, the less skilled reader's think-aloud has identified the nature of the breakdown. She has implied that it was the low content schema she possessed relative to the information the writer provided. Nevertheless, in her initial selection of a fix-up strategy, she tried to connect "party" from the text with "party" from her content knowledge. She abandoned that fix-up strategy, opted to reread the first sentence as an alternate strategy, then evaluated the rereading strategy as impractical. The subject's comment, "I never did figure it out" is taken as evidence that the less skilled subject dropped the search for meaning.

Excerpt fifty-three illustrates the amount of attention to comprehension monitoring a skilled reader is prepared to devote to overcoming comprehension difficulties. The excerpt also provides a more extensive example of the regulation of comprehension strategies.

## Excerpt 53

Reads: "Soil is also an essential resource, but it is neither a biotic nor a mineral resource. It is both. Soil is made up of two things - parent material and humus. The parent material of the soil is the rock from which the soil was formed. Tiny pieces are knocked off larger rocks by wind, water, and ice. Also, the actions of plants, people, and animals affect rock. This process is called "mechanical weathering". Chemical weathering also takes place when the minerals in rock undergo chemical change. These changes cause the minerals to eat away at the parent material."

Thinks-aloud: "In this section they're talking about soils and they're both biotic and parent...of...wait a minute...they're both humus and parent resources...they were made up from...uh...the parent material of the soil is the rock from which the soil was formed...and they're talking about how tiny pieces of the larger rocks were knocked off by wind, water, and ice...plants, people, and animals affect rock...it says here when the people and plants and animals do it this is called mechanical weathering...it's also when the chemicals in a rock changes...uh...may take...uh...eat away some of the parent material...there's lots I didn't understand in here...okay...I didn't understand undergo...I think it means chipping off or something like that ...and essential... I think that means it's a needed resource...I got all mixed up in this part and it took me a while to get back into what was happening...I tried reading it over...actually I read it over three times...then I tried reading each sentence separately and eventually I got it back to what was going on...there were so many words in here that I didn't understand...I thought there was a spelling error to start with...when it said humus I thought it said human so I read it as human and I knew that didn't make sense...then I got really mixed up!"

The subject began dealing with the comprehension breakdown by selecting the strategy of rereading the text. The second step of his action was to select the summarizing strategy of paraphrasing the text. The third step was to evaluate the paraphrasing strategy as impractical and to select the summarizing strategy of restating the words from the text as the alternative. The subject's fourth step was to

identify the nature of the breakdown as author's choice of unfamiliar words. The fifth step of his action was to select a strategy to determine word meaning. The sixth step was to construct a personal schema for content to relate to the content schema of the text by substituting familiar terms for unfamiliar terms from the text. The subject concluded by reidentifying the nature of the comprehension breakdown.

This excerpt provides an example of how skilled readers in this study regulated comprehension by selecting comprehension strategies to remedy a comprehension breakdown. This excerpt also provides an example of how readers evaluate the success of their comprehension strategies. It demonstrates that skilled readers are not always successful, and that they then select an alternate comprehension strategy to remedy their comprehension failure.

### Summary

Skilled readers in this study appear to exert attention to comprehension breakdowns in a flexible way. The think-alouds dealing with breakdowns the readers attributed to their own errors show varied amounts of attention devoted to breakdown resolution. The suggestion is that this flexibility is the result of the readers' ability to: (1) select an appropriate strategy and (2) judge whether the lack of comprehension has been resolved. This capacity to be

flexible in strategy selection is what Brown (1980) has described as conscious access to strategies. Further, skilled readers seem to be able to evaluate the success of their fix-up strategies. The think-alouds in dealing with "reading ahead" and the preceding section, "rereading", both contain references to reader evaluations. This may suggest the regulation of meaning-making processes by skilled readers. Afflerbach (1990) has described this as "process efficiency evaluation". He argues that statements of this type indicate the operation of executive control.

In contrast, the less skilled readers in this study appear to be less flexible than their skilled peers in their approach to resolving comprehension failures. The think-aloud protocols provide evidence that the less able subjects tended to use repeatedly those strategies with which they seemed most comfortable and did not spontaneously try other strategies that they may have known and that may have been effective. The difference between the skilled and less skilled readers appeared to relate to their ability, or willingness, to try a variety of fix-up strategies and also their persistence in trying strategies when faced with difficult material. Possible explanations for the difference in less skilled readers' ability, or willingness, to regulate strategy use will be discussed in detail under the heading self-efficacy and strategy use.

How Skilled and Less Skilled Readers  
Approach the Reading Task

Anderson and Pearson (1984) proposed that readers possess schema-theories both for text structure and for content. Others have stated their belief that readers organize learning according to what they know about the topic, knowing how to perform various actions, and knowing when and why various strategies should be used (Flavell, 1976, 1979; Brown, 1980; Baker & Brown, 1984; Garner, 1987). Paris et al (1983) refer to these organizational frameworks as declarative, procedural, and conditional knowledge. In keeping with these views, the skilled and less skilled reader think-alouds were organized into two general comprehension processing categories, "meaning-making processes" and "monitoring and regulation processes".

The meaning-making processes reported by the readers in this study were classified as: (1) use of visual imagery, (2) relating to personal experience, (3) making inferences, (4) generating hypotheses, (5) analyzing text features, (6) judging text quality, (7) summarization, and (8) determining word meaning. Skilled and less skilled readers were observed to use the following four comprehension and regulation strategies: (1) rereading, (2) reading ahead, (3) looking back in the text, and (4) monitoring the nature of the breakdown. The comprehension monitoring and regulation strategies appear to work in combination with the meaning-

making processes. The monitoring and regulatory strategies test and evaluate the success of meaning-getting and subsequently revise and redirect comprehension processing efforts in order to construct meaning.

The frequency of subject reports for the categories and sub-categories are depicted in Table 17 on the following page.

#### The Relationship Between Strategy Recognition and Strategy Production Behaviors

Subjects were observed to produce more strategies on the think-aloud tasks than they reported they used on the pre-reading interview. At this point, it is difficult to determine whether this finding was a function of incentive to talk frequently on the think-aloud tasks or a function of relative reticence to talk on the initial interview task. It is noteworthy that the four additional strategies gleaned by the protocol analysis procedure (i.e. making inferences, generating hypotheses, analyzing text features, judging text quality) reflect strategies of greater attention to passage details. Although the results of this study are qualified by the fact that the readers may have been unaware of their cognitive processes or may have been unable or unwilling to report them, the description of the protocols that the coding system provides suggests a variety of findings.

Table 17

Frequency of Think-Aloud Report by General Strategy,  
Sub-category, Passage Type, and Reader Ability

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MEANING-MAKING PROCESSES

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| Category            | Total Number of Reports |     |                     |     |        |
|---------------------|-------------------------|-----|---------------------|-----|--------|
|                     | <u>Skilled</u>          |     | <u>Less Skilled</u> |     |        |
|                     | N.                      | Ex. | N.                  | Ex. | L.D.N. |
| Visualization       | 43                      | 2   | 48                  | 13  | 57     |
| Personal Experience | 9                       | 9   | 18                  | 22  | 9      |
| Inference           | 70                      | 15  | 30                  | 8   | 46     |
| Hypotheses          |                         |     |                     |     |        |
| predicting          | 15                      | 0   | 10                  | 0   | 3      |
| confirming          | 10                      | 0   | 0                   | 0   | 1      |
| Analyzing           | 1                       | 32  | 3                   | 24  | 1      |
| Judging             |                         |     |                     |     |        |
| ideas               | 7                       | 26  | 2                   | 12  | 15     |
| features            | 0                       | 4   | 0                   | 3   | 0      |
| Summarization       |                         |     |                     |     |        |
| paraphrase          | 71                      | 23  | 55                  | 42  | 90     |
| restatement         | 1                       | 9   | 33                  | 16  | 33     |
| Word Meaning        |                         |     |                     |     |        |
| context             | 7                       | 13  | 1                   | 6   | 0      |
| synonym             | 10                      | 2   | 1                   | 2   | 0      |

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MONITORING AND REGULATORY PROCESSES

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| Category            | Total Number of Reports |     |                     |     |        |
|---------------------|-------------------------|-----|---------------------|-----|--------|
|                     | <u>Skilled</u>          |     | <u>Less Skilled</u> |     |        |
|                     | N.                      | Ex. | N.                  | Ex. | L.D.N. |
| Reread              | 4                       | 4   | 21                  | 20  | 2      |
| Read Ahead          | 2                       | 1   | 1                   | 0   | 0      |
| Look Backs          | 1                       | 2   | 9                   | 2   | 2      |
| Nature of Breakdown |                         |     |                     |     |        |
| word level          | 4                       | 2   | 8                   | 40  | 0      |
| sentence level      | 1                       | 0   | 6                   | 3   | 0      |
| paragraph level     | 1                       | 1   | 12                  | 9   | 0      |

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### General Strategy Use

Skilled and less skilled readers in this study appeared to have no trouble reporting the strategies they thought they employed while reading the experimental passages. Although all subjects indicated knowledge of a fairly wide variety of strategies, the pattern of strategy use in their self-reports indicated that they relied heavily on only a few of these while reading the narrative and expository passages. The overwhelming choices of meaning-making strategies for both skilled and less skilled readers were "summarization", "making inferences", and "using visual imagery". In addition, "analyzing text features" and "judging text quality" proved valuable for many subjects on the expository passage. The strategy of "rereading previous text" was found to be the strategy of choice for repairing a comprehension breakdown. This tendency to rely on only a few of the many possible strategies has been reported before by Hare and Smith (1982), Alvermann and Ratekin (1982), and Kletzien (1991).

### Strategy Use by Passage Type

Narrative and Expository Passages. Skilled and less skilled readers in this study were observed to use the same types of strategies for the demanding narrative and expository passages. Because there were no differences between skilled and less skilled subjects in the specific

strategies used across the two experimental passages, responses for the two groups are combined for this discussion. However, a breakdown of types of strategies produced by all subjects as a function of passage type offers some evidence of differential strategy use according to type of reading material.

Summarization was the meaning-making strategy most frequently produced across both the demanding narrative and expository passages; rereading, the most frequently reported comprehension monitoring and regulatory strategy. Key meaning-making strategies for the demanding narrative passage were summarization, making inferences, and using visual imagery. For the expository passage, summarization, analyzing text features, and judging text quality were the key strategies produced.

Subjects were observed to use the hypothesis generation strategies of predicting and confirming for the narrative, but not for the expository passage. In addition, subjects used the strategy of visual imagery significantly more often for the demanding narrative material. For example, a total of 91 visual imagery reports were produced for the demanding narrative passage, but only 15 reports of visual imagery were offered for the expository selection. Because the demanding narrative passage dealt with a buffalo hunt, the ideas could be easily visualized. By contrast, the content of the expository selection was more abstract and more fact-laden.

It would appear that imaging, predicting, and confirming are strategies readers at this age feel are more useful in comprehending narrative text, which is likely to feature more imaginable content than expository text.

On the other hand, in their attempts to gain meaning from the more abstract expository passage, subjects were found to rely more heavily on the organizational, text-based strategies of analyzing passage structure and judging text quality. For the entire sample, 56 reports of analyzing passage structure were produced for the expository passage but only 4 such reports were offered for the demanding narrative material. In addition, the strategy of judging text quality was reported 45 times for the expository selection but only 9 times for the demanding narrative passage.

The larger use of the organizational, text-based strategies of analyzing text structure and judging text quality of the expository passage may be explained by the "flexible allocation hypothesis" of cognitive processing proposed by Britton, Glynn, Meyer, and Penland (1982). According to this hypothesis, "learners can flexibly direct their capacity to different aspects of the text, depending upon instructions, task structure, or task demands" (Britton et al, 1982, p. 59). It may be that when reading the expository passage, subjects were presented with more task demands. The increased task demands would lead readers to

focus more on the text - its organization and its meaning as a whole - and less on relating the ideas in the text to a broader context whereas, when reading text which presents fewer task demands, readers can direct more energy toward making connections with the content.

Less Demanding Narrative Passage. One additional think-aloud passage was administered to the less skilled readers to obtain further information about their metacognitive reading behaviors and to determine whether their comprehension processing strategies changed when reading less demanding text. When less skilled readers' strategy production was compared across the demanding narrative, expository, and less demanding narrative materials, the less skilled subjects were found to have reported using the greatest total number of meaning-making strategies while reading the less demanding narrative selection (201, 148, and 255 strategies, respectively). In contrast, the less able readers reported using significantly fewer comprehension monitoring and regulatory strategies while reading the less demanding narrative material. For example, the strategy of rereading was reported 21 times for the demanding narrative passage, 20 times for the expository passage, but only twice for the less demanding narrative selection. Further, no word, sentence, or paragraph level comprehension breakdowns were reported by the less skilled subjects while reading the less demanding narrative text.

Interestingly, the pattern of less skilled readers' strategy use appeared to be very similar to the one they employed while reading the more demanding narrative passage. The strategy of summarization again proved to be the most frequently reported meaning-making strategy. Similarly, key meaning-making strategies for the less demanding narrative, as for the more demanding narrative passage, were found to be summarization, using visual imagery, and making inferences. This finding lends further support to the notion that readers tend to rely on only a few of the many possible strategies available to them (Hare & Smith, 1982; Alvermann & Ratekin, 1982; Kletzien, 1991).

One difference that was not evident from the quantitative analyses but was suggested by the less skilled subjects' responses was that less skilled subjects appeared to use a broader context for understanding the less demanding narrative passage than they did for the other passages. Perhaps, the less skilled subjects' freedom from having to concentrate on the more mechanistic aspects of reading, such as decoding the longer or less familiar words encountered in the demanding narrative and expository passages, enabled them to make more associations with other parts of the text and with their own prior knowledge.

In contrast, less skilled readers' descriptions of their strategies focused on a more narrow context for the demanding narrative and expository passages. Because

vocabulary and sentence structure were more complex on these passages, the subjects may have had to work much harder at the lower-level tasks of word recognition and understanding individual sentences, leaving less cognitive capacity available to understand the meaning of the passages as a whole and to integrate the content with what they already knew.

These findings could be related to the flexible allocation hypothesis mentioned earlier (Britton et al, 1982). It may be that the less demanding narrative passage presented fewer task demands than either the demanding narrative or the expository passage. The decreased task demands would allow the less skilled readers to direct more energy to making connections with the content. A related but slightly different interpretation is related to the idea of automatic processing in reading proposed by Laberge and Samuels (1974). According to Laberge and Samuels (1974), when cognitive capacity is committed to more specific reading tasks, there is less capacity available to make associations, integrate ideas, and process higher-level information. If strategy use is automatic on easy reading tasks, as some metacognitive theorists believe (Anderson, 1980), then more cognitive capacity is available to integrate and process information when the reader is operating at a less demanding level.

### Differences in Comprehension Processing

As reported earlier, skilled and less skilled readers in this study were observed to use the same types of strategies for the narrative and expository passages. Although the strategies employed by both groups appear similar, there were qualitative differences in the way these strategies were employed. The differences between the groups related to their ability (or willingness) to try a variety of strategies and also their persistence in trying strategies even when they were faced with challenging material.

The think-aloud reports generated by the skilled readers in this study suggest that when meaning construction was occurring smoothly, readers continued to process text with little energy being allocated to monitoring and regulation. When the construction process was smooth, the able readers appeared to move through the text in a start-to-finish fashion. This start-to-finish reading style which was also evident in Afflerbach's protocols (1990) was interrupted, however, when skilled readers felt comprehension was not occurring satisfactorily. When text processing difficulties were encountered, the able readers initiated a problem solving process that involved five actions. These were: detection of a problem, specifying the nature of the problem, selection of a fix-up strategy, application of the strategy, and evaluation of the strategy's effectiveness.

In addition, the skilled readers in this study appeared sensitive to task demands; they adapted their strategy use to the difficulty level of the passage. Further, the able readers appeared to have a greater ability to control their strategy use by changing types of strategies. For example, when skilled readers encountered difficult text, they continued to try different strategies to construct the meaning of the text. This capacity to be flexible in strategy selection is what Brown (1980) has described as conscious access to strategies.

The think-aloud reports generated by the less skilled readers in this study suggest they employed a style superficially similar to that used by skilled readers when they were processing text smoothly; that is, they also appeared to use a start-to-finish style in their efforts to process the demanding narrative and expository passages. These readers often read without making a distinction between what they understood and what they did not. When text processing difficulties were detected, the less skilled readers in this study appeared to be less flexible than their skilled peers in their approach to resolving comprehension failure. The less able subjects tended to use repeatedly those strategies with which they seemed most comfortable and did not spontaneously try other strategies that they may have known and that may have been effective. The fact that less skilled readers evidenced less flexibility may have been due

more to a failure to recognize the need for strategic intervention. This interpretation would lend support to Brown's (1980) contention that merely having knowledge of strategy routines is not in itself adequate for effective reading behavior.

Because both groups of readers in this study appeared to be familiar with the same strategies, judging by strategy awareness on the pre-reading interview and strategy production on the think-aloud tasks, one may conclude that the difference between the groups was in regulation, rather than knowledge of comprehension strategies. This interpretation is consistent with the conclusion reached by Zabrocky and Ratner (1989) in their study of good and poor sixth-grade readers. Regulating differences have also surfaced in previous studies by Garner (1980), Winograd and Johnston (1982), Garner and Kraus (1981-82), and Kletzien (1991).

In sum, the results of the present study seem to show that both skilled and less skilled readers know of and use the same basic strategies, but that skilled readers are more flexible than less skilled readers and have greater control of the strategies. Skilled readers are more able to vary their use of strategies when appropriate, and they are more willing to persevere even when the task is arduous.

### Self-Efficacy and Strategy Use

There are many possible explanations for the differences in ability (or willingness) to regulate strategy use. Some reasons may be embedded within the person variable of the metacognitive framework. For example, subjects' perceptions of proficiency may have affected their choice of strategic activity (Bandura, 1982, 1986; Schunk, 1985); people who doubt their capability tend to give up whereas those with a high sense of self-efficacy exert even greater effort to meet the challenge. According to Johnston and Winograd (1985), poor readers' failure to use reading strategies could arise from affective factors as well as from cognitive problems. A subject's concept of his or her own reading ability might affect the degree of risk the subject decides to take in attempting to read something difficult. The subject who perceives himself or herself as incompetent may be disinclined to attempt the use of any strategy. From a self-efficacy perspective, the belief that one can effectively process information can convey a sense of personal control over learning outcomes. In contrast, students who encounter difficulty in cognitively processing new material come to doubt their capabilities (Bandura, 1982).

Similarly, McCombs and Whisler (1989) suggest that students, as they approach a learning task, evaluate their perceptions of task requirements against their own sense of

values, needs, and competence. They then form outcome expectations for success or failure. According to McCombs and Whisler (1989), "the result of these processes, if positive, leads to positive affect (e.g. confidence) and the motivation to approach the learning task and to put in the effort and persistence required to succeed in the task whereas, if these evaluations are negative, negative affect (e.g. anxiety) will result and the basic motivation will be to avoid the learning task and the expenditure of any effort or persistence" (p. 282). For example, as one skilled reader in the present study finished her think-aloud report on the first segment of the expository passage, she said, "This is sort of a lot more complicated than anything I've read or remember doing before but I still think I can figure this out myself." In contrast, as one less skilled reader finished her think-aloud report on the expository passage, she said, "I only finished this because I know it's really important to you, but mostly, when I have to read something this hard and this boring, I just give up."

Another factor, also related to the person variable, that could explain differences in strategy regulation is the reader's degree of "achievement responsibility", or belief that the reader's efforts can affect his or her success (Palmer & Goetz, 1988; Zimmerman & Martinez-Pons, 1990). If readers feel that they have control over what happens to them in a learning situation, they will be more likely to attempt

to use strategies to compensate for difficulties they encounter. On the other hand, if readers feel that their comprehension depends on the text or on the teacher, they are less likely to try to utilize strategies they may know. The skilled and less skilled readers' comments on the pre-reading interview may lend some support to this notion. In general, the three skilled readers in this study appeared to be self-motivated and seemed to require a minimum of outside reinforcement and guidance. The four less skilled readers, on the other hand, appeared to need considerable guidance and outside reinforcement to complete reading tasks. For example, while all subjects stated they would ask other people for help, skilled readers reported this strategy as a last resort. The trend for the less able readers was to refer to external sources first to resolve comprehension difficulties.

Further, the match between students' perceptions of their own personal attributes and of strategy attributes may influence learners' decisions to use a strategy (Palmer & Goetz, 1988). For example, if a student perceives that a certain strategy requires a great deal of content-related knowledge and s/he knows that s/he lacks the necessary knowledge, s/he may be less likely to employ the strategy when difficulties are encountered. In addition, learners' perceptions concerning strategy attributes may influence their decision concerning strategy use (Palmer & Goetz,

1988). For example, if a student believes that a particular strategy requires considerable effort, he or she may fail to use it. To use strategies effectively and efficiently, students must have both "skill and will" (Paris et al, 1983). Alternatively, the two groups may have differed in their learning styles. By choosing able readers with above average reading comprehension, I may have inadvertently chosen subjects with a greater willingness to persevere when a task becomes difficult.

### Retrospective Interviews

#### Analysis of Retrospective Interview Responses

The purpose of the retrospective interviews was to clarify and obtain further information about subjects' metacognitive processing. Specifically, the interview was designed to elicit information about subjects' perceptions of passage difficulty.

Data generated in the retrospective interviews was collected in two phases then analyzed in the following manner. First, subjects' verbatim responses were inserted after the question to which they applied. Next, the written transcripts and audiotapes were reviewed together three times and a two category classification scheme was devised by making inferences based upon the comments of the subjects. Last, each response was reduced to a summary phrase and

reported as either a text-related or reader-related evaluative comment.

Text-related responses represent subjects' judgments of author's style, sequencing, and clarity while reader-related evaluations refer to comments about prior knowledge, efficiency at the task, and interest in the material. Further, the reader-related judgments appear to work in combination with the text-related judgments. Both categories test and evaluate factors which either facilitate or impede text comprehension.

#### Reader Perceptions of Passage Difficulty

Interview Phase One. In phase one all seven subjects were asked to review both the narrative selection, First Kill (Goodman & Burke, 1972) and the expository passage, Resources of the Earth (Educational Challenges, Inc., 1982). In response to the question about relative order of difficulty of the two passages, all seven subjects said they felt the narrative selection was easier to understand. When asked why, subjects' responses followed a similar pattern for both ability groups. The two most frequently reported reasons were: (1) "it was more interesting" and (2) "it was written in a familiar/story style". Having prior knowledge of the topic was the second most frequently reported reason and "it's easier to picture what's happening" was third. Table 18 illustrates the frequency of subject reports for each

judgment.

Table 18

Frequency of Retrospective Report by Evaluative  
Category: Narrative Text

| <u>Category</u>                   | <u>Skilled</u><br>(N=3) | <u>Less Skilled</u><br>(N=4) |
|-----------------------------------|-------------------------|------------------------------|
| =====                             |                         |                              |
| A. <u>Text-Related Judgment</u>   |                         |                              |
| written in story style            | 3                       | 4                            |
| easier to visualize               | 3                       | 1                            |
| easier words                      | 1                       | 2                            |
| B. <u>Reader-Related Judgment</u> |                         |                              |
| more interesting text             | 3                       | 4                            |
| prior knowledge of topic          | 3                       | 2                            |
| =====                             |                         |                              |

Although the responses "easier to picture what's happening" and "easier words" suggest reader efficiency at the task, they are not considered to be reader-related judgments. Rather, it seems more likely that the author's style facilitated smooth text processing as well as the creation of mental images.

For the expository passage, readers identified six factors which made that selection more difficult to comprehend. These factors included the following: (1) unfamiliar words, (2) no prior knowledge of the topic, (3) no plot just information, (4) difficulty following the ideas, (5) difficulty forming visual images, and (6) uninteresting material. The frequency of subjects' reports for each judgment are depicted in Table 19.

Table 19

Frequency of Retrospective Reports by Evaluative  
Category: Expository Text

| <u>Category</u>                   | <u>Skilled</u><br>(N=3) | <u>Less Skilled</u><br>(N=4) |
|-----------------------------------|-------------------------|------------------------------|
| <u>A. Text-Related Judgment</u>   |                         |                              |
| unfamiliar words                  | 3                       | 4                            |
| no plot just information          | 3                       | 3                            |
| difficult to follow ideas         | 0                       | 2                            |
| hard to visualize                 | 0                       | 1                            |
| <u>B. Reader-Related Judgment</u> |                         |                              |
| no prior topic knowledge          | 2                       | 2                            |
| uninteresting material            | 0                       | 3                            |

As Table 19 illustrates, the factor most frequently identified as contributing to students' difficulty in comprehending the expository passage was "unfamiliar words". "Just information" was the second most frequently reported reason and lack of prior knowledge of the topic was third.

In summary, all subjects were able to monitor the relative difficulty of the two passages, and furthermore, they offered for their judgments reasons that reflected many of the traditional distinctions made between narrative and expository types of materials.

Interview Phase Two. In phase two, the retrospective interview was readministered to only the four less skilled readers after they had completed one additional think-aloud task using a less demanding narrative passage of their own selection. Subjects were asked to review the three experimental passages they had read (two narrative, one

expository) and then to evaluate passage difficulty.

All four less able readers ranked the expository selection as the most difficult to understand, while three of the four subjects rated the less demanding self-selected narrative passage as easiest to comprehend. The three students who judged the less demanding narrative selection as most comprehensible all reported the following justifications for their ranking: (1) the words were easier to read, (2) this selection was the most interesting, and (3) the genre (i.e. mystery story) was familiar.

In comparing the relative difficulty of the two narrative passages, the fourth less skilled reader made a distinction between readability and comprehensibility. While this student indicated that the less demanding narrative was easier to read because "the words were easier", he stated that the more demanding narrative selection, First Kill (Goodman & Burke, 1972), was easier to understand. When asked why, this subject stated that he felt he had a better understanding of what was happening in the more demanding passage because it was based on a topic he had studied previously in his social studies classes. In addition, he reported that the more difficult narrative passage had an ending, unlike the less demanding selection which he described as being "a cliffhanger, like it leaves me wondering".

In summary, the less skilled readers were able to note relative difficulty by passage type and to entertain at least some hypotheses about sources of passage differences. At a basic level of monitoring, therefore, these students appear cognizant of the relative comprehensibility of what they read.

### Summary

Chapter IV described the procedures used to analyze the data and presented the results and findings of the analysis. A summary of the study and its conclusions in relation to each research question will be presented in Chapter V, together with relevant educational implications and research recommendations.

## Chapter V

## SUMMARY, CONCLUSIONS, AND IMPLICATIONS

The purpose of this study was to determine what perceptions skilled and less skilled seventh grade readers hold about reading and to identify the types of strategies they use to regulate and monitor comprehension. Students' metacognitive knowledge of the reading task was assessed through the administration of a pre-reading interview. The types of strategies subjects employed to monitor and regulate comprehension processing was determined by analyzing think-aloud protocols produced across narrative and expository text passages and retrospections on a post-reading task.

The present study was designed to overcome the methodological shortcomings of past verbal report research. These shortcomings include: use of probes and instructions that may cue subjects' behavior descriptions; lengthy intervals between processing and reporting times that may cause memory confounds; and failure to obtain data from performance measures to corroborate data from interview questions, thereby limiting generalizability.

Theoretical assumptions supported by empirical research underlie this study. The first is that the development of metacognitive ability is related to proficiency in learning. In the context of reading this ability can be revealed in two

ways: (1) in the knowledge readers have of strategies for learning from text; the differing demands of reading tasks, textual structures, and their own strengths and weaknesses as learners; and (2) in the control readers have of their own actions while reading for different purposes (Flavell & Wellman, 1977; Brown, 1980; Paris et al, 1983; Baker & Brown, 1984). The second theoretical assumption is that knowledge precedes control. The research suggests that learners must have knowledge of the effects of the factors of text, as well as knowledge of the task and their own characteristics as learners, before they can strategically control the learning process to optimize the influence of these factors (Brown, 1980; Gambrell & Heathington, 1981; Garner & Kraus, 1981-82; Baker & Brown, 1984).

Studies of metacognition and metacomprehension have identified developmental trends and differences in reader proficiencies as sources of reading competence. Differences appear in terms of readers' knowledge about strategic behaviors, the kinds of behaviors reported, and the maturity of the strategies employed. The research suggests that the developmentally young share a fundamental problem; they are "less conscious of the workings of their own mind, less facile with the introspective modes necessary to reveal their mental states, and therefore, less able to exert conscious control of their own cognitive activity" (Brown, 1980, p.471).

Research has shown that less able comprehenders have limited knowledge of reading strategies and text variables, do not usually recruit and use good strategies for comprehension, tend to focus on decoding words and deriving literal interpretations of sentences, and do not regulate or check their own comprehension when reading (Golinkoff, 1975; Garner, 1980; Baker & Brown, 1984). In other words, poorer readers do not appear to be able to control their own thinking processes as well as good readers.

The research suggests that good readers constantly check their understanding and evaluate the truth and internal consistency of the information they have read (Sullivan, 1978; Lytle, 1982). Successful monitoring of comprehension requires the detection of unknown or inconsistent information and repair of anomalies (Winograd & Johnston, 1982). To be successful, readers must respond actively to comprehension failures in a flexible manner and must generate alternative plans, hypotheses, and strategies (Paris et al, 1983; Johnston & Winograd, 1985).

Many strategies are available to readers. However, research has demonstrated that the individual's cognitive style, perceptions of competence, and perceptions of strategy efficacy significantly influence the strategies selected and used (Bandura, 1982, 1986; Johnston & Winograd, 1985; Palmer & Goetz, 1988). In general, skilled readers possess a positive self-concept and a sense of control in

regard to their own reading performance. They are reflective learners whose beliefs about themselves and their performance are compatible with good strategy use; that is, they attribute success to their own efforts and believe they can do well by using the right approaches. These beliefs motivate strategy use. Good strategy users can combine strategies proficiently and often execute strategic sequences automatically (Bandura, 1982, 1986; Schunk, 1985; Zimmerman & Martinez-Pons, 1990). When they encounter comprehension failure, successful readers employ self-monitoring, self-instruction, and re-analysis of the task to overcome comprehension breakdown (Brown, 1980; Paris et al, 1983; Garner, 1987).

Poor readers, on the other hand, have been found to: (1) read passively without considering how to approach the material, (2) lack an awareness of successful learning strategies or fail to apply a variety of strategies even though they may be aware of them, (3) attempt to add new information to their schema rather than integrate the information into their knowledge structures, and (4) attribute success to luck and failure to a lack of ability. They tend to refer to external sources, such as another person, to resolve comprehension failure and are not aware of independent, internally-generated strategies (Myers & Paris, 1978; Gambrell & Heathington, 1981; Johnston & Winograd, 1985).

The research also indicates that motivation plays an important role in cognitive and metacognitive strategy use. Unless a learner wants to accomplish a particular goal, it is unlikely that he or she will spend the time and energy required to engage in cognitive and metacognitive strategies. To use strategies effectively and efficiently, students must have both "skill" and "will" (Paris et al, 1983; Palmer & Goetz, 1988).

A common observation by teachers and reading researchers is that metacognitive ability discriminates successful readers from less successful readers. It is generally accepted by theorists, researchers, and teachers that the ability to regulate and monitor one's comprehension processing plays a critical role in reading. Those students who are able to reflect on whether or not comprehension is occurring and employ strategies to repair comprehension failures, as necessary, are more likely to understand, interact with, and retain information in written text. As a consequence, an important instructional objective is to help less skilled readers develop a repertoire of strategies to regulate and monitor their reading in order to enhance their comprehension of both narrative and informational text. Little is known, however, about the cognitive processes adolescent readers employ when constructing meaning from text.

The present investigation builds on the findings of metacomprehension research. To overcome some of the design and methodological weaknesses of past verbal report studies of metacognitive ability, the present study compared subjects' knowledge and use of strategies as measured by both interview and performance data. In five or six sessions, students' knowledge of the reading process was assessed prior to reading, strategy production across both narrative and expository text passages was assessed during reading, and perceptions of passage difficulty were assessed after reading. Naturally occurring passages representative of the type of text used in the classroom were used as reading materials.

As the intent of the study was to elicit extensive oral reporting by subjects in order to provide multiple indicators from which inferences regarding reading processes could be made, the use of a small sample was necessary to ensure project manageability. Three competent and four less competent seventh grade readers having average to above average verbal ability served as subjects. In making this selection, it was acknowledged that a bias would occur in the amount and type of data collected in the protocols. To examine how the quantity and quality of metacognitive knowledge influenced students' ability to monitor and regulate their comprehension processing, the specific questions addressed were as follows:

1. What beliefs do skilled and less skilled seventh grade readers hold about the reading process?
2. What strategies do skilled and less skilled readers employ to regulate and monitor their reading comprehension?
3. Do seventh grade students apply different strategies when reading narrative as opposed to expository text?
4. What factors do skilled and less skilled readers identify as facilitating reading of narrative as opposed to expository text?

From these questions the following hypothesis was examined:

There will be observable differences in the knowing and regulating behaviors of seventh grade skilled and less skilled readers using narrative and expository textual materials as revealed through responses to a pre-reading interview, think-aloud protocols across narrative and expository text passages, and retrospections on a post-reading task.

In order to address these questions, 3 skilled and 4 less skilled seventh grade readers read two 1100-1200 word passages silently, one from each of the text domains, and reported their processing behaviors at each visual prompt. In addition, the four less skilled readers read and reported

on one less demanding, self-selected narrative passage. Prior to reading the passages, the students indicated what they knew about the reading process by responding to sixteen open-ended interview questions. Following completion of the think-aloud tasks, subjects evaluated passage difficulty by reviewing the reading passages and responding orally to three open-ended questions read aloud by the researcher. Skilled readers were seen individually over five sessions; less skilled readers over six. Each session lasted approximately 45 minutes.

Verbatim transcriptions of subjects' oral reports were prepared. Interview responses were classified into six categories adapted from prior work. These categories were: (1) goal or purpose of reading, (2) recollections of early reading experiences, (3) teacher-student perceptions of ability, (4) criteria used by students for evaluating reading performance, (5) identification of strategies available to monitor comprehension, and (6) strategies students indicate using when reading (Garner & Kraus, 1981-82; Wixon et al, 1984; Raykovicz et al, 1985). Think-aloud protocols were analyzed for evidence of strategy use and categorized according to a posteriori classification scheme consisting of two main categories. These categories were: (1) meaning-making processes and (2) monitoring and regulatory processes. Retrospective evaluations of passage difficulty were classified according to reader-related and text-related

statements, respectively.

The following is a summary and discussion of the results pertaining to the hypothesis.

### Summary of Research Findings

#### Similarities and Differences Between Skilled and Less Skilled Readers' Knowledge of the Reading Process

Earlier self-report studies have produced consistent results along the dimensions of age or reading proficiency; older, better readers have more knowledge of cognitive and metacognitive strategies than younger, less able readers. In addressing the first question of the study, it is possible to say that there is a consistency between previous research and this study's findings of how skilled and less skilled readers view the reading process. Results of this investigation indicate that there are some observable differences between the skilled and less skilled seventh grade readers' cognitive and metacognitive knowledge.

The able readers in this study appeared to be more aware of the meaning-focused features of reading. Like the eighth grade readers in the Canney and Winograd (1978) study and the good comprehenders in the Garner and Kraus (1981-82) study, the skilled readers in this study recognized that meaning-getting is the primary goal in reading. Although the less able readers in this investigation also recognized the

meaning-getting aspect of reading, they emphasized more than the skilled readers decoding concerns at the expense of understanding concerns. Like the young readers in the Myers and Paris (1978) study, the adult disabled readers in the Gambrell and Heathington (1981) study, and the poor seventh grade comprehenders in the Garner and Kraus (1981-82) study, the four less skilled readers in the present investigation appeared to perceive reading as a decoding rather than a meaning-getting process. In general, these less able readers tended to focus many of their remarks on words, on pronunciations of words, and on fluent oral rendering of words. These behaviors were consistent with those evidenced by the poor sixth and eighth grade readers in the Canney and Winograd (1978) study and the seventh grade poor readers in the Garner and Kraus (1981-82) investigation.

Able readers in the present investigation appeared to be sensitive to both task and strategy dimensions of reading. Although the poorer readers appeared to be sensitive to task variables, such as interest and prior knowledge, they lacked such sensitivity with respect to the strategy dimensions of reading. Skilled readers reported that while reading they readily used both word attack skills and contextual clues when confronted with unknown words. When this knowledge failed them, however, they usually requested assistance from the teacher or a peer. The poorer readers indicated that they also applied their knowledge of word attack skills, used

context clues, and/or asked for assistance from the teacher or someone else, when they encountered an unknown word.

When dealing with sentence level comprehension failure, skilled readers reported the use of three strategies with equal frequency: (1) read ahead in the text, (2) look back in the text, and (3) reread the confusing sentence. According to subjects' reports, these three strategies would provide information and contextual clues useful for determining the sentence meaning. Two less skilled readers also reported that they would reread the difficult sentence. However, these subjects were unable to justify their response. Requesting teacher assistance was the strategy of choice for six of the seven subjects in this study when paragraph level comprehension failure occurred. While all subjects in this study indicated that at each of the three levels of comprehension failure (word, sentence, paragraph) they would seek help from an external source, seeking outside assistance was viewed as a last resort by the three skilled readers whereas the trend for the less skilled group was to refer to external sources first.

Two processes which the able readers indicated they used as aids to comprehension were relating material to past experiences and using contextual clues. While the less able readers also reported using these processes, as a group they did not use them as often as their skilled peers. Internal and external organizational text aids were also reported to

facilitate comprehension. Six of the seven subjects felt that the material was easier to understand if the author provided an adequate explanation of the meaning of technical terms as well as an indication of how to say these words. For less able readers, word and sentence length and/or sentence complexity also appeared to affect their comprehension significantly. While the skilled readers reported using external aids, such as headings, glossaries, and diagrams, the less skilled readers seldom mentioned using external text aids to facilitate comprehension.

Further, the skilled readers in this study appeared to rely on memory and intuition as indicators of their understanding of material. If the material made sense to them or they could remember or retell it, then they reported they could understand it better. The poorer readers, on the other hand, appeared to relate comprehension to classroom performance. If they could remember words or answer teachers' questions about the text, then they felt they understood the material.

In general, the less skilled readers in this study reported fewer strategies than their skilled peers and were not as sensitive as to how and when to use specific strategies. Like the adult poor readers in the Gambrell and Heathington (1981) study, these less able subjects seemed to be unaware of many of the characteristics of skilled readers. In contrast, the able comprehenders, like the grade seven

good comprehenders in the Garner and Kraus (198-82) investigation, appeared more cognitively aware of the internal processes needed to comprehend print and the special strategies required for resolving comprehension failure.

#### The Two Categories of Processes in This Study

This study has attempted to organize the strategies so that the grouping is consistent with metacognitive categories: (1) knowledge about cognition and (2) the regulation of cognition (Brown, 1980; Paris et al, 1983). The two major categories suggested by this study are: (1) meaning-making processes and (2) monitoring and regulating processes. The first category, "meaning-making processes" encompasses the knowledge readers have about the topic and the knowledge readers have about how to perform certain tasks. The second category, "monitoring and regulating processes", is intended to reflect the knowledge readers have about when and why certain strategies should be used. Paris et al (1983) labelled these elements of learning behavior as declarative, procedural, and conditional (strategic) knowledge, respectively.

### General Relationship Between Strategies

The think-aloud protocols of subjects in this study indicated that the behaviors of seventh grade skilled and less skilled readers may be sub-divided into two general categories. These categories are: (1) the processes that readers use to construct meaning from narrative and expository text, and (2) the monitoring and regulatory processes that readers use to evaluate their success and redirect their comprehension efforts when necessary.

The second group of behaviors, labelled comprehension monitoring and regulation appear to work in combination with the first group, the meaning-making category. The monitoring and regulatory strategies test and evaluate the success of meaning-getting and subsequently revise and redirect comprehension processing efforts in order to construct meaning.

A chart depicting the meaning-making processes and the monitoring and regulatory processes is provided in Figure 3 on the following page.

Figure 3

Categories and Sub-categories of Behaviors Reported by  
Skilled and Less Skilled Seventh Grade Readers

=====

A. MEANING-MAKING PROCESSES

| <u>Category</u>                    | <u>Sub-category</u>                                 |
|------------------------------------|-----------------------------------------------------|
| 1. Creating Visual Images          |                                                     |
| 2. Relating to Personal Experience |                                                     |
| 3. Making Inferences               |                                                     |
| 4. Hypothesizing                   | (a) making predictions<br>(b) verifying predictions |
| 5. Analyzing Text Features         |                                                     |
| 6. Judging Text Quality            | (a) evaluating ideas<br>(b) evaluating features     |
| 7. Applying Summary Techniques     | (a) paraphrasing<br>(b) restating                   |
| 8. Determining Word Meaning        | (a) using context clues<br>(b) synonym substitution |

B. MONITORING AND REGULATORY PROCESSES

| <u>Category</u>                            | <u>Sub-category</u>                                                                                   |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 1. Comprehension Monitoring and Regulation | (a) rereading<br>(b) reading ahead<br>(c) looking back<br>(d) identifying the nature of the breakdown |

-----

Similarities and Differences Between the Processing  
of Skilled and Less Skilled Readers

Although all subjects indicated knowledge of a fairly wide variety of strategies, the pattern of strategy use evident in the self-reports indicated that they relied heavily on only a few of these while reading the narrative and expository passages. The overwhelming choices of meaning-making strategies for both skilled and less skilled readers were summarization, making inferences, and using visual imagery. In addition, analyzing text structure and judging text quality proved valuable for many subjects on the expository passage. The strategy of rereading previous text was found to be the strategy of choice for repairing a comprehension breakdown. This tendency to rely on only a few of the many possible strategies has been reported before by Hare and Smith (1982), Alvermann and Ratekin (1982), and Kletzien (1991).

Further, skilled and less skilled readers in this study were found to use the same types of strategies for the narrative and expository passages. Summarization was the meaning-making strategy most frequently reported by both groups across both the demanding narrative and expository selections; rereading, the most frequently reported comprehension monitoring and regulatory strategy. Key meaning-making strategies for the demanding narrative passage were summarization, making inferences, and using visual imagery. For the expository passage, summarization,

analyzing text features, and judging text quality were the key strategies produced.

In addition to the demanding narrative and expository passages, the four less skilled readers in this study read and reported on a third, less demanding narrative passage. Although the less skilled subjects reported using the greatest total number of meaning-making strategies while reading this less demanding selection, their comprehension processing strategies were strikingly similar to the ones they employed on the more demanding narrative material. The strategy of summarization again proved to be the most frequently reported meaning-making strategy. Key meaning-making strategies for the less demanding, as for the more demanding narrative passage, were found to be summarization, making inferences, and using visual imagery. It is worthy of note, however, that the less able subjects reported using significantly fewer comprehension monitoring and regulatory strategies for the the less demanding narrative material. Further, no word, sentence, or paragraph level comprehension breakdowns were reported by the less skilled readers while reading the less demanding narrative selection.

Although the strategies employed by both skilled and less skilled readers appeared similar, there were qualitative differences in the way these strategies were employed. The difference between the groups related to their ability (or willingness) to try a variety of strategies and

also their persistence in trying strategies even when they were faced with challenging material. Because both groups of readers in this study appeared to be familiar with the same strategies, one may conclude that the differences between the groups was in regulation, rather than knowledge of comprehension strategies.

Analysis of the think-aloud protocols in this study suggests that when the skilled seventh grade readers encountered difficult text they engaged in an integrated assault upon the problem of constructing meaning. The reports appear to provide evidence that while processing text skilled readers are: (1) considering strategies, (2) allocating attention, (3) analyzing features of the text that influence comprehension, and (4) keeping purpose in mind. These findings are consistent with Baker and Brown's (1984) description of the four metacognitive variables that interact to affect learning outcomes. Skilled readers vary their processing strategies depending upon: (1) the nature of the materials, (2) the criterial task, (3) the learning activities, and (4) their own characteristics as learners.

The less skilled readers in this study, on the other hand, appeared to have a less adequate understanding of the variables involved in the learning situation; that is, the characteristics of the text, the requirements of the task, appropriate strategies, and their own abilities and deficiencies. Further, they seem to be less adept at using

what knowledge they do have about the characteristics of the learning situation to enhance their learning. The less skilled readers often read without making a distinction between what they understood and what they did not. When text processing difficulties were detected, the less skilled readers in this study appeared to be less flexible than their skilled peers in their approach to resolving comprehension failure. They tended to use repeatedly those strategies with which they seemed most comfortable and did not spontaneously try other strategies that they may have known and that may have been effective. The fact that less skilled readers evidenced less flexibility may have been due more to a failure to recognize the need for strategic intervention. This interpretation would lend support to Brown's (1980) contention that merely having knowledge of strategy routines is not in itself adequate for effective reading behavior.

In sum, the results of the present study seem to show that both skilled and less skilled readers know of and use the same basic strategies, but that skilled readers are more flexible than less skilled readers and have greater control of the strategies. Skilled readers are more able to vary their use of strategies when appropriate, and they are more willing to persevere even when the task is arduous. The findings of the present investigation appear to support previous metacognitive research which relates higher reading achievement with the monitoring and regulation of one's own

cognitive processes (Alvermann & Ratekin, 1982; Wagoner, 1983; Johnston & Winograd, 1985). Poorer readers do not appear to control their thinking processes as well as good readers.

#### Self-Efficacy and Strategy Use

There are many possible explanations for the differences in ability (or willingness) to regulate strategy use. Some reasons may be embedded within the person variable of the metacognitive framework. Subjects' perceptions of proficiency may have affected their choice of strategic activity (Bandura, 1982, 1986; Schunk, 1985); people who doubt their capability tend to give up whereas those with a high sense of self-efficacy exert even greater effort to meet the challenge. According to Johnston and Winograd (1985), a subject's concept of his or her own reading ability might affect the degree of risk the subject decides to take in attempting to read something difficult. The subject who perceives himself or herself as incompetent may be disinclined to attempt the use of any strategy.

Another factor, also related to the person variable, that could explain differences in strategy regulation is the reader's degree of "achievement responsibility", or belief that the reader's efforts can affect his or her success (Palmer & Goetz, 1988; Zimmerman & Martinez-Pons, 1990). If readers feel that they have control over what happens to them

in a learning situation, they will be more likely to attempt to use strategies to compensate for difficulties they encounter. On the other hand, if readers feel that their comprehension depends on the text or on the teacher, they are less likely to try to utilize strategies they may know.

Further, the match between students' perceptions of their own personal attributes and of strategy attributes may influence learners' decisions to use a strategy (Palmer & Goetz, 1988). For example, if a student perceives that a certain strategy requires a great deal of content-related knowledge and s/he knows that s/he lacks the necessary knowledge, s/he may be less likely to employ the strategy when difficulties are encountered. In addition, learners' perceptions concerning strategy attributes may influence their decision concerning strategy use (Palmer & Goetz, 1988). For example, if a student believes that a particular strategy requires considerable effort, he or she may fail to use it. To use strategies effectively and efficiently, students must have both "skill and will" (Paris et al, 1983). By choosing able readers with above average reading comprehension, I may have inadvertently chosen subjects with a greater willingness to persevere when a task becomes difficult.

General Relationship Between Skilled and Less Skilled Readers' Perceptions of Passage Difficulty

Subjects were able to monitor the relative difficulty of the experimental reading passages and easily offered reasons for their judgments. Furthermore, they offered for their judgments reasons that reflected many of the traditional distinctions made between narrative and expository types of materials. Text-related judgments represented subjects' judgments of author's style, sequencing, and clarity; reader-related evaluations reflected judgments about prior knowledge, efficiency at the task, and interest in the material.

In response to the investigator's question about the relative order of difficulty of the two reading passages used with all subjects in the study, each subject said they felt the narrative passage was easier to understand. When asked why, readers most frequently mentioned "it was more interesting" or "it's written in a familiar/story style". In addition, the majority of the students also reported that it was "easier to picture what's happening". For the expository passage, readers felt "the words were harder", "there's no plot", and "it's just information".

In judging the relative difficulty of the three experimental passages they read (two narrative, one expository), all four less skilled readers ranked the expository selection as the most difficult, while three of the four subjects rated the less demanding narrative as the

easiest to comprehend. Their justifications reflected the same opinions reported by subjects in relation to the more demanding narrative passage. In making a distinction between the relative difficulty of the two narrative passages, all four less able readers felt the less demanding passage was the easier of the two because the "words were easier to read".

Albeit comprehensible, the expository passage was harder to follow than the narrative passages. It was more abstract, more fact-laden, and not at all like the narrative passages which were exceptional in their evocation of images. Subjects' lack of familiarity with both the topic and the technical terms encountered in the expository passage appeared to contribute significantly to the difficulties they experienced in processing the informational material. As a group, they felt that the material was easier to understand if they were familiar with the subject and the author provided an adequate explanation of the meaning of the technical terms as well as an indication of how to pronounce them.

The retrospections of the subjects in this study are insightful; at a basic level of monitoring, these students appear cognizant of the relative comprehensibility of what they read. In addition, these retrospective reports as well as the think-aloud reports appear to support the concept of two and even three-way interactions between the metacognitive variables that affect learning outcomes: the

criteria task, the nature of the materials, the learning activities, and the learner (Flavell & Wellman, 1976; Baker & Brown, 1984).

### Assumptions

The conclusions of the study must be considered in the light of the following assumptions:

1. The interview format utilized actually tapped the strategy identification-giving ability of subjects to their maximum.
2. All processes operating within the reader's head were reported on the audio tape recordings.
3. The think-aloud process did not interfere with the reading comprehension process.

### Delimitations

The following delimitations are acknowledged when interpreting the findings of this research. Generalizability of findings is delimited due to:

1. The analysis of data for only seventh grade students in a one-to-one situation.
2. The inclusion of only two passages, one narrative and one expository for skilled readers.

3. The inclusion of only three passages, two narrative and one expository for less skilled readers.

4. Only seventh grade students of average to above average verbal ability participated.

#### Limitations

The conclusions of the study must be viewed within the following limitations:

1. The findings should not be generalized beyond the particular sample in this study.

2. The research setting may have imposed certain limitations since the use of an audio tape recorder to collect data may have inhibited a subject's natural rapport.

3. Data collected in the interview task may have been distorted by the subjects' perceptions of the goals of the investigator.

4. The scoring of the think-aloud protocols is a somewhat subjective task. Detailed scoring guidelines were established to minimize this effect.

5. Data collected in the retrospective task may have been distorted by the subjects' perceptions of the investigator's goals or by the retrieval strategies used by the subjects.

### Educational Implications

The present investigation offers several possible implications for educational practice. First, readers' topic familiarity was found to influence the efficiency of a range of comprehension processes necessary for meaning construction, including visualization, inferencing, prediction, judging text quality, determining word meanings, and comprehension monitoring. It is apparent from the think-aloud reports that reading text from unfamiliar content domains places a heavy demand upon the cognitive resources of skilled and less skilled readers. It is apparent that educators place similar demands upon students. This suggests that, as educators we need to be reflective regarding: (1) the task demands we place on students, (2) the reading material we assign, and (3) the prereading activities we provide.

In addition, results of this study indicate that readers tended to rely on only a few of the comprehension strategies that may have been presented to them during their years of schooling. This suggests that educators may need to reassess their methods for teaching comprehension strategies. Strategies should be taught in the context of real reading situations, and students need to be given control over strategies so they can use them independently. Paris et al (1983) have pointed out the importance of encouraging students to manage their own cognitive resources as they

read: "They can become strategic and motivated by more thoroughly understanding the task at hand and the cognitive demands of reading different types of text in different types of situations" (p. 312). Teaching the less skilled readers in this study when, how, and why to apply the strategies they already knew might have enabled them to become more proficient readers.

By giving explanations that develop the use of comprehension and comprehension monitoring skills, modelling the mental processing, providing practice, and taking an active role in the think-aloud procedure with students, teachers can emphasize the various skills that represent the comprehension process. Further, having students work in pairs or in small groups to apply the strategies may help students to internalize the process of thinking-aloud. In addition, the use of skilled peers as strategy coaches could provide less skilled students with useful examples and ultimately enhance their comprehension processing and monitoring performance.

In light of the variation that exists among readers, it is essential to obtain information about individual student's comprehension strategies and thought processes, if teachers are to meet the objective of optimal learning for each and every individual. Interview and think-aloud protocol analysis techniques appear to be viable methods for helping classroom teachers and reading specialists discover

what knowledge learners have about their own cognitive ability and can aid in identifying factors which either facilitate or impede comprehension. Such insights may help educators determine how they might improve instruction regarding both the process of meaning construction, and the regulation and monitoring of comprehension.

### Considerations for Further Research

The limitations and delimitations of this study suggest areas for future inquiry.

1. Since the study compared skilled and less skilled readers at only the grade 7 level, data might be gathered from students of different grade levels to provide a clearer understanding of the effects of developmental maturity and reading ability. As well, further research using a larger sample should be conducted to substantiate these findings.
2. Skilled and less skilled readers having average to above average verbal ability served as subjects in this study. Further research is needed using less verbal subjects as readers in order to discover whether the think-aloud procedure is a sufficient tool for externalizing the comprehension processing behaviors of less verbal readers.
3. It would be preferable to employ more than one passage for each genre. This would facilitate greater generalizability. The use of more passages would increase

the likelihood that findings by genre may not be so topic dependent. In addition, research examining students' responses to a variety of texts would help to identify the types of text with which students have the most difficulty.

4. The coding scheme used to analyze the subjects' think-aloud protocols may provide a way to describe the cognitive processes that adolescent readers use when constructing meaning from narrative and expository texts. However, further research is needed to establish the reliability and validity of the coding scheme and to establish whether the coding scheme is useful in describing the responses of other groups of readers.

5. This study does not examine the accuracy of the subjects' statements about the text, nor does it provide any insight into which strategies resulted in better text comprehension. Investigation into the relationship between accuracy and strategy selection would be valuable.

6. A study aimed at training teachers to recognize their own comprehension processing strategies could be undertaken with the view of answering the question of whether teacher self-awareness of text processing enhances instruction and results in better comprehension on the part of their students.

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## APPENDIX A

Dear Parent or Guardian,

I am a former Transcona teacher presently working on a master's degree in reading at the University of Manitoba. Part of my work involves finding out what grade 7 students know about reading and what skills they use to help them understand when they read. To do this I will need to interview several grade 7 students and have them do some reading for me. Permission to carry out this project has been granted by the school division and the principal of Arthur Day School.

I will need to work with each student five or six times over a three week period. The time required of each student will be approximately one hour per week. Each student will be seen individually in a private room in the school. Students will first be interviewed to find out what they know about reading. To make sure that no information is overlooked, each session will be audio tape recorded. This information will then be used as the basis for my research report.

Students' identities will not be revealed in the written report and all data gathered will be treated as confidential information. General information concerning the results of this project will be shared with the superintendent of the school division, the principal and staff of Arthur Day School, my university supervisory committee consisting of three Faculty of Education professors, and the participating students.

If you are willing to have your child take part in this project, please indicate your consent by your signature below. Students selected to take part may discontinue participation in the project at any point. Should you require further information, please contact me at the following number: 257-2055.

Thank you for considering my request.

Yours truly,

Darlienne Black

Signature of Consenter \_\_\_\_\_

## APPENDIX B

Decoding Ability CheckVolcanoes

Powerful forces within the earth cause volcanoes. Scientists do not fully understand these forces. But they have developed theories on how the forces create volcanoes.

A volcano begins deep in the earth, where it is hot enough to melt rock. The molten rock is mixed with gases and floats up through the solid rock around it. Where the earth's crust is weakest, the liquid rock sometimes channels through it and explodes onto the surface in a volcanic eruption.

The melted rock is magma when it is still within the earth. But once it reaches the earth's surface, it is lava. The lava flows out of the central channel and smaller side channels in streams or in sheets that overlap each other like waves on a beach.

The main gas released by a volcano is steam. Because the steam contains volcanic dust, it looks like smoke. When the magma is sticky, rock fragments of various sizes are also thrown off by the explosion. The largest fragments are called bombs.

The material brought to the surface during a volcano sometimes forms a mountain around the opening of the central channel. A mountain that was formed by a volcano will have a large, bowl-like opening in its center, and it is also called a volcano. (Bader, 1983)

## APPENDIX C

Pre-Reading Interview

1. What is reading?
2. Why do people read?
3. How did you learn to read?
4. What did they/you do to help you learn?
- 5.(a) What makes someone a really good reader?  
(b) Why do you think this?
- 6.(a) How good a reader do you think you are?  
(b) Why do you feel this way?  
(c) What would you like to do better as a reader?
- 7.(a) What do you do in your reading classes at school?  
(b) What do you do when you read in your free time?
8. Do you prefer to read out loud or silently? Why?
9. If I gave you something to read out loud right now, how would you know if you were reading it well?
10. If I gave you something to read silently, how would you know if you were reading it well?
11. What makes something difficult for you to read?
- 12.(a) Do you understand everything that you read?  
(b) Why do you think you sometimes have trouble understanding what you read?

13. What do you do when you come to a word that you don't know?
14. What do you do when you don't understand a sentence or a paragraph when you are reading?
15. What helps you to understand something that you read?
16. Show the student a basal reader, a content area text, and a trade book. Ask the question three times, each time referring to one of the books.
  - (a) What is the most important reason for reading this kind of material?
  - (b) Why would a teacher want you to read a book like this particular one?
  - (c) Why would a friend want you to read a book like this one?

adapted from Garner & Kraus (1981-82);

Wixon, Bosky, Yochum, & Alvermann (1984);

& Raykovicz, Bromley, & Mahlois (1985).

## APPENDIX D

Texts Used in the Study

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Separation

Morning came to the slave quarters of Master Hensen's plantation before there was light in the heavy, black sky. It was four o'clock and Master Hensen's old ram horn bellowed and tooted until nobody slept. Frying sowbelly smells from the cabin cooking fires helped to wake the children. Julilly reached for a hoe cake and a tin cup of buttermilk that Mammy Sally poured. From the barnyard the roosters crowed sharp and clear. \*\*\*

As on every other morning, Julilly smoothed down her crinkly black hair and twisted it tightly in a knot at the back of her head. But Mammy Sally, who always wore a clean, white head-rag neatly tied, this morning put on a black one in its place. There was no laughter in her full, strong voice as she called to one slave and then another who passed by their door. A worried frown stitched lines across her forehead. \*\*\*

"Child," she said to Julilly in a yearning, mournful way, "there's trouble ahead for us black folk today," Her lips pinched firm and her eyes flamed with courage, but her voice stayed quiet. She gathered Julilly's hands into the strength of her long, black, callused fingers. \*\*\*

"Lord help us," she said. "The field hands are gonna be sold today. You are one of them, June Lilly. You and I could

be pulled apart." Julilly didn't understand. Mammy Sally couldn't let this happen. Mammy shook Julilly into listening. \*\*\*

"If we are sold apart, June Lilly, and the lord forbid, don't forget that freedom land I told you about. You and I are strong. We'll get there with the guidance of that star, and the good lord's help." \*\*\*

A jay-bird voice screeched suddenly outside their door. "You field hands. Line yourselves up along this path and don't loiter." The sound of a zinging whip cut the air. "Some of you ain't gonna chop no cotton today." \*\*\*

Mammy Sally held Julilly close as they walked outside and joined the field-hand line. The man with the jay-bird voice strode back and forth in front of them. He was a big man with a short, thick neck. His cheeks puffed and jiggled as he walked. \*\*\*

Julilly noticed that his fingers puffed, too, over the whip that he flicked in his hand. He had a toothpick in his mouth that stuck between two yellow teeth. Julilly didn't like his oily skin. His faded brown hair was tangled and dirty, his baggy pants were streaked with drippings, and his little eyes were green and sly. \*\*\*

He strode toward Lily Brown, a shy young mother barely sixteen who clutched her two year-old Willie in her arms. The fat man paused briefly beside her. His tiny eyes narrowed and he rubbed his oily hand down Willie's bare back. \*\*\*

"This is a fat, strong, black baby," he called to a younger white man standing behind him. "Put him in the wagon." Willie was ripped from his mother's arms without a comment. Lily screamed and fell to the ground. \*\*\*

Julilly started to run towards her, but the firm hand of Mammy Sally grasped her shoulder. The fat man was stopping in front of them, clamping the toothpick hard between his lips. He stuck a fat finger into her mouth and squinted at her teeth. Satisfied, he pushed back her eyelids. \*\*\*

"Looking at me like Old John does his horse," thought Julilly as she flamed with anger. "This one will do nicely," the big man called towards the young man who had just dumped Willie into the cart. "She's strong and healthy and still growin'. Get over there, girl, and get into the cart."\*\*\*

He strode off down the line but Julilly didn't move. Instead she looked at Mammy, and for the first time she saw fear in Mammy Sally's eyes. "Do like he say, child." Mammy's voice hurt and choked. "You got to mind that man in order to

save your life. Don't forget that place I told you about." \*\*\*

The fat man looked back and screeched, "Get in that wagon, girl, or I'll use this whip and teach you how to jump." There was moaning now and crying up and down the lines of slaves. The big slave trader didn't care or hear. He lashed his whip in the air, pulling children from their mothers and fathers and sending them to the cart. \*\*\*

Julilly moved towards the long, wooden cart. Her feet pulled her there and somehow she climbed inside. She looked for Mammy Sally, but Mammy was already being pushed with the older slaves far down beyond the tool shed. Julilly strained to find Mammy's black head-rag but it was gone. Mammy Sally had disappeared! \*\*\*

A red sun boiled up into the sky, making patches of heat wherever it struck the uncovered earth. Julilly sat still and numb in the unshaded wagon as little Willie Brown whimpered beside her. She wanted to comfort him, but she couldn't lift her hand. She found it hard to swallow and wondered if she could make a sound if she tried to speak. \*\*\*

Other children began climbing into the wagon. They were much smaller than Julilly. They moved near her - their little bodies twitched like a wild bird she had caught once and held for a moment before it broke into flight. \*\*\*

Three men were ordered into a line behind the cart. They stood like broken trees, their hands dangling like willow branches in the wind. Julilly knew each one. First there was Ben, solid and strong and as black as midnight. He could chop a woodpile higher than his head when others still had little mounds up to their knees. \*\*\*

Next there was kind, gentle Adam whose singing was low as the sightless hollow in a tree. And finally there was Lester, the mulatto with speckly skin and angry eyes. Each one of the men had a wife and one or two babies. They didn't move when the fat man with his puffed, oily fingers, clamped a chain around their legs. \*\*\*

As Julilly watched, the chain became a silver snake. It coiled over the ground, around the men, and up onto the back of their cart. It bit into a lock that held it fast. Another strange man led a work-horse in front of them. Julilly was afraid to look at him. She felt the tug and jerk of the wagon and the bounce of the man as he jumped onto the front seat. "Gid-eee-up," he cried, snapping the reins. \*\*\*

The snake-chain jingled in protest while the men, who were not used to it, tried to swing their bound legs in some sort of order. The fat man, with the toothpick still in his

mouth, rode behind them on a smooth brown horse. \*\*\*

They moved down the dusty road, past the empty slave cabins, and around by Master Hensen's house. It was empty. There were no curtains in the tall windows or chairs on the wide, shaded porch. Massa and Missy Hensen were gone. \*\*\*

Old John came through the wide front door, hobbled and bent. He shaded his eyes to watch the chain gang and the wagon load of children. When he saw Julilly, his back straightened. Pulling a large, white handkerchief from his pocket, he waved it up and down - up and down - up and down - until it became a tiny speck and disappeared. Tears ran down Julilly's cheeks. She couldn't stop them, but she made no sound. The fat man didn't even notice her. \*\*\*

adapted from Smucker (1977).

### Lifelong Fitness

Being physically fit is necessary for good health, but the need for exercise is really not new. Many years ago most people had to use physical labor for their daily lives. Today much of this work is done by machines, but the body still needs to have exercise. Being physically fit makes it easier to carry out your daily work. A fit person has energy to study long hours, play in a band, or hold a part-time job after school. \*\*\*

The kind of exercise you choose will depend on several considerations. Your fitness goals and your present condition are two important ones. Others are the facilities available, what activities your friends are taking part in, what activities you enjoy, and the cost of equipment. \*\*\*

Each exercise has something different to offer; the speed of biking, the floating sensation of swimming, the joy of dancing to music, or the brisk pace of walking. Whatever you do, be sure to build up gradually. \*\*\*

Playing sports can provide much enjoyment. Some sports also help to build up your physical fitness. You often have to get in shape to enjoy playing your sport. Most sports require some basic conditioning to reach the fitness needed to play.

\*\*\*

Walking is a natural and healthy form of exercise. It is less stressful than running. Most people think that walking is even more healthful than running. To avoid injury, start out walking at your natural, easy gait. Gradually speed up your pace and increase the distance you walk each day. Swimming is also an excellent exercise for overall fitness. Swimming one-half mile is equal to running two miles. \*\*\*

Other forms of exercise such as cycling, jogging, or aerobic dancing can help you in your fitness program. These forms of exercise have good fitness benefits when done properly. Muscle strength, endurance, and tone can be improved over time. \*\*\*

Indoor fitness equipment, such as stationary bicycles, rowing machines, and treadmills, can also be used for exercise. Such equipment can improve fitness. However, if you choose to exercise using stationary equipment, be certain you are using the machines safely and correctly. \*\*\*

Finding a place to exercise can be a problem for some people. Fortunately, many communities now have facilities for people to work out, such as gyms, indoor swimming pools, fitness clubs, and skating rinks. School gymnasiums and swimming pools often schedule open hours for public use as well. \*\*\*

You may want to consider exercising outdoors, also. If you do, remember to take safety precautions. These include not jogging or working out in isolated places. You will also feel safer and more secure if you have friends join you. Not only is it safer to work out with others, in case of injury, but it is also more fun. \*\*\*

If you do exercise outdoors, you must also consider the weather conditions. Exercising in the rain or cold is safe as long as you use good judgment. You may like jogging in the rain, but do not go out during a cold downpour. If you exercise during a cold rain, there is a danger that you will become too cold. This can cause your body temperature to fall dangerously. \*\*\*

In freezing weather you should also keep your hands and ears covered for protection from frostbite. In addition, you should wear some type of protective head-covering. This covering will help to prevent your body from losing internal body heat too rapidly. Winter exercise also holds the risk of a serious fall on icy surfaces so proper footwear is also a consideration. \*\*\*

With proper care you can avoid the dangers of exercising on hot and humid days. When the body is not used to hot and humid weather, it may overheat. Overheating can cause illness or even death. Be sure to drink plenty of liquids in

hot weather, whether exercising or not. It is very important to replace the fluids your body loses when you perspire. In warm climates and during summer months, an early morning workout is safer. Swimming may be your best exercise choice during the warmer months of the year. \*\*\*

You may decide to exercise in the morning, afternoon, or evening. You should not exercise during the hour immediately after a meal. Just after you eat, your digestive system needs an increased blood supply. Since your muscles need extra blood during exercise, it is best to wait at least two hours after eating before working out. You may also find that exercising late at night makes it difficult for you to fall asleep. \*\*\*

Your final consideration is proper clothing and equipment. Proper clothing can make a difference in your comfort and safety. Padding will protect your body against bumps and falls that are common in many sports. Proper footwear will help you to protect yourself from foot and leg injuries. \*\*\*

Choose the right equipment for each activity. For example, running shoes should not be used for basketball and cycling shoes are not suited for tennis. You do not need two pairs of socks unless you make sudden shifts in direction, as in basketball. Get advice on proper footwear from

experienced athletes, teachers, coaches, and friends. \*\*\*

In general, clothing should be light and loose-fitting for most activities. Cotton shorts and shirts are good for warm weather. Do not wear nylon or rubber clothing in the heat as it could cause your body to overheat unnecessarily. \*\*\*

In cold weather, be sure to wear mitts or gloves and a warm hat. Keep your upper body warm with several thin layers of clothing, such as a cotton turtleneck sweater and a sweatshirt. Then you can peel off or replace layers as you warm up or cool down. The outer layer of clothing should be a light windbreaker. With proper clothing you can join the many people who enjoy jogging, walking, cross-country skiing all winter long. \*\*\*

Keeping fit for a lifetime means choosing a well-balanced program that will build and maintain your overall fitness. Choose a variety of activities that will increase your strength and endurance. When exercising, be sure to consider your safety. At different stages in your life you may have to adapt your exercise program, but with careful planning you can increase your lifelong fitness. \*\*\*

adapted from Getchell, Pippin, & Varnes (1987).

First Kill

It was as he had looked down at the great buffalo herd with his father that it suddenly came to Hawk that he could wait no longer to prove himself. He must join in the coming hunt. He had the bow and arrows in the lodge of Dead-Come-Back-Man. What he did not have yet was a grown man's strength. But he had the will. \*\*\*

At dawn on the morning of the hunt Hawk slipped quietly away to the tepee of Dead-Come-Back-Man. His old friend was already up and sitting by his small fire. Hawk knew where his bow and arrows were kept, wrapped in a soft piece of deerskin. He went directly to that special place without words. \*\*\*

Dead-Come-Back-Man was watching him. Meeting the boy's eye, he held it long and in silence across the fire.

"I must!" Hawk said, answering the look. "The time has come."

"Then I have nothing to say," the elder told him. "The time is for the hunter himself to know." \*\*\*

It was his father's fastest horse that Hawk sought out, a piebald with four white feet. Then he rode to the top of a hill to watch for the start of the hunt. Waiting, he thought only of what he intended to do and how the thing must be done. \*\*\*

At last the party of twenty-one young hunters came in sight, riding fast and in close formation. Hawk let them get well ahead, then followed at a fast lope, his deerskin shirttails flying and flapping as he cut a circle to the side.

\*\*\*

The party was nearing the buffalo herd before Hawk was noticed. Hawk knew they would not drive him off for it was not the Sioux way to stop a boy bent on a feat of courage or name-hunting. But neither would they help or advise him, or make allowances for his youth and inexperience. \*\*\*

It was a bold step he had taken, throwing off the protection as well as the fetters of youth. If he was injured it was his own concern. If he failed he would be shamed and laughed at. Better to be killed than that! \*\*\*

Hawk was the first to reach the game. He did not stop at the fringe of the herd but lanced his mount into the thick of the mass as he had seen the boldest hunters do. Before him, and on both sides, buffalo milled and churned uneasily. \*\*\*

Gradually he kneed his mount closer, jerked an arrow from his quiver and snapped it to the string. With all his strength he bent the bow, drawing the arrow back to its flint head. Thwack! The feathered shaft sank half its length behind the shoulder, a bit too high for the heart. \*\*\*

The rush of the young bull never slackened. Hawk rushed after him, as if tied to his quarry by a leather thong. He fitted another arrow to the bow. \*\*\*

This time as he came abreast of his game he reached under the horse's neck with his left arm, clinging with his right leg and right arm, his left leg far down under the belly of his horse. He let go a second shaft inches below the first. The young buffalo bellowed yet pounded on, big head low, liquid eyes gleaming wildly beneath the curled and matted fur.\*\*\*

Scalding shame poured through Hawk. He was not strong enough to bring down game, even with a man-sized bow and perfect arrows! The hunters would laugh and mock him, for no doubt they had seen. Even the girls would hear of it and titter as he passed. \*\*\*

The side of the young bull was dripping red, the eyes rolling whitely now in panic and pain. This animal would suffer much, for it would be hours or days from now before he would die. Suddenly Hawk knew that he could not let the young buffalo go. \*\*\*

He reached back for another arrow, then sudden fury made him fling his bow aside. He whipped the quiver up over his head and threw it away. Now Hawk waited his chance and drove

his mount in so close that his knee was pressing the wounded bull's flank. \*\*\*

He jerked up his legs so that for an instant he was crouched on all fours on the bare back of his galloping pony. Then he launched himself outward and fastened with clutching hands to the fur of the buffalo's hump. With a wild whinny his horse veered crazily off and Hawk was left there literally riding his prey. \*\*\*

In spite of clutching hands and clamped legs he did not know whether he could hang on to the pain-crazed bull or not. His buffalo mount was crashing through low brush and Hawk's legs and sides were cut with whipping branches till the blood ran. There was no give to that wide, rock-hard back, no letup in the buffalo's pounding gait. \*\*\*

Hawk felt the spasms of terror that tore through the animal and it took all his remaining strength to crawl slowly forward onto the sloping neck. It was slightly softer there, for the head of the buffalo all but swept the ground. He offered up a swift prayer to sun and moon and called upon the earth spirit, who presided over all man's hunting. \*\*\*

Then his knife was in his right hand and risking death again, he reached far down to stab and stab beneath the bull's straining neck. The animal's blood spurted, covering Hawk's

arm. Still the young bull pounded on and would not die.\*\*\*

Leaning close to one stiff black ear, Hawk voiced the ceremonial words of the buffalo hunter: "Grandfather, my people are hungry. You were created for this, so I must kill you." On his own he added: "Grandfather, fight and run no longer. You are very tired!" \*\*\*

Even so it seemed an endless time before the animal's gait began to falter. Then suddenly the downthrust head and horns gored the earth, and Hawk was flung forward and free of the crashing fall. Instantly he was on all fours, scuttling back to lie in the lee of the now prone body of his kill while hundreds of buffalo coming from behind barely broke their ranks around the fallen one and the small figure huddled behind it. \*\*\*

For an endless time humped forms continued to hurtle past in a wild confusion of pounding hoofs, rolling eyes and froth-strung muzzles. There was an end at last. But even then Hawk stayed low, offering up his thanks to Wahkan-Tanka, the Great One, for this miracle. \*\*\*

When the first of the hunters arrived, Hawk was too busy to even look up. Red-armed, he had already taken the tongue and heart of his kill. With the skill of a seasoned hunter he had slit the hide, the belly, and girdled the four legs. "I,

Hawk, have killed this one!" was all he said. \*\*\*

Darkness had almost fallen when Hawk rode into camp with the hide, heart, and tongue of his kill, his bare legs and arms crusted with blood. He was bone-weary but content, for the story of his triumph had gone before him through the camp so that there was awe in the eyes of his playmates who had run out to meet him. Trills and sighs came from the girls and young women as Hawk rode in among the tall tepees. \*\*\*

Standing Elk came and took hold of Hawk's thong bridle, calling out as was the custom, "Look, my son has become a hunter! My son is brave!" Now Standing Elk led Hawk, still riding the piebald, round the great circle of lodges for all to see. Hawk had to hold hard to hide his feelings, yet accepted the honor proudly, for his courage was too real a thing to admit false modesty. \*\*\*

That night there was feasting in the Sioux camp and the dance of thanksgiving that followed a successful hunt. In the tepee of Standing Elk, around the small fire, visitors came and went. Hawk was asked and re-asked to tell the story of his hunt. He related it all simply and gravely. \*\*\*

To show his appreciation of the honor to his son, Standing Elk gave away a horse to an elder who had recently lost his. To Hawk he gave the piebald pony. It was the father's

privilege to give his boy a new name, had he wished, but Standing Elk decided against it. Hawk was a fine name and there was none he could think of that fitted the boy so well. \*\*\*

adapted from Annixter & Annixter (1958).

Resources of the Earth

A resource may be defined as anything that people need. Limit that definition still further and a resource may be defined as anything a culture needs at a given time in history. Each culture - each nation of humans - makes its own decisions about what resources are. Those resources can include as basic a thing as water or they can be as complicated as the mind of a human being. \*\*\*

The Algonquin and Iroquois, for example, knew about petroleum because it seeped out onto their hunting grounds. However, they certainly did not think of it as an energy resource. \*\*\*

Colonial Americans thought of whale oil as an important resource because the whale oil was used to light their lamps. About the time that whales became scarce, Americans learned about kerosene. Made from petroleum, it was an excellent source of fuel for lamps. Suddenly, the whale ceased to be an important resource for kerosene had taken its place. \*\*\*

The common clove is another example of how resources change. It is hard to imagine that this spice was once a precious resource. Before refrigeration, however, meat was preserved with salt. One of the few ways to improve its taste was to cook it with cloves. In addition, the oil from pressed

cloves was used as medicine. Thus the clove became important to Europeans and was as important in its time as petroleum is today. \*\*\*

One way to get a better understanding of what the word "resource" means is to group together some of the things that most of the world's people need. Human needs can be classified into three categories - water, mineral, and biotic, or living, resources. \*\*\*

Water is one resource which many people take for granted. It is something they use every day for drinking, bathing, and cooking. The fact is that people need water more than anything else, even more than food. A human being could not live forty-eight hours without some form of water.\*\*\*

Water is neither created nor destroyed by natural forces. It moves from clouds to the ground to plants to rivers to oceans. It then goes back to the clouds again. Water, therefore, is called a "recyclable resource". Recyclable means it can be used over and over again. The problem is that water is not evenly distributed across the face of the earth. In any one place or at any one time there may be too much or too little water. \*\*\*

Besides water, people also use and need iron and zinc and copper. They need coal and oil and gas. These nonliving - or

inorganic - things are called mineral resources. One type of mineral resource is metallic. Iron ore, for example, is an important metallic mineral. Without it, human society could not have the tools and machines needed by advanced civilizations. Iron ore is mined or taken out of the rock in which it is found. When it is mixed with other minerals, it forms an even stronger substance - steel. \*\*\*

Other valuable metallic minerals are copper, lead, zinc, tin, and bauxite. Copper is often used in making electric wires and hardware. Lead can be molded into pipes and it is often an ingredient in paints, dyes, and pottery glazes. Zinc is used to galvanize or coat steel, a process that keeps it from rusting. Bauxite is the chief source of aluminum. \*\*\*

A second group is nonmetallic minerals. Nonmetallic minerals used everyday include stone, cement, salt, and graphite, the lead in pencils. Glass is made from sand, another mineral. In addition, people mine and use mica and asbestos for insulation. They use potash and phosphate for making fertilizer. \*\*\*

Salt, like fresh water, is another of those resources that people need to live. In ancient times, salt was the most important resource of all. It was used not only to season but also to preserve foods. The great trade routes were

originally established to transport salt throughout the world. Long ago, Roman soldiers received part of their pay in salt. The Roman word for salt - salarium - became the English word for salary. \*\*\*

The third group of inorganic resources are energy fuels. These are coal, crude oil, and natural gas. These resources are also called "fossil fuels" and are found in rock. In fact, geologists consider these fossil fuels to be kinds of rock. Geologists do this even though fuels are not really minerals like copper, sand, and salt. \*\*\*

All three resources which supply heat and energy were formed thousands of years ago. Coal was formed from dead plant life. Crude oil and natural gas are combinations of the remains of ancient fish and plants. All three were squeezed under thousands and thousands of tonnes of pressure over many centuries. Energy from the sun was trapped beneath the earth in dead plants and animals. Now, thousands of years later, it is used to run furnaces, machinery, automobiles, airplanes, and ships. \*\*\*

In addition to water and mineral resources, people need food, and almost everything people eat was once a living thing. Living things - both plants and animals - are called "biotic resources". They can be further divided into at least three groups. People grow or gather crops, raise or hunt

animals. The products from these plants and animals provide raw materials for building homes and making clothes. \*\*\*

Soil is also an essential resource, but it is neither a biotic nor a mineral resource. It is both. Soil is made of two things - parent material and humus. The parent material of the soil is the rock from which the soil was formed. Tiny pieces are knocked off larger rocks by wind, water, and ice. Also, the actions of plants, people, and animals affect rock. This process is called "mechanical weathering". Chemical weathering also takes place when the minerals in rock undergo chemical change. These changes cause the minerals to eat away at the parent material. \*\*\*

Over thousands of years, weathering breaks up the underlying rock - bedrock - into smaller pieces. Bedrock, from which soil is made, can be found beneath the soil or it can be found at the surface. One reason that soils differ is that parent material comes from a variety of rocks. Different kinds of rocks make different kinds of soils. \*\*\*

Decayed matter is the second important element of soil. Seeds are blown by the wind, carried by the water, or dropped by birds and animals. They fall between the tiny particles of rock and begin to grow, become plants, and finally die. When plants die they eventually decay. The dark-brown, partially decayed matter is called humus. It has valuable minerals -

called nutrients - that help to make the soil fertile.\*\*\*

The combination of decayed material and broken rock - humus and parent material - is soil. Plants need both kinds of material in order to grow. Different combinations of humus and parent material form different types of soil. Some are clayey; some sandy and gravelly. Others are rich and loamy. \*\*\*

The most important factor affecting soil is climate. Heat and moisture acting on parent material and humus help create certain types of soil. With many months of sunshine and rainfall, plant growth will be lush. Abundant humus will be produced and the soil will become rich in essential nutrients. \*\*\*

But if it continues to rain, the nutrients from the humus can be washed down. When this happens, the soil becomes "leached". If rainfall is light, weathering be slow. Plant growth will be sparse and nutrients already in the soil will remain. Calcium and magnesium already in the soil will remain. Calcium and magnesium will build up in the soil.\*\*

Today water, mineral, and biotic resources are being strained because of the uneven distribution and because of population pressure. Some of this strain can be relieved by wise resource management. Without such management, these

resources will become severely depleted. Then man may have to search elsewhere. Some scientists predict that the stage is now being set for the Ocean Age when man will be forced to exploit the last great resource of the planet earth. \*\*\*

adapted from Educational Challenges, Inc. (1982).

No Brakes

Was Guy Garrison really dead? Had he really died when his car went off the road? Who was the strange man who Laura had seen in the woods behind the Garrison mansion? What was Renee Dumont hiding from her? And why was Watson, the butler, so protective of Ms. Dumont? Laura's mind whirled with these unanswered questions as her car plunged down the mountain road. But the biggest question of all was would Laura live to find out the answers?

The tall buildings of the city of Los Angeles lay below her. Far off to the west was Santa Monica, where she lived. Past Santa Monica was the vast Pacific Ocean. For a long while, Laura gazed down at the city spread out below her. Then she turned and walked back to the front of the house. \*\*\*

Having climbed the wide stone steps, she found herself standing before the wooden door. As she reached out to knock, she realized that the door was already partly open. Quietly, Laura stepped into a spacious hallway and found herself standing on a thick scarlet and royal blue Chinese carpet. "Hello? Is anyone home?" she called. \*\*\*

The mansion remained silent and still. Her curiosity getting the better of her, Laura walked down the hallway a few feet. Opening a pair of heavy wooden doors before her, she found herself in a room that was almost all glass. Tropical plants of every shape and size filled the glass room. Bright sunshine poured through the many windows flooding the room with light. \*\*\*

Laura wandered aimlessly around the room casually inspecting the plants. Reaching the back of the room, she stood before a large window which looked out over the garden and the yard she had seen outside. At the back of the yard stood a row of short, bushy trees. \*\*\*

As Laura watched, a figure of a man stepped out from among the trees. His face was shaded by a hat and his hand pressed down on the handle of a rake. For a moment he paused and stared at the mansion. Quickly, he wheeled around and disappeared through the trees. \*\*\*

At that moment, a noise in the plant room attracted her attention. Laura turned to find a large, heavy-set man standing in the doorway. Judging from his appearance, Laura decided he must be the butler.

"The television people have gone, Miss," he said. "Did you get lost and left behind?"

"I'm not with the television reporters. I'm from the insurance company," Laura replied. "I spoke to Mrs. Garrison on the telephone this morning and she agreed to see me."\*\*

"Of course, Miss," said the butler, his voice like ice. "I'll tell Mrs. Garrison that you have arrived. Why don't you wait in the study?"

Laura followed the tall man through the doorway, down the hall, and into a small room containing a desk and a few comfortable chairs. The walls of the room were lined with row after row of books. After the butler had gone, Laura looked around. Most of the books were about movies or movie stars. She selected one called Horror in Film and began to read.

\*\*\*

A few minutes later, Laura glanced at her watch. She realized that she had been reading for almost fifteen minutes. "OK," she thought, "what's going on here?" Putting down the book she had been reading, Laura stepped out into the hallway. \*\*\*

For several minutes Laura looked around the first floor. One set of doors led into a beautiful white and gold ballroom while another led into a small, green sitting room. Meeting no one, Laura returned to the front hall and waited for a while longer, impatiently drumming her fingers on a small table. "Well, I'll try the next floor," she thought, as she started up the wide white marble steps to the second floor. \*\*\*

The first room she came to appeared to be a movie library and screening room complete with rows of green velvet chairs, a large white screen, and shelves filled with reels of film. "Nice place," Laura thought, "but where's the popcorn machine?" Leaving the screening room, she started down a wide hallway past several unoccupied bedrooms. \*\*\*

At the end of the hallway, Laura paused to look at a small door on her right. Opening it she found herself standing in front of a set of winding iron steps which led up into one of the mansion's towers. Glancing over her shoulder, Laura started up the staircase. \*\*\*

Grasping the handle of the door at the top of the stairs, she turned it quietly and pulled the door open. Slowly she stepped inside a round, dark room. Running her hand over the wall, she found the light switch and flipped it on. The first thing she saw was a small curtained window on the far wall. Suddenly she uttered a low scream and covered her mouth with her hand. \*\*\*

The figure of a man stood in front of her. It was the actor, Guy Garrison. Laura stepped back but the figure didn't move toward her. It was very still, its eyes looking directly at the doorway. Running a hand nervously through her hair, Laura moved toward the figure. As she drew closer she began to smile when she realized that the figure before her was only a mannequin. Suddenly, she heard a noise on the iron steps.

\*\*\*

Turning around Laura spotted a tall, beautiful woman in a long gold velvet robe standing by the door. Under one arm she held a small white Pekinese dog. Just behind her stood the butler. Both were watching her carefully. \*\*\*

The woman pushed back a lock of her thick brown hair. In a rich, low voice she said, "Miss Brewster? I'm Renee Dumont - Mrs. Guy Garrison. This is Watson, my butler, and this is my darling little Poof. I'm sorry you had to wait for me for so long. I see you've discovered Guy's special room." \*\*\*

All at once the woman stopped talking. She closed her eyes as two large tears ran down her cheeks. She rested her head against Poof's soft back, her fingernails looking long and blood-red against the dog's white coat. Gazing at Laura coldly, the butler went to Renee Dumont and took her arm. The actress opened her eyes and tried to smile. \*\*\*

"I'm sorry," she said, her low voice cracking as she spoke. "I just keep thinking...that Guy might not be dead. He might need me and not be able to get me."

Laura moved toward the door. "I can come back another time," she offered.

"Maybe tonight. If you could come for dinner we could talk then."

"Thank you," said Laura. "I won't keep you long. I just want to ask you a few questions - about your husband's state of mind." \*\*\*

From below came the sound of a car pulling into the driveway. Crossing to the window, Laura looked out. Luke Norton's old yellow station wagon was parked on the drive. The tall police officer had jumped out and was now heading for the door of the mansion. "My friend is here," Laura explained. "He and I are going up to see where your husband's Rolls went off the road." \*\*\*

"Before I go there's one thing I'd like to ask you now, Ms. Dumont," Laura said. "I saw a strange man behind the house this morning."

Renee Dumont appeared to be somewhat startled. Pulling her robe around her and rubbing Poof's head, she replied, "Strange man? Now who...? Oh yes, that must have been old Theodore, the gardener. A bit touched. He is a little strange." \*\*\*

"The gardener, of course," Laura said. "He was carrying a rake. I saw him resting his hands on it." Appearing to be satisfied with the explanation, Laura turned, leaving Renee and Watson standing in the small tower room. At the foot of the stairs in the first floor hallway Laura met Luke Norton. He was standing just inside the front door. \*\*\*

"It was open so I came on in," he explained.

"Thanks for coming, Luke. It was nice of you to help me out - with your car and yourself. I know it's your day off."

Luke gave her a slow smile and replied, "I thought a ride along the ocean would be a nice change. We can stop for lunch on the way. I even brought along my fishing rod. How does that sound?"

"Great! Let's go," Laura agreed. \*\*\*

Luke backed the station wagon out of the driveway and turned right. As they drove across the top of the hill, Laura caught glimpse of another beautiful old mansion. Its grounds seemed to go on for at least a mile, but most of it was cut off from the road by a high stone wall. \*\*\*

In a few minutes the station wagon was heading down a winding road that led to the bottom of the hill. As they drove Laura pointed to another gigantic Hollywood mansion - this one was white and had windows from the roof to the ground. "I wonder what it's like to live like that?" she said. "Do you think you would like it?" \*\*\*

Luke didn't answer and Laura turned to look at him. The police officer's face was grim and his large hands tightly gripped the steering wheel. "Luke, are you all right?" Laura asked.

"I don't think so, Laura," came the answer. "You'd better hang on to something. We're in for trouble. The brakes just went out." \*\*\*

adapted from Eisenberg (1980).

### The Money Game

Ross Saunders looked like a nice country boy, but he wasn't. He had been born here in the city and he was smart - street smart. His handsome face wore a broad smile for the money game was beginning again - a game that more than anything Ross Saunders liked to play. A game that he had played so well so many times before.

Because he woke up late that morning, the sun was already in the sky. A new day, he thought - a new day in which to play the game. The thought made him feel good and he climbed out of bed and began to dress. \*\*\*

Soon he was ready - ready to play the game once more. Going outside he walked down the street, fast, but not too fast. He wanted to see what there was to see and who there was to see. You could never tell just what you might see out here on the street or who you might meet, so he kept his eyes wide open. \*\*\*

His name was Ross Saunders and he looked like a nice country boy, but he wasn't. He had been born here in the city and he was smart - street smart. A person had to be street smart to survive in the city. It was the best way to live the good life, too. \*\*\*

As he sauntered down the street toward a fruit store, he spied a little kid. There was something about the kid, something he couldn't put his finger on. Something about the way the kid looked all around him - up the street, down the street, into the store. \*\*\*

Suddenly, Ross saw the kid reach out, grab an apple, and begin to run. So did Ross. Catching the kid he ordered, "Hand it over!"

"Let me go!" the kid retorted. "Mind your own business, man!" \*\*\*

Ross forced the kid to go back to the store. As they reached the doorway of the fruit store, the owner emerged.

"Is something wrong?" he asked Ross.

"Give it back, kid," Ross said. Grudgingly, the kid handed over the apple to the shopkeeper. \*\*\*

"I saw him steal it," Ross explained.

"Thank you," the store owner replied. "Thank you very much. These kids! They'll steal anything these days - anything that isn't nailed down!" \*\*\*

Ross released his captive. Relieved, the kid raced off down the street and disappeared around the corner. "Have something," the owner offered. "Take an orange, or would you rather have an apple? Take either." \*\*\*

Selecting a juicy red apple from the pile, Ross turned and started off down the street feeling pleased with himself. The day was a fine one and he was happy. Looking down at the apple he thought, "Something for nothing." That was cool. But it wasn't really something for nothing. After all, he had caught the kid, so the apple was his reward. Still, it was all very cool, he thought. \*\*\*

He stopped at last in front of a small building. The sign on the door read: SENIOR CITIZENS CENTER. Opening the door, Ross stepped inside. Inside, the place was packed and most of the people were elderly. The few young ones that were there were volunteers at the Center. They helped the old people make crafts like baskets and art and also kept them company - just like Ross himself did. \*\*\*

"Ross!" someone called out. It was an elderly man. "Come over here. I want to talk to you." Ross merely waved in the direction of the old man but did not go over. Instead, he carefully surveyed the room until he finally spotted her, with another woman. Both women had snow-white hair and wore glasses. \*\*\*

"Good morning, ladies," Ross said pleasantly as he approached. One of the women reached out to put her arms around him.

"Hello, dear," she said. "Oh, I'm so pleased to see you. I thought that maybe you wouldn't come today."

"I always come, Mrs. Drake. You know you can count on me," Ross assured the woman. \*\*\*

Shaking her finger at him, the woman said, "I've told you so many times."

"Told me? Told me what, Mrs. Drake?"

"Don't call me Mrs. Drake. You and I have been friends, Ross, for a very long time. Good friends! So, call me Sally."

"OK, Sally," Ross responded with a smile. \*\*\*

The other woman smiled, too. "I'll see you later, Sally," she said. "Two is company but three's a crowd, you know." Ross and Sally chuckled as the woman crossed the room to speak to someone else. \*\*\*

"Come over here and sit down," Sally said to Ross. Taking his hand, they walked over to a small, round table near the window. "Would you like some coffee and cake?"

"I'll get it," Ross answered. "You just sit right there - I'll be right back." And he was, bringing with him two cups of steaming black coffee and two pieces of chocolate layer cake. As Sally sipped the steaming coffee and nibbled at the chocolate cake, Ross watched her thoughtfully, waiting for her to say something. He was positive that she would.\*\*\*

Finally, Sally broke her silence. "I've been thinking about what you said yesterday. About how you said you can double my money for me." Ross made no reply but merely nodded his head very understandingly as Sally continued to speak.

"But I'm not sure what I should do. I really don't have very much money saved, you know, and if something should happen to it..." \*\*\*

Ross interrupted, saying, "If you lost it that would be unfortunate. That's why I told you to think over what I said yesterday before you come to a final decision, Sally. You know I want you to be very sure that this is the right thing to do." \*\*\*

"I know that, Ross, and I really would like to double my money," Sally replied. "But everything is so expensive these days - clothes, food, everything!"

"I know," Ross said patiently, reaching out to take Sally's hand in his. \*\*\*

He continued. "Let me ask you something. You didn't tell anyone else about our conversation yesterday, did you, Sally?"

"Of course I didn't, not a word. You made me promise not to, remember?"

"Good! I don't want too many people to know about our plan. It might spoil it for the rest of us." \*\*\*

"You said it would be a safe thing to do with my money," Sally said.

"It is safe, Sally. You can double your money in just a few days, that's a fact. If you don't believe me..."

"I do believe you, Ross, but I guess I'm just afraid. I don't want anything to happen to the little money I do have."

\*\*\*

Still holding Sally's hand, Ross replied, "I'll tell you what. How about this idea? I'll give you one thousand dollars of my own money and you give one thousand dollars of your money. If I don't double your money as I promised, then you keep mine." \*\*\*

"Oh, I couldn't do that," Sally protested. "That wouldn't be fair to you."

"It will make you feel safe," Ross replied. Reaching into his pocket, he pulled out some money, handed it to Sally, and told her to count it. \*\*\*

Her hands trembling slightly, Sally counted the pile of bills that Ross had given her. "One thousand dollars," she whispered.

"It's yours. You keep it."

For a moment Sally was silent. Then, looking up at Ross trustingly, she said, "Let's get out of here."

"Where do you want to go?" Ross asked innocently.

"To my bank. I'll withdraw my one thousand dollars and give it to you." \*\*\*

As Sally moved toward the door of the Senior Citizens Center, Ross followed her. On his face was a broad smile - a smile which Sally did not see. The game was beginning again - a game that more than anything Ross Saunders liked to play. A game that he had played successfully many times before.\*\*\*

adapted from Ericson (1977).

I Died Here

Larry had known the little Greek town of Drokola in his dream. It was the place where he had lived in another life. Where he had died. But there was something more. He was killed there because of something he knew. What was it? Why did he keep telling himself...I died here!

Larry Arkos was very frightened. He was driving through a strange and unfamiliar country, his car racing at top speed down a narrow, winding, mountain road. He had no idea how he had gotten here in the first place. He only knew that he was somewhere in Greece. \*\*\*

It was late in the day and Larry felt hopelessly lost and very tired. Before him appeared a road sign which read, "Drokola". Suddenly, he felt fear rising from the pit of his stomach and he began to sweat profusely. \*\*\*

Driving past the sign, Larry followed the winding dirt road until he eventually reached a small town, but he did not stop. Instead, he drove through the town and continued along the road until he found himself at a cemetery. Getting out of his car, Larry slowly walked to the cemetery gate, pulled it open, and went inside. \*\*\*

He sensed that he was searching for something, but he wasn't sure what it was. Walking on, he found himself standing before a grave. The stone above the grave bore the name "Nikos Vanos". "That's my name!" he whispered. His whole body began to tremble violently. He wanted to cry out, "That's my name! That's me in that grave! I died here!"

\*\*\*

From behind him he heard a sound. Turning, he spotted a large black dog charging at him. the dog appeared to be aiming

for his throat. Its teeth sunk deep into Larry's arm as he struggled to fight it off. \*\*\*

Larry began to run - but from what? Once again he turned to look behind him. Two shadowy figures dressed completely in black were pursuing him. "You died here! You died here! You stay here!" Their voices screamed after him. Onward Larry rushed but he couldn't seem to find his way out of the cemetery. Panic-stricken, he tried to scramble over an old iron fence which suddenly appeared before him. Whack! Something struck him from behind and knocked him down. \*\*\*

Larry woke up - screaming. he looked up and felt the room begin to whirl around him. Mercifully, the dream was over! As he dragged himself out of bed, his body became frightened once more. "What is this place? Where am I? Why am I here?!"\*\*

Slowly he walked to a window and looked out. The morning light showed that he was in a little town. All the houses which ran up and down the street and ringed the town were built of stone. Looking down into the street below, he spied a shop window. A sign in the window read "Drachos Manos". \*\*\*

"Think! Think!" he said out loud. "Where am I? What is this place?" He forced his mind to work, to shake off the dream. Then it came to him. \*\*\*

He was in a small hotel in Kropos, a small town in Greece. He remembered he had arrived there yesterday. The previous night he had been in another small hotel in another Greek town some miles away. That night, he recalled he had had the very same dream. "I'm losing my mind," he thought to himself. "I don't know what I'm doing any more. I've had this same crazy dream every night for weeks." \*\*\*

He thought again of the name of the town in his dream - Drokola. Did such a place really exist? He couldn't find it on any map. He had driven all over Greece searching for it and he had met no one who knew of it. But it had to be there. It all had to mean something for the dream seemed so real and Larry knew that sometimes dreams came true. \*\*\*

Suddenly, Larry wished there was a phone in his room so that he could call home. He desperately wanted to call Anne and tell her how much he missed her - tell her he was coming home. \*\*\*

"I've got to get out of here" he thought. "I've got to get out of this town - out of this whole country!" Carelessly throwing on his clothes, Larry rushed downstairs and checked out of the hotel. Climbing into his car, he turned on the engine and sped away. \*\*\*

"I'll drive to the nearest big city," he thought to himself. "I'll drive to Volos. I can be there by late tonight. Then I'll catch a plane and be home tomorrow." As he drove, he thought of Anne and home and found himself slowly beginning to relax. \*\*\*

This entire trip was against all reason. It made absolutely no sense whatever. He thought to himself, "What made me do it in the first place?" Home was in California, where he had a good job, where he had Anne. There his life made sense. \*\*\*

But it was in California that the dreams had first started. Almost every night the same dream - he was in Greece. First, the sign - "Drokola". Then he followed the winding road that led through the town and ended at the cemetery. Then, the name on the stone - "Nikos Vanos", the black dog, and the hand reaching up from the grave. \*\*\*

None of it made any sense, but it all seemed so real. night after night, it tore at his mind. Finally, the dreams drove him here - to Greece. The more he thought about the dream, the faster he drove. He took one wrong turn, then another until suddenly he realized that he was lost. It was growing darker by the minute. He was still somewhere in the mountains and there were no other cars on the road. \*\*\*

As he drove around a bend in the road, something leaped in front of the car - a dark shape. Was it a person? An animal? Larry tried to stop before he struck it. Coming down hard on the brake, the car skidded off the road and lurched to a stop. He was all right. Looking at the road, Larry saw nothing there. Nothing! \*\*\*

What had just happened? Had something actually jumped out in front of him? Perhaps it had been an animal crossing the road. Perhaps, too, it had all been in his imagination. Then, in front of him, he saw it - a road sign. The sign! It said - Drokola! \*\*\*

The sign pointed to a winding dirt road - the road in his dream. Suddenly, Larry's heart started pounding and his hands began shaking. "No!" he told himself out loud. "Don't! Don't go down that road! You've come far enough. You've done enough. There's an evil place down that road! You'll die there!" \*\*\*

For a long time he sat there, staring at the sign. It called to him, "Drokola! Drokola! Drokola!" I can drive away from here, he thought to himself. I can go all the way back to America, but it still won't make any difference. The dreams and the fear will still remain with me. I can't run. I have to face up to the dream and the fear - NOW! \*\*\*

Starting the car once more, he drove back on the road past the dreaded sign. On he traveled down the the winding dirt road to which the sign pointed. His skin felt cold and clammy. His mouth was so terribly dry. Larry realized he had never been so terribly frightened in his entire life! \*\*\*

At the end of the road lay the town - the same little Greek town that was always in his dream. Larry forced himself to keep driving, all the while knowing what lay ahead. Before he knew it, Larry had reached his destination, just as he knew he would. Stopping the car, Larry slowly got out. It was almost dark as he walked to the cemetery gate. Cautiously, he opened it and stepped inside. \*\*\*

adapted from Shea (1979).

The Secret Behind the Picture

Larry's eyes were suddenly drawn to the wall directly behind where the old lady sat. Hanging there was a picture - a picture which seemed vaguely familiar. Staring at it closely it hit him, and, slowly, it all came back to him... Now Larry remembered what secret lay behind the picture.

His heart pounding rapidly, Larry Arkos made his way to the cottage on top of the hill. It was brown and large, old and broken down. Like the small stone cottages in the small Greek town below, something about the place made him think that he had once known this place. A strange feeling deep inside led him to believe that he had been there before.\*\*

Pausing for only an instant, Larry rapped sharply on the cottage door. After what seemed an eternity, voices were heard coming from inside the cottage, and then the door slowly opened. Before him, standing tall and straight, was a white-haired woman. \*\*\*

"Yes?" she asked. Larry stared at her intensely. He thought he recognized something in her eyes - something he remembered from long ago.

"My name is Lawrence Arkos," he said. "I have come to Greece from America. I am interested in talking to people who knew Nikos Vanos. Did you, or anyone else in this house, know him?"

"Yes," replied the woman looking very surprised. "Nikos was my son." \*\*\*

At that point a man appeared at the door. He was short, about fifty years of age, with a strong build. "Momma, what is it?"

"This young man," Mrs. Vanos began, "has come here to

ask about Nikos."

Turning to face Larry, the man asked, "What do you want to know?"

"May I come in?" Larry asked. "I can tell you better there." \*\*\*

The man and woman led him into a small sitting room. "Sit down, please," the woman motioned. At that point the man left the room but soon reappeared carrying a flask of wine. Pouring out a glass, he said, "I am George Vanos. Nikos was my brother." He handed Larry the glass. Lifting it to his mouth, Larry swallowed the strong, blood-red liquid. \*\*\*

"Why do you want to know about my son?" the old woman questioned.

"I - I knew him," Larry replied haltingly.

Mrs. Vanos and George both looked at him strangely. Larry realized that he looked quite young. Maybe he looked too young to have ever known Nikos. \*\*\*

"When did you know my son?" Mrs. Vanos inquired.

"I knew him when I was a child," Larry lied. He couldn't tell them what the old woman in black had said. If he did they would probably refuse to tell him anything.

"My family was staying in this village at the time. It was just before we left for America. We were here only a

very short time, but I remember Nikos well. He was always very kind to me." \*\*\*

"My son was a very fine person, Mr. Arkos," the woman responded. "But Nikos is no longer with us. He has been dead for twenty-five years now - he was killed in an accident."

"An accident?" asked Larry. "What kind?"

"He was killed in a rock slide," explained Mrs. Vanos. "Rocks came crashing down the mountainside and killed him."

\*\*\*

George Vanos now spoke up. "A man named Grivas found the body. He and the chief of police brought it into town."

"Where did it happen?"

"On Grivas' land, on the other side of the mountain," George continued.

"Was Nikos the only one killed by the slide?"

"Yes, he was alone," George replied.

"Why are you asking all these questions?" asked the old woman, visibly upset. \*\*\*

Larry decided to take a chance. "Mrs. Vanos, have you ever considered that perhaps Nikos' death was not an accident? Have you ever thought that perhaps your son was murdered?"

"I refuse to believe that," retorted George, obviously very angry. He took a few steps toward Larry. Looking into

George's face, Larry thought of what the old woman had told him: The murderer still lives...You knew him...believed in him. Did Nikos perhaps believe too much in his own brother?

\*\*\*

"Never, never have I thought of murder," replied Mrs. Vanos. "Why do you even ask such a question? Who are you, really? Who sent you here?"

"I knew your son," Larry insisted.

"How could you know my son? What do you know about my son?" \*\*\*

Larry's eyes were suddenly drawn to the wall directly behind Mrs. Vanos. Hanging there was a picture - a picture which seemed vaguely familiar. Staring at it closely, he suddenly remembered and slowly it all came back to him.\*\*\*

"I remember that when Nikos was young he stole a small sum of money," Larry said. "I know where he hid it - in a hole in the wall behind that picture." Slowly, Mrs. Vanos turned to face the picture on the wall behind her. For a long time she stared at the picture. When she turned to face Larry again, her eyes were wide and filled with fear. She looked as though she couldn't believe what she was hearing. \*\*\*

"Later, you found it - hidden there, behind the picture." Larry pressed on. "You were very angry. You hit me

- I mean you hit him very hard - so hard that he cried. Then you cried, and you made him..."

"Stop!" screamed Mrs. Vanos. "How - how do you - know this?" she asked, staring at him with fear in her eyes. "Who are you?" she asked again, but the look in her eyes confirmed that she already knew. \*\*\*

"Momma, what is it? What's wrong? What do you see in his face?"

"No one knows that story," Mrs. Vanos began. "No one...but Nikos and me. No one! I am certain of it! I made him promise that he would never tell anyone. How could you...?" \*\*\*

"I have dreams about Nikos," Larry replied. "Today in the cemetery, at his grave, I met an old woman in black. She lives in the stone house at the bottom of the hill. She told me that..."

Mrs. Vanos screamed, "Aposta! The Evil One! She sent you here! The devil sent you here with these stories! That woman talks with the devil! That is how you know these things! You are with the devil!" \*\*\*

Suddenly, she seemed to be losing her breath. As she started to fall toward the floor, George caught her at the last moment and slowly set her down. Quickly, he bent over her

to listen to her heart and to make certain that she was still breathing. Larry started to move toward her, but George held up his hand. \*\*\*

"Stay back," he warned. "She'll be all right. She's a very nervous woman - she has spells. In a few minutes she'll be herself again." Rising to his feet, George turned and walked to the wall behind him. Reaching up, he took down his gun. He whirled around to face Larry, pointing the rifle directly at his chest. "Now, you - you leave this house!" he ordered. \*\*\*

adapted from Shea (1979).

## APPENDIX E

Retrospective Interview OneSkilled and Less Skilled Readers

The following directions and questions were read aloud to the students. In the event of brief responses, neutral probes such as "Anything else?" or "Can you tell me more about that?" were used.

Directions: Now that you have read both selections, I would like you to take a few minutes to look them over. As you look them over, I want you to think about which of these two selections was easier for you to understand and why. Also, think about what made the other selection more difficult. In a few minutes I will ask you to tell me your thoughts about each selection.

Interview Questions:

- (1) Which selection was easier for you to understand?
- (2) What made this selection easier?
- (3) What made the other selection more difficult?

## APPENDIX F

Retrospective Interview TwoLess Skilled Readers

The following directions and questions were read aloud to the students. In the event of brief responses, neutral probes such as "Anything else?" or "Can you tell me more about that?" were used.

Directions: Now that you have read all three selections, I would like you to take a few minutes to look them over. As you look them over, I want you to think about which of these three selections was easiest for you to understand and why. Also, think about what made the other two selections more difficult. In a few minutes I will ask you to tell me your thoughts about each selection.

Interview Questions:

- (1) Which selection was easiest for you to understand?
- (2) What made this selection the easiest?
- (3) What made the other two selections more difficult?

## APPENDIX G

Orientation to the Study

Each interview began in the following manner:

Hello. My name is Darlienne Black. I am interested in finding out what seventh graders know about reading.

To do this, I am interviewing several grade 7 students and asking them to do some reading for me. In order to get all the information I need, I am going to meet with you at least four times. Each session will last about 40 minutes. I have obtained permission from your principal to have you excused from your regular class for the times when we will be working together. I have also notified the teacher whose class you will be missing.

Because you can talk faster than I can write, each of our sessions will be recorded on this tape recorder. Later, I will use the information on the tapes to help me write a report. In my report, it may be necessary for me to use students' first names. If you would like to keep your identity a secret, you may choose a code name for yourself, and I will use that name on the tape and in my written report.

Today I'm here to find out what you think about various reading activities. I will ask you some questions about reading. There are no right or wrong answers. I am only interested in knowing what you think.

## APPENDIX H

Sample ProtocolsContaining Pre-Reading InterviewQuestions and Responses

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Sample ProtocolSkilled Reader - Pre-Reading InterviewQuestion 1: What is reading?

Well, reading is like when you either read out loud, just reading stories or anything, or you read to yourself...like a story of what's going on in the story and if it's connected with some people. You have to read it word for word and you know what's going on in the story as you read it. When you read a story and all of the words, you know what's going on.

Question 2: Why do people read?

People read for hobbies, for assignments in school, to learn how to read, to get a better vocabulary, and for the fun of it.

Question 3: How did you learn to read?

Usually, I sounded it out. I started reading in kindergarten, actually in nursery school, so my teachers and my mom helped me.

Question 4: What did they/you do to help you?

I always got papers to work on but that didn't help much. The teachers just helped me to sound out the big words so it was easier. I don't think pictures helped much. In the younger books there are always giant pictures that go along with what the little sentence is saying. In a way it did help too because if it says, "See Jane run" and it shows the picture of Jane running, it shows you if you read it right then the picture should be right...match the words, too.

Question 5: (a) What makes someone a really good reader?  
(b) Why do you think this?

When they read, it comes out clear and you can understand them. It's loud so you can hear them, too. I guess a good clear voice... knowing the words.

Question 6: (a) How good a reader do you think you are?  
(b) Why do you feel this way?

I'm OK. Well, I know the words and everything. I can sound them out. The only thing is I'm a bit quiet when I read. Sometimes I don't always understand it because I read fast and I miss out words and I have to go back.

Question 6: (c) What would you like to do better as a reader?

I'd like to slow down because when I'm reading to myself I always go so fast and I miss a lot and I always have to go back because sometimes I know I've missed parts but basically I still understand the story.

Question 7: (a) What do you do in your reading classes in school?

We read stories and then we usually get questions to answer and different kinds of exercises to work on. For example, we read one story and we just got questions about what happened in the story. Another time we got a sheet that had like uh... the subject of a sentence and words like instead of was it was supposed to be weren't and things like that. The teacher read out loud to us once but usually we read it for ourselves and then we get homework. We read individual stories from a reader. It's called Context.

Question 7: (b) What do you do when you read in your free time?

We get ten minutes sometimes in language arts classes to read depending on how much other work we have to do. We get ten minutes during the reading classes, I think. I like mysteries and I like teen romances. I read all the time in my free time outside of school, only not when I'm doing my homework though. I sit up on my bed and read for about an hour until my eyes get sore. I read to myself, not out loud then.

Question 8: Do you prefer to read out loud or silently?  
Why?

I prefer to read it silently but I usually, well, if I'm told to read it out loud I do. When I read out loud I go faster and people don't understand me usually. When I slow down, my voice gets really horrible. I can understand myself but I understand better when I read silently. Usually when we get homework, if we had to read the story out loud, I'd have to read the story all over silently when I get home.

Question 9: If I gave you something to read out loud right now, how would you know if you were reading it well?

The teacher would comment on how I did and if I could understand myself...understand what the story is saying. If I had to read out loud right now I know I read too fast so I'd probably slow down so I'd understand what it was saying and if I read clear, too.

Question 10: If I gave you something to read silently, how would you know if you were reading it well?

If I understood what the story was about...like if I understood it myself and it all makes sense.

Question 11: What makes something difficult for you to read?

When there's a lot of big words! Big words that I've never seen before. If I haven't read about something like that before, like sometimes in certain subjects you read something and it doesn't make sense so you have to ask.

Question 12: (a) Do you understand everything you read?  
(b) Why do you think you sometimes have trouble understanding what you read?

Yeah, usually, except sometimes in science cause in science in the years before that we haven't taken that certain stuff and when you read it for the first time it seems different.

Question 13: What do you do when you come to a word that you don't know?

If I had a dictionary, I'd probably look it up. If I didn't have a dictionary, I'd probably ask someone like a teacher or a friend. I could read before the word and then read after it and I'd probably be able to figure it out then. I might make due with a word that I do know in that spot that will sound good.

Question 14: What do you do when you don't understand a sentence or a paragraph when you are reading?

Well, if it was a sentence, I'd read the sentence and then reread the first part and skip out the sentence and go to the end and it would help me there just the same as with the word I didn't know. If it was a paragraph, I'd look for some diagrams cause diagrams...well, sometimes it says refer to Figure A or something, so I read the paragraph over and look at the picture and it sort of comes together. Sometimes there's little things at the side of the page that explains it better.

Question 15: What helps you to understand something that you read?

Usually if I already know the words. If you have a big vocabulary it helps. Then it's easier to understand things when you know what the words mean. Diagrams also help me. The title of the book or what the teacher explained before we read it helps, too.

Question 16: (a) What is the most important reason for reading this kind of material?

- i. basal reader
- ii. content area textbook
- iii. trade book

(i) Well, it's for reading out loud. Last year in grade 6 we used another book like this, Lobstick I think it was called. Reading that brought up my vocabulary a bit and when there are bigger words it's easier to figure them out cause when you're reading out loud you can sound them out easier.

Sometimes when you're reading silently and there's a big word you just decide to skip it and you can't do that when you read out loud.

(ii) This kind of book is to help you learn in social studies. That's like what we're doing now, global land forms. Yeah, just to learn social studies. This is one of those books that's all confusing inside and you have to look at all the pictures a lot. It's confusing cause this is the first time we did this, uh...this type of stuff and all the words are bigger. I've never seen words like this before in grade 6 and the lower grades.

(iii) If you have a book like this, you've got a choice to read it. Sometimes with the other two kinds you don't. These are fun books that you can read in your free time.

Question 16: (b) Why would a teacher want you to read a book like this particular one?

- i. basal reader
- ii. content area textbook
- iii. trade book

(i) I guess to get good reading habits. Most of the time teachers do make you read out loud out of these ones. Like I said if you read silently and you come to the hard words you don't bother with them. So if your habits are that when you're reading silently you don't care, by reading out loud you have to pay attention to all the words so you can get out of that bad habit.

(ii) Probably because it's new to the kids and it has more information. Also to help you to practice your map skills and reading skills and vocabulary stuff, too, like all these words in here and so you can answer questions.

(iii) If we had to do a book like this it would be so they could ask questions on it cause we did that last year. I guess to get you used to reading novels cause you're going to have to do it more in the later grades.

- Question 16: (c) Why would a friend want you to read a book like this one?
- i. basal reader
  - ii. content area textbook
  - iii. trade book

(i) Maybe to help them understand it because they read it themselves and didn't understand it, so maybe if somebody else read it to them, they'd understand it better. That's what my teacher did when someone else read it. He didn't understand the beginning and when someone else read it, he finally understood what it meant.

(ii) If they were older and they have already learned from a book like this and they got a lot out of it, well suggesting it to you would... well, if they understood it and they used a book like this it would be helpful to the next person reading it.

(iii) If they'd read it already, they'd sort of be recommending it to you as a good book.

Sample ProtocolLess Skilled Reader - Pre-Reading InterviewQuestion 1: What is reading?

Reading is how you learn new words and what happens. Sometimes some of the books are for real and you'd like to learn what happens to things.

Question 2: Why do people read?

Sometimes they feel like it's fun. They do it in their free time. Maybe they're failing in school and they need to read a little more. They need to learn more words, to practice their reading. In a class they might have to read a story and tell what it's about...how, uh, what you feel about it. Outside of school they might have a little sister and they might read to her to help her go to sleep or the little sister might want them to read a book or your grandma's feeling down and you read her a nice story.

Question 3: How did you learn to read?

I don't really remember how I learned to read. I could read a little bit before I came to school. I read little books. There was about two words on each page. My mom, my dad, my family helped me to read those books.

Question 4: What did they/you do to help you?

They read it over first and then they said I should try and sound out the words as I read. If I didn't get it they'd make me read it again to see how I'm doing. The teachers would give you a book and make you come up in front of the class and they'd help you read or they'd read to you and then say you can probably read this page now.

- Question 5: (a) What makes someone a really good reader?  
(b) Why do you think so?

They like to read. They read every day. They practice a lot - practice their words. They get help with words and then they can read very well after.

- Question 6: (a) How good a reader do you think you are?  
(b) Why do you feel this way?

I'm not a really, really good reader but I can read OK. I think I'm a fairly good reader. I think I'm about a B+ reader because sometimes there's hard words in there that I can't always understand. Sometimes I can't read that fast like the real readers read. They just whip through the book.

- Question 6: (c) What would you like to do better as a reader?

I'd like to read faster. I'd like to learn some more words. That would help better in the books. I'd like to get some bigger books - books that are harder. I'd like getting help with words like getting parents to help with words.

- Question 7: (a) What do you do in your reading classes in school?

Our teacher gives us things to read like novels and short stories. Then we have to read it and sometimes he makes us write a story about it. Our reader is called Wishing. Sometimes the teacher gives us spelling tests on the book. He picks some spelling words out of the book and makes us spell them.

- Question 7: (b) What do you do when you read in your free time?

We have time on day six, fifth period to read in school. It's home room and we have time to read. I read at home when I'm bored or I want something to do. I think about the book and what happens and where the story takes place and the plot.

Question 8: Do you prefer to read out loud or silently?  
Why?

Sometimes I read out loud because it helps me to remember it. Sometimes I read silently. Mostly I prefer to read out loud. Then it just goes into your mind. If you read it in your mind, uh... silently, you just whip through it. When you read out loud, you don't. You read every word. When you read it silently you read too fast and then you don't remember.

Question 9: If I gave you something to read out loud right now, how would you know if you were reading it well?

If I didn't stutter. If I read all the words correctly. If I read with expression.

Question 10: If I gave you something to read silently, how would you know if you were reading it well?

If I remembered what it was about - where the story took place and what happened.

Question 11: What makes something difficult for you to read?

If there are really, really hard words. If the books are really, really thick and the letters are really, really tiny.

Question 12: (a) Do you understand everything you read?  
(b) Why do you think you sometimes have trouble understanding what you read?

Sometimes I don't understand if they're really hard. I'm only in grade 7 and grade 7's know quite a few words but there are lots of words they don't really know yet. They haven't learned them yet.

Question 13: What do you do when you come to a word that you don't know?

I try to sound it out or try to break the word into parts to figure it out. I try to see what the word means. I get somebody to help me.

Question 14: What do you do when you don't understand a sentence or a paragraph when you are reading?

For a sentence I'd get somebody to help me or go to a dictionary to see if there was anything about the sentence. I'd try to see what the sentence means, like think and sound it out and maybe it will come to mind. For a paragraph I'd probably ask someone to help me - parents, teacher, or a friend or I'd leave it out.

Question 15: What helps you to understand something that you read?

Sometimes it helps me to read it out loud. I'll stop after a sentence and see if I can remember what it was. Ask myself questions afterwards to see if I can remember what it was about. It helps if somebody - the teacher - reads the material to me and tells me what it means.

Question 16: (a) What is the most important reason for reading this kind of material?

- i. basal reader
- ii. content area textbook
- iii. trade book

(i) Well, some of these things you'd like to know about. Some of these stories are for real like if they have an animal in there that you'd like to learn about, then you read it and find out.

(ii) This would tell about places on the earth and the climate, population, farming stuff, the other planets and the earth.

(iii) If you want to have something to do. You might want to learn what happens in a particular book or why a book has a title like that.

Question 16: (b) Why would a teacher want you to read a book like this particular one?

- i. basal reader
- ii. content area textbook
- iii. trade book

(i) They might want you to read it to learn more things about the book. They want it to help your reading skills like if you learn what it means and how and where the story takes place. This year they give you questions on the setting and on the plot and how it goes up and how it goes down and the climax.

(ii) So they can learn about the land forms and what your city is like, how big your population is. So you can learn words in this kind of book, different words. Maybe there's a glossary in the back or a definitions page. There's a little place on the page that tells you what some words mean, what they're for, and how they relate to the book.

(iii) So you can learn more words. If it has questions on the back, they may want you to find out what happens in the story and where it takes place and all that.

Question 16: (c) Why would a friend want you to read a book like this one?

- i. basal reader
- ii. content area textbook
- iii. trade book

(i) They might think it's a really good book and they might say this story is really good so why don't you read it. Then if we're supposed to do a story together maybe we can rewrite this story in our own words.

(ii) Well, if it's something about your earth, like something happens and you want to know about it, it can help you like if our city had so many people or if they didn't have that many. Then you'd know. You could find out how much people you have on your planet, on the earth.

(iii) Well, maybe because it's a really good book and they want you to read it. They think it's a really good book. You may or may not think so. Maybe they think you want something to do and you'd really, really like it.

## APPENDIX I

Sample Protocols  
Containing Retrospective Interview One  
Questions and Responses

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Sample ProtocolSkilled Reader - Retrospective Interview

Question 1: Which selection was easier for you to understand?

"First Kill" (narrative) was easier for me to read and to understand.

Question 2: What made this selection easier?

"First Kill" was easier to read cause this one - "Resources of the Earth" - well, I haven't done anything like that. I'm not used to reading things like that. "First Kill", well, I'm always reading different kinds of stories so you almost know what to expect. I always read long thick novels so all these words I've sort of read before. It's easier cause it's not always saying the same thing so it's more interesting. "First Kill" was easier to understand because it seemed to be more my level of stuff I would be reading. This one, "Resources of the Earth", seemed like it should be for older people. I don't know if we will be doing this stuff.

Question 3: What made the other selection more difficult?

"Resources of the Earth" was more difficult cause I haven't done anything like that. It's always saying the same thing so it's not interesting. All those words like zinc and all those minerals, we haven't done anything on that yet. I usually don't read books like that. I read real exciting things like this, like "First Kill", like novels. "Resources of the Earth" was sort of confusing when they got into the biotic minerals. I did understand the water parts but when they got into biotic minerals and non-organic, or something like that, it got more confusing. If the author would sort of explained it better, well...if they sort of put little definitions of the words or some pictures with little captions underneath or some definitions. Sometimes they out in brackets, like in the dictionary, the pronunciation of the word. If "Resources of the Earth" had these things in it, it would probably have been easier to understand.

Sample ProtocolLess Skilled Reader - Retrospective Interview

Question 1: Which selection was easier for you to understand?

"First Kill" (narrative) was easier for me to read and understand.

Question 2: What made this selection easier?

"First Kill" was easier to read cause it's kind of like a story and so it helps me read and know what it's about. That "Resources of the Earth", it's not a story. It's just a thing from uh... a textbook, like what we're learning. It's work! I read lots of stories and they're usually quite interesting. They don't have very many hard words. "First Kill" was easier to understand because it's a story that goes on and on but "Resources of the Earth" is not a story. It's just paragraphs that don't go on and on, like they keep writing about different things. But this, "First Kill", does go on and on. It's a story! That makes it easier to understand.

Question 3: What made the other selection more difficult?

That one paragraph that I never figured out even at the end. The hard words. I haven't learned about the stuff they were talking about yet... like it didn't make sense to me sometimes. I had problems with both knowing how to say the words and what they meant. If the author had used words that mean the same except they are easier and that we know of it would have helped. The writer could have put in little abbreviations like after a hard word they could put how you say the word.

APPENDIX J

Sample Less Skilled Reader Protocol  
Containing Retrospective Interview Two  
Questions and Responses

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Protocol - Less Skilled Reader #1Retrospective Interview Two

Question 1: Which selection was easiest for you to understand?

"I Died Here" (self-selected narrative text) was easiest for me to read and understand.

Question 2: What made this selection the easiest?

"I Died Here" was easiest for me because it was more of a mystery and I really like mysteries. I'm used to reading them because in language arts we do a lot of mysteries. It's more of a kid's novel, like it's not information books like textbooks. It's not making you learn things. It's just a story for entertainment. It's easier to understand cause there weren't so many hard words and it wasn't boring. When books are boring they get kind of hard for me. This one, "I Died Here" was easy and it was good.

Question 3: What made the other two selections more difficult?

"First Kill" and "Resources of the Earth" were boring because I don't enjoy books like that. Some of the words in them were hard so I really didn't understand some of the words. I guess that's about all - just harder words.

## APPENDIX K

Sample Protocols Containing Text  
and Think-Aloud Reports

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Sample ProtocolSkilled Reader - Narrative TextFirst Kill

Reads: It was as he had looked down at the great buffalo herd with his father that it suddenly came to Hawk that he could wait no longer to prove himself. He must join in the coming hunt. He had the bow and arrow in the lodge of Dead-Come-Back-Man. What he did not have yet was a grown man's strength. But he had the will.

Well, I get this picture of this older man and maybe a boy, thirteen, standing up maybe on a cliff looking down at a herd of horses and buffalo and everything. They're wild animals, definitely and they're...these people are Indians. The man is a chief and the boy is his son. It looks like the boy wants to prove himself. He wants to become a man and I know there are some stories where to become a man you have to do some brave deed. I know some Indian tribes do that so I think that's what's going to happen.

\*\*\*\*\*

Reads: At dawn on the morning of the hunt Hawk slipped quietly away to the tepee of Dead-Come-Back-Man. His old friend was already up and sitting by his small fire. Hawk knew where his bow and arrows were kept, wrapped in a soft piece of deerskin. He went directly to that special place without words.

Well, it looks like he's going to go prove himself without telling anyone. I get this picture of him in a...well, it's not really a tepee. I don't know. I think these are modern Indians. I can see this picture of something sort of like a shack. It's not broken down or anything. It's a perfectly good shack but it's very dark and dusty. There's no electricity, just a candle. I see him, Hawk, slipping out without telling anyone. It's dusty and he's walking towards this big cave.

Reads: Dead-come Back-Man was watching him. Meeting the boy's eye, he held it long and in silence across the fire. "I must!" Hawk said, answering the look. "The time has come." "Then I have nothing to say," the elder told him. "The time is for the hunter himself to know."

It looks like Dead-Come-Back-Man is the elder or like...the medicine man. He's one of Hawk's friends, one of the elders. It seems like this kid, well, maybe the elder doesn't think he's ready, but the kid thinks he's ready. And, uh, it says the elder says that it's the hunter who knows when the time is right, so you can go when you think you're ready. I get this picture of another shack and it's brighter. There's a man sitting in a chair. He's old and he has a big beard. He has Indian feathers on and he's talking to the boy. The boy's standing in the middle of the floor holding his bow and arrow. He's all ready to go and everything.

\*\*\*\*\*

Reads: It was his father's fastest horse that Hawk sought out, a piebald with four white feet. Then he rode to the top of a hill to watch for the start of the hunt. Waiting, he thought of what he intended to do and how the thing must be done.

I had trouble with the word "piebald". I read it over again and thought maybe it was some kind of color, maybe a mixture of browns or something. It looks like Hawk is going to get ready to join some sort of hunt. At first I thought he was going to go alone to do, uh, something but now I get this idea that he's going to join some other men and they're going to go together. Hawk is waiting, standing on his father's fastest horse. I think he's waiting behind a rock so that when the other Indians ride by he can join them, just blend in. They might not even notice him there, I think.

\*\*\*\*\*

Reads: At last the party of twenty-one young hunters came in sight, riding fast and in close formation. Hawk let them get well ahead, then followed at a fast lope, his deerskin

shirttails flying and flapping as he cut a circle to the side.

Yeah! I was right! He was just blending in. He didn't want anybody to know he was there. I get this picture of them all, uh, sort of like in a triangle, with one older person at the front leading everyone. But they're not really old; they're all young. Not as young as Hawk, but they're all fairly young, about fifteen. Maybe some of them have just gone into the hunt themselves or some of them have just gone into the hunt last year.

\*\*\*\*\*

Reads: The party was nearing the buffalo herd before Hawk was noticed. Hawk knew they would not drive him off for it was not the Sioux way to stop a boy bent on a feat of courage or name-hunting. But neither would they help or advise him, or make allowance for his youth and inexperience.

Um... it says here that they are Sioux Indians. I've heard of them before so I didn't have any trouble with that word. It's just that I wasn't sure before what kind of Indian Hawk was and now I know. It says that they wouldn't try and push him away because, as I said before, if the hunter thinks he's ready, then he should go, and it says here that they would not, um, tell him to go away because of his inexperience or his youth. If he is ready, he can go. I said that before. He was noticed, but they didn't send him away, but I already said that before.

\*\*\*\*\*

Reads: It was a bold step he had taken, throwing off the protection as well as the fetters of youth. If he was injured it was his own concern. If he failed he would be shamed and laughed at. Better to be killed than that!

I get this picture of them just standing there sort of talking, but the story doesn't tell what they're saying. They're just sort of discussing what sort of hunting plans, uh, like what they are going to do to get the buffalo. But Hawk's thinking. He's think; he's not paying attention. He's thinking, " If I mess up they're all going to laugh at me and shame me. I'd rather be killed than be shamed. If I get hurt that's my own fault." He's thinking stuff like that and

he's not paying any attention. I get this feeling that since he's not paying attention, he might get hurt or mess up a little. Either that or he'll save the day!

\*\*\*\*\*

Reads: Hawk was the first to reach the game. He did not stop at the fringe of the herd but lanced his mount into the thick of the mass as he had seen the boldest hunters do. Before him, and on both sides, buffalo milled and churned uneasily.

Um... it looks like maybe he was the first to go in. Ya, it says here he was the first to go in. Maybe they weren't planning to go straight in. Maybe they were planning to kind of sneak in, but Hawk didn't really listen, like I said before. It looks like he's in there all alone. The other people seem to be kind of going in slowly. I think he might get hurt because when buffalo get mad I've seen them go kind of weird. They go all over the place rampaging. He's probably going to get very hurt and I get this picture of him in this herd of buffalo sitting on this huge...well, not huge, but this horse, bigger than all the buffalo. He's sitting there and he's sweating! Definitely! He has a bow and arrow in his hand and he has a...I don't know, uh, a harpoon, a big spear, and he's getting ready to kill one of them. I don't know if I'm going to be right or not, but in the distance I see this huge, huge buffalo - maybe the leader of the herd. This buffalo is getting really mad and it looks like he's going to start charging! And I don't know if I'm going to be right or not but...

\*\*\*\*\*

Reads: Gradually he kned his mount closer, jerked an arrow from his quiver and snapped it to the string. With all his strength he bent the bow, drawing the arrow back to its flint head. Thwack! The feathered shaft sank half its length behind the shoulder, a bit too high for the heart.

Oh, he hit a...it looks like, let me see here...  
(looked back in the text and reread it silently)  
Ya, he hit a buffalo, I think. It's a bit too

high for the heart but he hit it anyway. He probably feels really proud of himself but he still wants to get that buffalo. He still wants to get it! It's not hurt enough so that he can go near it, probably. I get this picture of him getting another arrow and just getting ready to get perfect aim on this thing and getting ready to sneak up on it when it's not even looking so he can just go for it.

\*\*\*\*\*

Reads: The rush of the young bull never slackened. Hawk rushed after him as if tied to his quarry by a leather thong. He fitted another arrow to the bow.

Ya. I was right. He's getting another arrow and it looks like the buffalo was hardly hurt at all because it didn't even slow down from its running. It just kept on going! I still get this picture of him sitting on this horse with all these buffalo around him.

\*\*\*\*\*

Reads: This time as he came abreast of his game he reached under the horse's neck with his left arm, clinging with his right leg and right arm, his left leg far down under the belly of his horse. He let go a second shaft inches below the first. The young buffalo bellowed yet pounded on, big head low, liquid eyes gleaming wildly beneath the curled and matted fur.

I don't know what he's doing. He might be trying to get onto the buffalo, but I'm not sure. Maybe if I read the next part I'll know. I get this picture of him kind of, not down on his stomach, or on top of the horse, but sort of down on his stomach as if the horse was laying down on its side. I can tell that he's holding on for dear life! I don't think he really wants to do this but he has to do this because he really wants to get this buffalo and prove himself. And maybe he'll do it.

\*\*\*\*\*

Reads: Scalding shame poured through Hawk. He was not strong enough to bring down game, even with a man-sized bow and perfect arrows! The hunters would laugh and mock him, for no doubt they had seen. Even the girls would hear of it and titter

as he passed.

It looks like he did get onto the buffalo but he didn't get it. He didn't hurt it any more. Maybe he didn't get on to it. Maybe he just went down for a better shot. I think he missed it. Maybe he hit it and the thing didn't even hurt and Hawk's feeling all ashamed. Yet, what I think happened is that this thing was probably in shock and this thing does not want to be captured so it's just going to keep on running. However, I think, eventually, it will just fall down and then he will just feel so proud! I get this picture of Hawk back on his horse the same way he was, following this thing and saying to himself that he can't do it, that he's not good and he can't do anything right. Just like that happens to me sometimes. I think that's what's happening.

\*\*\*\*\*

Reads: The side of the young bull was dripping red, the eyes rolling whitely now in panic and pain. This animal would suffer much, for it would be hours or days from now before he would die. Suddenly Hawk knew he could not let the young buffalo go.

It looks like he doesn't want the buffalo to have pain. He wants to kill it and get it over with so that the thing doesn't have to suffer. Cause it says it will take hours, maybe days, to die. And I know that happens because they sometimes do that with horses and dogs. I don't think that would be very nice, and he knows it wouldn't be very nice to let the thing suffer so he's going to go after it. And with all his might, for the sake of the animal, he's not even thinking of himself now; he's going to try and kill it. It may sound cruel but I think that's the right thing to do for the sake of the animal.

\*\*\*\*\*

Reads: He reached for another arrow, then sudden fury made him fling his bow aside. He whipped the quiver up over his head and threw it away. Now Hawk waited his chance and drove his mount in so close that his knee was pressing the wounded bull's flank.

It looks like instead of using his bow and arrow he used his spear. I think he's holding on to it...to the bull. Hawk's really very close beside beside it and his legs are touching the bull's fur, or hair, or whatever it is. It looks like he's going to thrust that spear into the bull. I can see the picture of them running. He's about a mile away from the herd and the other bulls and all his fellow Indians. Hawk's just going after that thing! It seems like forever but he just wants to get this bull!

\*\*\*\*\*

Reads: He jerked up his legs so that for an instant he was crouched on all fours on the bare back of his galloping pony. Then he launched himself outward and fastened with clutching hands to the fur of the buffalo's hump. With a wild whinny his horse veered crazily off and Hawk was left there literally riding his prey.

Yeah, he got onto the bull and he's going to sit on the bull probably and then thrust the thing, the spear, in it. That's probably the best way to do it because that way he can aim perfectly for the heart and the bull will probably die right away. It says here that he "was literally riding his prey". I don't really know what "literally" means but my mom says that all the time. I guess it's sort of like he's really riding the bull like he's riding his horse. I get this picture of him sitting on this buffalo and both of them are absolutely terrified to death! Hawk's holding this spear and half of him wants to thrust it in to save the animal and he wants to be proud, but the other half doesn't want to kill the animal because he seems to be getting to like the buffalo. Yet, Hawk knows that he has to do it.

\*\*\*\*\*

Reads: In spite of clutching hands and clamped legs he did not know whether he could hang on to the pain-crazed bull or not. His buffalo mount was crashing through low brush and Hawk's legs and sides were cut with whipping branches till the blood ran. There was no give to that wide, rock-hard back, no let-up in the buffalo's pounding gait.

It seems as though he's heading into some brush. Maybe he's already in brush, but I had this idea that he's somewhere else where there's big rocks

like in a desert and there's big cliffs. But there might be brush, too, so he might be in some brush anyways. This buffalo has not slowed down one bit! This buffalo does not want this person on his back and that is that! He is not going to stop for anything unless he absolutely has to! I don't know. I think I'm kind of strange for saying this, but I get this scene, and I think it's pretty funny because the buffalo does not want to stop for anything and this kid wants to get this buffalo to stop right away. Both of them are terrified to death. They're both just absolutely sweating. I don't know how a buffalo sweats, but they're dying. The buffalo is just going on and on and looking back at this kid and thinking to himself, "Why don't you get off of me? Get off of me! Get off of me!" It just seems like a funny scene.

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Reads: Hawk felt spasms of terror that tore through the animal and it took all his remaining strength to crawl slowly forward onto the sloping neck. It was slightly softer there, for the head of the buffalo all but swept the ground. He offered up a swift prayer to sun and moon and called upon the earth spirit, who presided over all man's hunting.

It looks like Hawk's praying to his gods. Maybe not his gods but his spirits that guide his hunting and he's praying probably that he won't get hurt and that he will kill the buffalo. Either that or he's sacrificing the buffalo to them. I don't know what he's thinking but he might be doing either one of them. Hawk looks like he's pretty drained because it says that it took all his strength to climb up to the neck. I think he is really drained! Just holding on to this buffalo was pretty hard because this buffalo is not slowing down. I still get this picture of Hawk sitting on the buffalo but now he's up there and he's kind of closing his eyes and kind of mumbling to himself. He's still holding to the the buffalo as tightly as possible, clutching the fur in his hand. In the other hand I think he's holding on even tighter to some kind of charm, like his spirits.

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Reads: Then his knife was in his right hand and risking death again, he reached far down to stab and stab beneath the bull's straining neck. The animal's blood spurted, covering Hawk's

arm. Still the young bull pounded on and would not die.

Hmmm? It says "bull" here so I guess that means it's a male buffalo. This thing, I don't think it's ever going to die because it's wounded in more than three spots and it just does not slow down. It's really going to take a lot for this boy to get this big huge bull. And, that's another thing! This boy is maybe thirteen or fourteen and this huge bull's probably not much older. This bull is probably...it might be the same thing... this bull is probably just becoming one of the men in the herd, too. This kid and this bull are about the same age. The bull is stronger though. They are just going on and on and they're never going to stop it seems. They must be about three or four miles away from all the other people. This bull is going all crazy and Hawk's horse is way, way, far away, following him because he doesn't want to lose the buffalo. This kid is just going away at the buffalo, practically hacking at it. It sounds gross! But he's just hacking away at this bull because he really wants to get this bull. I still get this picture of Hawk riding, but now he has blood all over his hands and that grossed me out a little bit! He's holding his knife and, I guess, slitting the bull's neck - hacking - like I said before. I think Hawk's kind of getting...I don't know...maybe a little sick, maybe not, from the blood spurting all over the place. But he might not even be paying any attention to the blood.

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Reads: Leaning close to one stiff black ear, Hawk voiced the ceremonial words of the buffalo hunter: "Grandfather, my people are hungry. You were created for this, so I must kill you." On his own he added: "Grandfather, fight and run no longer. You are very tired!"

Yeah. It looks like Hawk was sort of sacrificing the buffalo when he said that. It looks like they look at the bull, the buffalo, as maybe spirits. It says here that he says, "Grandfather". That may be a title of respect. It says that he was telling the bull to, um...that he must kill him because his people need food. Hawk doesn't want the bull to fight and run any longer because they are both getting very tired. The kid knows this and the bull knows this. Maybe, just by saying

that, the bull will just slow down. I don't know.

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Reads: Even so it seemed an endless time before the animal's gait began to falter. Then suddenly the downthrust head and horns gored the earth, and Hawk was flung forward and free of the crashing fall. Instantly he was on all fours, scuttling back to lie in the lee of the now prone body of his kill while hundreds of buffalo coming from behind barely broke their ranks around the fallen one and the small figure huddled behind it.

Well, it looks like he did get it. When he said that it seemed forever but the buffalo did kind of understand. I don't know. Maybe buffalo do have spirits in them. I don't know but it did look like the buffalo did understand. The buffalo was tired, and his head got stuck in the dirt, and he just kind of flipped over. I guess I was wrong about him being way far away from the other buffalo because it says hundreds of buffalo "barely broke their ranks". It looks like they're just coming. I mean, all the buffalo were running in the same direction and this buffalo was maybe in the middle or maybe at the front. I think Hawk's buffalo is probably in front, running the fastest. I get this picture of him - the boy kneeling by the brush and a couple of yards away there's his buffalo, dead, blood all over him. But the buffalo...this may sound weird...but I don't think that the buffalo is really dead. It's the spirit, I guess. I don't know. But if the boy looked up, the boy wasn't really looking at the buffalo, but he would see a spirit coming up from the buffalo, going up to the heavens. It sounds weird, but that's what I think happened. All the other Indians are coming after. I don't think the other Indians caught any buffalo because they were looking at this kid who hasn't done any hunting before just going professionally. I don't know if he's really going professionally but almost professionally after this bull...just going after this bull because he wanted to stop it from suffering and because he wanted it. I don't think the other Indians got any buffalo for themselves.

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Reads: For an endless time humped forms continued to hurtle past in a wild confusion of pounding hoofs, rolling eyes and froth-strung muzzles. There was an end at last. But even then

Hawk stayed low, offering up his thanks to Wahkan-Tanka, the Great One, for this miracle.

I had trouble with the word "Wah-kan-tank-a". I read it over and I think it might be some sort of spirit...maybe one that guides him, like I said before. It looks like all the other buffalo are really very scared. I'm surprised that Hawk didn't get trampled by them. Maybe they were avoiding him. Uh...this was a pretty short one. There's not much stuff in it but I do get this picture of him lying on all fours looking down at the ground, praying to his spirits, and all these buffalo are going nuts - a good word! They're all around him trying to avoid him. These Indians are in between them on their horses. You know how they go, "Ay-wah-wah-wah", whooping, going all crazy after these buffalo. Hawk's still sitting there after all of them have gone, looking at this bull and just thanking his spirit for helping him and for saving his life, because this boy thought he would get really very hurt. After he finished thinking that, then he seems to say, "I actually got one. I can't believe it!" to himself.

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Reads: When the first of the hunters arrived, Hawk was too busy to even look up. Red-armed, he had already taken the tongue and heart of his kill. With the skill of a seasoned hunter he had slit the hide, the belly, and girdled the four legs. "I, Hawk, have killed this one!" was all he said.

Maybe I was wrong about Hawk just standing there. Either that, or after he was sitting there for a little while, he got up and said the others will come back pretty soon and I have to get this thing all ready for them. So he got up and took his knife. Right away he took out the heart and the tongue. I know the Indians use that stuff because we learned about it last year in social studies, stuff about Indians customs...what they do with their stuff or what they make. They use the skins for tepees and the intestines for food, and eat the meat, and stuff like that. So he wants to get all this ready. All he said when the other Indians came back was, "I, Hawk, have killed this one!" He was so proud he did not say anything else. He didn't even look up at them.

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Reads: Darkness had almost fallen when Hawk rode into camp with the hide, heart, and tongue of his kill, his bare legs and arms crusted with blood. He was bone-weary but content, for the story of his triumph had gone before him through the camp so that there was awe in the eyes of his playmates who had run out to meet him. Trills and sighs came from the girls and young women as Hawk rode in among the tall tepees.

It looks like he was getting to be pretty popular in the village. At first Hawk didn't think he would do it and then that he would do it, but he wasn't really doing it for himself. Then he did do it and now he's really proud. It seems kind of a stupid thing to say, but it seems like he'll get lots of girlfriends and lots of friends and just wanting to be the hero. I get this picture of him riding straight-backed, very proud, the hide slung over his shoulder. He has a little satchel hanging from his side with the heart and tongue and other things in it, riding this very beautiful horse, with blood crusted all over his arms and legs. He's riding in straight-backed, so proud! All these people are going around him, practically squealing with delight. He's heading for one shack. These aren't really all shacks. Some are tepees; some of them are shacks. Then out comes his father, the chief. Hawk gets down and says something like, "Father, I am now a man. I have killed my first bull. Here is the hide. I donate this." ...or something like that. That's what I think is going to happen. I'll read ahead to see.

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Reads: Standing Elk came out and took hold of Hawk's thong bridle, calling out as was the custom, "Look, my son has become a hunter! My son is brave!" Now Standing Elk led Hawk, still riding the piebald, round the great circle of lodges for all to see. Hawk had to hold hard to hide his feelings, yet accepted the honor proudly, for his courage was too real a thing to admit false modesty.

Yeah. I was right about his father being the chief - maybe not the chief but at least one of the respected people in the village, and about him saying something like that. He didn't really say it but that's what I think happened. His father is really brave. No! Not brave, proud

of him. But I was wrong about him going up to the shack and giving up his horse. I get this picture of this father wearing Indian feathers, looking up at Hawk still on his horse, maybe not trying to show his feelings. Trying his best not to, uh... I really don't know how to explain it... trying his best not to brag maybe. He's just sitting up there. He's not trying to look that proud though. I think his father's leading him around the village and saying things like, "This

is my son. He has now become a hunter. He is one of the brave. He is now a hunter." He's saying it over and over again because he is so proud of his son! Now they're probably going to have a big feast to celebrate. That's what I think is going to happen.

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Reads: That night there was feasting in the Sioux camp and the dance of thanksgiving that followed a successful hunt. In the tepee of Standing Elk, around the small fire, visitors came and went. Hawk was asked and re-asked to tell the story of his hunt. He related it all simply and gravely.

Hey! I was right! (spoken aloud after reading the first sentence silently, then resumed reading) The way this story is written it makes you feel as if Hawk has become a man in five minutes. The way it says that he told his story 'simply but gravely'. I get this picture of Hawk sitting by the fire, maybe some are playing drums. Maybe some are dancing. But he is sitting proudly...sitting like a man. I think he's grown up in five minutes. I was right about the feast. I said that out loud as I read it.

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Reads: To show his appreciation of the honor to his son, Standing Elk gave away a horse to an elder who had recently lost his. To Hawk he gave the piebald pony. It was the father's privilege to give his boy a new name, had he wished, but Standing Elk decided against it. Hawk was a fine name and there was none he could think of that fitted the boy so well.

It says here that no name could fit the boy. I

think that would be ok because it's a good name, Hawk, because hawks won't quit unless they have their prey, and he kept on going until he got his prey. I think Hawk is a very good name for him and it's a good thing they didn't change it. His father was so happy that he gave away his one horse to one elder that lost his. He gave Hawk the horse that he rode in the hunt. That's how happy his father was. I get this picture of his father, maybe him, kneeling beside a fire. To one side there's a little thing with fire and there's a little, kind of medium-sized table, with little bowls of paint. Hawk is kneeling and his father is standing and painting war things, not war, but symbols on Hawk's face, in blue and yellow and white and some red. He's washed off the blood on his legs and arms. Hawk's wearing...he's not wearing his...at the beginning to the story I thought he was wearing a head band but he's not wearing that any more. He's now wearing feathers. He looks older. He looks like he has grown up like I said before.

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Sample Protocol

Less Skilled Reader - Narrative Text

First Kill

Reads: It was as he looked down at the great buffalo herd with his father that it suddenly came to Hawk that he could wait no longer to prove himself. He must join in the coming hunt. He had the bow and arrow in the lodge of Dead-Come-Back-Man. What he did not have yet was a grown man's strength. But he had the will.

He's telling about his father. He's getting his bow and arrows ready to kill something but I'm not sure what he was going to kill. I was just thinking about the man with the bow and arrows and it reminded me of a book I read once. I don't remember what it was called. It was a couple of years back, but I remember it was about a man and his son who were shooting bows and arrows at these things. I didn't get stuck on anything.

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Reads: At dawn on the morning of the hunt Hawk slipped quietly away to the tepee of Dead-Come-Back-Man. His old friend was already up and sitting by his small fire. Hawk knew where his bow and arrows were kept, wrapped in a soft piece of deerskin. He went directly to that special place without words.

OK, the man...well his friend was already up and sitting by the small fire. He knew where the bow and arrows were kept. I was just thinking of the guy in a place like, uh...just waiting for him. He's got a fire and everything waiting for Hawk.

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Reads: Dead-Come-Back-Man was watching him. Meeting the boy's eye, he held it long and in silence across the fire. "I must!" Hawk said, answering the look. "The time has come." "Then I have nothing to say," the elder told him. "The time is for the hunter himself to know,"

The Dead-Come-Back-Man was watching Hawk and he said that, uh...no, Hawk said that he must, uh, he must...I don't know what he says he must do.

But the other one, the elder brave, which I think was the Dead-Come-Back-Man, said then that he had nothing to say. I was just thinking of the two guys, Dead-Come-Back-Man and the Hawk, talking back to each other.

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Reads: It was his father's fastest horse that Hawk sought out, a piebald with four white feet. Then he rode to the top of a hill to watch for the start of the hunt. Waiting, he thought of what he intended to do and how the thing must be done.

OK, Hawk said that his father had a fast, the fastest horse and with, uh, the piebald feet - four white feet. I was just thinking of that horse...like his fastest horse and of the boy. For some reason I was thinking of him riding it away somewhere.

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Reads: At last the party of twenty-one young hunters came in sight, riding fast and in close formation. Hawk let them get well ahead, then followed at a fast lope, his deerskin shirttails flying and flapping as he cut a circle to the side.

OK, they said there was a party and the hunters came in sight. They were riding fast and Hawk let them get ahead. Then he followed them. I was just thinking of them all going and him just letting them go ahead. They were on their horses. Yeah, that's right. I was just thinking of them riding, Hawk letting them go in front, just riding all together.

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Reads: The party was nearing the buffalo herd before Hawk was noticed. Hawk knew that they would not drive him off for it was not the Sioux way to stop a boy bent on a feat of courage or name-hunting. But neither would they help or advise him, or make allowance for his youth and inexperience.

OK, they said that the party was near the buffalo herd and Hawk knew that they would not drive him, like...off. I got stuck on the whole first row in this. I was just thinking of them all together

and they were, like, at a party. I'm not sure what party. The buffalo party, I guess, but I'm not sure what that is. I was just thinking of them at the party and all doing different things. I got stuck on the word, uh, that's Soo-uks or whatever. It's spelled S-i-o-u-x. I read over it but I didn't know what it meant still. It didn't sound like any other word I'd heard before. I tried to pronounce it but some words I can't do because there's x's and i's and those are hard words for me.

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Reads: It was a bold step he had taken, throwing off the protection as well as the fetters of youth. If he was injured it was his own concern. If he failed he would be shamed and laughed at. Better to be killed than that!

I guess he took his step and he felt that he would be better to be killed than that. And I was just thinking of this movie that I heard of before, uh, that I saw before at a party. It was kind of like what's happening in this but it was with different characters, like different kind of people. I had to read this over because some parts I didn't understand.

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Reads: Hawk was the first to reach the game. He did not stop at the fringe of the herd but lanced his mount into the thick of the mass as he had seen the boldest hunters do. Before him, on both sides, buffalo milled and churned uneasily.

It just said that Hawk was the first to reach the game. That he, um...he didn't stop at the, um... fringe. I read it over but I still don't know what that means.

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Reads: Gradually he kned his mount closer, jerked an arrow from his quiver and snapped it to the string. With all his strength he bent the bow, drawing the arrow back to its flint head. Thwack! the feathered shaft sank half of its length behind the shoulder, a bit too high for the heart.

OK, I guess I think this was Hawk but he, um... he needed his mount closer. He took an arrow and snapped it to the string. That means he put it tight up to the string. He hit the arrow and it

landed in a soft spot. I was just thinking of that movie again. It kind of seems like it with a couple of boys on it...different kind of people though.

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Reads: The rush of the young bull never slackened. Hawk rushed after him, as if tied to his quarry by a leather thong. He fitted another arrow to the bow.

It said that the young bull, uh, "the rush of the young bull never slackened" (read aloud from text). Hawk went after him. He put another arrow into the bow. I was just thinking of Hawk going after him and him shooting the arrow into the bull - there was a picture in my mind. They were outside. It was getting kind of dark and they were all just hanging around there. Hawk was just rushing after that guy trying to get him.

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Reads: This time as he came abreast of his game he reached under the horse's neck with his left arm, clinging with his right leg and right arm, his left leg far down under the belly of his horse. He let go a second shaft inches below the first. The young buffalo bellowed yet pounded on, big head low, liquid eyes gleaming wildly beneath the curled and matted fur.

OK, he, um...I think it was Hawk. He grabbed the horse's neck with his arm and he clung his right leg around the horse. I was just thinking of him doing that stuff. I just had some feeling that they were in a barn. I don't know why but I just had a feeling they were in a really big barn with different places, like, with different little, um ...stations in it. I had to read this over cause I wanted to make sure I could give an answer for it.

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Reads: Scalding shame poured through Hawk. He was not strong enough to bring down game, even with a man-sized bow and perfect arrows! The hunters would laugh and mock him, for no doubt they had seen. Even the girls would hear of it and titter as he passed.

It just says that Hawk was not strong enough to bring down the game. He said that all the girls would laugh at him and all the hunters and every, uh...thing would laugh at him. I was just thinking that they were still in the barn and I was thinking of all these people around him laughing. I seemed to have that picture in my head.

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Reads: The side of the young bull was dripping red, the eyes rolling whitely now in panic and pain. This animal would suffer much, for it would be hours or days from now before he would die. Suddenly Hawk knew he could not let the young buffalo go.

I guess the buffalo was dying, or something. He was in panic - that was the young bull. Then Hawk felt he could not lose this buffalo. He could not let him go. I was thinking of the buffalo just laying down. The bull, or whatever, just was laying down in the dirt and hurt.

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Reads: He reached for another arrow, then sudden fury made him fling his bow aside. He whipped the quiver up over his head and threw it away. Now Hawk waited his chance and drove his mount in so close that his knee was pressing the wounded bull's flank.

And then Hawk reached back for another arrow. He felt that, uh, "his fury made him fling his bow aside". I guess he, uh, he took the bow. I guess he was going to fling it at something and then I just keep thinking of that movie. It's very much the same as what's going on in here. It still reminds me of it a lot. It's like the movie cause of some of the people and there was buffalo. I think this is the same as in this part. But the buffalo's dying and his master, the keeper, or whatever, wanted to help it because it was in pain. In the movie it didn't get hurt in the same way. It was just uh, these boys were hitting, uh shooting arrows and they hurt the buffalo by accident. So it's kind of almost the same cause the buffaloes get hurt and everything.

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Reads: He jerked up his legs so that he was crouched on all

fours on the bare back of his galloping pony. Then he launched himself outward and fastened with clutching hands to the fur of the buffalo's hump. With a wild whinny his horse veered crazily off and Hawk was left there literally riding his prey.

OK. I guess I think they're talking about the buffalo. But he jumped up his legs and he started galloping. Then he launched himself forward and he went...I think he went crazily off. Then Hawk was left there alone with his prey. I was just thinking about, uh...like they were in a barn... still in that barn and the buffalo was just getting up and running around while hawk was sitting there riding his prey.

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Reads: In spite of clutching hands and clamped legs he did not know whether he could hang on to the pain-crazed bull or not. His buffalo mount was crashing through low brush and Hawk's legs and sides were cut with whipping branches till the blood ran. There was no give to that wide, rock-hard back, no let-up in the buffalo's pounding gait.

It was jumping...telling you about the bull. He could not hang on. Oh, no! It was just telling you that Hawk could not hang on to the bull to stop him, I guess. It's kind of like the movie again because the boys in it, well, their buffalo wasn't hurt that bad but he tried to go and they were trying to hold on to him and they couldn't. It's sort of the same thing. I had to read this over again because some parts were hard for me to understand.

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Reads: Hawk felt the spasms of terror that tore through the animal and it took all his remaining strength to crawl slowly forward onto the sloping neck. It was slightly softer there, for the head of the buffalo all but swept the ground. He offered up a swift prayer to sun and moon and called upon the earth spirit, who presided over all man's hunting.

This was really hard to understand so I didn't really know what was gong on, but I think it's something about the buffalo. It was all scuffed. It swept all the ground or something. I was trying to think but I really didn't have a picture in my head because some of the words were hard so I don't

really understand what's going on. I had lots of trouble but I did know what some of the words here meant.

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Reads: Then his knife was in his right hand and risking death again, he reached far down to stab beneath the bull's straining neck. The animal's blood spurted, covering Hawk's arm. Still the young bull pounded on and would not die.

OK, I think it was Hawk that he, uh, he stabbed his, uh, the buffalo. It was straining its neck and all the blood started to come out. The bull didn't, uh, I think it said the bull didn't die. Yeah (looked back in the text), it would not die. So he's trying to kill it. I was thinking of the bull and him doing that. I think it was pretty gross! All that blood!

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Reads: Leaning close to one stiff black ear, Hawk voiced the ceremonial words of the buffalo hunter: "Grandfather, my people are hungry. You were created for this, so I must kill you." On his own he added: "Grandfather, fight and run no longer. You are very tired!"

OK. I guess I understand that they were...that the buffalo hunters said that they had killed the buffalo. They were hungry and they needed food, so for him to understand that that's why they did it. Hawk said to fight and run no longer because he was really tired. I was just thinking of Hawk telling him that he wasn't too happy or anything. Hawk said he was really sorry he had to do it.

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Reads: Even so it seemed an endless time before the animal's gait began to falter. Then suddenly the downthrust head and horns gored the earth, and Hawk was flung forward and free of the crashing fall. Instantly he was on all fours, scuttling back to lie in the lee of the now prone body of his kill while hundreds of buffalo coming from behind barely broke their ranks around the fallen one and the small figure huddled behind it.

I guess all the buffalo, uh, all the other buffalo came from behind the barrier... like the ranks.

They all, uh...they had fallen into a small figure huddled behind it. So I was just thinking of all the buffalo, like there'd be a big field and all the buffalo would be coming. They'd be lined up. They all came. They started to come and they fell one by one in the little holes.

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Reads: For an endless time humped forms continued to hurtle past in a wild confusion of pounding hoofs, rolling eyes and froth-strung muzzles. There was an end at last. But even then Hawk stayed low, offering up his thanks to Wahkan-Tanka, the Great one, for this miracle.

OK. It was just telling the, uh, well...I don't really understand what's going on because there's lots of hard words like, uh, "froth-strung". So I don't really know what's going on so I don't really have a picture in my head of what is, uh, happening. I had to read it over again and I still don't get what much of it means.

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Reads: When the first of the hunters arrived, Hawk was too busy to even look up. Red-armed, he had already taken the tongue and heart of his kill. With the skill of a seasoned hunter he had slit the hide, the belly, and girdled the four legs. "I, Hawk, have killed this one!" was all he said.

Hawk was saying that he had killed that buffalo. Cause there's other people around he said that he had killed that buffalo for their food. I guess he was proud, like sort of bragging about it. I was just thinking of him and all these people with him telling this and the buffalo by him with all that blood all over him.

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Reads: Darkness had almost fallen when Hawk rode into camp with the hide, heart and tongue of his kill, his bare legs and arms crusted with blood. He was bone-weary but content, for the story of his triumph had gone before him through the camp so that there was awe in the eyes of his playmates who had run out to meet him. Trills and sighs came from the girls and young women as Hawk rode in among the tall tepees.

It was just telling about the buffalo and what

condition he was in. It was all blood and stuff. His arms were crusted with blood. It's just telling what he looks like and describing what he looked like - the buffalo. They said that there were girls and young women. There were children sighing. They were just making noises while Hawk rode away. I was thinking of him riding away with all the people around him. It was like a great big area - a beautiful field with nice colors and everything. It was getting, uh, I think it was sort of dark but it wasn't really dark.

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Reads: Standing Elk came out and took hold of Hawk's thong bridle, calling out as was the custom, "Look, my son has become a hunter! My son is brave!" Now Standing Elk led Hawk, still riding the piebald, round the great circle of lodges for all to see. Hawk had to hold hard to hide his feelings, yet accepted the honor proudly, for his courage was too real a thing to admit false modesty.

The boy's father was saying, like he was telling everybody, bragging about his son being a hunter now. He killed his buffalo so he's done good. So he's saying that his son is brave. I was just thinking that it wasn't the same as the movie any more. It was getting a little bit different than the movie. I could see them standing and him telling about his son - for killing this one he's brave and everything. I had to read it over just so I could talk about it better.

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Reads: That night there was feasting in the Sioux camp and the dance of thanksgiving that followed a successful hunt. In the tepee of Standing Elk, around the small fire, visitors came and went. Hawk was asked and re-asked to tell the story of his hunt. He related it all simply and gravely.

It was just saying that the night came and, um... they were having a camp, like they were having a dance for thanksgiving...inside the tepee, I think. Hawk wanted to know...like there was a whole bunch of visitors that came...and he wanted to tell his story again about his, uh...about what he did to the...like what he did on his hunt. I was just thinking of them all in the tepee and him telling his story around a fire inside. I still don't get

that word "See-ooks".

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Reads: To show his appreciation of the honor to his son, Standing Elk gave away a horse to an elder who had recently lost his. To Hawk he gave the piebald pony. It was the father's privilege to give his boy a new name, had he wished, but Standing Elk decided against it. Hawk was a fine name and there was none he could think of that fitted the boy so well.

I guess they wanted to give this one boy a horse. He never had a horse, I guess. Yeah, he recently lost his so they wanted to give him the horse. But Standing Elk...like he gave the boy...well, he said that he could pick a new name. But he said Hawk was just fine so he would stay with that. I was thinking of him giving him the horse and being really kind and everything. I just thought...is Hawk the horse? It seems like it says here (reads aloud from text), "Hawk was a fine name and there was none he could think of that fitted the boy so well." Was it the horse or the boy? Oh, yeah...the boy! I was kind of confused on that last part.

Sample Protocol

Skilled Reader - Expository Text

Resources of the Earth

Reads: A resource may be defined as anything that people need. Limit that definition still further and a resource may be defined as anything a culture needs at a given time in history. Each culture - each nation of humans - makes its own decisions about what resources are. Those resources can include as basic a thing as water or they can be as complicated as the mind of a human being.

They're talking about that every race, uh, the human race and their cultures and making decisions that we need resources for most things from water to our brain. I was thinking about.....  
I have to read this back over again. I think they're saying that resources help us, like, if we didn't have water we wouldn't be living cause we need to drink something. I was sort of stuck on "defined". I guess that's about it.

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Reads: The Algonquin and Iroquois, for example, knew about petroleum because it seeped out onto their hunting grounds. However, they certainly did not think of it as an energy resource.

I think they're talking about Indians. That's oil. Petroleum is oil and it was always coming out on their hunting grounds. They didn't care much for it cause they thought it was just some kind of black stuff all over their fields. So they never took it as a good resource for them. I didn't understand "A-kwin" (Algonquin). I thought it was, uh...I knew what "Ink-wah" (Iroquois) is because I'd heard about them before in a story, but "A-kwin"(Algonquin), I thought it would be a tribe like "Ink-wah" (Iroquois).

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Reads: Colonial Americans thought of whale oil as an important resource because the whale oil was used to light their lamps. About the time that whales became scarce, Americans learned about kerosene. Made from petroleum, it

was an excellent source of fuel for lamps. Suddenly, the whale ceased to be an important resource for kerosene had taken its place.

I think they're talking about that...OK, that colony Americans, um...thought that whale oil was the most important resource - whether you have light or heat - until they learned that, um...that something called kerosene...I think that's a gas from oil would help light up better than whale oil. They had more amounts now since the whales were scarce now.

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Reads: The common clove is another example of how resources change. It is hard to imagine that this spice was once a precious resource. Before refrigeration, however, meat was preserved with salt. One of the few ways to improve its taste was to cook it with cloves. In addition, the oil from pressed cloves was used as medicine. Thus the clove became important to Europeans and was as important in its time as petroleum is today.

To Europeans the clove was very important to them because a long time ago... before they had any refrigerators...they had to wrap their meat in salt. Then they'd cook it in cloves to get the rich flavor. They also took the oil out of cloves to make medicine. Now it's not as important, uh, because the Europeans have refrigerators, and so do we. It , uh, cloves just sort of stays on the side of the road or of a field, or something, because nobody needs it any more. I didn't quite understand ...thwas, uh...t-h-u-s, uh...th-wus or those...and precise (precious). I sort of forgot about what the word meant, but then I figured out I'd heard the word before. I think thwas (thus) means that now they're not important any more... yeah, not important.

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Reads: One way to get better understanding of what the word "resource" means is to group together some of the things that most of the world's people need. Human needs can be classified into three categories - water, mineral, and biotic, or living resources.

This section...I think they are talking about what "resources" means...to tell you to put most

of the resources that a human needs today into one category to get the definition. I think we took about resources last year. We were doing nature's resources to learn learn what we would need, and it was another biotic, or living, resource.

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Reads: Water is one resource which many people take for granted. It is something they use every day for drinking, bathing, and cooking. The fact is that people need water more than anything else, even more than food. A human being could probably live for a week or more without food but could not live forty-eight hours without some form of water.

Now they're talking about how important water is to our everyday life and how we take water for granted - bathing in it, cooking with it. But we need it for drinking because we couldn't last forty-eight hours without water but we can last a week without food.

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Reads: Water is neither created nor destroyed by natural forces. It moves from clouds to the ground to plants to rivers to oceans. It then goes back to the clouds again. Water, therefore, is called a "recyclable resource". Recyclable means it can be used over and over again. The problem is that water is not evenly distributed across the face of the earth. In any one place or at any one time there may be too much or too little water.

I think they're talking about how recyclable water is. How it's recycled from the clouds down to the plants, rivers, and to the ocean. Then it goes back into the clouds again. They're telling how in some places there's not enough water and in others there's too much and it could fall at any time. I got stuck on dis-tri-bu-ated or dis-tri-bute. I think it means get rid of.

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Reads: Besides water, people also use and need iron and zinc and copper. They need coal and oil and gas. These nonliving - or inorganic - things are called mineral resources. One type of mineral resource is metallic. Iron ore, for example, is an important metallic mineral. Without it, human society could not have the tools and machines needed by advanced

civilizations. Iron ore is mined or taken out of the rock in which it is found. When it is mixed with other minerals, it forms an even stronger substance - steel.

I believe they're talking about our...uh...our nonliving resources - coal, copper, zinc, iron, oil, and gas, and how we need to, um...need them to make tools. But I have to disagree with that because we could use stone for our tools or we still could use plastic cause most of our tools today are made out of plastic. I didn't quite understand "inorganic". I think that it means it's not living...like it doesn't have any cells like living cells.

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Reads: Other valuable minerals are copper, lead, zinc, tin, and bauxite. Copper is often used in making electric wires and hardware. Lead can be molded into pipes and it is often an ingredient in paints, dyes, and pottery glazes. Zinc is used to galvanize or coat steel, a process that keeps it from rusting. Bauxite is the chief source of aluminum.

They're talking about, uh...valuable minerals... uh...like copper, lead, zinc, tin, and bauxite. They're telling copper is used in electric wires and hardware, but today, I understand, they can run electricity through plastic tubes or glass tubes. So we wouldn't really need copper any more. I can't disagree on lead because it's the only thing I can think of that's used in those paints, dyes, and potteries and zinc is used for galvanizing...to coat steel. We don't really need bauxite cause we don't really need aluminum. It's not really too important to our life because most of the things are made out of it but we can change them into plastic or wood. I didn't really get "galvanize". I think it means a shiny coat or a painting that you put on something. I guess that's it.

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Reads: A second group is nonmetallic minerals. Nonmetallic minerals used everyday include stone, cement, salt, and graphite, the lead in pencils. Glass is made from sand, another mineral. In addition, people mine and use mica and asbestos for insulation. They use potash and phosphate for making fertilizer.

In this section they're talking about nonmetallic materials or stone, cement, salt, and graphite. They're saying that we use lead in our pencils and sand to make glass, and "mee-kuh" (mica) and "a-bez-toe" (asbestos) to make insulation and potash and phosphate to make fertilizer. OK. I didn't quite make out "a-bez-toe" (asbestos). I think it's a mineral that we use. I think it's a mineral. It's probably, uh...salt, but used for insulation, or something like that.

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Reads: Salt, like fresh water, is another of those resources that people need to live. In ancient times, salt was the most important resource of all. It was used not only to season but to preserve food. The great trade routes were originally established to transport salt throughout the world. Long ago, Roman soldiers received part of their pay in salt. The Roman word for salt - salarium - became the English word for salary.

In this paragraph they're talking about how very important salt is to us and how very important it was in ancient times when the Romans thought salt was the most important thing. They made trade routes and Roman soldiers received salt for their pay. It tells how the Roman word for salt was salary and how the English got their word for salary. It tells how we preserve now with salt but I have to disagree with how we preserve with salt cause we have refrigerators that we don't need to put salt with and glass jars and plastic containers and saran wrap.

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Reads: The third group of inorganic resources are energy fuels. These are coal, crude oil, and natural gas. These resources are also called "fossil fuels" and are found in rock. In fact, geologists consider these fossil fuels to be kinds of rock. Geologists do this even though fuels are not really minerals like copper, sand, and salt.

I believe they're talking about some of our fuels that we use for fuel like coal, crude oil, and natural gas. I think crude oil is gas that we put in our cars and that geologists call them fossil fuels cause I think dinosaurs, like a long

time ago when the dinosaurs died they went under the layers and the oils from their bodies sort of gathered and made a fuel. The geologists say this even though they're not fuels like, copper, sand, and salt.

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Reads: All these resources which supply heat and energy were formed thousands of years ago. Coal was formed from dead plant life. Crude oil and natural gas are combinations of the remains of ancient fish and plants. All three were squeezed under thousands and thousands of tonnes of pressure over many centuries. Energy from the sun was trapped beneath the earth in dead plants and animals. Now, thousands of years later, it is used to run furnaces, machinery, automobiles, airplanes, and ships.

Now they're talking about what each mineral from before was used...was made from, I mean. Coal was made from dead plant life. Crude oil and natural gas is from ancient fish and plants that were trapped with some of the sunlight underneath thousands of tons of raw pressure over rocks. Now it's used to run furnaces, machines, planes, automobiles, ships, and I'm sure many other things. There was a word in here that I got stuck on. Now where is it? (scanning the text) I can't find it now.

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Reads: In addition to water and mineral resources, people need food, and almost everything people eat was once a living thing. Living things - both plants and animals - are called "biotic resources". They can be further divided into at least three groups. People grow or gather crops, raise or hunt animals. The products from these plants and animals provide raw materials for building homes and making clothes.

OK, they're talking about that when people eat food, it was once a living thing. They're divided into three groups. We gather crops, hunt animals, and make products from raw materials. I didn't quite get, didn't understand, the word "biotic" resources. Yeah, biotic resources. I think from one of the sections before it meant "living".

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Reads: Soil is also an essential resource, but it is neither a

biotic nor a mineral resource. It is both. Soil is made of two things - parent material and humus. The parent material of the soil is the rock from which the soil was formed. Tiny pieces are knocked off larger rocks by wind, water, and ice. Also, the actions of plants, people, and animals affect rock. This process is called "mechanical weathering". Chemical weathering also takes place when the minerals in rock undergo chemical change. These changes cause the minerals to eat away at the parent material.

In this section they're talking about soils and they're both biotic and parent, uh...oh! Wait! They're both humus and parent resources they were made up from. The parent material is the soil in which the rock, uh...the rock from which the soil is formed. They're talking about how tiny pieces of the larger rocks were knocked off by wind, water, and ice. Plants, people, and animals affect rock. When the people and the plants and animals do it, this is called uh...mechanical weathering. It's also when the chemicals in a rock changes, um... may take, uh...eat away some of the parent material. Uh...OK. I didn't understand humus. I think it's one of the materials - one parent. There's lots I didn't understand in here! Undergo? I think undergo is chipping off, or something like that. And essential? I think that means it's a needed resource. I got all mixed up in this part and it took me a while to get back into what was happening. I tried to read it over. I read it over three or four times. Then I tried each of the sentences and eventually I got it back to what was going on. There were so many words in here that I didn't understand. I thought there was a spelling error to start with. When it said humus, I thought it said human, so I read it as human and I thought, that doesn't make sense! Then I really got mixed up!

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Reads: Over thousands of years, weathering breaks up the underlying rock - bedrock - into smaller pieces. Bedrock, from which soil is made, can be found beneath the soil or it can be found at the surface. One reason that soils differ is that parent material comes from a variety of rocks. Different kinds of rocks make different kinds of soils.

Now they're talking about bedrock - how our soil's made from bedrock and how the wind blows off the soil sometimes in places and shows the bedrock.

It also tells that different kinds of rocks make different kinds of soil. And that's it. Oh, yeah. This section sort of reminds me of the Flintstones. The town in which they live in is called Bedrock. It sort of makes me, uh...reminds me there might be a town called Bedrock in the bedrock. Maybe that's where they got the name from.

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Reads: Decayed matter is the second important element in soil. Seeds are blown by the wind, carried by water, or dropped by birds and animals. They fall between the tiny particles of rock and begin to grow, become plants, and finally die. When plants die, they eventually decay. The dark-brown, partially decayed matter is called humus. It has valuable minerals - called nutrients - that help to make the soil fertile.

They're talking about, uh...how seeds, uh...OK! How the soil gets its fertilization from nature from the plants which blow seeds and birds and the wind and animals. Some people pick them up and drop the seeds wherever...any place that they want and they'll grow. Eventually they'll die and decay and fertilize the soil. This reminds me of when I had to do a project on a garden and had to learn all these fertilizations from nature and humans. That's one of the things I remember. When the plants also die they also give nutrients into the soil. That will help other plants grow. I think I know the meaning of humus now. It's partly decayed matter. That's probably it.

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Reads: The combination of decayed material and broken rock - humus and parent material - is soil. Plants need both kinds of material in order to grow. Different combinations of humus and parent material form different types of soil. Some are clayey; some sandy and gravelly. Others are rich and loamy.

They're talking about the different kinds of soils and which, uh...what the plants needs - both the broken rock and the parent material to grow. And there's different kinds of uh... humus and parent materials from different types of soil. Some soils are clayey, sandy, and gravelly, and others are rich and loamy, uh...loomy. I didn't quite understand loamy or loomy. I think it has something

to do with rich and soft and easy to grow in.

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Reads: The most important factor affecting soil is climate. Heat and moisture acting on parent material and humus help create certain types of soil. With many months of sunshine and rainfall, plant growth will be lush. Abundant humus will be produced and the soil will become rich in essential nutrients.

Now they're talking about how soil gets affected by climate. The heat and moisture acting on the parent materials and the humus create different types of soil. With sunshine and rain, plant growth will be lush. I think lush means better or more. Lots of humus will be produced and soil would become rich with lots of nutrients. This reminds me of my grade 5 science project. I did on hydroponics and we had to find the different kinds of dirt and how better hydroponics were. It ended up that hydroponics were the worst thing you can use cause soil that nature makes is the best thing for growing stuff.

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Reads: But if it continues to rain, the nutrients from the humus can be washed down. When this happens, the soil becomes "leached". If rainfall is light, weathering will be slow. Plant growth will be sparse and nutrients already in the soil will remain. Calcium and magnesium will build up in the soil.

If it rains too much in the future the nutrients can be washed down and down into the ground, out of the soil which would happen if the soil had been leached. I think leached means nothing will be sitting there. Plants won't grow and there'll be nothing. If the rainfall is light in the future that the plants would be growing. The soil would be rich in nutrients and sparse. They would build up in calcium and magnesium and so we'd have lots of plants growing. We'd probably have better food.

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Reads: Today water, mineral, and biotic resources are being strained because of the uneven distribution and because of the population pressure. Some of this strain can be relieved by wise resource management. Without such management, these

resources will become severely depleted. Then man may have to search elsewhere. Some scientists predict that the stage is now being set for the Ocean Age when man will be forced to exploit the last great resource of the planet earth.

Now they're talking about how we can save our resources by not using too much and not digging them up or we'll have dead soil left behind. And then, now they're telling that when it states that it might happen that we won't have our soil any more. We'll have to go into the Ocean Age and search for more resources underneath the ocean and that's one of the last resources on the planet. If we use it we'll have to go to different planets.

Sample Protocol

Less Skilled Reader - Expository Text

Resources of the Earth

Reads: A resource may be defined as anything that people need. Limit that definition still further and a resource may be defined as anything a culture needs at a given time in history. Each culture - each nation of humans - makes its own decisions about what resources are. Those resources can include as basic a thing as water or they can be as complicated as the mind of a human being.

This paragraph's about culture, about people doing some sort of things. It's about resources - what resources they use and about what decisions they have to make. When I was reading this paragraph I was thinking about how people have to make more decisions now than they had to before. I got stuck on this paragraph so I read it over twice so I'd know what they were telling me. When I was reading this I had a picture in my mind about elections where people have to make their own decisions on who they're going to elect; who they think would be the best like who would be best prime minister for Canada.

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Reads: The Algonquin and Iroquois, for example, knew about petroleum because it seeped out onto their hunting grounds. However, they certainly did not think of it as an energy resource.

Here there are two Indians, uh, two Indian squads. They would hunt and, uh...they didn't think it was a very, uh...it didn't give them, uh...it wasn't enough energy resource. I was picturing this in my mind like back long ago when they had to use a lot of energy to catch buffalo. Animals like that. And how much energy they were losing for trying to catch those animals. When I was reading this, I, um..., I didn't really have to do anything special for this one because I did understand what it was saying and I didn't get stuck on any sentences or words.

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Reads: Colonial Americans thought of whale oil as an important resource because the whale oil was used to light their lamps. About the time that whales became scarce, Americans learned about kerosene. Made from petroleum, it was an excellent source of fuel for lamps. Suddenly, the whale ceased to be an important resource for kerosene had taken its place.

In this paragraph it talked about how whale oil could be used to light up lamps and as a fuel. They learned about kerosene and they thought it was another resource and they learned it was an excellent resource for lamps. When I was reading this I was trying to picture how they would take the oil out and light a lamp with it. I tried to picture in my mind which one would be better - the oil or the kerosene. I got stuck on one word. I tried to pronounce it out and I said, um... ker-o, kairo, and seen, so I thought it must be kerosene. Other than that I didn't have any other problems on any sentences or words.

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Reads: The common clove is another example of how resources change. It is hard to imagine that this spice was once a precious resource. Before refrigeration, however, meat was preserved with salt. One of the few ways to improve its taste was to cook it with cloves. In addition, the oil from pressed cloves was used as medicine. Thus the clove became important to Europeans and was as important in its time as petroleum is today.

In this paragraph they were talking about spices and how valuable they were. They used salt to keep their meat from rotting. When I was reading this I pictured back into a book I was where people went around the world to get spices, like they'd trade for spices.

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Reads: One way to get a better understanding of what the word "resource" means is to group together some of the things that most of the world's people need. Human needs can be classified into three categories - water, mineral, and biotic, or living resources.

Here they're talking about better ways to help to

understand what resource means, and it tells about it. I was thinking about this a little, but I didn't really need to know anything because I already knew what resource meant. I didn't have to picture anything in my mind about resources or what resources meant.

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Reads: Water is one resource which many people take for granted. It is something they use every day for drinking, bathing, and cooking. The fact is that people need water more than anything else, even more than food. A human being could probably live for a week or more without food but could not live forty-eight hours without some form of water.

They're talking about how valuable water is and about how much more valuable it is than food. If you don't have water in forty-eight hours you could die. I was picturing this. Back a while ago on the news there were these people who went on a diet. A man went on a starving diet and all he drank was one glass of water every twenty-four hours.

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Reads: Water is neither created nor destroyed by natural forces. It moves from clouds to the ground to plants to rivers to oceans. It then goes back to the clouds again. Water, therefore, is called a "recyclable resource". Recyclable means it can be used over and over again. The problem is that water is not evenly distributed across the face of the earth. In any one place or at any one time there may be too much or too little water.

Here they're talking about water and how it goes all over the world into clouds, oceans, rivers, and streams. It covers everywhere. When I was reading this I was thinking how people pollute the water and how much they need it. When they are polluting, they're giving themselves less water than what they'll be needing. When I was reading I was thinking of how people would be if they polluted all the water in the world and how sick they'd be.

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Reads: Besides water, people also use and need iron and zinc and copper. They need coal and oil and gas. These nonliving -

or inorganic - things are called mineral resources. One type of mineral resource is metallic. Iron ore, for example, is an important metallic mineral. Without it, human society could not have the tools and machines needed by advanced civilizations. Iron ore is mined or taken out of the rock in which it is found. When it is mixed with other minerals, it forms an even stronger substance - steel.

They tell about other materials that we use like copper, iron, and zinc to make our tools. If we didn't have them our civilization wouldn't be the same as it is now. I had a problem on one word, uh...zank or zink. I tried to pronounce it out and then I tried it with one syllable and then I tried it with two. When I was reading this I was thinking of all those things we need to build machines, tools, and how our lives have changed since, uh...since we, uh...since our technology has made all those things. Other than that one word, I didn't have any other problems.

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Reads: Other valuable metallic minerals are copper, lead, zinc, tin, and bauxite. Copper is often used in making electric wires and hardware. Lead can be molded into pipes and it is often an ingredient in paints, dyes, and pottery glazes. Zinc is used to galvanize or coat steel, a process that keeps it from rusting. Bauxite is the chief source of aluminum.

Here they're talking about how, um..., what those three materials do and how they work. When I was reading this I was picturing in my mind about some movies that I'd watched that had machines in them that were made out of rock and some materials like these which don't break down as fast as other ones. I had problems on one word - gal-van-size, uh...galvansize. I tried to figure out this word by pronouncing it out and by saying three different syllables. Other than that word I didn't have any other problems on any other words.

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Reads: A second group is nonmetallic minerals. Nonmetallic minerals used everyday include stone, cement, salt, and graphite, the lead in pencils. Glass is made from sand, another mineral. In addition, people mine and use mica and asbestos for insulation. They use potash and phosphate for making fertilizer.

Here they're talking about different kinds of materials and what they do and how they work. As I was reading this paragraph, uh...I read it and, uh...I thought how it said how they stopped using the lead in some paints and some pencils and added in some different things because lead is poisonous and it could kill you.

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Reads: Salt, like fresh water, is another of those resources that people need to live. In ancient times, salt was the most important resource of all. It was used not only to season but also to preserve food. The great trade routes were originally established to transport salt throughout the world. Long ago, Roman soldiers received part of their pay in salt. The Roman word for salt - salarium - became the English word for salary.

Here they're telling how back when the Romans used to use salt more than anything. Soldiers would get paid by using salt. As I was reading this I was picturing in my mind how they salted their meats, and where they'd put them after they finished salting them. As I was reading this, I remembered a book that told how they salted the food and then they hung it in a basement or somewhere outside where nothing can get at it.

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Reads: The third group of inorganic resources are energy fuels. These are coal, crude oil, and natural gas. These resources are also called "fossil fuels" and are found in rock. In fact, geologists consider these fossil fuels to be kinds of rock. Geologists do this even though fuels are not really minerals like copper, sand, and salt.

They're talking in here about a different kind of fuel called fossil fuels and about where you can find it and how they're not the same as copper, sand, or salt. As I was reading this I looked back because I just took about dinosaurs - how their footprints blended into a rock which, I think, was called a fossil fuel.

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Reads: All three resources which supply heat and energy were formed thousands of years ago. Coal was formed from dead plant life. Crude oil and natural gas are combinations of the remains of ancient fish and plants. All three were squeezed under thousands and thousands of tonnes of pressure over many centuries. Energy from the sun was trapped beneath the earth in dead plants and animals. Now, thousands of years later, it is used to run furnaces, machinery, automobiles, airplanes, and ships.

Here they're talking about, uh...how fossil fuels are made by dead fish and plants which are sunken into the earth and are left there long enough to turn into fossil fuels. And what they're used to run such as machinery, automobiles, airplanes, and ships. And how coal was formed from uh, just plant life. And how the oil was formed, uh...the crude oil and the natural gas are combined, uh... combinations of, uh...fish and plants. As I was reading this I was thinking how much strength it must have took to make fossil fuels.

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Reads: In addition to water and mineral resources, people need food, and almost everything people eat was once a living thing. Living things - both plants and animals - are called "biotic resources". They can be further divided into at least three groups. People grow or gather crops, raise or hunt animals. The products from these plants and animals provide raw materials for building homes and making clothes.

This is telling here what animals and plants do to, uh...to provide, uh...resources and how almost every living thing has eaten another living thing which has eaten another one. It just goes on and on. Back long ago I was reading a little book that showed how a little fish ate a littler fish and the little fish got eaten by a bigger fish, bigger than him. Bigger and bigger and bigger fish and how each one of them had each eaten some other living thing. I didn't get stuck on any words or have trouble understanding anything.

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Reads: Soil is also an essential resource, but it is neither a biotic nor a mineral resource. It is both. Soil is made of two things - parent material and humus. The parent material of the soil is the rock from which the soil was formed. Tiny pieces are knocked off larger rocks by wind, water, and ice. Also, the actions of plants, people, and animals affect rock.

This process is called "mechanical weathering". Chemical weathering also takes place when the minerals in rock undergo chemical change. These changes cause the minerals to eat away at the parent material.

This paragraph is saying about how changes can be made; how material, how, um...plants, people, and animals affect rocks and change the weather, and how some undergo chemical change. When I was reading this paragraph, I got stuck on a few of the sentences so I reread them over twice to try to understand what they were telling me.

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Reads: Over thousands of years, weathering breaks up the underlying rock - bedrock - into smaller pieces. Bedrock, from which soil is made, can be found beneath the soil or it can be found at the surface. One reason that soils differ is that parent material comes from a variety of rocks. Different kinds of rocks make different kinds of soils.

This is talking about how different kinds of rock makes different kinds of soils, and about how over thousands of years, underlying rocks, uh...bedrock, is breaking up under pressure into smaller pieces. And, um...how bedrock soil is found underground and on top of the soil. I didn't have any problems understanding this paragraph. I was trying to think of this - how the two places were made of bedrock; how one was under soil and one was on top of soil. As I was reading this I was trying to picture the soil surrounded by bedrock.

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Reads: Decayed matter is the second important element of soil. Seeds are blown by the wind, carried by water, or dropped by birds and animals. They fall between the tiny particles of rock and begin to grow, become plants, and finally die. When plants die, they eventually decay. The dark-brown, partially decayed matter is called humus. It has valuable minerals - called nutrients - that help to make the soil fertile.

This part, uh...this paragraph is telling how the seeds get carried by the wind and how they go to different places. When the plants die the humus which has nutrients that help make the soil, um ...fer-, uh..., fer-tile, uh...fertile. I had

problems on that one word. I out it into two syllables and then I tried to say the two syllables out once and then I out them together. Other than that one word, I didn't have any other problems.

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Reads: The combination of decayed material and broken rock - humus and parent material - is soil. Plants need both kinds of material in order to grow. Different combinations of humus and parent material form different types of soil. Some are clayey; some sandy and gravelly. Others are rich and loamy.

OK. They're telling how plants need, uh...how different plants need different places to grow. When I was reading this paragraph, I was thinking I planted this tree...from a field trip last year they gave everybody a tree and it died. So, I was thinking it must have been put into a different uh...I must have put it into the wrong soil.

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Reads: The most important factor affecting soil is climate. Heat and moisture acting on parent material and humus help create certain types of soil. With many months of sunshine and rainfall, plant growth will be lush. Abundant humus will be produced and the soil will become rich in essential nutrients.

This one says that if plants have a lot of sun and rain, the plants will grow faster and the soil will become richer. I didn't have any problems on any words or sentences in this paragraph.

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Reads: But if it continues to rain, the nutrients from the humus can be washed down. When this happens, the soil becomes "leached". If rainfall is light, weathering will be slow. Plant growth will be sparse and nutrients already in the soil will remain. Calcium and magnesium will build up into the soil.

Here they're saying if it rains too much, the plant will die or the soil will become leached. Humus can be washed away. I was thinking how, if the plant would be still standing, and if

they'd lost a bit of the soil what it would look like. When you have a little plant and it gets washed away by too much rain, I wonder if any seeds would grow or not?

\*\*\*\*\*

Reads: Today water, mineral, and biotic resources are being strained because of the uneven distribution and because of population pressure. Some of this strain can be relieved by wise resource management. Without such management, these resources will become severely depleted. Then man may have to search elsewhere. Some scientists predict that the stage is now being set for the Ocean Age when man will be forced to exploit the last great resource of the planet earth.

Here they're talking about how scientists are saying how all the, uh...all the fresh water's being used up, and that people are going to be going to different spots to find areas of fresh water. I had problems on one word, management, uh...man-age-a-ment. I, uh...management. I pronounced it right the first time, I think. As I was reading this I was thinking about how population would be ruined by running out of fresh water and how people would start to die much faster.

Sample ProtocolLess Skilled Reader - Self Selected Narrative TextNo Brakes

Reads: The tall buildings of the city of Los Angeles lay below her. Far off to the west was Santa Monica where she lived. Past Santa Monica was the vast Pacific Ocean. For a long while, Laura gazed down at the city spread out below her. Then she turned and walked back to the front of the house.

It looks like a story was taking place in Los Angeles. I guess she's standing at her balcony looking around the city. She must have thought it was nice, pretty, exciting. It made me think about when I went to my grandma's house. It's in St. Boniface. I stood on her balcony and looked outside. There's a whole bunch of nice buildings and different places you can see back and forth.

\*\*\*\*\*

Reads: Having climbed the wide stone steps, she found herself standing before the wooden door. As she reached out to knock, she realized that the door was already partly open. Quietly, Laura stepped into a spacious hallway and found herself standing on a thick scarlet and royal blue Chinese carpet. "Hello?" Is anyone home?" she called.

I guess she went to go call on somebody or go to visit somebody because as she went the door was partly opened and she stood in the middle of the hallway. There was this Chinese blue carpet. She asked if anybody was home and there didn't seem to be an answer yet. It made me think about one time when I went home. The door was open and there was nobody home but they were really all downstairs at the time.

\*\*\*\*\*

Reads: The mansion remained silent and still. Her curiosity getting the better of her, Laura walked down the hallway a few feet. Opening a pair of heavy wooden doors before her, she found herself in a room that was almost all glass. Tropical plants of every shape and size filled the glass room. Bright

sunshine poured through the many windows flooding the room with light.

Um...it seems that Laura walked down a hallway. She opened some doors - these very heavy wooden, brown doors. I pictured that in my mind - what they looked like, very tall and very thick. She had brown hair, blue eyes, and wore a pink dress and white shoes. When she stepped in, she saw plants and there was glass windows. It was really pretty!

\*\*\*\*\*

Reads: Laura wandered aimlessly around the room casually inspecting the plants. Reaching the back of the room, she stood before a large window which looked out over the garden and the yard she had seen outside. At the back of the yard stood a row of short, bushy trees.

She stepped up to the window where the plants were and she looked outside and saw a garden that she'd seen in the front, too. There were these bushy trees and they were pretty short. I pictured the garden as having pink flowers and roses and daffodils. She was looking out the window amazed and it was really quiet.

\*\*\*\*\*

Reads: As Laura watched, a figure of a man stepped out from among the trees. His face was shaded by a hat and his hand pressed down on the handle of a rake. For a moment he paused and stared at the mansion. Quickly, he wheeled around and disappeared through the trees.

Laura saw a strange man wearing a hat that covered his face. I pictured him as a short old man, I guess, wearing a grey suit. He just disappeared into thin air through the trees. She was watching and I pictured her excited, just standing there, thinking about what's going on. I saw him getting into a car later on.

\*\*\*\*\*

Reads: At that moment, a noise in the plant room attracted her attention. Laura turned to find a large, heavy-set man standing in the doorway. Judging from his appearance, Laura

decided he must be the butler. "The television people have gone, Miss," he said. "Did you get lost and left behind?" "I'm not with the television reporters. I'm from the insurance company," Laura replied. "I spoke to Mrs. Garrison on the telephone this morning and she agreed to see me."

Laura heard a noise and she looked behind her and she saw a strange man at the door. She thought it was a butler, and she was right. The butler told her that she must have been left behind by the television reporters. She said that no, she's with the insurance company and she had called Mrs. Garrison that she was coming to get the insurance. I pictured the butler as an old man carrying a drink or something in his hand. He was wearing a vest and a tie and grey pants.

\*\*\*\*\*

Reads: "Of course, Miss," said the butler, his voice like ice. "I'll tell Mrs. Garrison that you have arrived. Why don't you wait in the study?" Laura followed the tall man through the doorway, down the hall, and into a small room containing a desk and a few comfortable chairs. The walls of the room were lined with row after row of books. After the butler had gone, Laura looked around. Most of the books were about movies or movie stars. She selected one called Horror in Film and began to read.

The butler told her to wait in the room, in the reading room. And while he went to go get Mrs. Garrison, she looked around at all the books in the room. There was every little book from uh, fiction to nonfiction and she picked a book called Horror in Films. I pictured her reading, sitting down in one of the nice chairs. There was lots of chairs in the room. The book was kind of old and a little bit torn.

\*\*\*\*\*

Reads: A few minutes later, Laura glanced at her watch. She realized that she had been reading for almost fifteen minutes. "OK," she thought, "what's going on here?" Putting down the book she had been reading, Laura stepped out into the hallway.

Laura noticed she had been reading the book for fifteen minutes and she was wondering, I guess.

I thought she might be wondering where uh, Mrs. Garrison was. He had just left her there. So she stepped out in the hallway and looked around. I pictured the hallway as a very dark hallway. The walls were a woodish brown. There were some pictures on the walls of lakes and countries and the forest.

\*\*\*\*\*

Reads: For several minutes Laura looked around the first floor. One set of doors led into a beautiful white and gold ballroom while another led into a small, green sitting room. Meeting no one, Laura returned to the front hall and waited for a while longer, impatiently drumming her fingers on a small table. "Well, I'll try the next floor," she thought, as she started up the wide wide marble steps to the second floor.

She went on to the first floor and she looked all around. She went to a ballroom which I pictured as a white ballroom with black tiles on the floor. There's people dancing in it and there's people playing music, too, and they're all wearing nice dresses and the men were wearing white tuxedos. They were dancing in the room. Laura stood there for a while and then she left. Then she stood in the hallway and she was very impatient because she was banging her hands, uh, her fingers against a table. She went to the second floor and there I pictured her going up some nice blue stairs with nice blue carpeting, and she was going pretty fast, too.

\*\*\*\*\*

Reads: The first room she came to appeared to be a movie library and screening room complete with rows of green velvet chairs, a large white screen, and shelves with reels of film. "Nice place," Laura thought, "but where's the popcorn machine?" Leaving the screening room, she started down a wide hallway past several unoccupied bedrooms.

Laura seemed to enter the movie room and library where all the films were kept. She thought it was pretty nice. I pictured it with tiles on the floor and there was a whole bunch of films all over and there's a projector and a screen. Then, uh...she wondered where the popcorn was. Then she left and she's just trying to figure out what she's doing.

She's going ahead and went a little faster down the stairs and down again. She went down to the hallway again past all the bedrooms. I pictured the bedrooms as a white silk and some red silk with curtains and the door was white. They had their own, uh...something like a hotel.

\*\*\*\*\*

Reads: At the end of the hallway, Laura paused to look at a small door on her right. Opening it she found herself standing in front of a set of winding iron steps which led up into one of the mansion's towers. Glancing over her shoulder, Laura started up the staircase.

Laura had noticed a small door and she wondered what was there. She opened the door and she saw some steps that went in a winding, uh, sort of a curl shape, up into a tower. I pictured her in the tower looking out at all the nice, uh...the city and the buildings. I pictured her going up the stairway very fast, running, sort of. Then she stood there for about five minutes looking out at the buildings and flowers.

\*\*\*\*\*

Reads: Grasping the handle of the door at the top of the stairs, she turned it quietly and pulled the door open. Slowly she stepped inside a round, dark room. Running her hand over the wall, she found the light switch and flipped it on. The first thing she saw was a small curtained window on the far wall. Suddenly she uttered a low scream and covered her mouth with her hand.

She opened the small door and she went in. She felt around the walls for a light switch. All of a sudden she heard a very low scream and I pictured her standing there trying to find the light switch. By that time she was getting real tired and everything. She didn't know what to do any more.

\*\*\*\*\*

Reads: The figure of a man stood in front of her. It was the actor, Guy Garrison. Laura stepped back but the figure didn't move toward her. It was very still, its eyes looking directly at the doorway. Running a hand nervously through her hair, Laura moved toward the figure. As she drew closer she began to

smile when she realized that the figure before her was only a mannequin. Suddenly, she heard a noise on the iron steps.

She thought she saw Guy Garrison. He was an actor. When she entered, he was standing right before her looking at the doors. Every time she moved back he didn't go toward her or anything, so she went forward and then she noticed it was a mannequin. Then, suddenly, she heard a noise on the iron steps. I pictured her amazed and scared when she saw this man in front of her. She wanted to run away but she didn't and she was brave enough to go up to him and stand there and figure out that it was a mannequin in the end.

\*\*\*\*\*

Reads: Turning around Laura spotted a tall, beautiful woman in a long gold velvet robe standing by the door. Under one arm she held a small white Pekinese dog. Just behind her stood the butler. Both were watching her carefully.

The butler and a lady, who I thought was uh, Mrs. Garrison, came in. Well, uh...Mrs. Garrison was wearing a gold dress, a very nice gold dress. The dress is gold and she's carrying a dog - a Pekinese dog - underneath her arm. They were both staring at Laura who must have been very scared. Just like, all of a sudden, they're there and they found her and everything.

\*\*\*\*\*

Reads: The woman pushed back a lock of her thick brown hair. In a rich, low voice she said, "Miss Brewster? I'm Renee Dumont - Mrs. Guy Garrison. This is Watson, my butler, and this is my darling little Poof. I'm sorry you had to wait for me for so long. I see you've discovered Guy's special room."

Laura, uh, was introduced, uh...Mrs. Garrison introduced herself to Laura. She also introduced - Mrs. Garrison also introduced the butler named Watson. I pictured Mrs. Garrison. She had long curlyish brown hair. It was put up that day and she had makeup on. She was wearing gold slippers and a silk, gold gown. The butler was standing there and he was smiling. He was very tall and he was also sort of bald with some greyish hair.

He was wearing grey pants, a vest, and a white T-shirt underneath. Mrs. Garrison also introduced the dog named Poof who I pictured as a white, sort of like a poodle. Mrs. Garrison also said that Laura had discovered Guy's special room. I guess his special room was like where he kept his things for acting and his mannequins.

\*\*\*\*\*

Reads: All at once the woman stopped talking. She closed her eyes and two large tears ran down her cheeks. She rested her head against Poof's soft back, her fingernails looking long and blood-red against the dog's white coat. Gazing at Laura coldly, the butler went to Renee Dumont and took her arm. The actress opened her eyes and tried to smile.

All of a sudden Mrs. Garrison started to cry. She closed her eyes and she felt two big tears come down her cheeks. So the butler took her. No! She bent down and she was sort of leaning on the dog. The butler took her arm and then Mrs. Garrison opened her eyes and tried to smile. I don't understand why she was crying all of a sudden. It was kind of weird and if I was Laura I'd feel kind of weird being there and, all of a sudden, somebody crying for no reason or at least for no apparent reason. She, Mrs. Garrison, had blood-red nails. I guess she must have been, like Mrs. Garrison, must have been nice and she was rich! And, um...I don't know. I think she might have been crying because Guy might have died.

\*\*\*\*\*

Reads: "I'm sorry," she said, her low voice cracking as she spoke. "I just keep thinking...that Guy might not be dead. He might need me and not able to get me." Laura moved toward the door. "I can come back another time," she offered. "Maybe tonight. If you could come for dinner we could talk then." "Thank you," said Laura. "I won't keep you long. I just want to ask you a few questions - about your husband's state of mind."

Um...it looks like Mrs. Garrison said that Guy, I guess, he disappeared. He wasn't dead but I think he just disappeared and Mrs. Garrison thinks he's dead. She thinks he is and she thinks he isn't. He could be, but she doesn't know for sure and she keeps thinking that Guy might need her for some

reason. So Laura was invited to Mrs. Garrison's house for supper that evening and they're going to talk about her husband - some questions about him. I pictured her smiling again and wiping the tears off her face and Laura sort of smiling a little and trying to figure out what was going on. Then when she heard that Guy was a little bit dead, she was kind of shocked in a way because I don't think she knew.

\*\*\*\*\*

Reads: From below came the sound of a car pulling into the driveway. Crossing to the window, Laura looked out. Luke Norton's old yellow station wagon was parked on the drive. The tall police officer had jumped out and was now heading for the front door of the mansion. "My friend is here," Laura explained. "He and I are going to go up to see where your husband's Rolls went off the road."

It looks like Laura's friend pulled up who was a police officer. I pictured him as very tall and he was in a blue uniform and he had a badge. He had brown hair and he wore glasses. They were both - Laura and uh, Mr. uh, Nor, uh, Norton - are going to see why the Rolls Royce went off the road and where it went off the road and how it killed Mr. Garrison. I don't think he's killed. I think he just (laughs), I think he just um... was sort of zooming all over the road. I think he just stepped out of the car while it was going down. He had brown hair but didn't wear glasses. he had a mustache and he was wearing a blue tuxedo at the time.

\*\*\*\*\*

Reads: "Before I go there's one thing I'd like to ask you now, Ms. Dumont," Laura said. "I saw a strange man behind the house this morning." Renee Dumont appeared to be somewhat startled. Pulling her robe around her and rubbing Poof's head, she replied, "Strange man? Now who...? Oh yes, that must have been old Theodore, the gardener. A bit touched. He is a little strange."

Laura had told Renee Dumont that she saw somebody in her garden - a stranger, uh, a strange man and the butler assumed it was Theodore, the strange gardener. I guess he was really shy. I'm not really sure, I think he was nice, but he just

wanted to be alone all the time. I think he did a very good job on the garden and everything but he didn't like sticking around. He didn't like hanging around with anybody.

\*\*\*\*\*

Reads: "The gardener, of course," Laura said. "He was carrying a rake. I saw him resting his hands on it." Appearing to be satisfied with the explanation, Laura turned leaving Renee and Watson standing in the small tower room. At the foot of the stairs in the first floor hallway Laura met Luke Norton. He was standing just inside the front door.

Um...Laura knew, uh...she guessed it was the old gardener. She presumed it was because he was carrying a rake - resting his hands on it. And, uh...she told them that she believed them and everything. Laura turned around and she left Renee and Mr. Watson, and uh, went downstairs to the front door where Luke Norton was standing. They were just about to go see where the Rolls, the Rolls Royce, went off the road.

\*\*\*\*\*

Reads: "It was open so I came on in," he explained. "Thanks for coming, Luke. It was nice of you to help me out - with your car and yourself. I know it's your day off." Luke gave her a slow smile and replied, "I though a ride along the ocean would be a nice change. We can stop for lunch on the way. I even brought along my fishing rod. How does that sound?" "Great! Let's go," Laura agreed.

Laura and Norton were going to see where the car went off the road. Uh...they were gonna go see that first and then after they had done that they were going to go fishing and go for lunch because Mr. Norton had brought his car and he had fishing rods in the back. I pictured his car as a very yellow color. It was kind of rusted, kind of a very old kind of car. It was pretty small, too. Probably it would fit only about four people.

\*\*\*\*\*

Reads: Luke backed the station wagon out of the driveway and turned right. As they drove across the top of the hill,

Laura caught a glimpse of another beautiful old mansion. Its grounds seemed to go on for at least a mile, but most of it was cut off from the road by a high stone wall.

As they were going to go see where the car went off the road, Laura noticed that, um...she saw another bigger house. It had a mile long yard but it was cut off because of the large stone wall. I pictured her looking at the house and the house must have been very pretty. I pictured it as white bricks with a little bit of brown and six windows on the front and about six on the back. These people must have been really rich! They must have been movie stars.

\*\*\*\*\*

Reads: In a few minutes the station wagon was heading down a winding road that led to the bottom of the hill. As they drove, Laura pointed to another gigantic Hollywood mansion - this one was white and had windows from the roof to the ground. "I wonder what it's like to live like that?" she said. "Do you think you would like it?"

They kept on going. They went down a winding road and they saw another Hollywood mansion which was really nice. It was white and had windows and its own roof. You could see there were windows on the roof and you could see the road from there. I pictured Laura as wanting to live there. The house was really special. It was pretty tall and you could tell that movie stars have lived there cause they're pretty rich, unless you won a lottery or something.

\*\*\*\*\*

Reads: Luke didn't answer and Laura turned to look at him. The police officer's face was grim and his large hands tightly gripped the steering wheel. "Luke, are you all right?" Laura asked. "I don't think so, Laura," came the answer. "You'd better hang on to something. We're in for trouble. The brakes just went out."

Luke was holding on very tightly to the steering wheel. All of a sudden, Laura asked him what was

wrong and Luke told her that the brakes went out on the car. So, I presumed that they're going to be in an accident and it was kind of odd. I, uh, pictured that...well, I thought that maybe the old gardener might have done it. He'd ruined the brakes and made them not work at all. Laura was very scared as they were going down the stairs, I mean the road. She was shocked. Luke was being very careful. He was keeping his eye on the highway and they were pretty scared about it.

## APPENDIX L

Pre-Reading Interview Response Categories

- (a) Goal or purpose of reading  
(questions 1, 2, 7, 16)
  
- (b) Recollections of early reading experiences  
(questions 3, 4)
  
- (c) Students' perceptions of their own reading ability  
(question 6)
  
- (d) Criteria students indicate they use for evaluating  
their own reading performance  
(questions 9, 10, 11, 12)
  
- (e) Awareness of strategies available to monitor  
comprehension  
(question 5)
  
- (f) Strategies students indicate they use when reading  
(questions 8, 13, 14, 15)

adapted from Garner & Kraus (1981-82);  
Wixon, Bosky, Yochum, & Alvermann (1984);  
& Raykovicz, Bromley, & Mahlois (1985).

## APPENDIX M

Classification Scheme for  
Think-Aloud Protocol Strategies

=====  
A. MEANING-MAKING PROCESSES

| <u>Strategy</u>                    | <u>Criteria</u>                                                                                                                                                         |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Visualizing                     | A response that indicates the subject had a picture or a mental image.                                                                                                  |
| 2. Relating to Personal Experience | A response that indicates the subject already knew something or had already experienced something.                                                                      |
| 3. Making Inferences               | A response that indicates the subject had made a guess or an inference based on his or her own knowledge and information from the text.                                 |
| 4. Hypothesizing                   |                                                                                                                                                                         |
| (a) Predicting                     | A response that indicates the subject is making a forecast of future events in the text.                                                                                |
| (b) Confirming                     | A response that indicates the subject is verifying a prediction using later information in the text.                                                                    |
| 5. Analyzing Text Features         | A response in which the reader makes specific reference to features of the text, such as words, sentences, style, or text structure, as a means of organizing the text. |

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A. MEANING-MAKING PROCESSES

| <u>Strategy</u>                                   | <u>Criteria</u>                                                                                                                                          |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. Judging<br>(a) Text Ideas<br>(b) Text Features | A response that indicates the reader is evaluating the quality of the text (ideas or features).                                                          |
| 7. Summarization<br>(a) Paraphrase                | A response in which the subject substitutes his or her own words for the original wording of the text.                                                   |
| (b) Restatement                                   | A response in which the subject repeats the text verbatim.                                                                                               |
| 8. Determining Word Meaning<br>(a) Context Clues  | A response that involves reasoning around a particular word; using information from the immediate setting in which the word occurs to determine meaning. |
| (b) Synonym Substitution                          | A response in which the subject replaces an unfamiliar word with one perceived by the reader to be of similar meaning.                                   |

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B. MONITORING AND REGULATORY PROCESSES

| <u>Strategy</u>                                             | <u>Criteria</u>                                                                               |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1. Comprehension Monitoring and Regulation<br>(a) Rereading | A response in which the subject specifically mentions going back and reading something again. |

=====  
B. MONITORING AND REGULATORY PROCESSESStrategyCriteria

(b) Reading Ahead

A response in which the subject specifically mentions reading ahead in the text to seek further information.

(c) Look Backs

A response in which the reader specifically mentions going back to the text to seek key ideas or details.

(d) Nature of the  
BreakdownA response in which the subject specifically mentions the part of the text that caused him or her to encounter comprehension failure.  
=====