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Levels of Cultural Familiarity and Strategy Use in Reading Comprehension

by

Gertrude M. Tinker

Department of Education

A Thesis submitted in conformity with the requirements for the Degree of Doctor of Philosophy in the University of Toronto

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Abstract

Previous studies have used cross-cultural comparisons to demonstrate the effect of background knowledge on reading comprehension. The present study used a similar approach to study the relations between background knowledge, reading skill and level of use of reading comprehension strategies. Eighty-eight sixth-grade subjects were equally divided according to reading skill (skilled and less skilled) and country (Bahamas or Canada). Subjects thought aloud while reading culturally familiar and unfamiliar informative texts. Protocols were scored according to the level of strategic action exhibited and according to the condition triggering the action.

The results, while confirming the role of knowledge in the construction of meaning, indicated significant country differences in subjects' use of knowledge and in correlations of strategy level with other measures. Results from the Canadian sample confirmed other North American findings: level of strategy use was positively correlated with both reading skill and with comprehension of familiar and unfamiliar texts. However, the Bahamian skilled and less skilled students demonstrated consistently higher levels of strategy and knowledge use on both familiar and unfamiliar stories than did the Canadian students. Furthermore, in the Bahamian sample, level of strategy use was not correlated with reading skill or comprehension. These results raise questions about the generality of relationship between reading strategies and comprehension.
To the women who brought me up:

my deceased mother, Marme

and my maternal grandmother, Mama.
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_Gloria in Excelsis Deo!_
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Chapter 1

Introduction

The ultimate goal of the act of reading is to understand and, in so doing, acquire new information. The ability to read with understanding is recognized as an essential skill in literate societies. Many educators, researchers and theorists are concerned because despite the importance of reading, a substantial number of people never master the skill of reading or of reading with comprehension. Of those who do learn to read, researchers are concerned with their minimal level of competence, superficial levels of processing and the lack of problem solving skills and initiatives that some of these readers portray.

As a result of the current emphasis in education and research on creating more independent and goal-directed learners and thinkers and in recognition of the limited performance of students in basic skills (Glaser, 1984; Nickerson, 1988-89) there is a need to adopt more problem solving approaches in the instruction and assessment of the three R’s (reading, writing and arithmetic). Work on problem solving has been associated traditionally with the physical and life sciences mainly because these are highly structured domains with well-defined criteria for successful problem solving such as in mathematics and physics. More emphasis needs to be placed on the social sciences especially as they relate to learning theories and pedagogy. Reading with understanding and higher competency levels of reading involve the utilization of problem solving approaches which depend on the flexible use of knowledge as well as efficient strategy use.

The importance of knowledge in the understanding process is well
documented (e.g. Chiesi, Spilich & Voss, 1979; Pearson, Hansen & Gordon, 1979). What is not well understood is how and when that knowledge is accessed and utilized and the conditions and factors which influence its accessibility and utilization (Bransford & Nitsch, 1985; Spiro, 1980). The emphasis on knowledge in schools has been manifested in the amount of domain knowledge students are expected to acquire during their years of schooling. The pervasive influence of "the knowledge building belief," as seen in the teaching of the content areas and in the assessment of learning, has encouraged and perpetuated a state of "factual aggrandizement" in education much to the detriment of other cognitive goals and skills. This can be seen in the low level of students' responses (Bereiter & Scardamalia, 1985), the quality of teaching (Durkin, 1978/9), in the general passivity in pupils' thinking (Glaser, 1984) and ultimately in the accompanying mediocre level of performance in schools.

The dominance of knowledge in the curriculum needs to be qualified because while it has been shown that knowledge is necessary for comprehension, it is not however, a sufficient condition for comprehension (Brown, Bransford, Ferrara & Campione, 1983; Spiro, 1980). A finding from research of the past decade is that young readers and poor readers of every age do not consistently see relationships between what they are reading and what they already know (Bransford et al, 1982; Owings et al, 1980) and that both good and poor readers do not consistently use their knowledge to promote new learning (e.g. Anderson, 1977; Hare, 1981; Markman, 1979). Interference in the comprehension process is also known to take place when prior knowledge is incompatible with the information in the text (Alvermann, Smith & Readence, 1985; Maria & MacGinitie, 1987). These findings strongly suggest that factors other than knowledge play important roles in influencing the comprehension and understanding of text.

Skill building is recognized as essential for growth and development in
learning (Anderson, 1983) and much research has been devoted to identifying strategies that improve reading performance (e.g. Bird, 1980; Brown, Ferrara & Campione, 1981; Pearson, 1984). Attention must now be directed to the conditions under which level of strategy use is maximized or minimized. Strategy use is discussed in terms of levels and implicit in the term level of strategy use is a view that strategies can be both qualitatively and quantitatively different. These differences are manifested by the extent to which understanding and learning take place. There are therefore for example, knowledge telling versus knowledge transforming kinds of strategies (Scardamalia & Bereiter, 1985; 1986) or strategies that promote higher and deeper levels of comprehension than others. By the same token there are strategies that promote superficial and surface levels of comprehension. The use of one level over another on the reading of familiar and less familiar texts by skilled and less skilled readers is the concern of this thesis.

Statement of the Problem

This thesis is concerned with the extent to which high and low levels of knowledge influence or interact with the level of strategy use in the construction of meaning. Level of strategy use was examined in skilled and less skilled sixth graders from two different countries who read culturally familiar and less familiar informative texts.

Purpose of the Study

There had been a paucity of research in reading comprehension until the last two or three decades and the investigation of cognition in reading comprehension was also never systematically pursued as word recognition was, until around 1960 (Venezky, 1984). While research in reading comprehension has increased in recent years, there are still many voids in the areas of reading models, theory building, instructional methods and in our knowledge of how different children learn and understand.
The study to be reported was designed to investigate the influence of knowledge, strategies and skill on reading comprehension. Few studies have examined the interactive role of these variables in reading comprehension. This thesis utilizes a cross-cultural design as a way to control knowledge without the usual confounding effects found in other studies on knowledge levels. Previous studies in this area, while few in number, have been limited to different cultural groups in the same country or region (e.g. Reynolds et al, 1982) or have often selected topics (e.g. baseball, spiders and religious affiliation) that had special significance to certain groups (Chiesi, Spilich & Voss, 1979; Lipson, 1983 & Pearson, Hansen & Gordon, 1979; Recht & Leslie; 1988) or have been limited to older college students (e.g. Bartlett, 1932; Steffensen, Joag-Dev & Anderson, 1979). Results from such studies are limited in that knowledge would be difficult to isolate and results could be complicated further by topics confounding with gender, interest and motivation. In the case of this study, topics for the texts were selected on the basis of their general familiarity to students and knowledge was controlled by selecting topics that were culture specific to subjects in the two different countries. This manner of selecting topics may have some influence on how knowledge is used and hence contribute to our understanding of how level of knowledge interacts with level of strategy use.

Like all cross-cultural research, however, this study is still affected by the limitations that plague such designs. Regardless of effort, it will still prove nearly impossible to achieve a perfect balancing of knowledge levels when comparing subjects of a large cosmopolitan city with subjects from a smaller, less industrialized country. In this case population size alone indicates significant differences of more than three million in Toronto (Canadian English Dictionary, 1987) to a little over 144,000 in Nassau (Bahamas Handbook, 1989). It would be easier to find knowledge that is unique to a smaller city than a larger metropolis. Country differences could also have an effect on the results from standardized
tests of learning which could also be culturally influenced. Despite these limitations, the study should add some significant perspectives to what is for the most part at present, a culturally restricted understanding of knowledge and strategy interaction.

Understanding of the knowledge/strategy interaction has been shaped by Newell and Simon's (1972) publication of "Human Problem Solving." Since that time interest in strategies from the perspective of problem solving and learning in general have been heightened. The study of strategies encompasses a wide spectrum of skills and processes that involve action, goals and ultimately self-directed learning. In reading comprehension, the strategies identified have ranged from the more traditional and common study strategies (rehearsing, memorizing, underlining, summarizing, note taking etc) to comprehension monitoring and repair strategies (Baker & Brown, 1984; Forrest, Pressley & Gillies, 1983). Strategies allow researchers to see skills in action (Paris et al, 1983) and how the end product is ascertained. Research has indicated the need for further studies in this area as children are often unaware of strategy use (Paris & Myers, 1981) and do not monitor their comprehension (Garner, 1982). When they do know about strategies, they are uncertain of when to use them (Brown, 1980; Myers & Paris, 1978). Good and poor readers are also known to differ in their use of strategies (e.g. Garner, 1980; Hare, 1981; Ryan, 1981). It is also unclear as to when and under what conditions strategies are used. It has been shown that when some readers are faced with difficult or ambiguous text, strategy use is encouraged (e.g. Markman, 1979). Research has pointed out differences in strategies and strategy use but it has not identified clearly how and under what conditions these differences manifest themselves (Lipson & Wixson, 1986).

Research on strategies has identified the need to teach directly the explicit use of strategies and some of these instructional studies have met with success
(e.g. Bereiter & Bird, 1985). However, there is still a need to identify the conditions under which various strategies are utilized and accessed in conjunction with other variables before more instructional methods can be studied or indeed be considered necessary. This thesis proposes to identify some of those factors that influence level of strategy use of different skill groups.

The study of the interaction between knowledge and strategy is important from several perspectives. The common assumption is that strategy use is driven by knowledge of some type. This has been challenged as there has been some doubt as to how much knowledge actually dominates strategy use. While strategies may originate from a knowledge base, they may not necessarily be activated, accessed or utilized when needed which implies that some other variables could be influencing their use. The level of strategy used may be (1) knowledge related and/or (2) skill related or influenced by (3) other factors such as culture or motivation. The study would hopefully shed some light on some of the relationships that exist between the level of strategy use, knowledge and skill.

The central issue therefore, is whether high and low levels of knowledge produce high and low levels of strategy use. It would seem that there are two perspectives in this regard; there are those who would predict that high levels of knowledge will influence strategy use as strategies originate out of a high knowledge context (e.g. Anderson, 1977; Carey, 1984; Chi, 1978; Glaser, 1984); and there are those who would predict that strategies are incited and encouraged in the face of comprehension difficulties (e.g. Baker & Brown, 1984; Bereiter & Scardamalia, 1985; Palincsar & Brown, 1984; Paris, 1988; Paris, Lipson & Wixson, 1983). It is not clear if these two orientations are mutually exclusive but both views are consistent with the cognitive view of learning which stress the active, constructive and goal oriented processes involved in learning (Schuell, 1986). This thesis will hopefully add to our understanding of the influence of knowledge and strategy use in comprehension.
The purpose of the research then is to identify and describe the level of strategies that are revealed when students process culturally familiar and less familiar texts. It strives to do this by conceptualizing the performance of students from the cognitive view of learning which acknowledges the active and constructive nature of the learner. The questions to be pursued are as follows:

1. What levels of reading comprehension strategy use can be inferred when skilled and less skilled subjects read culturally familiar and less familiar texts?

2. What is the influence of knowledge on the comprehension of text and to what extent do children use their knowledge to construct meaning?

3. When are poor reader strategy levels like good reader strategy levels?

4. Do skilled and less skilled readers from different countries demonstrate similar levels of strategy use?

5. Do comparable levels of knowledge decrease/increase performance differences across and within cultural groups?

Rationale of the Study

Two tenets often postulated in education are that each child is different and that we should teach the child starting from where s/he is at or with what s/he knows. There is another assumption prevalent in current theories of learning which is that people generate meaning to make sense of a situation/task or event. These views are complimentary in that they all recognize the individuality of humankind and of learning. In recognition of learners' individuality and variability, good and poor readers are studied; to understand the knowledge that learners bring to a situation, studies of high and low knowledge are designed and; to merit learners with certain capacities, strategies are studied as indicative of the active and purposeful intent of the learner.

The design of this study allows for insights into the mental processing of the readers as they read culturally familiar and unfamiliar texts. Knowledge is
counterbalanced so that what is high background knowledge for one population will be low background knowledge for the other and vice-versa. Because cross-cultural comparisons have been helpful in demonstrating the importance of background knowledge for comprehension, it stands to reason that such a method might also be helpful in clarifying the relationship between background knowledge and level of strategy use. If strategy use is primarily a reflection of skill, skilled readers would be expected to perform well on both texts and a converse performance would be expected of the less skilled readers. However, if strategy use is influenced by knowledge, then skilled and less skilled readers should perform more alike on the familiar task and skilled readers should perform more like less skilled readers on the unfamiliar task.

As the review of the literature will show, earlier studies of strategies have been concerned with describing, itemizing and examining strategies and the frequency of their use in different readers. The issue at present is not whether different strategies are used by some readers or not, but the issue is under what kinds of conditions are different levels of strategy use encouraged and predicted for skilled and less skilled readers. Capable readers are believed to make use of higher level strategies such as in solving problems or drawing inferences that relate one text statement to another and to background knowledge. Accordingly, comprehension strategies in the present study are described in terms of the level of strategy employed - ranging from relatively low levels of recognition and association to levels characterized by inference and problem solving. From the study of levels of strategies, there is an opportunity to assess the conditions under which different readers will use one classification or type of strategy over another in the process of obtaining meaning. The study to be reported is concerned with obtaining more qualitative information that will provide insights into how different levels of strategy use facilitate the comprehension of familiar and unfamiliar text. The extent to which readers use their background knowledge to
assist them in comprehending text and the extent to which different levels of strategy use interact with knowledge use will contribute to our knowledge of the factors influencing performance of skilled and less skilled readers and ultimately enhance our capacity to teach individual students strategies to improve learning.

While there would obviously be value in analyzing reading strategies at a more detailed level, the use of a more global variable of strategy level makes it possible to employ comparisons of means and correlations in order to address the questions of the study. As will be shown, analysis at the more global level revealed important cultural differences that raise serious questions about the role of comprehension strategies in reading performance.

Limitations of the Study

The study is limited in several respects. The main limitation facing this study is the method of data collection. Verbal reporting has been a controversial topic for some time and thinking-out-loud has its share of adversaries who claim that one can never directly make conscious what is unconscious. The many proponents of this method feel differently but still the matter is unresolved as is evident from the methodological considerations discussed in chapter two. While it is believed that the physiological working of the mind cannot be reported upon, it is proposed that humankind can reflect on their thinking processes. However, what is of concern here is not that one cannot access what is happening in the mind but that someone else, namely the researcher, must infer what is going on in that person's thinking by his or her reports. The role of inference on the researcher's part is crucial to this study and could probably be one of it's major limitations.

The informative texts that are used in this study are also limiting because it is almost impossible to generate two passages on different topics that are equivalent on all dimensions. Although every attempt has been made to make
the texts similar in most respects, equivalence cannot be claimed. Another limitation of this study is the knowledge structures of the students. The knowledge structures were not always comparable even though every effort possible had been made to ensure this. While the specific knowledge was easier to ensure, world knowledge, a much more powerful factor, could not be assessed or controlled.

The fact that children from different countries were used in this study is also another limitation. Again problems exist in ensuring the comparability of subjects across countries in terms of equivalent background and school (this will be discussed further in chapter 2). It should be reemphasized that no claim is being made that cross-cultural comparison is a better way to study knowledge effects, only that its advantages and disadvantages are somewhat different from those of within-culture comparisons and so it provides the opportunity for convergent findings.

Definitions of Terms

The term level of knowledge is used throughout the thesis. Implicit in this phrase, is the amount of knowledge or the structure of the knowledge available to the reader on a given topic. Hence, in a particular domain, experience may foster a higher level of knowledge than exists for a person with less experience or no experience. The implications of this will be discussed throughout the thesis.

The terms reading and reading comprehension are sometimes used interchangeably. In the context of this study they both refer to the same goals of reading with comprehension as opposed to merely reading in an unqualified sense.
Chapter 2

Review of the Literature

Knowledge

Bransford and Nitsch (1985) discuss a very basic problem that confronts psychologists and educational researchers; how people learn to know and comprehend better. They are interested in what they call the "growth" problem or how one moves beyond a particular state of knowing and understanding and the "transfer" problem or how changes in what one knows permit additional understanding. The concerns of this thesis are similar: how and to what extent children use their knowledge to learn and comprehend and how this influences level of strategy use. The review of the literature will provide an overview of the state of the field of reading comprehension as it concerns the related issues of growth and transfer, through the construction and use of knowledge and strategies.

Both general knowledge of the world and domain specific knowledge influence what is understood and retrieved from passages (e.g. Anderson, Pichert & Shirley, 1979; Anderson, Spiro & Anderson, 1978; Langer, 1980; Pearson, Hansen & Gordon, 1979; Stevens, 1980). Researchers have utilized various methods of comparison to explain performance differences on the basis of prior knowledge. It has been common to study experts and novices, young and old, and good and poor readers with respect to variation in the amount of knowledge. Chiesi, Spilich and Voss (1979) and Pearson, Hansen and Gordon (1979), who are discussed in the next section, are just two examples of researchers who have
found significant effects of background knowledge on learning. Many researchers have explained the influence of knowledge on comprehension in terms of schemata. Schemata are said to be the "ideational scaffolding" (Ausubel, 1963, 1968) for learning and comprehension. They are said to provide a framework for classifying concepts presented in a text (e.g. Anderson, Spiro & Anderson, 1978; Bransford & Johnson, 1973; Rumelhart & Ortony, 1977). Support has has come from studies that have examined knowledge and found evidence of its influence on the understanding and recall of text. Some of these studies are reported in the next section.

Chiesi, Spilich and Voss (1979) in five experiments investigated the effects of high and low knowledge of baseball on the acquisition of topic-related information. The researchers assigned their subjects (college students) to high and low knowledge groups on the basis of their scores on a test about baseball. The subjects were later exposed to various tests of recognition on the topic. The results indicated that domain specific knowledge facilitated the acquisition of new domain related information. In other words, the high knowledge subjects were able to use their knowledge of baseball to relate game actions and change to the game’s goal structure while the low knowledge subjects were unable to do so because they lacked the particular background knowledge.

Pearson, Hansen and Gordon (1979) studied children’s comprehension of textually explicit and inferable information with subjects who had weak and strong knowledge about spiders. They assessed their second grade subjects’ knowledge of spiders in a pretest and later gave them a passage to read on spiders. Following the reading of the text, the subjects had to respond to twelve questions on spiders. The questions were classified as either explicit or implicit. Textually explicit questions were based on wh-transformations (e.g. who, what, when) on a part of the text and answers to these questions were stated directly in the text. The implicit questions required the readers to refer to prior knowledge
to generate responses as answers were not directly stated in the text. Like Chiesi, Spilich and Voss (1979), these researchers found that low knowledge was negatively correlated with higher comprehension and recall scores. The results indicated that students with well developed schemata on spiders performed better than those with more weakly developed schemata. The effects of prior knowledge were also more pronounced for implicit than for explicit questions. Results from a second experiment by Pearson, Hansen and Gordon (1979) replicated the overall question type effect. These results suggest that strong prior knowledge especially facilitates the answering of textually implicit questions.

Studies by Langer (Langer, 1980, 1984) and Langer and Nicolich (1981) utilized a different approach to examine the effect of prior knowledge on the organization of recall. Langer and Nicolich (1981) elicited prior knowledge using written free associations of high school seniors to key concepts in passages which they were to read later. After the reading of the texts, the subjects were required to write all that they could remember about the passages. The free associations were then categorized to indicate the level of prior knowledge according to superordinate and subordinate concepts to reflect much, little or some prior knowledge. The results indicated that level of prior knowledge and recall measure were strongly related for both passages. Their results support the significant effect of prior knowledge on recall and learning. These studies also support the earlier work of Anderson, Reynolds, Schallert and Goetz, (1977) and Bransford and Johnson (1972).

Tests of recall have been common for measuring memory and comprehension of a discourse (e.g. Anderson, Spiro & Anderson, 1978; Bower, 1976; Kintsch, 1976; Mandler & Johnson, 1977; Thorndyke, 1977). Empirically, comprehension and recall are related and recall is strongly aided when one has some background or textual knowledge of the passage (e.g. Bransford & Johnson, 1972; Lange & Nicolich 1981; Spiro & Tirre, 1980; Steffensen, Joag-Dev, &
Anderson, 1979; Taylor, 1979; Wixson, 1983). These and similar studies for the most part have looked at reading comprehension via the medium of question answering (e.g. Pearson, Hansen & Gordon, 1979) or by examining the influence of pre and/or post questions or titles on reading comprehension (e.g. Bransford & Johnson, 1972).

Pre-existing knowledge is also known to have an effect on oral reading accuracy and miscues. Taft and Leslie (1985) studied the effects of prior knowledge (high, low) on average third grade readers. From their results they concluded that children with high prior knowledge made fewer miscues and the miscues were less graphically similar to the text word than children with low prior knowledge. These results also supported the work of Hocевar (1975) and Rousch (1972).

In a similar vein, comprehension is also known to be related positively to cultural background, as cultural background implies greater prior knowledge of culture specific topics and ideas. In research on reader’s recall of text for example, Bartlett (1932) and Steffensen, Joag-Dev and Anderson (1979) found cultural differences in students’ recall, elaborations and processing in reading comprehension.

Bartlett’s (1932) was one of the earliest studies done to investigate the effects of background knowledge on students’ comprehension of text. Bartlett (1932) used eight different passages that were descriptive and argumentative and also some containing graphic material. One story was a North American folktale called "The War of the Ghosts." Bartlett asked twenty students from the University of Cambridge to read the passage twice to themselves. Fifteen to thirty minutes after the reading, the subjects were asked to reproduce as much of the story as they could in writing. Successive reproductions were repeated at varying intervals ranging from two weeks to ten years. Bartlett felt that the story belonged to a "level of culture and a social environment exceedingly
different from those of his subjects and that the incidents described seem to lack obvious rational order" (p.64). In Bartlett’s analyses of the data (1932) he noted that with frequent reproductions the form and items remembered became stereotyped whereas with infrequent reproductions omissions of details, simplification of events, structure and transformations of items into more familiar details took place. His results showed the dominance of conceptual organization in memory with prior experience exerting an increasingly stronger role with each successive recall. In other words, perception and remembrance of the stories were influenced and transformed by the readers’ rationalization of the unfamiliar content into familiar terms thereby creating new and more culturally "appropriate" stories.

Somewhat similar findings were obtained in later studies with different designs. In Steffensen, Joag-Dev and Anderson’s (1979) study for example, subjects came from two cultural groups instead of one as in Bartlett’s (1932) experiment. In Steffensen et al’s (1979) study for example, subjects from the United States and India read letters about an American wedding and an Indian wedding and were required to recall them verbatim. Following the recall of the stories, the subjects had to respond to questions aimed at obtaining inferences about the events described in the stories. The results indicated that the subjects read their native passage more quickly, and as Bartlett (1932) found, they recalled more and produced more culturally appropriate elaborations on both stories.

In a similar type of study, Lipson (1983) investigated the impact of prior knowledge on reading comprehension by using subjects whose religious affiliation was either strongly Catholic or Jewish. In this case the subjects read a culturally neutral passage and the Catholic and Jewish passages. The results were basically the same as Steffensen et al’s. Prior religious knowledge was a powerful factor in determining post-reading performance. Other studies have also
documented the impact of cultural schemata on reading comprehension with similar kinds of results (Johnson, 1982; Reynolds, Taylor, Steffensen, Shirley and Anderson, 1982).

Prior knowledge is also said to be highly correlated with topic interest (Guthrie, 1981). The literature on the relationship between topic interest and reading comprehension seems to conclude that children have better comprehension when they read material that is interesting to them (e.g. Asher, Hymel & Wigfield; 1978; Cecil, 1984), but many studies have confounded prior knowledge with interest. Several studies have attempted to sort out the influence of prior knowledge and interest on comprehension. Baldwin, Pele-Bruckner and McClintock (1985) tried to separate the factors of prior knowledge and interest to see if the relation between the two was causal or merely correlational. They used seventh and eighth graders for four experimental conditions of high and low knowledge and topic interest. Their results suggest that prior knowledge and interest are autonomous and uncorrelated but that the two have an additive effect on reading comprehension.

Most research on the effect of prior knowledge on reading comprehension has concerned itself with information that is congruent or consistent with the information in the text. Several studies have also manipulated the text or topic presentation to activate prior knowledge and to test its effect on reading comprehension. Maria and MacGinitie (1987) for example, constructed a study for fifth and sixth graders that utilized common misconceptions in science and social studies. The children were required to read 24 texts aloud and after each text they were required to recall the text orally and then respond to yes or no questions on the texts. The researchers also used three different versions of the texts which either (a) referred directly to the assumed misconception in science or social studies and the new contradictory information; (b) referred first to the misconception and then refuted it; or (c) began with the new information and
contrasted it with the misconception. Maria and MacGinitie's (1987) results indicated that text structure that explicitly contrasted the readers' misconceptions with the new contradictory information was more effective than text without an explicit contrast structure and that recall of elements of contrast structure was positively related to recall of correct information. Their findings suggest that referring directly to prior knowledge misconceptions and the new contradictory information, should prove helpful to students than indirect reference or no reference to prior knowledge inaccuracies for aiding comprehension of new information.

Alvermann, Smith and Readence (1985) used an approach that differed from Maria and MacGinitie's (1987). They used naturally occurring science text to study the effect of background knowledge activation on average sixth grade readers' comprehension of compatible and incompatible texts. Their results indicated that prior knowledge may interfere with rather than facilitate reading comprehension under certain conditions. Subjects who had activated what they considered to be pertinent background information in the pre-reading activity prior to rereading an incompatible text had allowed their previous knowledge and experience to override conflicting information. These findings have supported the work of Lipson (1982, 1983, 1984).

Lipson's findings were based on the interaction between text and readers' existing prior knowledge as opposed to overtly activated prior knowledge. In Lipson's (1982) study, children's ability to learn new information from text and the extent to which acquisition of new information was a function of prior knowledge was investigated. Lipson (1982) found that prior knowledge was a powerful factor in reading comprehension for both average and poor readers but that both groups were better at acquiring totally new information than at correcting old information that was inaccurate. When prior knowledge was contradicted by text, subjects used prior knowledge rather than the textual information.
Thus far this review has examined studies that have confirmed the positive influence of prior knowledge in reading comprehension. It has also indicated that readers often evidence problems because of their prior knowledge when trying to make sense of text. Lipson (1984) describes this problem as less the lack of prior knowledge than the failure to resolve conflicts between existing knowledge and new information. Prior knowledge creates problems not only when it is limited but also when it is strong but inaccurate.

Other studies that have looked at the influence of knowledge in learning have done so by examining the influence and the impact of knowledge on assessment. Two such studies were done by Langer (1985) and Rowe and Rayford (1987). Langer (1985) was interested in reading comprehension tests that measured the processes that readers engaged in as they developed meaning from a text. The development of meaning was based on local envisionments (on knowledge either stated explicitly or inferred from reading) that is evident in the reader's envisionment at a single point in time but that is later found to be radically changed or absent from later envisionments. Langer (1985) developed a text notation system that reflected language content and structural clues embedded in the text to represent the knowledge sources and possible inferences that were invoked from reading. She required her third grade subjects to read various items from different standardized American tests. Based on students' responses to probe questions, the results indicated that there was a clear distinction between questions that tapped local and final envisionments. The results also indicated that students used final envisionments as their final source of knowledge in answering all types of questions. Langer's (1985) results point toward an understanding of what happens along the route to an integrated understanding of text by the reader and of what the reader is left with after reading a text. In the process of this, the possible discrepancy that may exist in test questions and readers' process of envisionment becomes more obvious and available to researchers and teachers.
Another study by Rowe and Rayford (1987) examined the activation of prior knowledge in reading comprehension assessment. The researchers were interested in the nature and organization of students' initial responses to prepassage questions. Using a preliminary version of the Metropolitan Achievement Test (1985) the researchers got first, sixth and tenth graders to read each purpose question and make predictions about the passage. The students were asked to describe what they would try to find out from their reading. The general conclusions were that a broad range of students can use purpose questions as cues to activate background knowledge.

Prior knowledge is seen to have an effect on tests of reading comprehension. The practicality of the influence of prior knowledge on reading comprehension has been evident in several methods of application (e.g. Rowe and Rayford, 1987 on purpose questions). Much work has also been done with advance organizers (e.g. Ausubel, 1968, 1978). However, much of the implications of reading comprehension research has yet to be applied to practice as Durkin (1978-79) has demonstrated.

This review has surveyed research on the effect of prior knowledge on reading comprehension. It is obvious that background knowledge has a generally positive effect on reading comprehension but that this effect can be negative under some circumstances. The not so obvious negative effects of knowledge on reading comprehension are beginning to emerge with more research focussing on text manipulation and the manipulation of pre reading measures. It is unclear also which factors contribute to the activation and utilization of background information. Generally the literature has demonstrated a dearth of process oriented research as most of the research reported here has been centered around the measurement of background knowledge as it relates to the recall of text and the answering of questions. Very little research has been concerned with the construction of knowledge or the more dynamic approaches (Brown, Bransford,
Ferrara & Campione, 1983) to the study and use of knowledge in the learning process such as those related to the problems of growth and transfer referred to previously (Bransford & Nitsch, 1985). The intent of this research is to address some of the voids present in the literature and noted here in this review. The method of data collection and analyses of the data for this study should allow more dynamic and constructive processes to emerge and hence stimulate fresh insights in the understanding of the influence of knowledge on learning. It remains to be seen if the general influence and dominance of knowledge as presented in the literature will be replicated in this research given the method used to assess the influence of knowledge on level of strategy use.

**Strategies and Reading Comprehension**

In emphasizing the active role the learner plays in reading, several researchers have recognized strategies as being reflective of some degree of mental activity. Strategies have been defined as deliberate actions that learners select and control to achieve desired goals or objectives (Johnson & Byrd, 1983; Paris, Lipson & Wixson, 1983; van Dijk & Kintsch, 1983). An effective strategy has been described as the simplest and most efficient means of processing the information inherent in a situation (Newell & Simon, 1972). Many researchers have approached the study of reading strategies through the use of ambiguous, inconsistent or very difficult text to activate strategy use (e.g. Baker & Anderson, 1982; Brown, 1979; Markman, 1977, 1979; Markman & Gorin, 1981; Paris & Myers, 1981; Scardamalia & Bereiter, 1984). The rationale for this method is that when comprehension processing is proceeding smoothly and automatically, the demonstration of strategic reading may be more difficult to infer whereas in cases where the speed of processing is interrupted either by difficult, ambiguous or unfamiliar text, strategic action and awareness of strategic use may be stimulated and thereby become easier for the researcher to observe.
Studies of comprehension monitoring have examined the metacognitive or executive control of students and their knowledge about cognitive strategies as they comprehend text. Studies in the area have increased since the advent of the information processing paradigm and the renewed interest in the cognitive processes underlying reading. Studies by such researchers as Baker (e.g. Baker, 1979, 1984a, 1984b), Markman and colleagues (Markman, 1977, 1979; Markman & Gorin, 1981) and Paris and his colleagues (Paris & Jacobs, 1984; Paris, Lipson & Wixson, 1983; Paris & Myers, 1981) have created a strong case for the identification and teachability of comprehension monitoring. Various methods have been used to study the evaluation and regulation of comprehension monitoring. The most common procedure has been to present subjects with instructions or passages containing inconsistent or anomalous information and assess the degree of their awareness of the problems (Markman, 1977, 1979).

Paris and Myers (1981), for example, looked at the comprehension and memory skills of fourth grade good and poor readers in two studies. They measured the students' ability to monitor comprehension of difficult and anomalous information by spontaneous self-corrections during oral reading, by directed underlining of incomprehensible words and phrases and by study behaviors. Poor readers engaged in significantly less monitoring on all three measures and this was correlated with poorer comprehension and recall scores. An additional metacognitive measure of perceived reading strategy effectiveness indicated that poor readers are often unaware of the negative influences of some strategies.

In different experiments, Baker (1984a) investigated children's evaluation of their comprehension by using short narrative texts which contained nonsense words, internal inconsistencies and prior knowledge violations. In two experiments, children were explicitly instructed prior to reading the passages, to find the mistakes in the texts and to underline the problems. The results
indicated that, while children of different ages were able to use different standards to evaluate their understanding, the internal consistency standard was applied least effectively. From these results, Baker (1984a) inferred the need for the consideration of teaching specific comprehension monitoring strategies.

Scardamalia and Bereiter (1984) are among the few researchers who set out to obtain descriptive information on the comprehension strategies of students of middle school age. Using Markman's (1979) passages that contained incongruous or logically inconsistent information, students were taught the thinking-aloud method. Students were not alerted to the text's inconsistencies in their instructions. After reading the passage, the students were instructed to continue thinking aloud and then to recall the passage orally followed by the writing of a summary from memory. From their results, the researchers concluded that their findings were indicative of developmental changes in the strategies students have available for dealing with text processing difficulties.

In the area of study skills many researchers like Adams, Carnine and Gersten (1982) taught students study strategies and then assessed the students on strategy usage. Adams et al (1982) were interested in the efficacy of utilizing systematic instruction in teaching study strategies to fifth grade students who had adequate decoding skills but demonstrated deficiencies in study skills. The subjects were assigned to 3 samples - a treatment condition with systematic instruction in the SQ3R method (survey, question, read, recite, review), or they were assigned to one of two comparison conditions (independent seatwork on the same materials or no instruction). After 4 days of training, the students were given a social studies passage to study and they were asked to retell important elements. They were also given a short answer test on important facts in the passage. The testing procedures were repeated two weeks later. The results of the experiment indicated that those receiving instruction performed significantly higher on the factual short answer test on both occasions. No significant differences were reported for the retell measure.
Another popular area for looking at strategy usage has been in the strategies that children and adults use in summarizing (Brown, Campione & Day, 1981) and locating the main idea (e.g. Williams, 1986). Many instructional studies have emphasized teaching children selected comprehension strategies and have reported mixed results (e.g. Hansen & Pearson, 1983; Palincsar, 1982; Palincsar & Brown, 1984). Some of these type studies have utilized the novice-expert approach in their instructional design (e.g. Bereiter & Bird, 1985). Some of these studies are reported in the next section.

In their instructional study, Hansen and Pearson (1983) had four classroom teachers provide instruction to improve the inferential comprehension of good and poor fourth grade readers. The treatment consisted of making students aware of the importance of drawing inferences between new information and existing knowledge structures, getting students to discuss something that was similar to the events to be read in the text and providing students with inferential questions after reading. Their results showed that the instruction benefitted the poor readers in their comprehension but not the good readers. This differential effect was attributed to the dissimilar aptitudes of good and poor readers and the dissimilar instructional methods that are used with good and poor readers in schools.

Bereiter and Bird (1985) analyzed protocols from adults thinking aloud while reading and identified four potentially teachable strategies. These strategies were identified as ongoing summarization, strategic backtracking, problem formation and setting up watchers. These strategies were taught to 80 students in grades seven and eight. Significant advantages were found in both target strategy acquisition and reading comprehension for a treatment that combined thinking-aloud strategy modeling and practice with instruction in identification and use of the target strategies.

The study of strategies has opened a realm of possibilities for the
understanding of what contributes to the growth and transfer of learning and has particularly contributed to the practical application of strategy teaching. While the study of strategies has proven to be very informative and valuable for identifying strategies, more research needs to be concentrated on the interaction of strategies and other performance factors. One such area is the study of the interaction of strategies and knowledge which this research hopes to address. The question of the need for strategic intervention in the form of strategy instruction has not been adequately explored and is not well understood. By studying the interaction of different variables, new and related issues might be identified. Similarly, by examining level of strategy use as opposed to the mere identification of strategies, a more interesting and dynamic dimension to the study of strategies may be offered as this outlook and approach to the study of strategies have just begun to be explored in the literature. The review will turn now to an examination of studies that have attempted to examine strategy use by examining several variables.

Knowledge and Strategies

The review up to this point has presented the study of strategies and knowledge as if they were separate elements. This was intended to provide some background on their status when treated independently in the literature which is them of the work on most researchers have tended to study them. Chi (1978) notes that whether the two are separate components is an academic question as the distinction between the two is often very much unresolved.\footnote{Winograd, P.(1975) provides a thorough discussion on this distinction.}

It is generally acknowledged that without sufficient background knowledge some strategies cannot be implemented (Baker & Brown, 1982; Schoenfeld, 1979). Because of the close relation between prior knowledge and learning in the
previously mentioned literature, it would be expected that a close association would be found between the level of strategy use and level of background knowledge. While many studies have looked at strategy availability and use, few have examined explicitly the interaction between strategy use and knowledge or strategy use, learner skill and knowledge.

Those studies that have examined some type of knowledge/strategy interaction have tended to do so from within a problem-solving framework and within a specific domain (e.g. studies of how masters and novices select moves and strategies in chess, Chase and Simon, 1973; or studies of problem solving in physics, Chi, Glaser and Rees, 1982). In this regard, insufficient prior knowledge is seen as being one of the major obstacles in the effective use of strategies. Schoenfeld (1979) notes that both factual knowledge of a problem and features of the problem along with specific skills are important before heuristics can be used successfully. Simon (1980) and Greeno (1980) both note that the work of problem solving is based on knowledge.

Several researchers have examined the knowledge/strategy interaction from a metacognitive perspective in an effort to find out whether knowledge of text and awareness of one's mental activities influenced strategic action and learning. Baker and Brown (1982) discuss how prior knowledge may interact with metacognitive strategies to improve recall and reading comprehension of text. They show that without the relevant prior knowledge, it would be difficult to eliminate trivia and form main points. Comprehension monitoring may not be effective because readers may not have enough background information on the topic to know if the interpretation is correct.

Chi (1985) examined how existing knowledge in semantic memory affected children's use of cognitive strategies. She explored a child's representation of specific overlearned domains (for example, dinosaurs) and examined how the child's representation affected classification. In one of her investigations, Chi
(1985) required a 4 1/2 year old subject to generate the names of dinosaurs that he knew. From this list, a set of forty was selected and was then used to generate dinosaur property links. The linkages were used to map a representation of the dinosaurs and to classify them into better known and lesser known groups. Protocols of the subject's classification of the dinosaurs were used to ascertain the influence of knowledge on strategy use. The analysis indicated that the consistency in the sorting of the well known dinosaurs was reflective of the well-organized and highly structured representation that the subject had of dinosaurs whereas the lesser known dinosaurs were not as well presented and the sorting strategy was more variable. From Chi's (1985) studies (e.g. 1978, 1985) she concluded that in some cases when young children manifest a performance that conforms to the use of strategy, it may be a reflection of how the content knowledge was stored and represented in memory. In other words, the use of certain cognitive strategies may be directly related to how much one knows of a topic. The absence of organization in young children's recall has often been attributed to strategic deficiency but Chi's studies have pointed out that children's deficiencies in organization and recall may be attributed to their knowledge base and the representation of that knowledge. The acquisition of knowledge is said by Chi (1985) to facilitate the acquisition and use of strategies.

Chan (1987) examined the interaction of knowledge and strategies from another perspective. Chan's objective was to identify the strategies that were associated with the high and low levels of constructive effort that children use when integrating new information from texts. In addition, she was interested in the relationship of constructive effort with prior knowledge and new learning. Constructive effort as cited by Chan was defined by Bereiter and Scardamalia (1985) as "the variation in the amount of mental effort that students put into the knowledge construction." The use of different strategies was related to the level of new learning from texts by measuring the degree of intentional learning in
which the children were engaged. The students were from grades one through six and they were required to read passages about dinosaurs and germs. Thinking aloud protocols were classified on a scale consisting of five levels of constructive effort, namely, pre-factual, knowledge-telling, comprehension, problem solving and extrapolation processes. Each level was further subdivided into three different operations such as relating information, questioning information and evaluating information. Findings from Chan’s analyses revealed developmental differences in the use of specific strategies and that grade levels were significantly related to the levels of constructive effort. Chan found that the quality of knowledge contributed to constructive effort and that constructive effort was related to new learning over and above the effects of grade and prior knowledge. Constructive effort played a mediating role in performance in this study.

Olshavsky (1976-77) identified strategies used by 24 tenth grade students to comprehend a story. The subjects were required to read the story silently and to stop reading when they came to a red dot at which point they were to talk about what had happened in the story and about what they were thinking and doing as they read. Red dots had been placed after every independent clause. The strategies were later identified and categorized. Ten strategies were identified. These were (1) use of context, (2) synonym substitution, (3) stated failure to understand a word, (or collectively the Word level of analysis), (4) re-reading, (5) inference, (6) addition of information about the story, (7) personal identification, (8) hypothesis, (9) stated failure to understand clause (or collectively the Clause level of classification), and (10) use of information about the story (or the Story level of classification). Frequency of use of various strategies was related to high and low interest, reader proficiency (good and poor), and writing style (concrete and abstract). Olshavsky’s results indicated that readers with high interest apply strategies more frequently than readers with low interest and that good readers used strategies more often than poor readers and
also used certain strategies more often (e.g. use of context to define a word, addition of information, synonym substitution, rereading and hypothesis). Readers also used more strategies with abstract materials and in particular used inference and stated failure to understand a clause more than on the concrete text.

Unlike Olshavsky (1976-77), Walker (1987) examined performance by studying two variables, skill and level of knowledge (high and low). Walker (1987) investigated the interaction of domain knowledge in baseball with overall aptitude on domain-related cognitive processing tasks. Aptitude level was determined by performance on a standard Army aptitude test of general/technical ability. Walker (1987) hypothesized that the performance of low-aptitude individuals on a task requiring them to acquire new information in a domain would be a function of domain expertise rather than overall aptitude level and that their performance would be similar to that of the high-aptitude individuals. Using high and low aptitude groups with high and low expertise in baseball, the experimenter found that performance on recall and recognition tests was a function of baseball knowledge rather than aptitude.

Taken together, the aforementioned studies indicate how interrelated the factors are for researchers who are trying to understand the problem of "transfer" and "growth" (Bransford & Nitsch, 1985) particularly as they relate to strategic action and knowledge utilization. Strategies have been identified in all the readers but their performance has been affected by the organization and representation of knowledge (Chi, 1985), by interest and style of text (Olshavsky, 1975-76), and the mediating capacity of constructive effort (Chan, 1987). What this research project proposes to do is to build on the interactionist perspective of learning and the interrelated activity of comprehension processing by examining the interaction of knowledge, level of strategy use and skill on the understanding process in an attempt to account for their influence. Few studies have attempted
to use an interactionist perspective in the understanding of learning variables particularly in the area of strategy research.

**Good and Poor Reading Comprehenders**

Because this dissertation addresses the performance of skilled and less skilled readers, it is essential that some background be given on the state of the literature in this area. A finding from research of the past decade is that young readers and poor readers of every age often fail to see relationships between what they are reading and what they already know (e.g. Bransford et al, 1982; Owings, Peterson, Bransford, Morris & Stein, 1980). Anderson (1977) has suggested that good and poor readers may differ in their ability to use schemata in reading. Frederiksen (1979) found that poor readers used more text based processing strategies in reading (strategies controlled by textual input) rather than making use of their prior knowledge. Evidence reveals that poor readers do not skim, scan, reread, integrate information, plan ahead, take notes and make inferences as often as more skilled readers (Anderson & Armbruster, 1982; Golinkoff, 1976; Ryan, 1981; Sullivan, 1978). Good readers are said to use more strategies and use them more effectively than poor readers (Ryan, 1981; Hare, 1981), monitor their comprehension more effectively (Garner, 1980; Paris & Myers, 1981) and impose organisation on text (Ryan, 1981). These differences generally hold true for both young (Stein et al, 1982) and old (Hare, 1981) good and poor readers.

Willows, Borwick and Butkowsky (1983) describe sources of differences as being of the "hardware" or "software" types. They describe the hardware of reading as being the relatively stable cognitive, linguistic and perceptual factors and the software as being modifiable skills and cognitive strategies. Bialystok and colleagues (Bialystok & Mitterer, 1987; Bialystok & Ryan, 1985) also distinguish good and poor readers by their metalinguistic skills (in terms of
knowledge and linguistic processing). Perfetti and Lesgold (1977) note three main areas in which individual differences occur. These are: (a) the use of discourse structure as seen in use of clause and sentence boundaries to mark units of processing in working memory; (b) short term memory capacity which affects; and (c) speed of verbal coding, which they cite as a crucial distinguishing feature of skilled reading as both rapid phonological coding and rapid semantic coding are more characteristic of skilled readers than less skilled readers. Perfetti (1983) suggests that sufficient word retrieval from inactive memory is a particular hallmark of skilled verbal processing from which decoding ability has surfaced as being a strong contender for skilled and less skilled differences. While strong decoding skill alone is insufficient for comprehension, the evidence in the literature suggests that skilled comprehenders have basic word skills that are usually superior to those of less skilled comprehenders. Research has demonstrated that training in decoding while improving word recognition skills does not necessarily increase comprehension (e.g. Fleisher, Jenkins & Pany, 1979).

The central assumption of reading comprehension instruction is that less skilled readers suffer from deficits in comprehension strategies (Brown & Palincsar, 1982; Golinkoff, 1975-76). Perfetti (1977) notes that his evidence indicated no strategy differences between high and low skill readers but he cautions that clear differences in efficiency could affect the utility of some strategies. Perfetti notes however, that there is a lack of findings to suggest any major strategy differences in children or adults who are alike in overall cognitive development but different in reading achievement. In terms of instruction, it is possible that if good and poor readers do not differ under strategy instruction, then poor readers’ weaker performance without instruction may be explained in terms of less spontaneous strategy usage. Results from several instructional studies have verified the success of poor readers under strategy training such as manipulation of text, text organization (Kennedy & Wiener, 1973; Lesgold et al., 1974; Levin, 1973), comprehension monitoring (Palincsar & Brown, 1984).
From the reviews of research of good and poor readers, Golinkoff (1975-1976) and Ryan (1979) have noted that a crucial distinction between good and poor readers is their ability to provide strategies for improving comprehension. Good readers are also said to be better top-down processors. Perfetti and Roth (1981) for instance, have shown that good readers' hypotheses about a word more fully reflect all the relevant information in a text. Meyer, Brandt, and Bluth (1980) observed that good readers were more responsive to the author's intended text structure more often than poor readers and that good readers remember more information than poor readers. Lesgold and Perfetti (1978) have noted that less skilled readers are not as efficient in certain word processing tasks but that less skilled readers are not deficient in general short term memory. Despite the aforementioned empirical findings, context effects are said to be most pronounced in poor readers (van Dijk & Kintsch, 1983). If context clues are absent, the performance of poor readers suffers. Good readers, on the other hand, with better automatic and more accurate processing skills, have more speed and time for higher level processing of meaning. High knowledge should therefore contribute to the performance of the less skilled groups.

Studies generally showing comprehension deficits have not taken decoding into account and it has yet to be demonstrated that there are individuals who have comprehension strategy deficits without decoding problems (Perfetti, 1985). It has been found time and time again that the best discriminator between good and poor readers is performance on simple letter and word identification tasks (e.g. Cromer, 1970; Golinkoff & Rosinski, 1976; Perfetti & Hogaboam, 1975; Perfetti & Lesgold, 1977). Poor readers in recognizing isolated words inaccurately and too slowly compensate for their lack of decoding skills with context-dependent guessing. Ryan (1981) suggests that even though some evidence regarding strategy deficiencies among poor readers is available, improved methodological procedures could yield more definitive results concerning the nature and extent of these.
Ryan (1981) and Lipson and Wixson (1986) make several suggestions for improving our understanding of good and poor reader differences in strategies use. Ryan (1981) suggests a clear distinction needs to be made between competence and strategy use as strategy usage is only one of the possible reasons for differences. Lipson and Wixson (1986) propose that research on reading disability must move away from causative factors within the reader and more toward the specification of the conditions under which different readers can and will learn. They believe that good and poor reader research suffers from conceptual and methodological problems with regards to subject sampling, task requirements and failure to account for the role of motivation. Using an interactionist perspective, Lipson and Wixson (1986) have called for research on good and poor readers under a variety of conditions.

The conditions under which no differences exist between good and poor readers also need to be identified. McConaughy (1986) found that there were no differences between good and poor sixth grade readers in the quality or accuracy of their recall summaries from their story comprehension patterns in texts that made the goal structure explicit. The poor readers were required to summarize what they thought was important rather than recall. This type of research findings has significance for the examination of the situational conditions under which poor readers perform and it demonstrates the variability of reading processes rather than the static nature of reading (dis)ability.

Good and poor reader research also needs to examine the variability that exists within good and poor reader groups. It is often possible to find subjects within the group of good readers who have task performance consistent with poor readers and vice-versa (Johnston, Allington, Franzen, 1985). Cromer (1970) and Wiener and Cromer (1967) have suggested that there are two types of poor readers. These subgroups, the deficit type (lacking vocabulary skills, decoding and organizational skills) and the difference type (exhibiting text organizational
problems), may aid further examination of differences and similarities that exist within subgroup research. Different variables also predict success or failure for individuals of comparable ability. It has been found that factors such as motivation, attitudes, awareness and self-perception may mediate performance of different individuals within a subgroup (Oka & Paris, 1986). Whether people perform or learn in a particular way depends on whether they want to or not and whether they can do it (Adelman & Taylor, 1977; Paris, Lipson & Wixson, 1983).

The review of the literature on good and poor reading comprehenders presents evidence to support basic good and poor reader differences in basic skills of reading (e.g. decoding). However, there are some questions regarding strategy performance of good and poor comprehenders. The results are inconclusive as to the source of some performance differences. The questions seem to regard the use of strategies by poor readers and the availability of the strategies by poor readers. It does seem clear that poor readers can be taught to use these strategies but are they deficient in the strategy usage which implies that they lack the processing skill needed to implement the strategy or are they not spontaneous in their use of strategies which implies that they have access to the strategies but for some reason are not motivated to use them. The results of this thesis may contribute toward answering some of these questions.

**Summary of the Review of the Literature**

The status of the review of the literature vis-a-vis the interaction of strategies and knowledge is generally one of uncertainty. The literature does point to a relationship between the two variables, but the extent to which this relationship is deemed significant is unclear because there are many questions which remain unanswered. It would seem that strategies would be influenced by some hardware factors such as memory, attention, perception etc., but there are some questions in the literature concerning whether some groups have access to strategies and the extent to which they are used spontaneously.
Knowledge is also influenced by one's mental development but may or may not strengthen the use of strategies as strategies are mediated by such affective factors as motivation, interest, attitude and culture. The literature points to a clear and obvious relationship between knowledge and comprehension performance as measured by recall and standard comprehension questions. Higher levels of knowledge result in improved performance on measures of reading comprehension. Generally speaking, the measures have been mostly product rather than process oriented ones.

It seems that the use of strategies is based on an interplay of variables whose significance needs to be determined. The literature does point to the special role of skill in the use of strategies but whether this automatically implies that a skillful person also has more knowledge or uses more knowledge than for example, a less skilled person, is an unresolved issue. There is some evidence however, regarding strategy deficiencies amongst poor readers (e.g. comprehension monitoring strategies). The extent to which and the conditions under which a less skilled person uses strategies varies and is also another unresolved issue. Until some light is shed on this situation, the questions on growth and transfer (Bransford & Nitsch, 1985) will remain problematic. This thesis hopefully, will contribute to our knowledge in this regard.

**Methodological Concerns**

*Introduction*

This section reviews literature on two methodological issues relevant to the dissertation. It is appropriate in the context of this thesis to examine some of the issues that are pertinent to the method of thinking aloud and the methodological concerns of cross-cultural research.
Cross-Cultural Research

The Laboratory of Comparative Human Cognition (1982) cites a central question that probably underlies all cross-cultural research; "How does the independent variable "c" (culture) effect the dependent variable "i" (intelligence/problem solving)?"

Culture has many definitions but the one given by Goodenough (1957) is one based on a cognitive perspective. He defines culture as:

A society's culture consists of whatever it is one has to know or believe in order to operate in a manner acceptable to its members. Culture is not a material phenomenon; it does not consist of things, behavior, or emotions. It is rather an organization of these things that people have in mind, their models for perceiving, relating and otherwise interpreting them. (p.167)

Cognitive processes are said to be universal (Cole & Scribner, 1982) but cognitive content varies according to cultural values and norms (e.g. Boas, 1965; Levi-Strauss, 1966). Anthropologists, linguists and psychologists generally agree that level of abstraction, degree of complexity, the nature of schema linkages and the extent of verbalizability are environmentally and culturally determined. It is recognized therefore, that techniques for learning school like material are culturally influenced. One example given by Scribner and Cole (1976) is that Westerners and non-Westerners differ in the use of rote and associative forms of learning. Intelligence is viewed therefore, as something that is determined by cultural and societal norms.

Cross-cultural research is plagued with special methodological problems. These relate to problems in the establishment of equivalence, as in trying to equate two different cultural groups on the same variables; the emic-etic distinction, (Lonner, 1979) which looks at issues of culture generality or universality (etic) and culture specificity or uniqueness (emic). These two interrelated issues affect and influence the researchers' decisions and criteria for
the research. Additionally, the interpretation of cross-cultural data has been hampered often by problems of prevailing attitudes and biases. One of these has been the equating of the terms racial and cultural (Price-Williams, 1979). Another problem has to do with the side of the prevailing standard and the tacit acceptance that the standard lies on the "us" side. This viewpoint can be clearly seen in the deficit versus difference model (Cole and Bruner, 1971). An understanding and awareness of one's ethnocentrism, is vital for cross-cultural researchers. While cross-cultural research is often hindered by methodological issues, the advantages are many in terms of contributing to theory expansion, and adding to our understanding of the variables that affect learning (Triandis & Brislin, 1984).

Use of Thinking Aloud Procedure

From about 1975 to present, methodologies of reading comprehension research have been concerned with the study of psychological processes that occur as a person reads text. These on-line comprehension processes rely less on the representation that remains after the text has been read and more on how the person arrives at a given representation based on his or her mental activities. These methodologies range from sophisticated computer technology for flexible stimulus presentation or data acquisition to think-aloud protocols. The major on-line methods used in current reading research include the eye-fixation method (e.g Just and Carpenter, 1980: Rayner, 1977), different single word procedures (Aaronson & Scarborough, 1977), the single sentence procedure and think-alouds (Newell & Simon, 1972). In the context of this study, the method of thinking-aloud will be discussed.

Nisbett and Wilson (1980) in their review at the beginning of this decade suggest that there may be little or no direct introspective access to higher order cognitive processes. They believe that subjects are often unaware of the existence
of stimuli or responses that could influence each other. These researchers believe that while people may not be able to observe directly their cognitive processes, they sometimes will be able to report directly about them when influential stimuli are salient but they also argue that "the accuracy of subjective reports is so poor that any introspective access that may exist is not sufficient to produce generally correct or reliable reports" (p.233).

Verbal reports in general have been criticised for several reasons: (a) being incomplete; (b) the instruction given interrupts the processing and may change performance; (c) reports are inconsistent with observable aspects of behavior; and (d) they are ungeneralizable because they are idiosyncratic and unreliable (Ericsson & Simon, 1984 p.60).

The analysis of cognitive processes is understandably one of the most methodologically difficult tasks in all of psychology because the events being examined are internal to the mind with occasional observable correlates (Olson, Duffy, & Mack, 1984). Despite its criticisms, many researchers and theorists remain committed to the view that verbal reporting is a viable means of studying the cognitive processes. It has been used to study a wide variety of tasks from problem solving (e.g.Roth & Roth, 1979) to studying the writing processes (e.g. Scardamalia & Bereiter, 1984) to studying the reading process (e.g.Afflerbach & Johnston, 1984). Several studies of reading comprehension also have used thinking aloud to assess on-line comprehension processing (e.g. Bereiter & Bird, 1985; Garner, 1982; Olson, Duffy & Mack, 1984; Olshavsky, 1976-1977).

Verbal reporting is described as bringing information to attention and vocalizing it. The two types of verbal reports that are closest to being reflections of the cognitive processes are concurrent and retrospective reporting. Concurrent verbal reporting takes place while the task is being done and retrospective reporting takes place after the task. Retrospection requires the subject to report everything she or he can remember about her/his cognitive process. It requires a
Ericsson & Simon (1984) claim that the cognitive processes are not modified by these reports and that task directed cognitive processes determine what is heeded and verbalized. They state that both forms of reporting (concurrent and retrospective) are verbalizations of specific cognitive processes. Using the information processing model Ericsson & Simon (1984) examined the peripheral activity of the vocal systems, the receiving sensory systems and the internal activation of orally coded information to test for the influence of verbalization on the encoding process. In these studies the subjects were instructed to verbalize or rehearse the actual stimuli. For example, in a study on mental multiplication by Dansereau and Gregg (1966), the subject was asked to verbalize each step during the process. On a range of problems of varying difficulty no reliable differences in speed of performance were found between a silent control condition and the verbalization condition. In a review of several studies, Ericsson and Simon (1984) concluded that performance time was the same in verbalization and control conditions. In other words, overt verbalizations under thinking aloud conditions would not affect the speed of performance unless the verbalizations are queried.

The controversy surrounding the completeness of reports is for the most part in response to the behavioristic claims about the epiphenomenality of processing or the belief that the processes involved in generating a report are independent of the processes that generate the task behavior of the subject. Evidence that verbal reports are complete and that subjects can report on their cognitive states is provided by Ericsson and Simon (1984) in their extensive review of the literature. They conclude that the information that is heeded (that which is held in short term memory) during the performance of the task is the
information that is reportable and that which is reported is information that is heeded. They note that "the result of the process of recognition (i.e. the thing recognised) is heeded and can be reported, but not the intermediate steps in the recognition process" (Ericsson & Simon, 1984; p.167). They also note that the inability to report recognition cues should not be confused with failure to report contents of short term memory which means that processes must be inferred from the heeded information.

Some assumptions about verbal reports are (a) the verbalized cognitions can be described as states that correspond to the contents of short term memory or that which is in the focus of attention; (b) the information that is verbalized is a verbal encoding of the information in short term memory; (c) the verbalization process is initiated as a thought is heeded; (d) the verbalization is a direct encoding of the heeded thought and reflects its structure; (e) units of articulation will correspond to integrated cognitive structures; and (f) pauses and hesitations are good predictors of shifts in processing of cognitive structures (Ericsson & Simon, 1984; p.221-225).

The major limitation of this method is the interference that is created when the reader has to interrupt the processing of information to report. This could result in memory loss, loss of placement and the context of the text. The nature of the task might also be more or less conducive to reporting depending on the personality, reading and verbal ability of the student. These limitations could result in variance in the data for reasons other than comprehension of text. Despite these problems, verbal reporting has its advantages. It affords access to the reasoning process underlying cognitive activity and it affords a description of the cognitive processes which otherwise would have been inaccessible (Afflerbach & Johnston, 1984). Verbal reporting also allows for the collection of converging data which are important for theory building.
Chapter 3

The Study

Introduction

This chapter will provide a description of the study. The procedures involved the collecting of measures of knowledge and reading comprehension, the teaching and practicing of the method of thinking-aloud, and the collecting, parsing, and analyzing of the data. Posttest measures of performance on the texts were also taken and analysed.

The Design

The design of the study incorporated two between subject factors, reading skill level (skilled and less skilled) and country group (Bahamas and Canada) and one within subjects factor, text type (Junkanoo or Subway text). The dependent measure was a reading comprehension score. Figure 3-1 shows the design used. In addition, preliminary background measures were obtained for all the subjects such as knowledge, comprehension, word recognition, and intelligence. Counterbalancing of order was used in the administration of the measures and reading of the informative texts.
Assignment of Subjects and Ages of Subjects

A total of eighty-eight subjects were included in the study. Forty-four students were located in Nassau and an equal number in Toronto. Altogether there was a total of 43 less skilled readers and 45 skilled readers. See Table 3-1 for a summary of the distribution of the subjects.

The subjects ranged in age from ten to thirteen years in both countries. The average for the Bahamians was 10.6, and the average age for the Canadians was 10.9. The average age for the skilled groups were 10.7 (Canadians) and 10.5 (Bahamians). The average age for the less skilled Canadians was 11.00 and for the Bahamians it was 10.6. It should be noted that Canadians enter grade one at the age of 6 while Bahamians begin at the age of 5. A breakdown of the subjects ages by country, by skill and by sex is found in Appendix A.
Table 3-1: Breakdown of the subjects in the study

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Background Information

The subjects in the study lived in the cities of either Toronto, Canada or Nassau, Bahamas. Written permission was obtained from the respective school boards and administrative offices for the schools to participate in the study. Teachers of the classes also gave their approval for the classes to participate and parental consent was also obtained for all the participants in the study. A copy of the letter sent to the parents is included in Appendix A.

The Toronto school was located just outside the city of Toronto in the suburb of Etobicoke. The school was a Catholic school and had grades ranging from kindergarten to grade eight. It had a large cross section of students from all social levels. The majority of students in the study from Toronto were in the working to middle income groups with majority of them having professionals as parents. English was the first language for the majority of students in this group with a few of the students speaking other languages as well. All of the students studied French as a second language. Several different ethnic groups were represented in this group with the predominant group being Caucasian. All the subjects were born in Canada.

The Nassau school was located in downtown Nassau. The school was a Catholic primary school with grades ranging from kindergarten to grade six.
This school also contained a cross section of students from all social levels with the majority of students in the study coming from the working class to middle income groups. Most of the parents belonged to the professional group. All the children spoke English as a first language and studied French as a second language. There were also different ethnic groups and nationalities represented in this group with the predominant group being Black Bahamians. All the subjects were Bahamian with the majority being born in the Bahamas.

There were two grade sixes in each of the schools. The Toronto school had a total of fifty-seven students or 31 and 26 in each class respectively. The Toronto grades were streamed according to ability and some of the students in the top stream attended enrichment classes. The top class was also in French immersion for half of each day. The Nassau school had fifty-four students with 27 pupils in each class. These groups were nonstreamed and special classes were not included in the curriculum. The mode of instruction in both schools seemed to be traditional. All the desks in both schools were arranged in rows and the teacher instructed the whole class from the front of the room. The classrooms in both schools contained class libraries and the students were observed reading these books after assignments were completed.

**Description of the Pre-measures**

Several tests were used to obtain background information on the subjects and to determine their suitability for the study. All the grade six students in each school completed all the tests. Both standardized and experimenter designed tests were used in the study. The standardized tests were created and normed in the United States or Canada.

**Tests of Knowledge**

The first tests to be administered were two levels of knowledge tests. These were used to verify the levels of background knowledge of the students on
each of the texts that were to be used in the experiment. These tests were
designed by the researcher and contained twenty-five slots for the students' responses. The time for the tests was about fifteen minutes for each test. Copies
of these tests are included in Appendix A and the results from the tests are given
at the end of this section.

**IPAT**

The Institute for Personality and Ability Testing (IPAT) Culture Free Test, is a non-verbal reasoning test using pictures and patterns. The IPAT is a timed
group administered intelligence test with two forms. Both forms were used to
calculate the total score. Forms A and B (Scale 2, 1973) of the IPAT followed the
knowledge tests and were administered to ascertain the general ability of the
students. None of the children had had the experience of taking this test before.

**Gates MacGinitie**

The Gates MacGinitie Reading Test (Canadian Version, Level D-Form 2, Grades 4-6, 1979) was used for the selection of subjects. This is a comprehension
test comprised of vocabulary and comprehension measures. It is a group
administered test and takes approximately one hour to administer. The
cumulative results of these measures were used to assign the students to their
skilled groups. Both schools had administered the Gates before but the Bahamian
children had not been exposed to the Canadian version of the test. None of the
subjects had completed the Gates in the last school year and the earlier scores
were unavailable.

**WRAT-R**

The Wide Range Achievement Test - Revised version (WRAT-R, 1984) is a
psychometric instrument that measures specific skills. There are three subtests
which measure the basic skills of reading, spelling and arithmetic. Each subtest
is divided into two levels. Level 1 is designed for use with children between the
ages of 5 years - 0 months and 11 years - 11 months. Level 2 is designed for 12 years - adult. Level 1 of the reading subtest was used for this research. This subtest is basically a word recognition test of 75 words. This test is individually administered and took approximately 10-15 minutes for each subject. The results were used to ensure that students had a satisfactory degree of word recognition skills to participate in the study.

*Teachers’ Rating*

Teachers were also asked to rate their students’ reading on a scale of one to five with five being the highest. This was used to help verify student results on the tests and placement in the skill categories. Only those teachers who had taught the students the term before were asked to participate in this as some of the teachers had not been with the students a sufficient period of time to have established opinions about their performance. In most cases, the teacher was the current grade teacher.

*Test Conditions*

All the tests with the exception of the posttests, were taken over the course of a week in each school under regular examination conditions. The group tests, the levels of Knowledge tests, the IPAT and the Gates were administered in the students’ class groups on alternate mornings and afternoons. The individual test, The WRAT-R, was administered in a small room near the classrooms after all the group tests were completed. The posttests were taken in classrooms that were vacant at the time of testing or in the schools’ libraries. All the tests were administered and supervised by the experimenter.
Selection of Subjects

In order to qualify for the study, the subjects were expected to have limited knowledge about their culturally unfamiliar topic and high knowledge about their culturally familiar topic. The highest score obtainable on the pretests was 25 points and scores ranging from approximately 10 to 25 points were accepted for high knowledge (familiarity). Scores ranging from 0 to 9 points were accepted for low knowledge (unfamiliarity). All the students who did not qualify on the basis of low knowledge in their culturally familiar topic were dropped from the study and the qualifying students were then selected randomly from the remainder of the sixth grade population. All in the Toronto sixth grade population were familiar with their cultural topic but the Nassau group had several non-Bahamians who were dropped because their knowledge of the culturally familiar topic was insufficient.

The subjects were assigned to their skill groups on the basis of their Gates scores. The less skilled groups all had Gates scores that were roughly half a year to two years below grade six (approximately grades 5.5 to 4.0 or Gates total scores of 55 to 40) and students in the skilled groups had to be reading at grade six and better on the basis of their Gates scores (Gates score of 60 or better). The WRAT-R reading scores were used to ensure that all the readers in the study had an acceptable level of word recognition (approximately grade 4.5 or a total of 65 points on the WRAT-R) and these results along with the teacher ratings were used to help substantiate Gates groupings. Teacher ratings confirmed the placement of students if the score was approximately 4 or 5 for a skilled reader and 1 to 3 for a less skilled reader.

After practice in the method of thinking-aloud, one subject from the entire

---

2 Students who scored between 5.5 and 5.9 were placed in the skill group nearest to their scores if their results on the other test measures and teacher’s score supported the placement.
population was excluded from the research because of shyness. Students however, were unaware of their group assignment for the duration of the experiment and every effort was made to include all the sixth graders in some aspect of the research.

Results from the Pre-measures

Tests of Knowledge

It was predicted that all the children would score high on their culturally familiar topic and low on their culturally unfamiliar topic. It was expected that some skill differences would possibly emerge from these tests.

Manova results for the between-subjects effects showed significant country ($F(1,84) = 60.98, p < .001$) and skill ($F(1,84) = 40.07, p < .001$) main effects. The mean pretest scores for Nassau and Toronto were 4.23 and 2.98, respectively, and the mean pretest scores for the less-skilled readers and skilled readers were 8.89 and 12.09.

Results for the within-subjects effects showed significant passage ($F(1,84) = 14.55, p < .001$), country by passage ($F(1,84) = 800.11, p < .001$) (see summary Table 3-2), and country by skill by passage ($F(1,84) = 15.61, p < .001$) effects (see summary Table 3-3). Figure 3-2 shows the country by passage interaction, and Figure 3-3 shows the country by skill by passage interaction. It is clear from Figures 3-2 and 3-3 that Nassau readers showed some prior knowledge of subway whereas Toronto readers showed no similar prior knowledge of junkanoo. Furthermore, Figure 3-3 shows that the source of the significant three-way interaction was due to the negligible difference in the means for the less-skilled and skilled Toronto readers (0.78 and 0.1 respectively). Complete Manova Tables for the pretests can be found in Appendix.
Table 3-2: Summary Table of Pretest results for the Country by Text Interaction

<table>
<thead>
<tr>
<th></th>
<th>Junkanoo</th>
<th>Subway</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STD. DEV.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NASSAU</td>
<td>18.68</td>
<td>6.43</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>4.82</td>
<td>3.23</td>
</tr>
<tr>
<td>TORONTO</td>
<td>.45</td>
<td>16.52</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>.85</td>
<td>5.11</td>
</tr>
</tbody>
</table>

Table 3-3: Summary Table of Pretest results for the Text by Country by Skill Interaction.

**IPAT**

Results from the IPAT indicated significant \( p < .05 \) country differences \( F(1,84) = 15.85, p < .001 \) and skill differences \( F(1,84) = 31.62, p < .001 \). The mean IPAT scores for Toronto and Nassau were 106.55 and 97.66, respectively; and for the less skilled and skilled readers, the means were 95.58 and 108.33 respectively. Summary tables of these results are found in Appendix A.
The multivariate $F$s for the combined Gates vocabulary and Gates comprehension scores showed significant skill ($F(2,83) = 84.28, p < .001$) and country ($F(2,83) = 5.37, p < .006$) main effects. (See Table 3-4 for the Gates total score means for country and skill main effects). The univariate $F$s for Gates
vocabulary and comprehension for country and skill are shown in Appendix A along with the mean scores.

**Table 3-4:** Gates Total Reading Scores

<table>
<thead>
<tr>
<th></th>
<th>MEAN COUNT</th>
<th>LESS SKILLED</th>
<th>SKILLED</th>
<th>row total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STD. DEV.</td>
<td>43.77</td>
<td>67.14</td>
<td>55.45</td>
</tr>
<tr>
<td>NASSAU</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>8.47</td>
<td>8.92</td>
<td>14.61</td>
<td></td>
</tr>
<tr>
<td>TORONTO</td>
<td>21</td>
<td>72.70</td>
<td>61.48</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>14.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.01</td>
<td>8.70</td>
<td>14.23</td>
<td></td>
</tr>
<tr>
<td>column</td>
<td>46.42</td>
<td>69.98</td>
<td>58.47</td>
<td></td>
</tr>
<tr>
<td>total</td>
<td>43</td>
<td>45</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.17</td>
<td>9.15</td>
<td>14.66</td>
<td></td>
</tr>
</tbody>
</table>

**WRAT-R**

As expected, a significant difference was observed for word recognition skills on the WRAT-R ($F(1,84) = 47.80$, $p < .001$). No significant country differences were observed. The combined means for the less-skilled and skilled readers were 73.77 and 83.07. Summary tables of these results can be found in Appendix A.

**Teachers’ Rating**

Significant skill differences were found for teacher ratings ($F(1,84) = 90.75$, $p < .001$). The combined means for the skilled readers were 4.16 and 2.72 for less skilled readers. No significant country differences were observed. Summary tables of the teachers’ scores can be found in Appendix A.
Research Procedures

The piloting period for the study lasted about six months from January to June. The collection of data took place two months later and lasted for four months from September to December. Data were collected in September and October in Toronto and in November and December in Nassau. The duration of the experiment was roughly six weeks for each school.

Pilot Study

During the piloting period, information and insights on the method of thinking-out-loud were gathered and the experimental passages were field tested on Canadians students and adults and also employees of the Toronto Transit Commission. Several Bahamians adults and students who lived in Toronto were also used to field test the Bahamian text. The pre and posttests were also field tested on two different school populations in Toronto. The specific purpose of the piloting period was to gather information on the response to the texts and the method of thinking-aloud by different groups. From these sessions, information was gained on the content, length, interest and difficulty of the texts and also any problems created by the task of thinking-aloud. As a result of these sessions, the informative texts and the pre and posttests went through several revisions. The experimenter also acquired some experience with familiarizing students with the think-aloud method.

Collection of Data

The collection of data started with the training sessions in thinking-out-loud. There were whole class, small group and individual sessions prior to the actual experimental session. A description of these sessions follows.
Whole Class Session

The first day that the experimenter met with the children they were told that the researcher was interested in finding out what children thought about and did when they were reading. They were told that this information would be very helpful to a lot of people particularly teachers who could use the information to improve their teaching and make learning easier for other children. The children were told that some tests would be taken and that they would have to do some reading in order for the researcher to collect her information. They were also told that all the reading sessions would be tape recorded. They were told that they could withdraw from the study if they did not like the procedures.

Following the introduction to the study, the children were introduced to the method of thinking-out-loud. The introduction to the method was done in the children's regular class setting with their teacher in attendance. This session lasted for about forty minutes and took the form of modelling by the researcher. The children were told that a special way of finding out their thoughts was going to be used in the study and that this method was called thinking-out-loud. The children were asked to give their interpretation of thinking-aloud and instances of when they had done it or seen it done.

Following the explanation of what thinking-out-loud was, two short texts were read. (Copies of these passages can be found in Appendix A). The researcher read the first one and modelled thinking-aloud while the children followed on individual scripts. During the reading, the researcher randomly paused at different points to give the students an idea of where they could break to express a thought. For example, after a single word, a sentence or a paragraph. The researcher also modelled a wide variety of strategies such as questioning and stating when something did or did not make sense, elaborating on ideas and making inferences. No particular strategy was emphasized during these sessions. After the reading, the researcher made some summative remarks
about the passage. Following the reading, children were questioned about what the researcher had done and the method of thinking-out-loud was discussed further.

The following instructions about thinking-out-loud were explained at this point.

1. Say what you are thinking whenever an idea or thought comes into your head. It can be at any point in the text. It can be after a word, sentence, or paragraph.

2. If you are stuck and you stop reading, tell what you are doing at that time and what you are thinking. If you feel you have to look back to check something, say what you are doing.

3. Do not be afraid to say what you are thinking even if you think it sounds silly or even if you might feel funny about doing it. It will seem strange at first but once you get started it would be easier.

4. Don't talk for the sake of having something to say. Talk when an idea or thought comes into your head. You don't have to say something after every word or idea only when you want to say something.

The children were then encouraged to read along and do their own thinking-aloud while the researcher read the second text. The children were told to raise their hands at any point in the passage when they had an idea about what had been read. Following the second reading, the method was again discussed and elaborated upon. The children were also cautioned that this method of reading was for the purpose of the research and not to be practiced in the library or in places where quiet reading was necessary. According to the time, a third passage was read with the students again practicing thinking-out-loud.
Small Group Session(s)

The second practice session took place a few days later in a quiet, unoccupied room near the children’s classrooms. The sessions lasted for about fifteen to twenty minutes. The children came to visit the researcher in groups of fours or fives or as they were seated in rows in their classrooms. These sessions included all the children in grade six even though they may not have been selected for the study. This was to avoid singling out students and directing special attention to the research subjects. During this session, the children were once again reminded about what thinking-aloud meant and they were given the chance to practice the method in their group with everyone having a turn to read and think-aloud. Depending on the children’s performance, one or two passages were read during this session. Following the reading of the passage(s), the method was further discussed and the children were told that some of them would be called on to do this thinking alone in a few days.

Individual Session(s)

Following the group sessions, all the students who were selected for the study were seen individually to practice the method before receiving the experimental passages. The individual sessions lasted from ten minutes to fifteen minutes. The children were seen in a random order but within their class groups. Each student was asked to read one passage.

Those subjects who appeared to have problems with the method were given an extra individual session to assist them with the method. Some subjects were not very comfortable with the method as some had difficulty finding something to say or some subjects only made statements that evidenced restating the text or simply questioning the text in a rote manner. These subjects were encouraged by the experimenter not to question every idea unless they did not understand what it meant and if they had problems with any sections to say so. They were
encouraged to say what the text made them think of and they were encouraged to respond to specific ideas in the text that they might have found difficult. For Example:

Rater: What do you think section means?
Subject: It means that.....
Rater: Good, that's an example of thinking-out-loud as you read.

None of the students were dropped because of these problems. During all the individual sessions and subsequent experimental sessions, the guidelines based on Bird's (1980) study, were adhered to by the researcher. The guidelines are as follows:

1. Each subject was instructed to read the passage carefully because she or he was going to be tested on how well it was understood.

2. Each subject was reminded to think-out-loud prior to the session and to begin thinking-aloud when they read the title.

3. Students who forget to think-out-loud were reminded to do so.

4. Puzzled, thoughtful looks, expressions and noninterpretable utterances for example hmmm, oh, were prompted for clarification with "What do you mean or what are you thinking?"

5. Students were given help in pronouncing difficult words if they were having obvious difficulties and had attempted to call the word.

6. Dialogue between researcher and subject was not encouraged during the reading of a passage. The experimenter did not answer subjects' questions about word meanings, or give explanations about the text.

7. The experimenter tried to remain expressionless during the reading of the passage so as not to influence the subject's performance.

8. The experimenter did not give any feedback to subjects on their performance.
**Experimental Sessions**

The experimental passages were given one to two weeks after the individual practice session(s). The children in the research were seen in a random order in the same room where they had had the previous group and individual practice sessions. The sessions lasted from fifteen to twenty-five minutes depending on the child. The order of the two passages was counterbalanced within skill, sex and country groups. Morning and afternoon testing was also counterbalanced.

**Postquestions**

Following the reading of each text, the children were given some postquestions. There were four general questions in this category. The questions were used to capture any thinking the students might have done during the reading of the text but may not have voiced and they were to gather any retrospective thoughts they might have had about the texts. The questions were presented as follows:

1. What did you think of the passage?
2. What was the passage about?
3. What did you learn about the passage or what do you remember about the passage?
4. Do you have any other thoughts about the passage?

**Posttests**

The posttests were designed by the experimenter to test the children's knowledge and understanding of the texts. There were two types of tests, multiple choice and cloze, for each of the informative texts, for a total of four posttests. Teachers were given assistance in familiarizing the students with the cloze method a few weeks prior to the administration of the cloze tests. The
subjects were tested two to three days following the reading of the experimental passages. The average length of time for testing was one hour to an hour and a half. Children were not timed but were encouraged not to go beyond that time.

All the tests for the experiment were administered in groups of five to ten subjects. The order of text presentation was counterbalanced. The multiple choice tests were administered first along with copies of the texts. The cloze tests followed the multiple choice tests but without the help of the passages. The multiple choice tests were designed to tap students' inferential abilities and copies of the texts were provided to assist students. The cloze test was a test of recall. Copies of the tests along with the procedures for scoring them are reported in Appendix B. The results are reported in chapter 5. The cloze tests were scored by two independent raters; coefficient alpha for the cloze test was .94.

The Experimental Passages

The two informative texts used in the experiment were designed by the experimenter. The topics were selected on the basis of their representativeness of life in the specific cultural context and on the basis of their degree of absence from the opposing cultural milieu. Junkanoo was deemed a common experience for the Nassau children but an uncommon one for the Toronto children in terms of their knowledge and experience of a street parade of this type. While it can be argued that street parades may be familiar experiences, in this context it was deemed to be removed from the "parade" experience of the Toronto subjects by nature of the costumes, instruments, and cultural setting in which the event occurs. The subway experience was deemed an everyday familiar experience for the Toronto children and an unfamiliar one for the Nassau children as no subway system or anything comparable to it exists in the culture of the Nassau children.

The characteristics of the texts were determined by examining the external and internal aspects of the texts. The overriding objective of the writer was to
design texts that would be informative, interesting and motivating for the children to read. With this in mind, the texts were constructed to give familiar readers new information and unfamiliar readers enough "scaffolding" to build concepts and an understanding of the topic. A deliberate attempt was made to make the texts similar in terms of readability and structure. It was easier to construct similar external features than internal ones given the variability in topics. The external characteristics were compiled by readability surveys (Britannica Computer Based Learning, 1984) and word frequency counts (Johnson et al, 1983). The internal or structural aspects were ascertained by analyzing the responses of three graduate students to a questionnaire about the texts. Their comments on the texts are given in the next section.

**Analysis of Informative Texts**

The texts were analysed to compare their structure, main points, and genre to ascertain their similarities and differences. The texts were given to three graduate language arts majors who were asked to write their impressions of the two texts based on several questions that were initiated by the experimenter. Each respondent analysed both passages. The order of the assignment of the texts was counterbalanced. The questions were as follows:

1. What do you think are the main points of the passages?

2. From your perspective, what is the plan, structure or the organization of the passage?

3. How would you describe this passage? Expository, Narrative etc. Why?

4. Write a brief summary of this passage. Write no more than 25 words.

5. Additional comments, observations on the passage...

The comments of the respondents were matched and a consensus from their comments was used to analyse the texts for the postquestions and for a
general understanding of the texts in terms of their similarities and differences. A summary of their responses is given below and a structure of the texts is outlined in Appendix C.

**Analysis of Subway Passage**

**General Ideas**

The importance of the subway system to Toronto and how the subway influenced the growth of Toronto.

**Main Points**

- How one uses the subway
- How it was built - methods of construction
- Purpose of the subway
- Maintenance of subway
- Subway facilities
- How it functions
- Relation to real estate

**Supporting Details**

There are numerous supporting details. Several are listed as follows:

- Opened in 1954
- Influenced $10 billion development adjacent to the east-west line
- Three methods of construction
- 132 of the 141 surface routes connect to the subway
- Automatic entrances
- Collector
- Fire fighting facilities
- Escalators
- St. Clair station has 14 escalators
- 632 subway cars
- Signal operators
- Control Centre
Analysis of the Junkanoo Passage

General Ideas

What is junkanoo, a description of junkanoo and its cultural importance to the people of the Bahamas.

Main Points

Different theories about its origins
How the costumes are made and were developed
How the instruments were developed and made
Chronological development of junkanoo
Places where counterparts of junkanoo are held
How it is held today

Supporting Details

Some examples of the supporting details are as follows:

When it is held
Where it is held
Different people who are said to have started it
Who takes part
Different types of costumes
Different instruments
Time it is held

Surface Features of Informative Texts

The texts had equivalent word and sentence lengths. The average word length and number of sentences in a paragraph were the same as were the number of paragraphs and questions in the passages. The two passages each had three questions which were to assist the reader in generating some thoughts on the texts. Two of the questions provided main points or direction for the reader. The low frequency words as calculated from the Ginn Word Book for Teachers (Johnson et al, 1983), were different with more being recorded for the junkanoo passage. The texts were roughly equivalent in readability with the subway passage being slightly more difficult. The average readability for both passages as estimated by Britannica Computer Based Learning (1984) was approximately grade eight level.
Content and Structural Features of the Informative Texts

The two passages were designed to encourage inference and the construction of meaning on the part of the readers. None of the texts ever stated explicitly the definitions of the topics. Both texts had sufficient clues to give the reader some help in this area. The analysis of the graduate students' responses revealed that they felt the texts were basically of the expository and descriptive types. The gist of the texts was captured by the responses to the questionnaire. The results indicated that the passages had the same number of main ideas with equally large numbers of supporting details. The number of inferential questions was calculated by estimating the number of propositions in the texts that could possibly encourage inferencing if they were restated as simple questions. The amount of new information was calculated by protocols from the pilot investigations which indicated the information that was unknown to the pilot readers. Illustrations of the surface and structural features of the passages are presented in Tables 3-5 and 3-6.

The Presentation of the Passages

The passages were presented in the same form as they were for the experiment. They were typed on good quality paper with laser print. Each child was given an individual copy during the experiment while the researcher followed on a separate copy. The paragraphs were later numbered for the recording of data for easy reference. The numbered paragraphs are given in Appendix C for easy reference.

Directions: Read the following passage aloud. Remember to think-out-loud as you read.
**Table 3-5:** Surface Features of Informative Texts

<table>
<thead>
<tr>
<th>TEXT</th>
<th>JUNKANOO</th>
<th>SUBWAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMBER OF WORDS</td>
<td>845</td>
<td>850</td>
</tr>
<tr>
<td>AVERAGE WORD LENGTH</td>
<td>Four letters</td>
<td>Four letters</td>
</tr>
<tr>
<td>NUMBER OF SENTENCES</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>AVERAGE NUMBER OF SENTENCES PER PARAGRAPH</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>NUMBER OF QUESTIONS</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>NUMBER OF PARAGRAPHS</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>LOW FREQUENCY OF WORDS</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>READABILITY OF WORDS:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CHALL</td>
<td>9.3</td>
<td>9.5</td>
</tr>
<tr>
<td>• FRY</td>
<td>8.2</td>
<td>8.2</td>
</tr>
<tr>
<td>• FLESCH</td>
<td>66</td>
<td>67</td>
</tr>
</tbody>
</table>
Table 3-6: Structural Features of Informative Texts

<table>
<thead>
<tr>
<th>TEXT</th>
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<th>SUBWAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS</td>
<td>Expository/ descriptive</td>
<td>Expository/ descriptive</td>
</tr>
<tr>
<td>NOTION</td>
<td>What is junkanoo, its development and description</td>
<td>Importance of subway and how it influenced development</td>
</tr>
<tr>
<td>MAIN POINTS</td>
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<td>5</td>
</tr>
<tr>
<td>SUPPORTING DETAILS</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>INFERENTIAL QUESTIONS</td>
<td>32</td>
<td>29</td>
</tr>
<tr>
<td>NEW INFORMATION</td>
<td>17</td>
<td>19</td>
</tr>
</tbody>
</table>

Our Junkanoo Heritage

Junkanoo takes place in the Bahamas. It is an important part of the culture of the Bahamian people despite the fact that its roots are still the source of contention amongst folklorists. What is junkanoo and why is it important to know its history?

Junkanoo was held by the slaves who went to the Caribbean islands during the sixteenth and seventeenth centuries. Junkanoo has died out in other
Caribbean islands except in Jamaica and Bermuda. It is still held in those countries but not on a large scale. In the Eastern Caribbean, junkanoo has its counterpart in the French influenced "Carnival" which is a pre-lenten celebration.

The English custom of "masking" or "mummers" is also said to have some relationship to junkanoo. This is held in Newfoundland during the Christmastime. This custom too is practiced on a very small scale. Junkanoo is also said to have appeared in some form in North Carolina. The drums and instruments were similar in form but their custom did not survive to this century.

At present, the Bahamas is the only place where junkanoo is celebrated as a national holiday on Boxing Day and on New Year's Day. How is it that the junkanoo has become almost obsolete in other countries but survived in the Bahamas?

Folklorists believe that junkanoo resembles the West African, John Canoe. It is an event said to be celebrated by the West African slaves. However, the origins of junkanoo are uncertain but there are several theories that exist about its beginnings.

One theory states that the West African name Jananin Canno was derived from the Quojas tribe's Canno - a supreme being who controlled their activities. Janani were the dead who became spirits. They were regarded as patrons or defenders of the tribe. There is another theory that exists about John Kuner or John Kooner from North Carolina. He always dressed at Christmastime in "the loudest most fantastic garb .....of stripes and tatters". He wore a large mask representing either birds, beasts or men.

There is a West African first fruit ceremony, Kanoo, which is said to have possible links to junkanoo. This was performed by the Bam-bari tribe. There was also in West Africa, an Ashanti dance figure who was known as Jankomo. He
was noted for a dance in which he took one step forward and two steps back. It is believed that he too has some connection to junkanoo.

Junkanoo is also said to be rooted in the period of slavery. In the pre-emancipation era, the slaves were allowed a special holiday at Christmastime. During this time they were allowed to leave the plantation, and attend a most exciting grand dance. The dance was a tribute to John Canoe. He allowed his slaves to celebrate Christmas and New Year's Day.

After emancipation, the freed slaves continued their celebration but restrictions were placed on junkanoo. As a result, during the latter half of the nineteenth century the Street Nuisance Act was suspended.

During the early twentieth century, junkanoo took on a more progressive turn. Confidence in the practice of junkanoo resulted in some changes. Costumes changed from old and tattered clothes to paper fringe. This was done with a sharp cutting implement or by hand.

By the mid-1920's, junkanoo was returned to Bay Street where the participants had been banned. Prizes were now offered and the competition was fierce. Junkanoo became the main winter tourist attraction and contributed to its growth. Around the 1930's, some costumes were even made of sponges and there were tall hats and huge floats. Pantaloons were also a main feature around this time and some were worn stuffed.

To date, the practice of junkanoo has continued to improve but with few changes in some areas. An example is the instruments which remain the same. On some Family Islands, rake and scrape materials are used while in the cities large drums, bugles, whistles, conch horns, and cowbells are used. The drums continue to be made from goat or sheep's skins which are steeped in lime for several months. They are tautly placed over salt beef barrels or kegs and sun dried. In time they are heated to the desired tone or placed in a deep well. The
cowbells' construction have gone through few changes. They are still made from car rims which are welded into various hollow cowbell shapes with suspended tongues. Their clilickity-clang sounds can still be heard for miles around.

Today's costumes remain similar to the years gone by except that the crepe paper has a more professional finish. Fringing is now done with a pair of shears or scissors. A paste of flour, water, and insecticide continues to be useful for gluing costumes. Needle and thread are basic for sewing the costume parts together. As today's costumes are more elaborate, huge wire frames are now used.

At three a.m. on Boxing Day and New Year's Day, junkanoo begins. For miles around town the echo of the goat-skin drums can be heard. In the cities junkanoo groups may comprise one to three hundred participants while on the Family Islands the groups are much smaller. Another year is heralded in as junkanoo lives on. Will it continue to thrive or will it be like other countries and die out?
Our Subway System

Most people do not realize how important the subway system is to them until something drastic happens. What is a subway system and what can it do for a city?

The Toronto subway system of public transportation in Ontario, Canada was opened in 1954 by the Toronto Transit Commission (TTC). It has had a large effect on the development of Toronto.

Since 1954, Metro Toronto has seen more development than the first 120 years in the history of the city of Toronto. The rapid transit system has played an important role in determining the location of $10 billion in new development along the north-south line. It has also influenced the $20 billion development adjacent to the east-west line.

The subway was built to carry a large volume of traffic. The traffic is at least three times more than a normal surface route. It aids the fast and convenient interchange of passengers between the subway and surface route system. The cars are larger and faster than surface cars. They are also more comfortable and have more doors for faster loading. The subway is the backbone of the TTC. 132 of the 141 surface routes connect to the subway. The TTC is said to be the "Better Way".

The Toronto system was constructed by three methods of construction called cut-and-cover, open cut and tunnelling. Most of the 59 Toronto stations were constructed using the cut and cover method. See if you can picture this process. Steel piles are inserted into the ground. They are placed in two parallel lines within which the subway will be built. The area between the piles is excavated to expose the sub-surface utilities. These utilities are for example, sewers, telephone lines and electrical conduits. After the subway structure is constructed, the area is filled to restore the surface. Utilities are then relocated.
and the street repaved. Can you guess what open-cut and tunnelling methods would be like?

All the stations are staffed by at least one collector. There are also automatic entrances which are monitored through close-circuit television. All stations are equipped with fire fighting facilities, and stairways or ramps. Subway routes and maps of the surrounding areas are also conveniently displayed. In addition to these features and facilities, there are numerous escalators. The St. Clair West station alone has 14!

As the train comes rushing into the station, you will see some of the 632 TTC subway cars. These cars are connected to one another. Depending on the time of day, they may vary in number.

When the doors open, you enter before the guard blows the second whistle. At rush hour, you might have some problems getting in or out of your car. This might be especially difficult at Yonge and Bloor station which is one of the busiest. As many as 76,000 people enter this transfer point during rush hour. Luckily, most of the cars are spacious and air conditioned.

As the train pulls out of the station, its movement is controlled by an automatic train dispatch at each signal location. The signals can operate by pre-programmed control. They are also controlled by signal operators at the main control centre of the TTC. These signals help to control speed and route.

The driver of each train also controls the speed and the stopping of the train at various markers on the platform. The Control Centre looks after emergencies, spacing of the trains and short turns. It is also responsible for calling trains into service especially during rush hour.

What happens to the trains late at night? There are three carhouses where the cars are maintained, repaired and cleaned. Having visited one of these they are then ready to resume work as early as six o’clock in the morning. The cycle then starts all over again.
Real estate surveys have shown that the construction of 90 percent of all office buildings have occurred within a five minute walk of the subway. Half of all apartment construction have also occurred within a five minutes walk of the subway. These constructions all took place over the past thirty years.

In the central core area, many major firms have direct connections to subway stations. These include the Eaton Centre and the Hudson Bay Centre. Away from downtown core, new community centres have developed similarly.

The entire subway system network is very busy and well used. In 1985, a record of 428 million riders used the Toronto transit system. The riders rode streetcars, buses, trolley cars and the subway. It is estimated that the total number of jobs located in Metropolitan Toronto will increase by approximately 240,000 to a total of 1,400,000 jobs in the year 2001. What does this mean for the subway system and the city of Toronto?
Chapter 4

The Analyses of the Data

Introduction

This chapter will describe the procedures used to classify the data following their collection and transcription. Included are the description of the parsing of the think-alouds, and the instructions and scale for analyzing and interpreting the think-aloud statements. The schemes for the analyses of the post questions are also included in this chapter.

Parsing of Protocols

Prior to the analysis, the protocols were parsed. Parsing of protocols was based on the number of strategic moves or idea units observed in a think-aloud statement(s). Where several ideas or conceptualizations were perceived, a separation of the ideas or of the propositional units took place. The rationale for the separation of a think-aloud into idea units is based on the view that several insights and perceptions could be voiced in a single statement and if these were classified as a single unit, some of the moves or levels in processing would be lost. By the same token it is acknowledged that the completeness of the development of an idea is sometimes lost by this procedure. This method allowed the different levels in the progression of a thought to be evidenced.

Two examples of parsed verbalizations are given below. Slashes indicate where the think-aloud was parsed. In this and subsequent examples in this chapter, the protocol, which is "a description of the activities, ordered in time in
which a subject engages while performing a task" (Hays, 1981), will be numbered and italicized and the text will be printed in regular type. Commentary, when provided, will follow the subject’s verbalization. The only text to be presented in every protocol will be the paragraph or sentence that immediately precedes the think-aloud. This does not always reflect the entire think-aloud referent but it will be presented as the context in which a think-aloud was triggered. The subject’s identification number is also acknowledged with each example.

**Examples of Parsing**

**Protocol #1**

Most people do not realize how important the subway system is to them until something drastic happens. What is a subway system and what can it do for a city?

1. *A subway system is like a train--a subway system is like a runway that the train goes on/* [The subject elaborates on the question by a simple association].
2. *Like if you want to go, if you don’t have a car and they have a train near your house, you could take the train wherever you wanted to go/* [The subject moves from the first elaboration to the next thought, which is to provide an example].
3. *It doesn’t run on the road like a car/* [The subject consolidates her understanding of the concept by explaining what it is not]. #34352

**Protocol #2**

The driver of each train also controls the speed and the stopping of the train at various markers on the platform. The Control Centre looks after emergencies, spacing of the trains and short turns. It is also responsible for calling trains into service especially during rush hour.

1. *Trains? I thought we were talking about subways. We’re talking about subways and then it says trains/* [The subject is monitoring his comprehension as he recognizes that the text has switched topics but he fails to make the association]
2. *I don’t know/* [Here he moves to the next level in his comprehension by confirming that he does not know what is going on or that his comprehension has broken down]. #62361
Distribution of Protocols

Following the parsing of the think-alouds, the passages for all the subjects were cut up and divided by paragraphs. All the paragraphs containing verbalizations were distributed randomly to the two raters who received roughly equivalent numbers of statements for each of the texts. This meant that the raters received different protocols for each subject. The separation of passages by paragraphs was to decrease the possibility of bias in the rating procedures. This method constrains the rater’s overall understanding of the subject’s flow or development of ideas but by the same token it reduces the chances of a carry over or "halo" effect of previous perceptions. It allows each think-aloud to be analyzed more objectively.

The Coding of the Data

There were two classifications for the coding of the data: the Action Scale and the Conditions. This meant that each protocol was coded twice. The rationale for classifying the data in two forms was to aid the researcher in understanding not only the level of strategic activity or the Action level but also the type of association or Condition under which that strategic activity manifested itself and its relationship to various elements or components of the task of reading with comprehension. Such elements as awareness and recognition of specific problems of text, responding to familiar or unfamiliar ideas were considered components of successful reading and an understanding of their relationship to different levels of strategic activity was considered to be vital for gaining insights into comprehension processing.

The scale of actions and conditions that is presented in 4-1 is an abridged version of the original scale. The scale that is presented is non-restricted by

3 For a complete version of the original scale see Appendix D.
conditions which means that the actions are not necessarily limited to the condition statements that parallel them. The complex nature of reading comprehension would have made an evaluation of the fit between actions and conditions difficult to assess. In this regard, the actions and conditions were classified separately as the fit between the action and the condition would have required too fine a judgement for the protocol data to support. This means that it is possible for a given action to apply to different conditions which by the design of the scale makes allowances for the flexibility of strategic action as it relates to the different components of reading.

Anderson's (1982) framework for the acquisition of skill was influential in the initial design of the scale. The IF on Anderson’s system was transformed into the CONDITIONS, or the factors that are known by educators to influence the act of comprehending. These factors could also be considered as mediating influences that could create problems or assistance in the attainment of understanding. The THEN in Anderson’s scheme represented the ACTION, or the several courses of action that one might take to correct a problem or to attain a goal in reading comprehension. The complete scale of actions and conditions is presented in the next section followed by a discussion of first the actions with examples of each level and second the conditions with examples.

The Action Scale

The action scale developed for the present research was designed to identify varying levels of strategy use in reading for meaning. The scale in the present study was organized to reflect the ascending order or hierarchy of mental effort in comprehension processing required to construct more complex levels of understanding and use of knowledge. It is an ordinal scale that represents levels ranging from simple recognition and restatement of text propositions to evaluation of text and the construction of new knowledge. Implicit in the scale is
<table>
<thead>
<tr>
<th>ACTION 0</th>
<th>ACTION 1</th>
<th>ACTION 2</th>
<th>ACTION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make non-meaningful statements</td>
<td>Make simple inferences</td>
<td>Give supporting details from text to support author's intent</td>
<td>Integrate text ideas and connect with main idea to get unified picture of what author is saying</td>
</tr>
<tr>
<td>Condition: If the goal is to understand the text...</td>
<td>Condition: If the text is familiar...</td>
<td>Condition: If the text is new or unfamiliar...</td>
<td>Condition: If the text is new or unfamiliar...</td>
</tr>
<tr>
<td>Category: General Processing</td>
<td>Category: Familiar</td>
<td>Category: Unfamiliar</td>
<td>Category: Text</td>
</tr>
<tr>
<td>Problems: If the text is puzzling...</td>
<td>Problems: If you find the text difficult to understand or...</td>
<td>Problems: If the text asks a question...</td>
<td>Problems: If the text asks a question...</td>
</tr>
<tr>
<td>Meta-Level: If you reflect on what you are doing as you...</td>
<td>Meta-Level: If you reflect on what you are doing as you...</td>
<td>Meta-Level: If you reflect on what you are doing as you...</td>
<td>Meta-Level: If you reflect on what you are doing as you...</td>
</tr>
</tbody>
</table>

**Table 4-1:** Table of Actions and Conditions for Reading Comprehension
the view that the more active or goal-oriented one is in comprehending through
the integration of his/her knowledge with the text, the higher the level of
comprehension.

There are many precedents for the investigation of strategic comprehension
activity from the perspective of levels. Bloom et al's (1956) taxonomy of learning
levels (recall, comprehension, application, analysis, synthesis, evaluation) is one
of the early schemes for classifying learning levels. More recent work by van Dijk
and Kintsch (1978, 1983) on comprehension has drawn attention to
comprehension processing at different propositional levels (e.g. text propositions
or lower levels to macropropositions or higher levels). Neisser (1976) has referred to
mental processing in terms of active and passive with the implications being that
active processing contributes to a higher level of mental activity. Implicit in the
levels of processing theory is also the view that processing takes on different
forms of "depth" which affect semantic or cognitive analysis (Craik & Lockhart,
1972; Treisman, 1979).

The work of Marton and Saljo (1976a, b) identifies several levels of
processing in reading comprehension and Biggs and Collis (1982) have rated the
complexity of ideas in their work on learning quality. The more recent work of
Resnick (1987) described "higher order thinking" in reading. Resnick considered
higher order thinking non-algorithmic or where the path of action is not fully
specified. She described this kind of activity as complex, having multiple
solutions, nuanced judgement, the application of multiple criteria, uncertainty,
self-regulation of thinking and ultimately the imposition of meaning (Resnick,
1987, p.418). Paris and colleagues and their work in the "Informed Strategies for
Learning Program" utilize higher level strategies to direct the learning of other
cognitive skills (e.g. Paris, Cross, & Lipson, 1984; Paris, Lipson & Wixson, 1983)
while Scardamalia and Bereiter (1985, 1986) have discussed and investigated
strategic activity and have found evidence to support different levels of activity
(e.g. knowledge telling and knowledge transforming). The work of Chan (1987) has also contributed to the perspective of "depth" in the analysis of learning processes by utilizing categories for the rating of constructive effort and the level of new learning from text (Chan's (1987) work is discussed in greater detail in chapter 2).

The levels on the action scale are discussed below.

**Level 0**

The zero level implies that the student is not verbalizing her or his mental processing. While this does not necessarily imply that the student is not mentally constructing meaning, for the purposes of the study, it indicates that little mental activity is being demonstrated or verbalized.

In this category, the reader verbalizes her/his thoughts in such a way that the think-alouds reflect little action. The action may be manifested as simple restatements, repetitions or noncommittal type of responses. The reader could operate at this level if he or she experienced difficulty with the task or text or if he/she is storing knowledge for future use or if there is nothing to be said.

**Examples: Level 0**

**Protocol #3**

Junkanoo was held by the slaves who went to the Caribbean islands during the sixteenth and seventeenth century.

That's interesting. #75362 [Very little meaning can be inferred from this type response.]

**Protocol #4**

He wore a large mask representing either birds, beasts, or men.

I that, that John Kuner--I don't really think anything about this piece. #25351 [Subject has no thoughts on this section.]
Protocol #5

Around the 1920's some costumes were even made of sponges and there were tall hats and huge floats.

_Tall hats and huge floats._ #20452 [Subject repeats what was said in the text.]

Level 1

In the Level One category, the reader attempts to utilize the knowledge that s/he has or is confronted with in the text. However, this information is not utilized maximally to encourage new knowledge or insights or critical thought. The information in a sense, remains dormant or at a surface level and does not move in a direction of deeper understanding. Typical of this category are questioning, declaring or recognizing what is known/unknown, simple inferences, elaborations that do not enhance comprehension of text and simple statements of understanding.

Examples: Level One

Protocol #6

In 1985, a record of 428 million riders used the Toronto transit system.

_That's a lot of people going on the train._ #55462 [Simple recognition]

Protocol #7

In time they are heated to the desired tone and placed in a deep well.

_Why did they do that?_ #93462 [Simple question]

Protocol #8

He always dressed at Christmastime in "the loudest most fantastic garb...of strips and tatters". He wore a large mask representing either birds, beasts or men.

_I like the time when Christmas comes -- I have fun. Junkanoo is something I never miss. I like it and every I go, I always have fun._#35352 [Simple statements of elaboration on the topic.]
Level 2

At Level Two the reader tries to make sense of the text in his or her own terms by applying the information in the text to something familiar or by using his/her knowledge to make sense of the text. This may be done by forming associations, by elaborating on the text, by translating or interpreting the text in more familiar contexts and terms. The student might also begin to form connections between various elements in the text or read between the lines and begin to form predictions. Indicative of this level of processing are mid-level inferences, and low levels of comprehension monitoring and meta processing.

Examples: Level Two

Protocol #9

At three a.m. on Boxing Day and New Year’s day, junkanoo begins.

No junkanoo like it begins no later than 3 a.m. It begins around 5 a.m. and then it ends inside the morning hours. I say ten or eleven in the morning. They’re taking pictures. So that’s why junkanoo doesn’t start at 3 a.m.

#23351 [The student contradicts the text and elaborates on his reason. He uses his knowledge to explain and support his position].

Protocol #10

By the mid-1920’s, junkanoo was returned to Bay Street where the participants had been banned.

Like at first at the beginning of the story, it didn’t sound like the way we have it here but now since it’s getting close to there, it’s starting to sound like junkanoo we have in the Bahamas. #23351 [The student is using his knowledge of junkanoo to follow the text. He is attempting to connect the text to his experience and begins to find some relationship.]

Protocol #11

As the train pulls out of the station, its movement is controlled by an automatic train dispatch at each signal location. The signals can operate by pre-programmed control. They are also controlled by signal operators at the main control centre of the TTC. These signals help to control speed and route.
Level 3

In the Level Three category, the reader moves beyond the level of the text and attempts to formulate new ideas about what the text is implying. The category actually sees the reader "doing things" with the text and using his or her knowledge in a more integrative and problem-solving style to create new knowledge and insights. Skill is fully maximized and evidenced in this category as the reader engages constructively in drawing conclusions, evaluating text and task, monitoring comprehension, and assessing learning. This could be in the forms of synthesizing and evaluating information and making high level inferences.

Examples: Level Three

Protocol #12

There is a West African first fruit ceremony, Kanoo which is said to have possible links to junkanoo. This was performed by the Bam-Bari tribe. There was also in West Africa, an Ashanti dance figure who was known as Jankomo. He was noted for a dance in which he took one step forward and two steps back.

It makes me think that maybe they got the word junkanoo from his name because if you say kind of like junkanoo you could derive junkanoo from that name. #63361 [The subject is using what is stated in the text and his knowledge to make an inference about how junkanoo was derived.]

Protocol #13

There is another theory that exists about John Kuner or John Kooner from North Carolina. He always dressed at Christmastime in "the loudest most fantastic garb of strips and tatters". He wore a large mask representing either birds, beasts, or men.
I guess that's where junkanoo started. When he started to dress up in mask and different colours with stripes and stuff like that. The people just probably thought it was a great idea, that it could be a tradition. He probably was a famous man and they just started junkanoo in remembrance of him. #72362 [The subject connects several text ideas and inferences to form a conclusion about the origins of junkanoo.]

**Protocol #14**

All the stations are staffed by at least one collector. There are also automatic entrances which are monitored through closed-circuit television. All stations are equipped with fire fighting facilities and stairways or ramps. Subway routes and maps of the surrounding areas are also conveniently displayed. In addition to these features and facilities, there are numerous escalators. The Saint Clair West station alone has 14!

*Like in the first, it has how they built the station and how many people it holds, and they have precautions that they take, like fire fighting—all kind of fire fighting stuff in case there's a fire or in case it stops. They have escalators to where they can rush up and it has--some of them plenty escalators, and some of them have real big ones where they can hold plenty people.* #64361 [The subject attempts to summarize the text to gain an understanding of what is happening. He connects several text ideas.]

**Training of Raters**

The two raters were trained in the method of analyses by the experimenter. The training sessions lasted for roughly two months during which time the raters met and practiced classifying think-alouds with the experimenter and later individually until they had become familiar with the method and were able to code statements reliably. The raters were "blind" with respect the identities of the subjects and did not have access to any information about them.

Both raters were familiarized with the texts and the purpose of the investigation.

As a part of the analyses, the raters were instructed to form two judgments. The two judgements were necessary to separate the goal state (condition) from the actual processing state (action) and thus allow the researcher to infer intention or goal from strategic action. The researchers had to assign
first an action score followed by a condition classification. This was to avoid the confounding of conditions and action as they were outlined on the scale. It was deemed easier also to assign the action level first as this was a four point scale versus the twelve categories for the condition classification. In cases of uncertainty, the raters were instructed to confirm their codes with the experimenter or the other rater. In such cases the most prevalent notion or idea was used to determine the condition or action.

**Inter-Rater Agreement in Scoring**

The reliability of the action scale was calculated by randomly assigning 10% (n = 332) of the data to the raters. The raters each received the same sample and proceeded to score the verbalizations on the four point ordinal scale (0-3). The inter-rater reliability was based on the correlation of the two sets of scores and was calculated as .70. Lawis and Lu’s (1972) T coefficient was used to measure inter-rater agreement. The value of T is patterned after Cohen’s (1960) \( \kappa \) (kappa) (Tinsley & Weiss, 1975). Coefficient T for inter-rater agreement was .76.

**Reliability of Scores**

The within-subject reliability of the action scale was computed to estimate the consistency of raters’ within-subject scoring. This was calculated by using the aggregate of the average scores assigned by each rater to each subject on each of the passages. Every subject had to have the minimum of five statements for each rater’s score to qualify for this calculation. This criterion was established to ensure that each rater had a sufficient number of think-alouds to work with so that the average score was considered a better reflection of the subject’s performance. In the course of randomly distributing the statements, a rater may have received more than half of a subject’s statements for a given text. Coefficient alpha for the junkanoo passage was .86, and for the subway passage, it was .75. Scatterplots of the raters’ scores can be found in Appendix D.
The Conditions

The conditions are based on commonsense notions of the problems and goals of reading comprehension and they provide a framework against which the actions could be viewed and interpreted. The view of reading comprehension as a problem solving task (e.g. Chall, 1983; Resnick, 1987; Thorndike, 1917a,b) is implicit in the design of the conditions because it makes explicit some of the possible problems that one could encounter or some of the goals one could expect to accomplish in achieving reading with meaning. The problems describe potential snags that one would expect in reading and the goals describe some of the objectives of reading. The condition state is actualized before the reader acts because it triggers level of strategy use. The actions alone do not provide the impetus for understanding as the preconditions for understanding are conveyed in the design of the conditions. The conditions describe and provide the context for an action and for this reason they are nominal in nature. The classification of the data was based on twelve conditions but the actual analyses that will be reported in chapter five, were based on a collapsed version of the twelve conditions.\(^4\) The abridged version of six conditions along with descriptions and examples will be presented in the next section. The original twelve conditions along with descriptions and examples are given in Appendix D.

General Processing Condition

If the goal is to understand the text.....

This condition describes the major goal of reading comprehension and therefore strives to capture generalized processing strategies and the global processing of the texts. This condition differs from all others because it is heterogenous and could possibly cover all aspects of comprehension processing but it was limited to less specifiable elements of processing.

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\(^4\) The conditions were collapsed from twelve to six because all twelve conditions were not used often and it was more expedient to combine them with other related conditions.
Condition One implies specifically understanding the author's purpose through the use of inferencing, restatements, repetitions, questions and statements that reflect curiosity, desire to know more (such statements are neither statements of familiarity or unfamiliarity but statements more of understanding than of states of knowledge). Questions for clarification of text or extensions of text are also indicative of this condition.

_Examples: General Processing Condition_

_Protocol #15_

The traffic is at least three times more than the normal surface route.

*Probably because everyone wants to go on it.* #24351 [The subjects makes an inference based on what is stated in the text.]

_Protocol #16_

The drums continue to be made from goat or sheep's skins which are steeped in lime for several months. They are tautly placed over sale beef barrels or kegs and sun dried. In time they are heated to the desired tone or placed in a deep well.

The cowbells' construction have gone through few changes.

*Probably they change it around and make them - probably the things inside make the noise better.* #24351 [The reader offers a reason for the changes in the cowbells' construction.]

_Protocol #17_

As many as 76,000 people enter this transfer point during rush hour. Luckily most of the cars are spacious and air conditioned.

*Does that mean that more people just drive to the train station and go on the train and go some place faster because underground won't hold you up. And drop you off on the route station where a lot of other cars come and go?* #28351 [The reader is experiencing some confusion in processing and attempts to restate what is going on in the text.]
Familiar Condition

If the text is about something familiar....

This category implies the obvious use of background knowledge. This differs from number one in that the statement utilizes the familiar concept and in number one it is not clear whether the child's thoughts are accessing familiar or unfamiliar scripts. Explicit statements of knowledge use, knowledge telling, personal knowledge are evidenced in this condition. This condition was meant to describe specific ideas that related to the students' use of background knowledge in such cases for example of understanding an unfamiliar concept. Specific words or names that were recognised and commented upon are included in this category.

Examples: Familiar Condition

Protocol #18

Folklorists believe that junkanoo resembles the West African, John Canoe. It is an event said to be celebrated by the West African slaves. However, the origins of junkanoo are uncertain but there are several theories that exist about its beginnings.

I think it comes from Africa because the Bahamas and a lot of other Caribbean islands, people are descendants of the Africans - like African slaves. #63361 [The student uses his knowledge to speculate on the origins of junkanoo.]

Protocol #19

The traffic is at least three times more than a normal surface route.

Right there, I knew that it was underground, because I live on a surface route and I was thinking it wasn't a bus route where people drive underground. #66361 [In this example, the subject's knowledge of "surface" helps her to arrive at some understanding of subway.]

Protocol #20

On some Family Islands, rake and scrape materials are used while in the cities large drums, bugles, whistles, conch horns and cowbells are used.
You know how we sort of use all these things and what we have in parades when people march by and they have musical instruments and they sing and everybody is standing there watching them, it's this same sort of thing.

#09451 [The subject uses his familiar experience to associate and relate to what is stated in the text.]

**Unfamiliar Condition**

*If the text is about something new or unfamiliar.....*

This category is based on the recognition of something new or strange to the reader. The ideas here are again more central to the understanding of the text as the condition is based on idea or concept. All statements should reflect a lack of or recognition of limited knowledge of a concept.

This unfamiliar condition is the equivalent to condition two and strives to describe the protocols that depict processing of unfamiliar ideas. Instances of subjects attempting to capture this type of processing are given below.

**Examples: Unfamiliar Condition**

**Protocol #21**

All the stations are staffed by at least one collector. There are also automatic entrances which are monitored through close circuit television. All stations are equipped with fire fighting facilities.

*I never heard anything like this before.* #35352 [Recognition of the unknown.]

**Protocol #22**

How is it that the junkanoo has become almost obsolete in other countries but survived in the Bahamas?

*I don't even know why it survived in the Bahamas.* # 65361 [Recognition of lack of knowledge.]
Protocol #23

They are tightly placed over salt beef barrels or kegs and sun dries.

I didn’t know that they used salt beef barrels or kegs and sun dries them. #80362 [Student recognizes that the text has given her knowledge that she did not have.]

Text Problems Condition

If you find the text puzzling or difficult to understand.....

This condition was included to capture protocols that evidenced problems with the text such as unclear statements and text connections that the subjects might have found difficult. This was to help make evident any weaknesses in the construction of the text and also allowed for the citing of any problematic text parts. Statements that indicate some puzzlement and references to convoluted text are included in this category.

Examples: Text Problems Condition

Protocol #24

The driver of each train also controls the speed and the stopping of the train at various markers on the platform. The control Centre looks after emergencies, spacing of the trains and short turns. It is also responsible for calling trains into service especially during rush hour.

Trains? I thought we were talking subways. We're talking about subways and then it says trains....I don’t know. #62361 [The subject experiences some difficulty with the different terms used in the text.]

Protocol #25

The traffic is at least three times more than a normal surface route.

I don’t know what they mean when they say traffic, they don’t mean what I think. #52462 [This subject also experiences some confusion because what is stated in the text does not match her interpretation.]
At present, the Bahamas is the only place where junkanoo is celebrated as a national holiday on Boxing Day and on New Year's day. How is it that junkanoo has become almost obsolete in other countries but survived in the Bahamas?

Well, they still haven't said what junkanoo is and I'm wondering what it is. #54462 [The student recognizes that the text has not explained what junkanoo is and says so.]

Response to Text Questions Condition

If the text asks a question or prompts a response......

In the cases where the text questions, the rater should assign the statements to this condition. No other cases should be assigned to this condition.

This condition was included to capture specific responses that were prompted by the text. The text was so constructed that each passage asked questions to encourage the student to think out loud. This condition was designed to see whether this aspect of text was interpreted as a natural inclusion in the text or a specific part of the task, whether the children responded to specific text directives.

Examples Response to Text Questions Condition

Protocol #27

What does this mean for the subway system and the city of Toronto?

Well, I was thinking, they don't mention this in the story but it's kind of good that the Eaton Centre has the subway station and it enters right into the Eaton Centre with the doors and they do that too in some other places like Yorkdale too. They tell you how much they spent to make the transit system and everything and when it started in 1954, and they say how many jobs approximately every year. They're thinking what's going to happen in the year 2001. #18451 [The student responds to the text prompt by summarizing the text.]
Protocol #28

What is junkanoo and why is it important to know its history?

I believe that they’re trying to find out - like the people who do the celebration, like they’re trying to find out what it meant and what kind of celebration it was. #61361 [The student in responding to the text question, hypothesizes about the purpose for the question.]

Protocol #29

What does this mean for the subway system and the city of Toronto?

I guess it will mean that it will be busier and the places near the subway will make more money than the ones outside the town that are not near to shops or anything. #77362 [In responding to the question, the student predicts what will happen.]

Metacognitive Condition

If you reflect on your mental activities while you read.....

This condition refers to statements about mental activities such as any type of metacognitive statements concerning thinking and processing of the passages. This includes comprehension monitoring. Statements about feelings regarding the texts or their contents and statements concerning readers’ opinions about aspects of the texts also go into this category.

Examples: Metacognitive Condition

Protocol #30

In 1985, a record of 428 million riders used the Toronto Transit system.

I’ve got to read on to find out which one it really is. #23351 [The subject is monitoring his comprehension.]

Protocol #31

Subway routes and maps of the surrounding areas are also conveniently displayed. In addition to these features and facilities, there are numerous escalators. The St. Clair West station alone has 14!
I'm thinking that what I would say sounds only like copying off the book. You might think that that's what I did but I have that because there's a lot of escalators and things and St. Clair had 14 but that's what I want to say. #62361 [The student is aware that his response and the text statement are the same and that he is not copying because what he says is actually what he is thinking.]

Protocol #32

Needle and thread are basic for sewing the costume parts together. As today's costumes are more elaborate, huge wire frames are now used.

Elaborate - I can't really explain it. I'm thinking about it though. I only know the meaning, but I can show you something elaborate. #68361 [The student is aware of his thinking and inability to express what he wants. But, he is aware that he knows what the word means.]

Reliability of the Conditions

The raters were each given 332 of the subjects' verbalizations. Out of these 332 cases the raters agreed in 249 cases or 75%. Cohen's (1960) coefficient kappa for the percentage of inter-rater agreement was .75.

Postquestions

The Construction of the Postquestions

The questions listed below were administered orally after the subjects read each passage. The questions were presented randomly and were designed to capture any retrospective thoughts the subjects might have had about the texts or about what they had done. The first question was designed to obtain information on the children's general views of the passages, the second, to capture gist, the third, to examine recall and the fourth question, to gather any metacognitive thoughts or reflective kinds of views the students might have had about the texts. Meyer (1975, 1977) and others have noted the importance of text structure on children's recall of text and it would be of interest to examine the aspects of the texts that are recalled by the readers and the nature of
children's retrospection. These results can then be compared to and contrasted with the action results.

1. What did you think of the passage?
2. What was the passage about?
3. What do you remember about the passage?
4. Do you have any other thoughts on the passage or about what you have done?

The Analyses of the Postquestions

The analysis for the postquestions was influenced by the work of Bereiter (1988) and Burtis, Bereiter, Scardamalia and Tetroe's (1983) work on writing. For the analysis, the questions were subdivided into two categories RECALL and REFLECT, so that they were analyzed on the number and type of recall and on the quality of reflection. The questions were subdivided and categorized as follows:

| RECALL - What was the passage about? What do you remember about the passage? |
| REFLECTIVITY - What did you think of the passage? Do you have any other thoughts on the passage or about what you have done? |

Scoring of Postquestions

Scoring was based on the total response to one question. In cases where an answer reflected elements of both reflectivity and recall, the answers were parsed separately. Scores ranged from zero to three points.

The verbalizations were assigned on the basis of the scale given in its entirety in Table 4-2 and illustrated below with examples.
## Recall

### Recall: Level Zero

<table>
<thead>
<tr>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remembers comments</td>
<td>I can’t remember #21351 I don’t know. #03451</td>
</tr>
</tbody>
</table>

### Recall: Level One

<table>
<thead>
<tr>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global statements/supporting details</td>
<td>I think this story - it said how subways - which subways do the community live in- like subway help you in a very important way. #61361</td>
</tr>
<tr>
<td>This is the extent to which the response is covering global or general notions of what the text is about. In this category, globalness refers to simply stated general ideas or gist of junkanoo and subway. This category depicts how many specific or secondary details the statements included about the passages.</td>
<td></td>
</tr>
<tr>
<td>The story had subways and all that. #21351</td>
<td>I remember where they held it like in Africa. #03451</td>
</tr>
<tr>
<td>I remember that the TTC has over like, they have 59 stations. #08451</td>
<td>That lots of people take their cars- the streetcars to work. They take a streetcar, bus, trolley or subway and - it’s difficult. #04342</td>
</tr>
<tr>
<td>Description</td>
<td>Example</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>This category is intended to show the extent to which the response includes a main idea from one part of the text with supporting details. Responses that give one of the main ideas in the story with supporting details are included here. Qualified statements about the gist of the story are also indicative of this level.</td>
<td>Like they recycle the cars. They repair them and clean them and a lot of people use the subway instead of going -in a car, because then you have to pay a lot of money. #04452</td>
</tr>
<tr>
<td></td>
<td>I liked how they talked about how they made the costumes. #04452</td>
</tr>
<tr>
<td></td>
<td>I remember how they tell you how they make goat skin drums and sheep drums. They tell you how they used to make some of it. They didn't tell you how to make some of it but they tell you what they used to make some of them with like goat skin drums, conch shells and cowbells. #21351</td>
</tr>
</tbody>
</table>
### Recall: Level Three

<table>
<thead>
<tr>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>This category is intended to show the extent to which the sentence pulls together key information or main ideas from more than one part of the text. Responses that give two or more main ideas from the story with supporting details are classified here.</td>
<td>I remember who it's from and what they dress-up in and what how they used to make costumes and some instruments. #03451</td>
</tr>
<tr>
<td></td>
<td>Well, I remember that in the story they said what the drums were made out of. They said like how the costumes were made. What parts it took place in. They said other countries have similar ways of celebrating but and it's also held in Canada in Toronto. #24351</td>
</tr>
<tr>
<td></td>
<td>That subways are helpful and that it reduces the cars on the street and the city developed because of the subway. The subway developed more than the city developed and eventually there will be more people using the subway and eventually there will be more people using the subway now and they built the subway especially to reduce the traffic because if the police are coming through they wouldn't have time because of all the traffic. Subways are really helpful. #34462</td>
</tr>
</tbody>
</table>
### Reflectivity

#### Reflectivity: Level Zero

<table>
<thead>
<tr>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonmeaningful text extensions, simple unqualified statements about the text or task.</td>
<td>It was interesting. #03451</td>
</tr>
<tr>
<td></td>
<td>I like it. I like reading about the subway. It was interesting but I wouldn't want to read it again. #04452</td>
</tr>
</tbody>
</table>

#### Reflectivity: Level One

<table>
<thead>
<tr>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition/Evidence of new language learning. Qualified statements about the text or task. Statements of understanding/misunderstanding. More meaningful text extensions, statements of old knowledge.</td>
<td>I think it was a great story because it had Bahamian culture and it had a part of my culture because I'm a Bahamian and I take part in that culture. #32352</td>
</tr>
<tr>
<td></td>
<td>Well, it was very nice to know. I didn't know anything about junkanoo until the last time I read today.</td>
</tr>
</tbody>
</table>

#### Reflectivity: Level Two

<table>
<thead>
<tr>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferencing from text. Descriptions of new knowledge learning.</td>
<td>Well, I think it's informative. It tells you how far back this was started and it even asks how far you think it will go--you think it will die out. Well, I personally don't think so, actually it may as time pass, it may get boring and they would just forget it. Maybe not right away but maybe sometime in the 21st century. #27462</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Reflectivity: Level Three

<table>
<thead>
<tr>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluative, high level inferencing, metacognitive statements, integrative comments (text &amp; knowledge) forming conclusions, evidence of problem solving.</td>
<td>I remember where I heard this before--the test. it's like a parade that the black people do. they do it at christmastime and it's a tradition because a long time ago when they were slaves, they met this man john canoe-he had a plantation and on christmas day and new years he let his slaves go and have a party and they usually didn't do that and I guess that other plantation owners um did that and it sort of became a custom and after there were no more slaves, they still did it. #54462</td>
</tr>
</tbody>
</table>

---

**Reliability of the Postquestions Scale**

The responses to the postquestions were rated by the experimenter and one other rater after a brief period of training. Coefficient alpha was .77 and coefficient T for inter-rater agreement was .83. The previous figures were based on a random selection of ten percent of the data (N=40). The entire scale for the analysis of the postquestions is given below.
Table 4-2: The Postquestions Analysis Scale

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>RECALL</th>
<th>REFLECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Remembers nothing, affirmative or negative responses</td>
<td>Nonmeaningful off-task statements, simple unqualified statements</td>
</tr>
<tr>
<td>1</td>
<td>Remembers simple un-qualified global idea or gist, remembers supporting details</td>
<td>Simple unqualified opinions about text or task, simple statements of old/new knowledge or of understanding/misunderstanding</td>
</tr>
<tr>
<td>2</td>
<td>Remembers one main idea with supporting details, elaborates on global idea or gist</td>
<td>Qualified extensions of views on the text or task, awareness of old/new knowledge, text and knowledge consistencies or inconsistencies</td>
</tr>
<tr>
<td>3</td>
<td>Remembers two or three main ideas with supporting details, summarizes text</td>
<td>Awareness of processing, comprehension monitoring, forming conclusions about task or text, analysis of task or text, integration of old and new knowledge</td>
</tr>
</tbody>
</table>
Chapter 5

Results

Introduction

This chapter will present the results of the study. The results will encompass the data that were compiled beginning with the collection of the think-alouds and concluding with the posttests. The pertinent data collected prior to the thinking aloud sessions are reported in chapter three. Several different statistical techniques were applied to the data. The rationale for these will be discussed, and the significant results will be reported. This chapter begins with the verbalizations.

Verbalizations

Summary Table 5-1 displays the mean number of verbalizations made by the four country by skill groups on the two passages. It was expected that there would be more talking on the familiar texts and that the skilled readers would have a higher number of verbalizations. The table indicates that the skilled Canadians talked the most while the less skilled Canadians did the least amount of talking. The skilled and less skilled Bahamians performed somewhat similarly on both texts. Histograms of the verbalizations for each informative text by country and skill group are shown in Appendix E.
Table 5-1: Summary Table of the Verbalizations made by the four country skill groups on the two Passages.

<table>
<thead>
<tr>
<th></th>
<th>Junkanoo</th>
<th>Subway</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nassau</td>
<td>Toronto</td>
</tr>
<tr>
<td></td>
<td>Less</td>
<td>Skilled</td>
</tr>
<tr>
<td>Mean</td>
<td>18.23</td>
<td>19.59</td>
</tr>
<tr>
<td>N</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>11.11</td>
<td>10.06</td>
</tr>
</tbody>
</table>

Verbalizations by Paragraphs

The analysis of the verbalizations by paragraphs was undertaken to study the impact of text structure on the readers’ processing. This was done by paragraphs to pinpoint the source or area of variability or similarity. It was expected that the total number of verbalizations per paragraph would tend to be evenly distributed except for the first and last paragraphs which were expected to show a slightly higher total number of verbalizations by virtue of their location. Furthermore, it was felt that the profiles of the total number of verbalizations on the paragraphs for the four country skill groups would be similar both within and between texts.

A profile analysis was done for each of the informative texts to compare the number of verbalizations made by the four groups -- Nassau less skilled (Nlsk), Nassau skilled (Nsk), Toronto less skilled (Tlsk), Toronto skilled (Tsk) -- on the fourteen paragraphs. The enumeration of the paragraphs by text is given in Appendix C. Figures 5-1 and 5-2 show the profile for each text.

The profiles of the four country skill groups on the junkanoo text (see Figure 5-1) were similar. A test for parallelism of profiles, where parallelism implies no group by variable interaction, confirmed the parallelism hypothesis (see Manova Table E-1). It is clear that paragraphs 6 and 12 in this text showed
more vocalizations for all groups while paragraphs 5, 9, and 10 had fewer vocalizations for all groups.

The profiles of the four country skill groups on the subway text (see Figure 5-2) were similar. Again, a test for parallelism of profiles confirmed this to be the case (see Manova Table E-2). Peaks were noted for paragraphs 4, 5, 8 and 14 while lows were observed for paragraphs 2, 7, 10 and 12.

A test for the equality of the group means (over all paragraphs) on the junkanoo text indicated that there were significant group mean differences ($p < .05$). The ordering of the group means were as follows: Toronto less skilled ($M = 25$), Nassau less skilled ($M = 29$), Nassau skilled ($M = 30.6$), and Toronto skilled ($M = 45.7$).

On the subway text, the test for equality of group means showed no significant differences between the Nassau skilled and less skilled groups, but there were significant group mean differences between all other country skill groups ($p < .05$). The ordering of the group means were as follows: Toronto less skilled ($M = 21.9$), Nassau skilled ($M = 26.0$), Nassau less skilled ($M = 26.1$), and Toronto skilled ($M = 38.7$).

The detailed Manova results for the profile analyses can be found in Appendix E.
Figure 5-1: Profile of the Verbalizations for the Four Skill Groups on Junkanoo

Figure 5-2: Profile of the Verbalizations for the Four Skill Groups on Subway
Conditions

The conditions were collapsed from the original twelve to six categories, as some conditions were used infrequently. The crosstabulations of country skill group with conditions for each text are shown in Tables 5-2 and 5-3. It is clear from these two tables that some condition categories were used more frequently than others. Clearly the general processing and knowledge (familiar and unfamiliar) categories are dominant. When these conditions were combined, they accounted for more than 70% of the distribution of conditions for all the groups on the two texts. The remaining 30% were distributed amongst text problems, response to text questions and metalevel processing with the text questions category being used more frequently than the latter two condition categories.
Table 5-2: Crosstabulations of Skill group by Condition on the Junkanoo Text.

**Nassau**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Response</th>
<th>ROW PCT</th>
<th>COUNT</th>
<th>ROW PCT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General</td>
<td>Process-</td>
<td>Familiar</td>
<td>Familiar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LESS</td>
<td>190</td>
<td>91</td>
<td>36</td>
<td>10</td>
</tr>
<tr>
<td>SKILLED</td>
<td>47.4</td>
<td>22.7</td>
<td>9.0</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>192</td>
<td>84</td>
<td>51</td>
<td>27</td>
</tr>
<tr>
<td>SKILLED</td>
<td>44.5</td>
<td>19.5</td>
<td>11.8</td>
<td>6.3</td>
</tr>
<tr>
<td>COLUMN</td>
<td>382</td>
<td>175</td>
<td>87</td>
<td>37</td>
</tr>
<tr>
<td>TOTAL</td>
<td>45.9</td>
<td>21.0</td>
<td>10.5</td>
<td>4.4</td>
</tr>
</tbody>
</table>

**Toronto**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Response</th>
<th>ROW PCT</th>
<th>COUNT</th>
<th>ROW PCT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General</td>
<td>Process-</td>
<td>Familiar</td>
<td>Familiar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LESS</td>
<td>201</td>
<td>19</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>SKILLED</td>
<td>57.3</td>
<td>5.4</td>
<td>17.1</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>342</td>
<td>55</td>
<td>100</td>
<td>37</td>
</tr>
<tr>
<td>SKILLED</td>
<td>53.2</td>
<td>8.6</td>
<td>15.6</td>
<td>5.8</td>
</tr>
<tr>
<td>COLUMN</td>
<td>543</td>
<td>74</td>
<td>160</td>
<td>67</td>
</tr>
<tr>
<td>TOTAL</td>
<td>54.6</td>
<td>7.4</td>
<td>16.1</td>
<td>6.7</td>
</tr>
</tbody>
</table>
Table 5-3: Crosstabulations of Skill group by Condition on the Subway Text.

**Nassau**

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>General Response</th>
<th>ROW PCT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process-</td>
<td>Familiar</td>
<td>Familiar</td>
<td>Problem</td>
</tr>
<tr>
<td>LESS</td>
<td>188</td>
<td>55</td>
<td>33</td>
</tr>
<tr>
<td>SKILLED</td>
<td>50.9</td>
<td>14.9</td>
<td>8.9</td>
</tr>
<tr>
<td></td>
<td>165</td>
<td>62</td>
<td>32</td>
</tr>
<tr>
<td>SKILLED</td>
<td>45.1</td>
<td>16.9</td>
<td>8.7</td>
</tr>
<tr>
<td>COLUMN</td>
<td>353</td>
<td>117</td>
<td>65</td>
</tr>
<tr>
<td>TOTAL</td>
<td>48.0</td>
<td>15.9</td>
<td>8.8</td>
</tr>
</tbody>
</table>

**Toronto**

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>General Response</th>
<th>ROW PCT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process-</td>
<td>Familiar</td>
<td>Familiar</td>
<td>Problem</td>
</tr>
<tr>
<td>LESS</td>
<td>133</td>
<td>41</td>
<td>37</td>
</tr>
<tr>
<td>SKILLED</td>
<td>43.3</td>
<td>13.4</td>
<td>12.1</td>
</tr>
<tr>
<td></td>
<td>281</td>
<td>97</td>
<td>41</td>
</tr>
<tr>
<td>SKILLED</td>
<td>51.8</td>
<td>17.9</td>
<td>7.6</td>
</tr>
<tr>
<td>COLUMN</td>
<td>414</td>
<td>138</td>
<td>78</td>
</tr>
<tr>
<td>TOTAL</td>
<td>48.8</td>
<td>16.3</td>
<td>9.2</td>
</tr>
</tbody>
</table>
To explore further the observations made above, Manova was used to determine which conditions or combinations of conditions were used significantly more in classifying the verbalizations or think-alouds. Reported are country by condition differences as no significant skill by condition differences were found. The detailed Manova results can be found in Appendix Table F-1.

A significant three-way interaction was observed for country by text by condition on the contrast vector for the familiar versus unfamiliar condition ($F(1,84) = 21.64, p < .001$). To aid in representing this three-way interaction, the two-way interactions of country by condition are shown under each text condition (see Figures 5-3 and 5-4). In Figure 5-3 (junkanoo text), it is observed that most of the verbalizations for the Nassau subjects were placed in the familiar category whereas most of the think-alouds for the Toronto subjects were placed in the unfamiliar category. In contrast, Figure 5-4 (subway text) shows that most of the think-alouds for both the Toronto and Nassau subjects were placed in the familiar category.

In addition to the above three-way interaction, a significant two-way interaction ($F(1,84) = 6.52, p < .001$) was observed for country by condition on the contrast vector for the conditions text problems and response to text questions (i.e., conditions 4 and 5). Figure 5-5 depicts this interaction showing that of the think-alouds assigned to these two categories almost all of them were placed in the text problems category for both Nassau and Toronto with Toronto showing a somewhat higher proportion.
Figure 5-3: Two-way interaction of country by condition under the junkanoo text

Figure 5-4: Two-way interaction of country by condition under the subway text
Figure 5-5: Two-way interaction for country by condition
Finally, three other contrast vectors showed significant main effects for condition. The first contrasted the general processing category (condition 1) against the combined familiar, unfamiliar, text problems, and response to text question categories (conditions 2, 3, 4, and 5). This contrast showed that significantly more ($F(1,84) = 344.52, p < .001$) of the think-alouds were assigned to the general process category ($M = .48$) than to any other category or combinations of categories ($M = .08$). The second significant contrast vector contrasted the combined familiar, unfamiliar categories (conditions 2 and 3) with the combined text problems, response to text question categories (conditions 4 and 5). This showed that the proportion of think-alouds assigned to the combined familiar, unfamiliar category ($M = .13$) was significantly higher ($F(1,84) = 207.59, p < .001$) than the proportion assigned to the the combined text problems, response to text question category ($M = .03$). The last significant contrast vector was used to contrast the last category, meta level (condition 6), with categories 1 to 5 (i.e., conditions 1 to 5). This showed that a significantly higher ($F(1,84) = 63.19, p < .001$) proportion of the think-alouds were assigned to the combined conditions 1 to 5 ($M = .16$) than were assigned to condition 6 ($M = .07$).

**The Action Scale**

From the review of the literature, it was hypothesized that the culturally familiar texts would yield higher action scores for all subjects. It was also expected that the difference in performance between the skill groups would be less on the familiar texts than on the unfamiliar texts. Since raters did not necessarily receive the same number of protocols for each subject, mean action scores were computed on the junkanoo and subway texts by pooling the action scores assigned by both raters over all the protocols for a given subject. Figure 5-6 shows the mean action scores for the country skill groups on both texts.
A number of salient features are worth noting in Figure 5-6.

(1) Nassau readers showed a higher overall mean action scores on both texts than did the Toronto readers.

(2) Skilled Nassau readers showed only a small difference (.07) in mean action scores on their familiar and unfamiliar texts while the less skilled Nassau readers showed virtually no difference (.01). In contrast, both Toronto skill groups showed a big difference in mean action score between their familiar and unfamiliar texts (a difference of .20 for the skilled group and a difference of .26 for the less skilled group).

(3) Lastly, the difference in mean action scores between the Nassau skill groups was small on their familiar text (.1) and negligible on their unfamiliar text (.01) while the difference in mean action scores between the Toronto skill groups was large on both their unfamiliar (.26) and familiar texts (.20).

A Manova was done to determine the significant sources of variation.
Manova results for Action

Tests of the between-subjects effects showed significant main effects for country group \((F(1,84) = 15.55, p < .001)\) and for skill group \((F(1,84) = 6.82, p < .05)\). Nassau readers showed higher overall mean action score \((M=1.57)\) than did Toronto readers \((M=1.35)\). As expected, skilled readers showed higher overall mean action score \((M=1.53)\) than did less skilled readers \((M=1.39)\).

Tests of the within-subjects effects showed that the only significant sources of variation were the country by text interaction \((F(1,84) = 25.29, p < .001)\) and the text main effect \((F(1,84) = 14.26, p < .001)\). (See Manova Table F-2.) The mean action scores of the Nassau readers on the junkanoo and subway texts were almost identical \((1.58 \text{ vs } 1.55)\). In contrast, the mean action scores of the Toronto readers on the junkanoo and subway texts were substantially different \((1.24 \text{ vs } 1.46)\); see Figure 5-7. Since the country by text interaction was of the ordinal type, the significant text main effect was interpreted independently of the country by text interaction. The mean action score for the subway text \((M = 1.51)\) was significantly higher than the mean action score for the junkanoo text \((M = 1.41)\).
Figure 5-7: Country by text interaction on action scale for the combined skill groups.
Postquestions

It was expected that the results from the postquestions would support what was found on the action scale, as similar skills were being measured. It was hypothesized that the subjects’ performance would be higher on the familiar texts and lower on the unfamiliar texts. On both the recall and reflective measures it was predicted that familiarity would result in higher scores particularly for the less skilled subjects.

Recall

Results for recall indicated that familiarity resulted in higher performance. This was the case for the Bahamian skill groups and for the skilled Canadians. However the less skilled Canadians scored higher on their unfamiliar text ($M = 1.31$) than on their familiar text ($M = 1.16$). The Manova analysis showed no significant between-subjects effects. Analysis of the within-subjects effects showed a significant text difference ($F(1,65) = 6.98, p < .01$) on the overall performance on the Junkanoo and Subway passages. The overall mean Subway and Junkanoo scores were 1.43 and 1.63, respectively. See summary Tables G-1 and G-2 and Manova Table G-3.

Reflect

Reflect scores generally indicated the strong influence of familiarity. This was true for all but one of the groups. Again, the less skilled Canadians showed a higher average on their unfamiliar text ($M = 1.25$ for junkanoo versus $M = .89$ on subway). There were no significant between-subjects effects or within-subjects effects on the reflectivity measures. See summary Tables G-4 and G-5 and Manova table G-6.
Posttest Results

Again, it was expected that familiarity would result in higher scores on the cloze and on the multiple choice tests for all four country skill groups. The summary tables from the cloze and multiple choice tests (see Tables 5-4 and 5-5) indicated that the means of the less skilled groups for both countries were higher on their familiar texts for the multiple choice and cloze tests. However, the skill groups from both countries scored higher on their familiar texts on the multiple choice tests and higher on their unfamiliar texts for the cloze test. The two skill groups showed essentially no differences due to text on the cloze tests.

Cloze Measures

The scoring procedures for the cloze measures are similar to the procedures used by Lipson, Wixson and Paris (1983). A rational deletion procedure was used to delete nouns and verbs at strategic points in the texts. Old and new information was used for the tests. A score of two points was assigned to the correct word or a semantically and syntactically appropriate word; one point to a semantically or syntactically appropriate word and; zero to an answer that was neither syntactically or semantically acceptable. Copies of the tests along with the answers are given in Appendix B. Results for the cloze test are shown in summary Table 5-4 and displayed in Figure 5-8. Examination of Figure 5-8 shows that skilled readers scored higher than the less skilled readers and that the Toronto skilled readers did better on both texts than did the skilled Nassau readers. Also, the skilled readers did equally well on their familiar and unfamiliar passages. For the less skilled groups, Nassau readers showed higher mean cloze scores on both texts than did their Toronto counterparts. Unlike the skilled groups, less skilled readers did slightly better on their familiar text than on their unfamiliar text. A Manova was conducted to determine which of these differences were significant.
Table 5-4: Summary Table of cloze results for the four country skill groups on the junkanoo and subway passages.

<table>
<thead>
<tr>
<th></th>
<th>Junkanoo</th>
<th></th>
<th>Subway</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nassau</td>
<td>Toronto</td>
<td>Nassau</td>
</tr>
<tr>
<td>Less</td>
<td>65.81</td>
<td>75.91</td>
<td>63.90</td>
</tr>
<tr>
<td>Skilled</td>
<td>57.81</td>
<td>80.67</td>
<td>61.81</td>
</tr>
<tr>
<td>N</td>
<td>21</td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>11.56</td>
<td>14.91</td>
<td>9.26</td>
</tr>
</tbody>
</table>

Figure 5-8: Figure of Mean Cloze Scores for the Country Skill Groups on Junkanoo and Subway.
Tests of between-subjects effects showed significant effects for skill \((F(1,84) = 63.62, p < .001)\) and for the country by skill interaction \((F(1,84) = 5.43, p < .05)\). Less skilled Nassau readers had a higher mean cloze score \((M = 64.86)\) than did the less skilled Toronto readers \((M = 59.81)\). The reverse was the case for the skilled readers (see Figure 5-9). Toronto skilled readers had a higher mean cloze score \((M = 80.65)\) than did the skilled Nassau readers \((M = 76.23)\). There were no significant within-subjects effects. See summary Table 5-4 and Manova table G-8.

![Graph showing Skill by Country Interaction for Cloze.](image)

**Figure 5-9**: Skill by Country Interaction for Cloze.

**Multiple Choice Measures**

There were seventeen multiple choice questions which were scored right or wrong (copies of the tests along with their answers can be found in Appendix B). Results for the multiple choice test are shown in summary Table 5-5 and displayed in Figure 5-10. Examination of Figure 5-10 shows that all four country skill groups did better on their familiar text than on their unfamiliar text, and as expected, skilled readers from both countries did better than less skilled readers. Also, Toronto readers showed the greatest difference in mean performance
between their unfamiliar and familiar texts. This was noticeably more than what was observed for the Nassau readers. A Manova was conducted to determine which of these differences were significant.

<table>
<thead>
<tr>
<th></th>
<th>Junkanoo</th>
<th></th>
<th>Subway</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nassau</td>
<td>Toronto</td>
<td>Nassau</td>
</tr>
<tr>
<td>Less</td>
<td>Skilled</td>
<td>Skilled</td>
<td>Skilled</td>
</tr>
<tr>
<td>Mean</td>
<td>8.05</td>
<td>11.18</td>
<td>6.91</td>
</tr>
<tr>
<td>N</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>3.15</td>
<td>2.70</td>
<td>2.20</td>
</tr>
</tbody>
</table>

Table 5-5: Summary Table of Mean Multiple Choice results for the four country skill groups on the junkanoo and subway passages.

Figure 5-10: Figure of Mean Multiple Choice Scores for the Country Skill Groups on Junkanoo and Subway.

Tests of the between-subjects effects showed that there were significant main effects for skill ($F(1,83) = 71.99, p < .001$) and country ($F(1,83) = 7.45, p < .01$). Skilled readers scored higher ($M = 11.50$) than less-skilled readers ($M = 7.96$). Toronto readers scored higher ($M = 10.34$) than Nassau readers ($M = 9.19$). Tests of the within-subjects effects showed a significant country by text
interaction ($F(1,83) = 58.62, p < .001$) (see Figure 5-11), and also a significant main effect for text ($F(1,83) = 22.11, p < .01$). Examination of Figure 5-11 shows that the difference in mean scores on the unfamiliar and familiar texts was substantially higher for Toronto (3.65) than for Nassau (.84).

![Figure 5-11: Country by Text interaction for Multiple Choice.](image)

**Correlations**

It was expected that the action results would correlate significantly with some of the other outcome measures. To see if this was the case, the action junkanoo scores and the action subway scores were correlated with each other first and then with the other outcome variables: verbalizations, conditions, the Gates total scores and the cloze and multiple choice scores. This was done for each of the four groups -- Nassau less skilled, Nassau skilled, Toronto less skilled, Toronto skilled -- under each text type.

The correlations of the action junkanoo with action subway scores shown in Table 5-6 were all statistically significant for each of the four country skill groups.
Table 5-6: Correlations of Action Junkanoo with Action Subway scores by Country and Skill.

<table>
<thead>
<tr>
<th>Country/Score</th>
<th>Less Skilled</th>
<th>Skilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nassau</td>
<td>.68***</td>
<td>.67***</td>
</tr>
<tr>
<td>(N)</td>
<td>(22)</td>
<td>(22)</td>
</tr>
<tr>
<td>Toronto</td>
<td>.57**</td>
<td>.63***</td>
</tr>
<tr>
<td>(N)</td>
<td>(21)</td>
<td>(23)</td>
</tr>
</tbody>
</table>

**p < .01; ***p < .001

Verbalizations and Action scale

The next correlations of interest were between the number of verbalizations made by readers and their action scores. Did the excessive talkers receive higher action scores? Table 5-7 shows one significant positive correlation (p < .05) between action junkanoo scores and the number of verbalizations for the less skilled Toronto group. Furthermore, examination of the scatterplots in Appendix H shows that for the nonsignificant correlations most of the scatter was random indicating no association between the number of verbalizations and action score. In the case of the one significant correlation, examination of that scatterplot suggests this was due to an outlier.
Table 5-7: Correlations of Action Scores with Number of Verbalizations
(ActionJ = Junkanoo, ActionS = Subway)

<table>
<thead>
<tr>
<th>Correlation of</th>
<th>NASSAU</th>
<th>TORONTO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less Skilled</td>
<td>Less Skilled</td>
</tr>
<tr>
<td>Action J with NJ (N)</td>
<td>.27</td>
<td>-.18</td>
</tr>
<tr>
<td>Action S with NS (N)</td>
<td>.07</td>
<td>-.09</td>
</tr>
</tbody>
</table>

*p < .05  **p < .01  ***p < .001
**Conditions and Action Scale**

To determine the relationship of high and low action scores with the condition categories, crosstabulations were done. It was of interest to see if there was a noticeable pattern in which the action levels (levels zero to three) were assigned to the six different conditions. The crosstabulations (see Appendix H) showed that overall, the general processing category was used more frequently than any other condition category for all action levels for all four skill groups on the two passages. At the zero action level, the second predominant condition category was not clear as each skill group showed different results but the second predominant condition category for all other action levels was consistent for all four skill groups on the two texts. At the level one for action the condition following the general processing category was unfamiliarity and for action levels two and three it was familiarity.

**The Action Scale and Gates**

No positive correlations were expected between Gates total (GatesT) scores and action since the GatesT was used to separate the skill groups. Table 5-8 confirms this. As expected, there were no significant positive correlations between GatesT and action (p > .05).
**Table 5-8:** Correlations of Action Scores with Gates Total score (GatesT).

<table>
<thead>
<tr>
<th>Correlation of ActionJ with GatesT (N)</th>
<th>Less Skilled</th>
<th>Less Skilled</th>
<th>Less Skilled</th>
<th>Less Skilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASSAU</td>
<td>.14</td>
<td>-.05</td>
<td>-.22</td>
<td>-.09</td>
</tr>
<tr>
<td>TORONTO</td>
<td>(22)</td>
<td>(22)</td>
<td>(21)</td>
<td>(23)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlation of ActionS with GatesT (N)</th>
<th>Less Skilled</th>
<th>Less Skilled</th>
<th>Less Skilled</th>
<th>Less Skilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASSAU</td>
<td>-.11</td>
<td>-.00</td>
<td>-.01</td>
<td>-.10</td>
</tr>
<tr>
<td>TORONTO</td>
<td>(22)</td>
<td>(22)</td>
<td>(21)</td>
<td>(23)</td>
</tr>
</tbody>
</table>
Multiple Choice and Cloze with Action Scores

Table 5-9 shows the correlations for action junkanoo and action subway with multiple choice and cloze on junkanoo and subway. It was expected that the action scores and multiple choice and cloze scores would have correlated significantly with each other as measures of learning. The only significant correlation was between action junkanoo and multiple choice junkanoo for the skilled Nassau readers.

Table 5-9: Correlations of Action Scores with Multiple Choice (MC) and Cloze Tests Scores for Subway (S) and Junkanoo (J)

<table>
<thead>
<tr>
<th></th>
<th>Nassau Less-Skilled Readers</th>
<th>Nassau Skilled Readers</th>
<th>Toronto Less-Skilled Readers</th>
<th>Toronto Skilled Readers</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTION-J</td>
<td>.03</td>
<td>-1.11</td>
<td>.07</td>
<td>-1.00</td>
</tr>
<tr>
<td>ACTION-S</td>
<td>-.23</td>
<td>-.29</td>
<td>.20</td>
<td>-.07</td>
</tr>
<tr>
<td>(N)</td>
<td>(22)</td>
<td>(22)</td>
<td>(21)</td>
<td>(21)</td>
</tr>
</tbody>
</table>

*p < .05
Path Analyses

To aid in understanding the causal relationships between the variables in the two country groups, path analysis was used. Separate analyses were carried out for the Nassau and Toronto groups. Correlations between all variables for each country group are shown in Figures 5-10 and 5-11. Note that each subject was entered in the computation twice, once for each text. Therefore, significance levels were adjusted for this double entry of subjects.

Table 5-10: Raw Correlations of the Variables for the Nassau Path Model.

<table>
<thead>
<tr>
<th></th>
<th>AGE</th>
<th>IQ</th>
<th>GATES</th>
<th>WRAT-R</th>
<th>PRETEST</th>
<th>FAMIL</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQ</td>
<td></td>
<td>-.28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GATES</td>
<td>.04</td>
<td></td>
<td>.51***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRAT-R</td>
<td>-.01</td>
<td>.46**</td>
<td>.62***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRETEST</td>
<td>.08</td>
<td>.16</td>
<td>.21</td>
<td>.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAMIL</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
<td>.84***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTION</td>
<td>-.13</td>
<td>.04</td>
<td>.06</td>
<td>.08</td>
<td>-.02</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>POSTTEST</td>
<td>.12</td>
<td>.47**</td>
<td>.69***</td>
<td>.47**</td>
<td>.03</td>
<td>-.23</td>
<td>-.08</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Table 5-11: Raw Correlations of the Variables for the Toronto Path Model.

<table>
<thead>
<tr>
<th></th>
<th>AGE</th>
<th>IQ</th>
<th>GATES</th>
<th>WRAT-R</th>
<th>PRETEST</th>
<th>FAMIL</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQ</td>
<td>-.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GATES</td>
<td>-.34*</td>
<td></td>
<td>.64***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRAT-R</td>
<td>-.37*</td>
<td>.43**</td>
<td>.58***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRETEST</td>
<td>-.08</td>
<td>.16</td>
<td>.18</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAMIL</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
<td>.91***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTION</td>
<td>-.18</td>
<td>.17</td>
<td>.27</td>
<td>.22</td>
<td>.46**</td>
<td>.45**</td>
<td></td>
</tr>
<tr>
<td>POSTTEST</td>
<td>-.28</td>
<td>.49**</td>
<td>.57***</td>
<td>.37*</td>
<td>.73***</td>
<td>.67***</td>
<td>.55***</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001
In the path analysis, the choice of exogenous and endogenous variables was based on two assumptions. First, it was assumed that the pre-measures -- age, IQ, Wrat-R, Gates, pretest, and familiarity -- would influence the post-measures -- action and posttest, but that the reverse was not true. Second, it was assumed that action could influence performance on the posttest but again not the reverse.

Figures 5-12 and 5-13 show the results of the path analysis for Bahamas and Canada respectively. The path coefficients shown there are based on standardized regression weights. The path model for the Bahamians shows that age, IQ, Gates, and familiarity predicted posttest. However, none of the exogenous variables predicted action. Of the four exogenous variables that predicted posttest, only Gates and familiarity had statistically significant path coefficients. The picture one gets from the path model for the Canadians is very different from that of the path model for the Bahamians. In the Canadian path model, IQ, Gates, action, and familiarity predicted posttest. All these path coefficients were statistically significant with the exception of action. Furthermore, both Gates and familiarity predicted action, and both path coefficient were statistically significant. To allow for the comparison of the effects of the different variables across the two country groups, the path models shown in Figures 5-12 and 5-13 are presented again in Figures 5-14 and 5-15 in terms of the nonstandarized path regression coefficients.

It should be emphasized that because the subjects were entered into the computations twice and the subsequent manipulations of the significance levels to reflect this double entry, these path analysis findings are to be regarded as only suggestive of the causal relationships that may be present.
Figure 5-12: Recursive path model for Nassau with standardized path coefficients.

Figure 5-13: Recursive path model for Toronto with standardized path coefficients.
Figure 5-14: Recursive path model for Nassau with path regression coefficients.

Figure 5-15: Recursive path model for Toronto with path regression coefficients.
Chapter 6

Discussion of the Results

Summary of the Major Findings

Although a variety of empirical results have been examined in the preceding chapter, the results converge on three major findings which are as follows:

1. Students in both countries and at both skill levels performed better on the culturally familiar text. This was true both of their posttest performance on measures of comprehension and learning and of their levels of strategy use while reading the texts.

2. Bahamian students at both skill levels showed generally higher levels of strategy use than Canadian students, regardless of whether they were reading culturally familiar or unfamiliar texts.

3. Among the Canadian students, level of strategy use was positively related to both reading ability and reading comprehension measures whereas among the Bahamian students level of strategy use was not correlated with any other individual difference variable.

These results point to significant country differences in the level of strategy use by the subjects while clearly confirming the influence of knowledge on comprehension processing.

Relationship to Previous Research Findings

The finding that comprehension was superior for all subjects on the culturally familiar text is in agreement with the large body of research, reviewed in Chapter 2, demonstrating the importance of background knowledge for text comprehension (e.g. Bransford & Johnson, 1972; Chiesi, Spilich & Voss, 1979;
Pearson, Hansen & Gordon, 1979). The results demonstrate the dominance of the influence of knowledge on several measures. Results from the conditions indicate that after the general processing category, more of the familiar category was assigned to the familiar texts for the four skill groups than any other condition. These results are also supported by the action scores which generally increased with familiarity for all groups. Correlations of action and condition also bear these results out as they indicated that when the familiarity condition was assigned, in most cases, the action scores were either level two or three but seldom level zero or one. These findings together imply that prior knowledge influenced the students' performance. The results support clearly the work of Anderson (1977), Rumelhart & Ortony (1977), Schank & Abelson (1977) on schemata which suggest that knowledge provides a framework for building understanding. This view implies that when knowledge or "scaffolding" is absent, comprehension would become increasingly difficult. These results also generally support those studies that have examined knowledge from a cultural perspective (e.g. Lipson, 1983; Reynolds, Taylor, Steffensen, Shirley & Anderson, 1982; Steffensen, Joag-Dev, & Anderson, 1979) which again demonstrate the influence of background knowledge on learning.

The relationship between level of comprehension strategy use and cultural familiarity has not been investigated previously, and so no predictions could be made on the basis of previous research. The finding of a positive relationship is, however, consistent with the view of Chi (1978, 1985) and others that cognitive strategies are developed first within domains of high knowledge and are subsequently transferred to less familiar domains. Had the results come out in the opposite direction, they could have been explained by the widely accepted premise that comprehension strategies are invoked to deal with difficulties and are not applied routinely (Johnston & Afflerbach, 1985). The present results cannot be taken as disconfirming this premise, however, because it can always be
argued that the use of comprehension strategies is prima facie evidence that comprehension difficulties were encountered and being dealt with (e.g. Johnson & Byrd, 1983; Paris. Lipson & Wixson, 1983; van Dijk & Kintsch, 1983). The texts' profiles on verbalizations revealed parallel performance for the fourteen paragraphs for the four skill groups. This suggests that subjects' spontaneous strategy use was triggered at essentially the same points. Strategy use might have been encouraged by text difficulties as the texts contained both old and new information to challenge readers. In the present case, this could mean that students tried harder to solve comprehension problems with the culturally familiar text because they perceived the problems to be solvable, whereas with the unfamiliar text they may have been more inclined to give up on statements that referred to things totally outside their knowledge. This would be true particularly for the Canadian subjects who scored significantly higher on their familiar text.

In addition to differences in performance on the familiar and unfamiliar text, significant skilled and less skilled differences emerged for the Canadian subjects. It was expected that skilled and less skilled differences would be less on the familiar text than on the unfamiliar text, as the less skilled readers would have had fewer problems with text processing and would have been able to allocate more attention to meaning as processing demands would have been decreased. The action results indicate that the less skilled readers were able to decrease the margin of difference with the skilled Canadian readers on the subway text by .06 points less than the junkanoo text but the skilled readers were still ahead significantly by .20 points on the subway text. While familiarity obviously helped the less skilled Canadians, it did not do very much for bridging the gap between them and the skilled Canadians in terms of the level of strategies used. A significant difference in performance also persisted on all the other measures in the study. This implies that differences other than knowledge could have contributed to the results of the less skilled readers. Skilled readers, too,
could have capitalized on the strength of their knowledge to push ahead more easily with skilled processing thereby outpacing their less skilled counterparts. This type of performance by both skilled and less skilled readers is supported very strongly by the literature (e.g. Anderson, 1977; Frederiksen, 1979; Olshavsky, 1976/77; Perfetti and Lesgold, 1977).

The performance of the skilled and less skilled Bahamians was quite different from that of the Canadians. Their results, as indicated earlier in the discussion, generally demonstrated higher scores for the familiar texts. This was clearly demonstrated by the skilled Bahamians, whose junkanoo and subway action scores were substantially different $M = 1.63$ for junkanoo versus $M = 1.55$ for subway). However, the less skilled Bahamians demonstrated almost identical scores for both texts ($M = 1.53$ on junkanoo versus $M = 1.54$ for subway). This means that the less skilled Bahamians scored higher than the less skilled Canadians on the subway text. What is also different about the performance of the Bahamians is that their mean average scores for both passages were higher and their combined means were higher overall when compared to the Canadians.

The group that contributed most significantly to the overall higher action scores of the Bahamians is the less skilled group. This group is singled out because the literature on strategies is replete with studies that list the incapacities or deficits of less skilled readers (e.g. Brown & Palincsar, 1982; Golinkoff, 1975-76; Ryan, 1982). In this case, the less skilled readers excelled even though they showed significant differences between the skilled readers in the study and the less skilled Canadian readers on the standardized measures. An examination of the IPAT and Gates scores (Appendix A) would indicate significant differences between country groups and within skill groups ($p < .01$). Some of the possible reasons for this higher level of strategy use will be discussed later on in this chapter but it is possible that less skilled readers are capable and
are able to perform quite competently at higher levels when certain conditions are met (Lipson & Wixson, 1986). Perfetti (1977) found no strategy differences between high and low skilled readers and he notes that there is a lack of findings to suggest any major strategy differences in children or adults who are alike in overall cognitive development but different in reading achievement. McConaughy (1986) also found no differences between good and poor sixth grade readers in quality or accuracy of their recall summaries. The performance in these cases and in the case of this thesis, strongly question the commonly held assumptions about the strategy deficits of less skilled readers. Reading (dis)ability is not necessarily static and there is evidence of variability in skill and strategy use under different conditions as demonstrated here and supported in the literature (Johnston et al., 1985 & McConaughy, 1986).

The correlations and path analyses indicated very different results for the Bahamian and Canadian subjects and strongly question the influence of knowledge and strategy use on other variables in the thesis and in general. The correlations for the Canadians indicated that several variables correlated positively with action and posttests whereas the correlations for the Bahamians indicated no significant positive relationships for action and only four variables correlated positively with the posttests. The action scores for the Bahamians failed to correlate with familiarity, WRAT-R, IQ, Gates or the posttests. For the Canadians, action scores correlated significantly with familiarity, pretest, WRAT-R, Gates and posttests. IQ however, failed to correlate with action for the Canadians as did age for the two country groups. This was most likely due to the restricted range of ages in the population.

The posttests indicated significant correlations for both countries with pretest (tests of knowledge), WRAT-R, IQ, and Gates. This would be expected given that these were all forms of paper and pencil tests of learning. What is observed for the Bahamians however, is the lack of correlation with familiarity and action whereas for the Canadians these were significant correlations.
The path analyses further tested the relationships between the variables in the study. What is absent from the path analyses are the postquestions. The postquestions results were very disappointing in that in the preliminary correlations, the two categories, the recall and the reflection responses, failed to show any positive significant relationship with any of the other variables in the study. This compounded with other problems of insufficient data in some categories led to its exclusion from the path analyses calculations. Insufficient data for some of the subjects could have been due to fatigue. The postquestions were asked at the end of the experimental session and some of the subjects could have been tired. It was expected that the action scale would have predicted the postquestions but this did not happen. Instead, the results indicated for both country groups, a lack of correlation with recall or reflectivity.

Readily noticeable in the path analyses is the replication of the findings of the correlations. The performance of the Canadians on action in their path analysis, validates the scale for the conditions and actions. The correlations and path analyses indicate the positive relationship between action and other variables in the study for the Canadians while a nonexistent relationship is shown for the Bahamians. Given that similar kinds of cognitive skills are being tested on action and the other measures in the study, it was expected that some relationship would have been manifested.

The posttests results revealed differences in the path coefficients on the familiarity variable for the Bahamians and Canadians. This seems to imply that the Bahamians collectively scored higher on the subway posttests than the Canadians did and that familiarity did not make a difference for the Bahamians. The negative path coefficient for familiarity on posttests can be accounted for in how the scores were formed. Standardized measures were used in the posttests scores for the subway and junkanoo tests and although the Bahamians showed slightly higher raw scores on their familiar posttest measures, the variability of
their scores on familiarity was greater than the variability on the unfamiliar posttests scores. This contributed to the negative path coefficients. In addition, because of the number of variables entered into path analyses computations, the resulting interrelationships often reduce the size of the path coefficients.

The finding that Bahamian students, regardless of skill level, exhibited overall, higher levels of comprehension strategy use than the Canadian students is interesting, but it does not by itself pose a challenge to existing beliefs about reading comprehension. The same cannot be said about the correlational findings, however. Here, the results for the Canadian students were in agreement with numerous other North American studies showing that more skilled readers use more sophisticated comprehension strategies and that strategy use results in superior comprehension and learning (e.g. Anderson & Armbruster, 1982; Hansen & Pearson, 1983; Olshavsky, 1976-77). The failure to replicate these findings in the Bahamian sample, however, poses a challenge to reading comprehension theory. How much of a challenge is posed depends on what alternative explanations are considered. Theory and research do not appear to offer any direct way of explaining these two findings, and so it will be necessary to look outside that area for explanatory hypotheses. The next section will be devoted to that effort.

Explanatory Hypotheses

In this section a variety of candidate explanations are considered for the twin findings of (1) overall higher levels of strategy use of Bahamian students, regardless of reading skill level, and (2) failure of level of strategy use to correlate with pretest and posttest variables in the Bahamian sample. The present study does not provide a basis for definitive choice among competing explanations for these unforeseen results. However, certain observations can be made about the plausibility, explanatory adequacy, and implications of various hypotheses. The
hypotheses discussed in the following paragraphs differ considerably in plausibility and scope, but appear worthy of consideration.

1. **Bahamians had more knowledge than the Canadians.** Upon initial examination of the results, it seems that an almost instinctive reaction is that the Bahamians had more knowledge than the Canadians. Indeed, an examination of the results of the pretests or the tests of knowledge in chapter three indicates some differences in the scores of the Bahamians on the subway text compared to the scores of the Canadians on the junkanoo text. It seems obvious to conclude that the Bahamians had had more knowledge of the subway than did the Canadians of junkanoo. Is this "knowledge" that the Bahamians had adequate enough to have allowed the Bahamians to have performed as they did? Bransford (1984) discusses a similar question in his critique of schemata. Schema theory is not specific on what accounts for sufficient or insufficient background information to generate or foster understanding but from a general perspective, it would seem that the information that the Bahamians had was "sufficient" as it provided a framework which could have assisted them in filling in gaps which may not have been completely specified in the text (Omanson, Warren & Trabasso, 1978). This would also help to explain why the Canadian subjects scored as they did on the junkanoo text given that they had little or no idea or concept of junkanoo. The words "subway" and "junkanoo" are very different. Subway automatically activates some type of connection to "transportation" whether one has experienced the subway or not but junkanoo does not activate a similar type of response as it is an unfamiliar word to people who are not a part of that culture. The Canadians then, would have had to work harder to form inferences and make connections with festival or parade to make sense of the junkanoo text. Bransford and Johnson (1972) have demonstrated that without some initial clues, comprehension of text may be difficult. However, as the tests of knowledge results indicate, the "ideational scaffolding" that the
Bahamians had for subway, was not of the same quality or structure as the Canadians’ knowledge of subway and given their "stronger framework", the greater were the chances for concepts to be understood, classified and retrieved from long term memory (Anderson, Spiro, & Anderson, 1977). Therefore, the Canadian skilled and less skilled readers with more extensive knowledge were expected to utilize their background knowledge to understand the text of the subway text and consequently, achieve a higher score than Bahamians did with less knowledge. The hypothesis that the Bahamians had more knowledge than the Canadians is inadequate in explaining why the Bahamians, skilled and less skilled were able to demonstrate higher levels of strategy use on the subway story.

However, it is fair to say that some students often do not access their background knowledge when processing text and that strategy use differs in the degree to which people spontaneously utilize potentially available information (e.g. Brown, Bransford, Ferrara & Campione, 1983). Prior knowledge is often overlooked or bypassed even when it does not make sense to the reader (Markman, 1977, 1979) and background knowledge has been found to interfere with processing in the presence of new information (Alvermann et al, 1985; Maria & MacGinitie, 1987). Sharkey (1986) notes a sharp distinction between the availability and utilization of knowledge in the literature and even though the knowledge may have been available for the Canadians, particularly the less skilled Canadians, their degree of spontaneous utilization could have been inhibited by other processing demands. Familiarity does not always mean that the subjects are necessarily interested in a topic and by the same token that unfamiliarity means students would be interested also. However, it is difficult to imagine all subjects in a study having similar or dissimilar tastes in two topics. Thus because the conditions for accessing knowledge during comprehension and the conditions under which strategy use is encouraged are unclear in the literature, only speculations can be made as to why the Canadians did not show overall a higher level of strategy use than the Bahamians did on the subway text.
2. *Bahamians did more comprehension monitoring.* It could be that the Bahamians were doing more monitoring or metacognitive kinds of processing than the Canadians were doing. Executive level kinds of strategizing are related to higher levels of comprehension processing (Brown, Bransford, Ferrara & Campione, 1983). The distribution of the conditions in chapter 5 indicates that the metalevel processing condition was higher for the unfamiliar texts for all four skill groups. What is interesting about these results is that the skilled and less skilled Bahamians were consistent in their use of this condition for both passages (less skilled, 6.2% junkanoo; 6.5% subway; skilled, 7.2% junkanoo; 7.9% subway) while the Canadians showed a different picture. Skilled Canadians did more monitoring on their unfamiliar text (10.0% on junkanoo compared to 5.4% on subway) while less skilled did more monitoring on their familiar text (8.5% on subway compared to 2.8% on junkanoo). These results imply that the Canadians showed differences in the times when they monitor while the Bahamians were generally the same for both texts but with slightly higher levels for their unfamiliar text. Consistent use of this condition may have contributed to the overall higher level of strategy use by the Bahamians but this is uncertain because there were occasions when the Canadian skilled and less skilled groups did more monitoring than the Bahamians. Baker and Brown (1982) note that monitoring may not be effective without enough background information on the topic. In this case, the results are unclear because the skilled Canadians did more monitoring with less knowledge while the Bahamians did equal amounts with different levels of knowledge. The explanation for the performance of the Bahamians could not be narrowed to higher levels of comprehension monitoring.

3. *Cultural specificity of relations between comprehension strategies and performance.* This hypothesis, if correct, would have devastating implications for reading comprehension theory. On first consideration a cultural specificity hypothesis appears plausible as often within a given culture there may be
differences, as between males and females in the factorial structure of ability measurements (Bereiter, 1960). However, there is more to the relationship between cognitive strategies and performance than mere empirical correlation. Comprehension strategies are believed to be effective methods of solving comprehension problems. Therefore to suggest cultural specificity is to suggest that what works for comprehending a text in North America does not work in the Bahamas. It is hard to imagine how this could be true. It seems like saying that a way of solving equations that works in one culture may not work in another, even though they are the same equations. One condition under which a cultural specificity hypothesis could be true, however, is if there really is not a functional relationship between strategies and performance, so that the correlation found in North American research merely reflects some third variable to which they are both related.

4. *Invalidity of tests for the Bahamian students.* If the paper-and-pencil tests used to assess reading skill and comprehension are valid for the Toronto students but not for the Bahamian students, this could explain both the problematic results. It could mean that the Bahamian students were not only more active readers (as indicated by their action scores) but also more skillful readers, a fact hidden by the invalid measures used. And the lack of correlation between level of strategy use and test variables could merely indicate that the test variables did not measure what was intended. The extent to which achievement tests are culturally biased remains a controversial issue, which need not be argued here. It should be pointed out, however, that in order for the invalidity hypothesis to explain the results, it is necessary that the tests be more than simply biased in giving low scores to the Bahamian students. That would explain why their mean performance scores were lower than those of the Toronto students, in spite of their higher levels of strategy use. But it would not explain why the strategy scores failed to correlate with performance scores. To explain
that result, it would have to be claimed that the paper-and-pencil tests failed to discriminate validly even within the Bahamian population. The research on test bias fails to provide a basis for such a claim.

5. Motivational differences. The explanation here would be that the Bahamian students, particularly those in the less skilled group, simply tried harder than their Canadian counterparts to comprehend the texts. This hypothesis would account directly for their higher levels of strategy use. Less directly, it could also account for the correlational differences. Less skilled readers, if highly motivated, might show high levels of comprehension strategy use but still not score as well on comprehension measures, because of other factors limiting their performance. Accordingly, level of strategy use would not correlate with performance.

The problem would remain, however, of accounting for the hypothesized motivational differences. Several obvious explanations suggest themselves, but can be called into question. One is race of the experimenter: that the experimenter's being black may have had a positive effect on the Bahamian students or a negative effect on the Canadians. It must be pointed out, however, that the principal of the Canadian school was also black, and that the Bahamian students were accustomed to both black and white teachers. Another obvious explanation is the novelty of participating in an experiment. However, as far as could be ascertained from questioning school personnel, the students in neither school had participated in research before, so the novelty effect would have been uniform. Possibly, however, the one-to-one experience with an adult in an educational setting was more novel to the Bahamian students and therefore elicited more effort.

Another possibility is that of the task. The task of verbal reporting could have been more compatible with one country group than the other. However, from the researcher's personal experience with both Canadian and Bahamian
children on academic and social levels, it would seem that both Canadian and Bahamian children are equally talkative. However, it should be noted that generally, Bahamian children, for the most part, engage in a different more formal style of communication with adults (teachers and parents) than do Canadian children who seem to have a more informal manner. In addition, tests of intelligence (IPAT) and comprehension (Gates) (reported in chapter three) which are all highly correlated with verbal ability and other cognitive skills, indicate that both Canadian skilled and less skilled groups achieved significantly higher scores than their Bahamian counterparts. In addition, the distribution of the verbalizations (reported in chapter five) indicate that the Canadian skilled readers did more talking than any other group while the less skilled subjects did the least amount of talking. However, there was no significant positive correlation with verbalization and action (p < .01) for all four skill groups.

Interestingness and text structure influence the comprehensibility of a passage (Hidi & Baird, 1983, 1984; Meyer, Haring, Brandt, & Walker, 1980; Schank, 1979) and it is possible that the Bahamians may have found the subway more interesting because of its novelty and might have been motivated to a higher levels of strategy use. The Canadians generally, may not have found the subway such an interesting topic because of its regularity in every day life while junkanoo could have been more interesting to all groups. However, while this might be true, both texts had similar numbers of new information to keep both groups of readers interested. Hidi and Baird (1986) note that unusual and unexpected information help to maintain subjects' interest. While no formal analysis of the two passages was made, (such as using Kintsch or Meyer's systems) efforts were made to examine the surface and structural features of both texts albeit, informally. These analyses indicated that the two passages had similar structural qualities.

A somewhat more complex possibility involves an interaction between
motivation and skill level. Perhaps in North American schools experimental and
test conditions have a positive motivating effect on more skilled students and a
negative effect on less skilled ones, whereas in the Bahamas such conditions—at
any rate, the fairly informal conditions used in this experiment—had a positive
motivating effect on all students. Differences in the organization of the schools
and classrooms could have had some influence on the performance of the students
in some form. The organization of the Canadian and Bahamian schools was
different in that The Canadians classes were streamed according to ability
whereas the Bahamians were not streamed. Most of the less skilled Toronto
subjects came from the same regular class while the majority of skilled Canadians
came from the French immersion class. The Bahamian groups equally
represented the two grade sixes in the school. Each country less skilled group had
children who had been retained from the previous year. However, the special
assistance offered in the Canadian school was not offered by the Bahamian school
for anyone in grade six. It is possible though, that expectations about the less
skilled Toronto children’s ability could have carried over to their performance on
the action scale. Testing such a conjecture would require ethnographic study of
classroom conditions affecting self-concept and academic effort. If some form of a
motivational hypothesis is correct, this would also have serious implications for
reading theory. It would imply that less skilled readers have comprehension
strategies available (and consequently do not need to be taught them), and that
their problems arise from lack of motivation to use them. Motivation as a
mediating factor in educational research and particularly in the area of reading
comprehension, remains as area for much more investigation (Paris, 1988).
Holmes (1976) claims that as much as 22% of the variance in comprehension
remains unexplained and he in turn attributed this to "sustained effort and
desire to know" (Holmes, 1976, p.195).

6. Cultural differences in learning and thinking styles. Anthropologists
accept that cognitive processes are universal but that cognitive content varies according to cultural values and norms (e.g. Boas, 1965; Levi-Strauss, 1966). Cognitive style is a hypothetical construct that has been developed to explain the process of mediation between stimuli and responses (Goldstein & Blackman, 1978). People are said to differ in their style of conceptualizations and may be either analytic or global in their approach to learning. Subsequently, cultural differences have been identified in learning styles. Witkin and Goodenough (1981) distinguished cultures favoring an analytic, individualistic or field-independent style from cultures favoring a social, group-oriented or field-dependent style\(^5\). Kagan and his collaborators have also identified the reflection-impulsivity cognitive style of learning (Kagan et al, 1964). How such differences might be translated into differences at the level of comprehension strategies and reading comprehension strategies, and how such differences might in turn account for the results of the present study, are not clear. In general, however, a cognitive styles hypothesis would suggest that the observed strategic behavior reflected different underlying cognitive behavior in the two populations. This would imply, then, that the strategy level scores for the two populations are not really comparable, and so nothing can be inferred from the discrepant results. Although such a hypothesis cannot be rejected, it also cannot be very helpful until research provides some basis for interpreting observed strategic behavior in the light of underlying cognitive style differences. Evidence that argues against a stylistic hypothesis is the fact that the strategy level scores were equally reliable in both populations, as shown by the correlation between level scores on the two texts for the four skill groups. Although this does not rule out the possibility that the scores reflect different underlying cognitive behavior in the two populations, it at least indicates that the level scores are not mere noise in either population.

Raters, who were blind as to which population protocol statements came from, did not report any particular difficulties in rating that would suggest the statements from one cultural group were of a different kind from the other's. Acceptable reliability scores also support this. In addition, extensive after-the-fact examinations of the protocols also failed to identify any stylistic differences related to country. The Bahamian students seemed to show the same varieties of strategy-related statements as the Canadian students, except that they showed a higher frequency of the more highly-rated types.

Of the explanatory hypotheses discussed, no single one emerges as decidedly more plausible or powerful than the rest. Since the hypotheses are not mutually exclusive, some combination of them may prove most satisfactory. The findings now will be summarized in response to the questions asked at the beginning of the dissertation in chapter one. Directions for future research and implications of the results will follow this section.

Response to the Questions

Question #1:

What reading comprehension levels of strategy use can be inferred when skilled and less skilled subjects read culturally familiar and less familiar texts?

Firstly, it is clear that background knowledge or familiarity influenced comprehension for both the Canadians and Bahamians. However, familiarity seemed to have affected strategy levels only in the Canadian group. For skilled and less skilled Canadians, strategy level improved with familiarity but for the Bahamian groups text background did not affect strategy level. This means that the relationship of skill level to strategy level on familiar and unfamiliar text remains conditional because of the country differences in the performance of the two populations.
**Question #2:**

What is the influence of knowledge on comprehension of text and to what extent do children use their knowledge to construct meaning?

From the results of the study, knowledge does have an influence on comprehension of text in that it helped all groups to achieve higher scores. However, country differences are shown in the extent to which children utilize their knowledge in constructing meaning. On the familiar text for the Canadians, familiarity made a significant difference in their performance as familiarity did for the Bahamians on junkanoo. On the unfamiliar passages, however, it seems that some knowledge is necessary for connections to be made. For the Bahamians this could have made a big difference in how they performed while the Canadians had to work harder to form connections given that when knowledge of a topic is absent, comprehension might be more difficult (Bransford & Johnson, 1972). The extent to which children use their knowledge is therefore dependent on different factors which may be related to one's culture.

**Question #3:**

When are poor reader strategy levels like good reader strategy levels?

Poor reader strategy levels can be like good reader strategy levels. For the Canadians, the less skilled readers seldom performed consistently like the skilled readers but under familiar conditions, it would seem that they could begin to narrow the gap. On the subway text, the less skilled Canadians demonstrated much higher level of strategy use. Level of knowledge and higher level of performance seem to be positively correlated in the literature (Frederiksen, 1979; Hocevar, 1975; Rousch, 1972; Taft & Leslie, 1985). For the Bahamians, it would seem that when certain conditions are met, for example, task and reader motivation, less skilled reader strategies can be similar to their skilled counterparts (McConaughy, 1985). Taken together, the results point to the
affirmative but this needs to be qualified: less skilled readers can perform like their skilled counterparts when certain conditions are met. Task, motivation, and knowledge are a few of the factors that could influence performance.

**Question #4:**

Do skilled and less skilled readers from different countries demonstrate similar levels of strategy use?

No, skilled and less skilled readers from different countries do not demonstrate similar levels of strategy use. Skilled readers and less skilled readers were easily identified within their country groups on the standardized measures. This implies that within country groups, norms for categorizing students prevail but that when these groups are compared cross-culturally, there will be some differences manifested due to cultural differences in education and society. However, this has not ruled out generalities as on the familiar text, the readers from the two countries performed similarly in that they all demonstrated higher levels of strategy use. However, sharp differences were shown on how the groups scored on the less familiar text which implies a strong cultural element influencing behavior.

**Question #5:**

Do comparable levels of knowledge decrease/increase performance differences across and within cultural groups?

Within cultural groups, there is a greater chance for comparable levels of knowledge to decrease performance differences as other variables and cultural factors are more constant and equal. Across cultural groups, there is a greater opportunity for variability which even when levels of knowledge are comparable could result in increased performance differences. This is particularly relevant to less skilled groups. Within a given cultural group, they stand a better chance for lessening differences with their skilled counterparts when comparable levels of
knowledge exist but when these groups are compared cross-culturally, even with similar levels of knowledge, performance differences would most likely increase. The results of this study show that the less skilled Canadians performed more like their skilled counterparts when knowledge was more comparable.

**Future Research**

The significance of the findings vis-a-vis the strategies and knowledge interrelationship is clear; strategic level of operation is not solely dependent on knowledge levels but on the interaction of other factors which need to be identified in further research. It seems natural that research originating from this thesis would want to explore the cultural or affective variables that may have accounted for the different performances. A replication of this research would be needed to establish larger degrees of generalizability. Replication is also important because the findings of this study, if valid, cast doubt on well-established findings of North American research on reading comprehension. As it is now, the results are limited to the present research population. The scale needs to be tested further for reliability and validity through additional research. Several refinements in procedure would be helpful in narrowing the range of possible explanatory hypotheses. For instance, a balancing of experimenters—one from each culture, each testing half of both samples—would serve to control for possible experimenter effects. It would also be advisable to include measures of attitude, motivation, and cognitive style, so as to test hypotheses about the relevance of those variables.

The present study raises questions about the causal role of reading strategies in the two cultures that can only be answered by experimental intervention. That is, we need to find out whether strategy teaching of the kinds that North American studies have found to be effective in improving reading comprehension performance have similar effects in a Bahamian population. If
they do, this would tend to disconfirm the cultural specificity of relations between comprehension strategies and performance hypothesis and the hypothesis of cultural differences in learning and thinking styles discussed earlier and would more strongly suggest that the correlational results are artifactual. On the other hand, if strategy training did not have similar effects, this would tend to strengthen hypotheses which suggest cultural specificity.

The practical implications of such research are obvious, especially as they pertain to the exporting of instructional methods to less developed countries. So long as it is assumed that comprehension processes and the strategies that support them are universal, then it is logical to prescribe the same basic sort of strategy instruction world-wide (with appropriate adjustments in reading material, lesson formats, and the like). But if this universality does not hold, then it will be important to do more fundamental research in various cultures to identify what kinds of strategies or other cognitive behaviors are most beneficial for students in each culture. The present study does not provide suggestions as to what the appropriate cultural variations might be, but it does provide evidence suggesting the need to conduct experimental studies that will find out.

The specific questions arising from this research bear the potential for future studies and direction. These are as follows:

1. How can children of varying reading comprehension abilities be encouraged to utilize and integrate their existing knowledge in reading?

2. What levels of constructive effort are evidenced in the learning of culturally familiar and unfamiliar text?

3. What levels of comprehension monitoring exist in the processing of familiar and unfamiliar texts?

4. What are the conditions for more conscious, goal-directed comprehension processing in middle and high school students?

5. Which conditions are more conducive for poor readers performing like more like good readers?
6. What cross-cultural similarities and differences exist in product and process oriented tasks?
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Trei

Trei


Appendix A

This appendix contains the following:

1. Letter to parents
2. Copies of the pretests or tests of knowledge
3. Manovas for the pretests
4. IPAT results
5. Gates verbal and comprehension results
6. Tests of significance for Gates verbal and comprehension results
7. WRAT-R results
8. Teachers’ Ratings results
9. Breakdown of subjects’ ages
10. Practice stories for thinking aloud
Dear Parents or Guardians,

I am a doctoral student at the Ontario Institute for Studies in Education. This letter is to ask your permission for your son or daughter to participate in a study that I am required to do in order to complete my studies.

The research is concerned with how students use their knowledge when they are reading familiar and unfamiliar stories. The students will be tested and placed in two groups. These tests are written tests and will take three to four days to administer. Each day will require no more than one to two hours of testing. Following the testing, the children will be introduced to a method of reading called thinking-out-loud. This method will encourage the students to think about what they are reading and it will allow the researcher to understand what children do when they read. After the children have become familiar with the method, they will then meet with the researcher individually. During this time, they will read stories. These sessions will be tape recorded. This section of the study will be carried out over a period of 5-6 weeks. Each child will visit the researcher about 2-3 times during this period with each session lasting about 15-20 minutes.

All the information gathered from this project will be confidential and will be used for the sole purposes of the research. No other agencies or persons will have access to the test scores or taped readings. The children who have participated in the pilot study for this research, have found the study very interesting and helpful. Some said that they did not realise how much thinking was involved in reading. Your child should also find this study interesting and helpful. It will certainly help him/her to become more aware of what is going on when reading.

I hope that you will consent for your child to participate in this research. The future of educational advancement is dependent upon the continuation of research. This research should add considerable insight to what is known about reading.

I look forward to hearing from you and to working with your child in furthering our knowledge on how children learn.

Please indicate your approval by signing and returning the attached form. Thank you.

Sincerely Yours,

Gertrude M. Tinker.
Parental Consent form

September, 1986.

I ____________________________, hereby give my permission for my child,  
Please print your name.

____________________________, to participate in the study that is being con-  
Please print your child's name.

ducted by Gertrude Tinker of the Ontario Institute for Studies in Education. I will lend  
my support to this research by encouraging my child to attend the sessions once s/he has been  
selected. I understand that my child may withdraw if s/he feels the need to do so.

____________________________ _______________________
Signature Date
Pretests: Marking Scheme

The fill-in-the-blanks tests to establish levels of knowledge was marked by appropriateness of response to the actual context of the topic. This was an open-scored test which means that alternate answers were acceptable as long as they were contextually correct.

Pretest: Junkanoo

NAME __________________________ AGE _____ GRADE ______

DIRECTIONS: PLEASE FILL IN EACH BLANK WITH ONE WORD TO COMPLETE THE SENTENCE.

1. Junkanoo is a ____________ that can be seen in the Bahamas.

2. On Boxing Day and New Years morning, you can wait on ____________ for the ____________.

3. To rush is to ____________ in the ____________.

4. Junkanoo starts at ____________ and ends at ____________.

5. The participants wear ____________ __ made from ____________.

6. Cowbells are for ____________.

7. Goat skinned ____________ are for ____________.

8. The Musicmakers, Valley Boys and ____________ are ____________.

9. Fire is used to ____________ the ____________.

10. People jump the ____________ to get to the other side of the ____________.
11. Large ________________ are pulled or pushed on the ________________.

12. The ________________ of the ________________ is carried by two persons in the ________________.
Pretest: Subway

NAME __________________________ AGE _____ GRADE ________________

DIRECTIONS: PLEASE FILL IN EACH BLANK WITH ONE WORD TO COMPLETE THE SENTENCE.

1. The subway is a _______________ system of ________________ .

2. The platform is where the _______________ wait for the ________________ .

3. A whistle blows to tell the _______________ that the _______________ will ________________ .

4. TTC is the _______________ _______________ ________________ .

5. To enter, one should _______________ for the people to ________________ .

6. A map showing all the stations can be seen above the ________________ .

7. As you come into the station, you can see the _______________ of the station on the ________________ .

8. Tokens are put in the _______________ at the ________________ .

9. Use your _______________ when you leave the _______________ to board a ________________ .

10. Use the _______________ or _______________ exit the ________________ .

11. If you miss your stop, you can _______________ the next train going in the ________________ direction.
Table A-1: Manova Results for Pretest

**Tests of Between-Subjects Effects.**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
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<tr>
<td>WITHIN CELLS</td>
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<td>1631.92</td>
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<td>478.49</td>
<td>40.07</td>
<td>.000</td>
</tr>
<tr>
<td>COUNTRY BY SKILL</td>
<td>.11</td>
<td>1</td>
<td>.11</td>
<td></td>
<td>.925</td>
</tr>
</tbody>
</table>

(Corrected Model)          | 1206.80 | 3  | 402.27 | 33.69  | .000     |

(Corrected Total)           | 2209.91 | 87 | 25.40  |        |          |

R-Squared = .546
Adjusted R-Squared = .530

**Tests involving 'STORY' Within-Subject Effect.**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
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<td>.000</td>
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<td>SKILL BY PRETEST</td>
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<td>20.38</td>
<td>1.85</td>
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<tr>
<td>COUNTRY BY SKILL BY</td>
<td>172.05</td>
<td>1</td>
<td>172.05</td>
<td>15.61</td>
<td>.000</td>
</tr>
<tr>
<td>PRETEST</td>
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<td></td>
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</tr>
</tbody>
</table>

(Model)                    | 9173.91 | 4  | 2293.48| 208.03| .000     |

(Total)                    | 10100.00 | 88 | 114.77|       |          |

R-Squared = .908
Adjusted R-Squared = .904
**Table A-2:** Crosstabulation of Country Group by Skill Group for IPAT Scores.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>SKILL</th>
<th>MEAN</th>
<th>N</th>
<th>LESS SKILLED</th>
<th>SKILLED</th>
<th>ROW TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STD DEV</td>
<td>LLED</td>
<td></td>
</tr>
<tr>
<td>COUNTRY</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>92.64</td>
<td>102.68</td>
<td>97.66</td>
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<td>12.89</td>
<td>12.59</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>98.67</td>
<td>113.74</td>
<td>106.55</td>
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<td>95.58</td>
<td>108.33</td>
<td>102.10</td>
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<td></td>
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<td>10.08</td>
<td>45</td>
<td>12.35</td>
<td>12.93</td>
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<td>24.33</td>
<td>35.98</td>
<td>30.28</td>
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**Table A-3:** Crosstabulation of Country Group by Skill Group for GATES Verbal Score.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>SKILL</th>
<th>MEAN</th>
<th>N</th>
<th>LESS SKILLED</th>
<th>SKILLED</th>
<th>ROW TOTAL</th>
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<td></td>
<td></td>
<td>STD DEV</td>
<td>LLED</td>
<td></td>
</tr>
<tr>
<td>COUNTRY</td>
<td></td>
<td></td>
<td></td>
<td>22.73</td>
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<td>22</td>
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<td>22</td>
<td>4.75</td>
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<td></td>
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<td>26.00</td>
<td>37.17</td>
<td>31.84</td>
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<td>TORONTO</td>
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<td>21</td>
<td>4.45</td>
<td>23</td>
<td>4.92</td>
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<td>43</td>
<td>5.00</td>
<td>45</td>
<td>4.94</td>
<td>7.66</td>
</tr>
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</table>
**Table A-4:** Crosstabulation of Country Group by Skill Group for GATES Comprehension Score.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>LESS SKILLED</th>
<th>SKILLED</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASSAU</td>
<td>21.05</td>
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<td>22</td>
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<td>7.53</td>
<td></td>
</tr>
<tr>
<td>TORONTO</td>
<td>23.19</td>
<td>35.09</td>
<td>29.41</td>
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<tr>
<td>21</td>
<td>23</td>
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<tr>
<td>5.15</td>
<td>4.66</td>
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<td>COLUMN TOTAL</td>
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<td>43</td>
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<td></td>
</tr>
<tr>
<td>5.04</td>
<td>4.99</td>
<td>7.70</td>
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</tr>
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</table>

**Table A-5:** Univariate F-tests for Skill Effect for Gates Verbal and Gates Comprehension Scores.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth. SS</th>
<th>Error SS</th>
<th>Hypoth. MS</th>
<th>Error MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>GATESV</td>
<td>2950.83</td>
<td>1942.03</td>
<td>2950.83</td>
<td>23.12</td>
<td>127.63</td>
<td>.000</td>
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<tr>
<td>GATESC</td>
<td>2972.47</td>
<td>2029.34</td>
<td>2972.47</td>
<td>24.16</td>
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<td>.000</td>
</tr>
<tr>
<td>D. F. (1,84)</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Table A-6:** Univariate F-tests for Country Effect for Gates Verbal and Gates Comprehension Scores.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth. SS</th>
<th>Error SS</th>
<th>Hypoth. MS</th>
<th>Error MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>GATESV</td>
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<td>1942.03</td>
<td>213.28</td>
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</tr>
<tr>
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<td>2029.34</td>
<td>158.23</td>
<td>24.16</td>
<td>6.55</td>
<td>.012</td>
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<td>D. F. (1,84)</td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Variables

- **MEAN**: The average score for the given category.
- **STD DEV**: The standard deviation for the given category.
- **N**: The number of observations in the category.
- **LESS SKILLED**: The group with lower skill.
- **SKILLED**: The group with higher skill.
- **TOTAL**: The total column sum for the category.

### Coefficients

- **Hypoth. SS**: Hypothesized sum of squares.
- **Error SS**: Error sum of squares.
- **Hypoth. MS**: Hypothesized mean square.
- **Error MS**: Error mean square.
- **F**: F-value for the test.
- **Sig. of F**: Significance level of the F-value.
Table A-7: Crosstabulation of Country Group by Skill Group for WRAT Total Score.

<table>
<thead>
<tr>
<th>SKILL</th>
<th>MEAN</th>
<th>N</th>
<th>STD DEV</th>
<th>LESS SKI</th>
<th>SKILLED</th>
<th>ROW TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNTRY</td>
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</tr>
<tr>
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<td>22</td>
<td>44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.39</td>
<td>7.34</td>
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</tr>
<tr>
<td>TORONTO</td>
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</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>7.88</td>
<td>8.22</td>
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</tr>
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<td>43</td>
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<tr>
<td></td>
<td>7.08</td>
<td>7.82</td>
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</table>

Table A-8: Crosstabulation of Country Group by Skill Group for Teacher Placement Score.

<table>
<thead>
<tr>
<th>SKILL</th>
<th>MEAN</th>
<th>N</th>
<th>STD DEV</th>
<th>LESS SKI</th>
<th>SKILLED</th>
<th>ROW TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1.04</td>
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<td>.98</td>
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</tr>
<tr>
<td>COLUMN TOTAL</td>
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<tr>
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<td>0.77</td>
<td>1.02</td>
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</tbody>
</table>
Whole Class Modelling Session: Garbageology!

Should the science of archaeology - or at least a branch of it - really be called garbageology?

Archaeology is the study of ancient ruins, in hope of finding in them clues to the society that lived at the ruin site. Classical archaeologists dig for artifacts - arrowheads, broken pieces of pottery, cooking utensils, articles buried with the dead. From them, scholars can reconstruct the people’s diet, their concepts of religion, their social organization. Once in a while carvings - such as those found on the Rosetta Stone - decipher an ancient people’s language.

In a way, archaeology is the study of ancient garbage - the bits and pieces of a culture which somehow survive - in order to understand the people who produced it. But is it only ancient garbage that is so revealing? What about modern garbage?

Archaeologist William Rathje, at the University of Arizona, decided to see what he could learn by applying standard archaeological technique to modern garbage. Four years ago he began conducting a course (known on the campus as "Garbageology") at the Tucson Sanitation Maintenance Yard. Students in the course, wearing surgical masks and rubber gloves, pick through the garbage of the City of Tucson, hoping to draw conclusions about the culture that produced it.

Among the diggings, the students have unearthed sets of false teeth, and a pair of silver studded motorcycle boots. The students are encouraged to draw their own conclusions about what these artifacts mean.

But the garbageology course has also produced some interesting statistics.
The students have calculated, for example, that Tucson families throw away about ten percent of the food that they buy - enough to feed about 4,000 people. Garbage produced by middle-income families shows more waste than garbage from either the poor or the rich.

Low-income families, the students conclude, eat as much meat as those who are better off, and surprisingly consume more vitamins - but they also eat more bread and drink more.

During the beef shortage of 1973, Tucson householders threw away about nine percent of the beef that they were buying - a remarkable statistic. Some guess that people were buying unfamiliar cuts and not liking them. But it is also possible that Tucsoners were hoarding meat in the face of the shortage - just overbuying - and then throwing it away.

Although garbageology probably will never become a standard college subject, the studies at the University of Arizona serve two purposes. First, they offer a different perspective on our own culture - a sort of worm's eye view of who we are and how we behave. Second, the studies offer a check on standard archaeological reasoning. If we cannot figure out just what those silver-studded motorcycle boots mean, can we be certain we understand those broken pieces of ancient pottery?
Whole Class Practice Session: The Cleverest Treasure Burial

Oak Island, off the southern shore of Nova Scotia, Canada, holds possibly the most mystifying buried treasure of all time. Treasure hunters are almost certain that a treasure is there. They even know exactly where. They just haven't been able to get it out of the ground.

Hundreds of people have been trying, over a period of nearly 200 years. All told, they've spent more than $1,500,000 in their efforts.

It all started in 1795, when three young persons exploring Oak Island found a single towering oak with the sawed-off stump of a limb bearing marks of rope and tackle. Below that stump, a twelve-foot-wide indentation in the ground gave them the idea that something was buried there. All their lives these local youths had heard handed-down stories of pirates who had once used remote Nova Scotia bays for their hideouts.

In the years that followed, the three youths did a lot of digging. In the years since, many more people have done much more digging - using increasingly complex, sophisticated machinery and equipment. What they found only increased the certainty that treasure is buried there - buried with incredible cunning by a team of skilled engineers who alone knew how to get the treasure out again.

Every ten feet down, an platform had been fitted into the original shaft. At ninety-three feet, layers of charcoal, ship's putty, and mats of coconut fiber were found. Below that was a large flat stone.

At that level, the hole flooded; so did a new shaft sunk next to the first. All subsequent efforts have also resulted in flooding, despite the most skilled, professional methods of underground damming and diversion.

A drill has reached down 170 feet, where the bit stuck an iron plate. On the way down, at ninety-eight feet, the drill struck two oak chests, one atop the
other, and from them the auger brought up two tiny links of pure gold chain. But the chests evidently were to act as a decoy. At 151 feet the drill penetrated a cement chamber, it is believed, the real treasure rests.

Who put the treasure there? Some believe that during the French and Indian War over 200 years ago, the French spirited away their gold from the French fortress at Louisbourg to safeguard it from the British. France's military engineers were then the best in the world, quite able to construct such an impenetrable hiding place.

So far, after nearly two centuries of trying, no one has been able to crack that subterranean, sea-flooded safe.
Small Group Practice Session: Rattlesnake!

There is probably no sound in nature more chilling than the "hiss" of a diamondback rattlesnake. With good reason: the Western diamondback has killed more people than any other snake. It is easily excitable, very aggressive, frequently hungry, and deadly poisonous.

Yet it doesn't really hiss. Like all other rattlesnakes, it shakes its tail. A mature rattler can move its tail up and down between fifty and a hundred times a second! The hollow rattles on the tail, beating against each other, create the "hissing" sound.

Why do they have rattles? Rattlesnakes molt three times a year, shedding their outer layer of skin each time. But near the tail, the molting is not discarded. In time, it hardens and hollows out, becoming another rattle. If a snake never lost any rattles you could tell its age by counting them and dividing by three.

Do the snakes need their rattles? They cannot be used as a mating call, for rattlesnakes are deaf. They are not a sign of hunger, for snakes with full stomachs rattle as often as hungry ones. And in the wild, the rattling scares, rather than attracts, prey.

Scientists believe snakes use rattles merely to warn larger animals not to step on them - a function more important in ages past when rattles shared the plains with sixty million buffaloes!

Rattlesnakes are one of the most advanced forms of "pit" vipers - animals who possess a sixth sensing organ. (Five, really, since they cannot hear.) The pit organ is like an infra-red radar sensor.

Located in the snake's head, the pit organ can sense differences in temperature between inside and outside itself - differences as small as 1/100 of a degree. Not only can rattlesnakes sense, therefore, the presence of another
animal - or a human - but they apparently can instantly determine its direction and range. Rattlesnakes don’t feed on people of course. With their venom, they may kill humans, but only in what they think is self-defense.

What good are rattlesnakes? Their principal diet of mice and rats makes them valuable to the ecology of the West.
Individual Practice Session: "Take the Bride and Run"

The wedding was about to begin. The groom came down the road with a band of relatives armed with clubs. He stole the bride from her hut as she screamed, kicked and cried. The bride’s parents threw rocks and spears after the newlyweds, and the bride’s father led a search party to find them. The newlyweds hid out for a few days. The wedding was over. "Take the bride and run" was a typical wedding procedure in many lands for centuries. Called marriage by capture, it sounds more like a battle than a wedding; nevertheless that was the custom.

The ceremony looked more frightening than it really was. Both the bride and her parents knew the groom was arriving. The shouting and the anger were all symbolic. Both the bride and her parents, you see, were sad to see the wedding, since it meant that the bride would no longer be living at home. All the commotion was symbolic of the sadness. Marriage by capture was popular long before the marriage by love that we have today.

Romance, in fact, was a very late invention. In ancient times and even through the Middle Ages, love marriages happened only in legends or folk tales. Love was not a reason for marrying until about the eighteenth century.

Marriage by capture started because originally people lived by warfare, and women were scarce. Then the custom survived in mock or symbolic ceremonies like the one described above. Another interesting version of marriage by capture was the tug-of-war ceremony. This was popular with an African tribe called the Banyankole. The ceremony was simply a huge tug-of-war with a heavy rope. The groom’s side always won, but the rope was tugged nevertheless. The meaning, the value of the bride was the same.

Marriage by capture is still practiced by primitive tribes in remote parts of the world. But if you think the custom lingers there, you are wrong. Our modern
ceremony too has a bit of marriage by capture in it. Take the honeymoon. Where do you think that comes from? Today's bride and groom hide out because centuries ago the kidnapping groom had to hide his bride from search parties. Also, angry parents used to throw things. Today objects are still thrown - not rocks, but flowers, rice, and sometimes shoes.

Marriage by capture seems strange and old. Yet its influences are still very much alive in every wedding and honeymoon.
Individual Practice Session: Our Debt to Dummies

To be called a dummy is quite an insult. That’s not fair to dummies at all. Dummies get no credit for performing some of the most valuable, most dangerous, and most boring tasks for human beings. In medicine, in research, in industry, and in education, dummies have helped to improve or prolong your life. Modern civilization is smarter because of the dummy!

Would a human volunteer to be the first heart transplant? Would you? No human would co-operate before the technique was well practiced. Only a dummy will, uncomplaining, submit to an inexperienced doctor or nurse or to an unproven operation.

Medical dummies are quite complex. They are built to breathe and to have a heartbeat and a pulse, with mechanical heart and lungs like a human being’s. Inside the dummy’s head is a brain, really a computer that makes it respond just like a human patient. The dummy undergoes risky operations. It trains doctors and nurses by dying a thousand times to teach them lessons. Only a dummy would do that!

Some dummies lead lives of constant danger. Take testing parachutes, for example. Originally parachuting was more dangerous than remaining in a burning plane. The light-weight parachute came about because countless dummies were ejected from countless planes.

How will radiation affect the human body? Can a human being survive in outer space? What dangers lie in the exploding of nuclear bombs? What will help humans survive auto crashes? Dummies are the only ones who can, step by step, reveal the answers to these problems.

Aside from doing the exciting, dummies perform jobs that people would find too boring. the scarecrow started the tradition as it watched the crops and frightened away the crows. Who else but a dummy would spend hours in a store window, or at a construction site directing detours, or demonstrating products?
The most glamorous dummies stand in wax museums. They show us how famous men and women of history looked and dressed. Nearly everything dummies do teaches us something. Why do we call them dummies? What kind of gratitude is that?
Individual Practice Session: The Titanic

Five times on April 14, 1912, warnings had been received of icebergs ahead, but neither the crew nor the passengers were alarmed. This was the maiden voyage of the Titanic, bound for New York. Why worry about ice? The Titanic was unsinkable!

Captain Smith smiled as he thought about the new safety feature. The Titanic's hull was divided into waterproof compartments. Even if it should strike ice, one or two compartments might fill with water, but the ship would not sink. A sixth warning was received. Captain Smith smiled again and went to bed.

Then suddenly a towering iceberg loomed up out of the dark. There was a brief shudder below. Cardplayers glanced up briefly. Curious, a few of them strolled out on the deck. The Titanic seemed as safe and secure as ever.

However, things were quite different below. The iceberg had ripped a 300-foot gash in the hull. Quickly the builder of the shipper spelled out the bad news to a disbelieving Captain Smith. Too many waterproof compartments had filled. The "unsinkable" ship could not stay afloat.

Captain Smith ordered crew members to put passengers into lifeboats. To his dismay, most passengers refused to take the situation seriously. Some refused to get out of bed. Others continued to enjoy their parties. Meanwhile thousands of gallons of water were pouring into the ship every minute.

Then the captain remembered another chilling fact. There were lifeboats for only 1,178 persons; yet there were 2,207 aboard.

Finally, as the boat began to list, the passengers understood their plight. There were many cases of bravery. Men on deck calmly waved farewell to their wives in lifeboats. The band played the latest ragtime tunes. Some cardplayers returned to their games - to play to the end.
At 2:20 AM the mighty *Titanic* stood on end, lights ablaze. Then it slipped beneath the waters. Captain Smith and 1,506 others were washed into the freezing sea. In forty minutes they perished. The unsinkable ship had sunk.
Appendix B

This appendix contains the following:

1. Marking procedures for the cloze tests
2. Cloze tests for junkanoo and subway
3. Multiple choice tests for subway and junkanoo
4. Answers for the multiple choice tests
Marking Procedures: Cloze Tests

The procedures for marking the cloze tests was based on the marking scheme used by Lipson, Wixson and Paris (1983). If the word is semantically and syntactically appropriate to the missing word, the answer is scored two points. If the word is semantically or syntactically appropriate to the missing word, the answer is scored one point. If the word is neither semantically nor syntactically appropriate, the answer is scored zero points. Only nouns and verbs were used for the cloze tests. Each answer was used once. An effort was made to ensure that both old and new information was included in the test. The answers given at the end of each cloze test are the "correct" answers as given from the text. However, optional answers were scored according to the criteria described above.

Cloze Test: Junkanoo

NAME ___________________________ AGE _____ GRADE ___________________________

DIRECTIONS: READ THE PASSAGE CAREFULLY. AS YOU READ, THINK OF A SUITABLE ANSWER FOR EACH BLANK AND FILL IT IN.

OUR JUNKANOO HERITAGE

Junkanoo takes place in the Bahamas. It is an important part of the culture of the Bahamian people despite the fact that its roots are still a source of contention amongst folklorists. What is junkanoo and why is it important to know its history?

Junkanoo was held by the ___________________________ who went to the Caribbean islands during the sixteenth and seventeenth centuries. Junkanoo has died out in other Caribbean islands except in Jamaica and Bermuda. It is still held in those countries but not on a large scale. In the Eastern Caribbean, junkanoo has its counterpart in the French influenced carnival which is a pre-lenten ___________________________.

The English custom of "masking" or "mummers" is also said to have some ___________________________ to junkanoo. This is held in Newfoundland during the ___________________________. This custom too is practiced on a very small scale.

Junkanoo is also said to have appeared in some form in North Carolina. The drums and instruments were similar in form. Their custom did not ___________________________ to this century.

At present, the Bahamas is the only place where junkanoo is celebrated as a national ___________________________ on Boxing Day and New Year's day. How is it that junkanoo has become almost obsolete in other ___________________________ but survived in the Bahamas?
Folklorists believe that junkanoo resembles the West African John Canoe. It is an event said to be celebrated by the West African slaves. However, the origins of junkanoo are uncertain but there are theories that exist about it.

One theory states that the West African name Jananin Canno was derived from the Quoja tribe's Canno—a supreme being who controlled their activities. Janini were the dead who became ___________10. They were regarded as patrons or defenders of the tribe. John Kuner or John Kooner from North Carolina, always dressed at Christmastime in the "loudest most fantastic garb of stripes and tatters". He wore a large ___________11 representing either birds, beasts or men.

There is the West African first fruit ceremony, Kanoo, which is said to have some possible links to junkanoo. This was ___________12 by the Bam-bari tribe. There was also in West Africa, an Ashanti dance figure who was known as Jankomo. He was noted for a ___________13 which he took one step forward and two steps back.

In the pre-emancipation era, the slaves were allowed a special holiday during the Christmastime. During this time they were allowed to leave the ___________14 and attend a most exciting grand dance. The dance was a tribute to John Canoe. He allowed his slaves to celebrate Christmas and New Year's Day.

After ___________15, the freed slaves continued their celebration but restrictions were placed on ___________16. In the later half of the nineteenth century the Street Nuisance Act was suspended.

During the early twentieth century, junkanoo took on a more progressive turn. Confidence in the practice of junkanoo resulted in some changes. Costumes changed from old and tattered clothes to paper ___________17. This was done with a sharp cutting implement or by hand.

In the mid-1920's junkanoo was returned to Bay Street where the participants had been ___________18. Prizes were now offered and the ___________19 was fierce. Junkanoo became the main winter tourist attraction and contributed to its growth. By the 1930's, costumes were made of ___________20. There were tall hats and huge floats. Pantaloons were a main feature and some were worn stuffed.

To date, junkanoo has continued to improve with few changes in some areas. An example is the ___________21 which remain the same. On some Family Islands, rake and scrape materials are used while in the cities large drums, bugles, whistles, conch horns and cowbells are used. The drums are made from goat or sheep's ___________22 which have been steeped in lime for several months. The skins are tautly place over salt beef barrels or kegs and sun dried. In time they are ___________23 to the desired tone or placed in deep well. The cowbells construction have gone through few changes. They are still made from car rims which are welded into various hollow cowbell shapes with suspended tongues. Their clilickity-clang sounds can still be heard for miles around.

Today's costumes remain similar to the years gone by except that the crepe paper has a more professional finish. Fringing is now done with a pair of shears or scissors. A paste of flour, water, and ___________24 is used to glue the
costumes. Needle and thread are basic for sewing the costume parts together. As today's costumes are more elaborate, huge wire frames are now used.

At three a.m. on Boxing Day and New Year's Day, junkanoo begins. For miles around town the echo of the goat-skin drums can be heard. In the _____________ junkanoo groups may comprise one to three hundred participants while on the Family Islands the groups are much smaller. Another year is heralded in as junkanoo lives on. Will it continue to thrive or will it be like other countries and die out?

**Answers for Cloze Test: Junkanoo**

1. slaves 14. plantation
2. celebration 15. emancipation
3. relationship 16. junkanoo
4. Christmastime 17. fringe
5. survive 18. banned
6. holiday 19. competition
7. countries 20. costumes
8. origins 21. instruments
9. beginnings 22. skins
10. spirits 23. heated
11. mask 24. insecticide
12. performed 25. cities
13. dance
**Cloze Test: Subway**

NAME __________________________ AGE _____ GRADE _______

DIRECTIONS: READ THE PASSAGE CAREFULLY. AS YOU READ, THINK OF A SUITABLE ANSWER FOR EACH BLANK AND FILL IT IN.

**OUR SUBWAY SYSTEM**

Most people do not realize how important the subway system is until something drastic happens. What is a subway system and what can it do for a city?

The Toronto subway system of public transportation in Ontario, Canada was opened in 1954 by the Toronto Transit Commission (TTC). It has had a large effect on the development of ________________.

Since 1954, Metro Toronto has seen more ________________ than the first 120 years in the ________________ of the city of Toronto. The rapid transit system has played an important role in determining the location of $10 billion in new development along the north-south line. It has also influenced the $20 billion development adjacent to the east-west line.

The subway was built to carry a large volume of traffic. The traffic is at least three times more than a normal surface route. It aids the fast and convenient interchange of passengers between the subway and surface route system. The cars are larger and faster than surface cars. They are also more comfortable and have more ________________ for faster loading. The subway is the backbone of the TTC. 132 of the 141 surface routes connect to the subway. The TTC is said to be "The Better Way".

The subway system was constructed by three ________________ of construction called cut-and-cover, open cut and tunneling. Most of the 59 stations were constructed using the cut and cover method. See if you can picture this process. Steel piles are inserted into the ________________. They are placed in two parallel lines within which the subway will be built. The area between the piles is excavated to expose the sub-surface utilities. These utilities are for example, sewers, telephone line and electrical conduits. After the subway structure is constructed, the area is filled to restore the surface. Utilities are then relocated and the street ________________.

Can you guess what open-cut and tunnelling methods would be like?

All the stations are staffed by at least one collector. There are also automatic entrances which are monitored through close-circuit television. All stations are equipped with fire fighting facilities, and stairways or ramps. Subway routes and ________________ of the surrounding areas are also conveniently displayed.

In addition to these features and ________________, there are numerous escalators. The St. Clair West station alone has 14!

As the ________________ comes rushing into the ________________, you will see some of the 632 TTC subway cars. These cars are connected to one another. Depending on the time of day, they may vary in number.

When the doors open, you enter before the guard blows the second ________________. At rush hour, you might have some problems getting in or out of your car. This might be especially difficult at Yonge and Bloor station which is one of the _________________. As many as 76,000 people enter this
transfer point during rush hour. Luckily, most of the cars are spacious and air conditioned.

As the train pulls out of the station, its ________ is controlled by an automatic train dispatch at each signal location. The signals can operate by pre-programmed control. They are also controlled by signal operators at the main control centre of the TTC. These signals help to control speed and route.

The ________ of each train also controls the speed and the stopping of the train at various markers on the ________ . The Control Centre looks after emergencies, spacing of the trains and short turns. It is also responsible for calling trains into service especially during rush hour.

What happens to the trains late at night? There are three ________ where the cars are maintained, repaired and ________. Having visited one of these they are then ready to resume work as early as six o’clock in the morning. The cycle then starts all over again.

Real estate surveys have shown that the construction of 90 percent of all ________ buildings have occurred within a five minute walk of the subway. Half of all ________ construction have also occurred within a five minutes walk of the subway. These constructions all took place over the past thirty ________.

In the central core area, many major firms have direct ________ to subway stations. These include the Eaton Centre and the Hudson Bay Centre. Away from downtown core, new community centres have developed similarly.

The entire subway system network is very busy and well used. In 1985, a record of 428 million riders used the Toronto transit system. The riders rode streetcars, ________, trolley cars and the subway. It is estimated that the total number of ________ located in Metropolitan Toronto will increase by approximately 240,000 to a total of 1,400,000 jobs in the year 2001.

What does this mean for the subway system and the city of Toronto?

Correct Answers for Cloze Test: Subway

(Procedures for marking are described earlier in this appendix).

1. subway 14. busiest
2. Toronto 15. movement
3. development 16. driver
4. history 17. platform
5. doors 18. carhouses
6. methods 19. cleaned
7. ground 20. office
8. repaved 21. apartment
9. maps 22. years
10. escalators 23. connections
11. train 24. buses
12. stations 25. jobs
13. whistle
Multiple Choice Test: Junkanoo

NAME __________________ GRADE _____ AGE _____

DIRECTIONS: READ THE STORY CAREFULLY AND WHEN YOU HAVE FINISHED, READ THE QUESTIONS CAREFULLY AND THEN SELECT THE BEST ANSWER FOR EACH ONE. USE THE PASSAGE TO HELP YOU ANSWER THE QUESTIONS.

JUNKANOO

1. JUNKANOO IS A
   A. CHURCH CELEBRATION
   B. STREET PARADE
   C. STAGED CONCERT
   D. BIG PARTY

2. JUNKANOO IS AN IMPORTANT PART OF THE BAHAMIAN CULTURE BECAUSE IT IS
   A. EXCITING EVENT
   B. THEIR TRADITION
   C. HAPPY TIME
   D. THEIR BELIEF

3. ACCORDING TO SOME THEORISTS, THE WORD JUNKANOO PROBABLY ORIGINATES FROM THE NAMES OF
   A. PEOPLE WHO HAD SOMETHING TO DO WITH IT
   B. ANIMALS WHO WERE INVOLVED IN THE JUNKANOO
   C. PLACES WHERE JUNKANOO WAS CELEBRATED
   D. TREES THAT WERE USED IN THE CELEBRATION

4. WHO WAS JOHN CANOE?
   A. AN EXPLORER
   B. A SLAVE MASTER
   C. A DANCER
   D. A FOLKLOREST

5. FRINGING OF COSTUMES REFERS TO THE
   A. CLOTH USED TO MAKE THE COSTUMES
   B. SCISSORS USED TO DESIGN THE COSTUMES
   C. TRIMMING OF THE COSTUMES IN JUNKANOO
   D. KIND OF PAPER USED TO DESIGN THE COSTUMES

6. THE COWBELLS' TONGUES ARE SUSPENDED IN ORDER TO
   A. TOUCH THE RIM
   B. SCARE PEOPLE
   C. RING LOUDLY
D. FIND FOOD EASILY

7. INSECTICIDE IS USED IN THE MAKING OF COSTUMES TO
   A. PRESERVE THE COSTUME
   B. PREVENT SHRINKAGE
   C. HOLD THE COSTUME TOGETHER
   D. COLOUR THE COSTUME

8. THE DRUMS ARE HEATED IN ORDER TO
   A. CHANGE THE COLOUR OF SKINS
   B. MAKE THEM SOUND BETTER
   C. TIGHTEN THE EDGES
   D. SMOOTH THE SURFACE

9. RAKE AND SCRAPE MATERIALS IN JUNKANOO ARE USED TO
   A. MAKE MASKS
   B. CREATE FLOATS
   C. MAKE MUSIC
   D. DESIGN COSTUMES

10. JUNKANOO WAS ONCE BANNED FROM BAY STREET BECAUSE
    A. JUNKANOO WAS NOT WELL ATTENDED
    B. THE CROWD MISBEHAVED
    C. PEOPLE Couldn’T AFFORD COSTUMES
    D. THE JUDGES CHEATED

11. JUNKANOO BECAME MORE PROGRESSIVE IN THE 20TH. CENTURY BECAUSE THE PARTICIPANTS
    A. WANTED TO PERFORM IN COSTUMES
    B. WANTED TO DEVELOP JUNKANOO
    C. FELT THAT THE INSTRUMENTS SHOULD CHANGE
    D. THOUGHT THEY NEEDED MORE PRACTICE

12. TOURISM IS RELATED TO JUNKANOO BECAUSE JUNKANOO
    A. ALLOWS THE TOURISTS TO SEE BAHAMIAN CULTURE
    B. DOES NOT ATTRACTION MANY TOURIST PARTICIPANTS
    C. MAY NOT HAVE BEEN AROUND FOR A VERY LONG TIME
    D. INVOLVES A LOT OF WORK

13. FOLKLORISTS ARE PEOPLE WHO
    A. BELIEVE IN SLAVERY
    B. PERFORM IN A JUNKANOO GROUP
    C. WRITE STORIES ABOUT CULTURE
    D. JUDGE THE JUNKANOO
14. FOLKLOРИSTS DISAGREE ON THE ORIGINS OF JUNKANOO BECAUSE
   A. JUNKANOO COMES FROM AN ASHA NTI
   B. THERE ARE MANY POSSIBLE EXPLANATIONS
   C. THEY FEEL THERE IS ONE EXPLANATION
   D. JUNKANOO COMES FROM JOHN Canno

15. MANY TIMES JUNKANOO CAME CLOSE TO DYING OUT BECAUSE
   A. IT WAS BAD FOR THE PEOPLE
   B. THE INSTRUMENTS WERE OLD
   C. LAWS WERE PASSED TO STOP IT
   D. THE COSTUMES CHANGED

16. IT IS SURPRISING THAT JUNKANOO HAS NOT DIED OUT IN THE
    BAHAMAS BECAUSE
   A. MANY COUNTRIES HAVE JUNKANOO
   B. THE CUSTOM IS VERY OLD
   C. JUNKANOO IS HELD ON A SMALL SCALE
   D. IT HAS BECOME EXTINCT IN OTHER PLACES

17. MORE PEOPLE PARTICIPATE IN JUNKANOO IN THE CITIES THAN ON
    THE FAMILY ISLANDS BECAUSE
   A. THE PEOPLE LOVE JUNKANOO
   B. THERE ARE MORE PRIZES
   C. CITY POPULATIONS ARE LARGER
   D. PEOPLE ARE MORE INTERESTED

Correct Answers and Question Type for Junkanoo Multiple Choice

7. A inference               15. C inference
                            17. C inference/factual
Multiple Choice Test: Subway

NAME ______________ GRADE _____ AGE _____

DIRECTIONS: READ THE STORY CAREFULLY AND WHEN YOU HAVE FINISHED, READ THE QUESTIONS CAREFULLY AND THEN SELECT THE BEST ANSWER FOR EACH ONE. USE THE PASSAGE TO HELP YOU ANSWER THE QUESTIONS.

SUBWAY

1. A SUBWAY SYSTEM IS A SYSTEM OF
   A. ELECTRICAL LINES AND TRACKS
   B. CARS, BUSES AND STREETCARS
   C. COMMUNICATION IN TORONTO
   D. UNDERGROUND TRANSPORTATION

2. THE SUBWAY STATION IS
   A. THE PLACE TO TAKE A TRAIN
   B. WHERE YOU GO TO WORK
   C. WHERE THE CARS ARE CLEANED
   D. A STORAGE PLACE FOR TRAINS

3. A CAR ON THE SUBWAY REFERS TO
   A. AN AREA BETWEEN THE TRAINS
   B. A PART OF THE PLATFORM
   C. A PART OF THE TRAIN
   D. THE DRIVER'S SECTION OF THE TRAIN

4. THE NUMBER OF CARS ON THE TRAIN VARIES BECAUSE
   A. SOME OF THE CARS NEED TO BE REPAIRED
   B. THE NUMBER OF PEOPLE TRAVELLING CHANGES
   C. SOME STATIONS CLOSE DOWN EARLY
   D. THE GUARD NEED A REST PERIOD

5. RUSH HOUR FOR THE SUBWAY IS
   A. LUNCH TIME OR EARLY AFTERNOON DURING THE WEEK
   B. JUST BEFORE THE SUBWAY CLOSES ON THE WEEKEND
   C. WHEN MOST PEOPLE GO TO AND RETURN FROM WORK
   D. WHEN THE SUBWAY TRAVELS VERY QUICKLY

6. EXTRA TRAINS ARE CALLED INTO SERVICE DURING RUSH HOUR TO
   A. KEEP THE TRAINS IN WORKING ORDER
   B. ENSURE SAFETY OF THE PEOPLE
   C. INCREASE THE SPEED OF SERVICE
   D. PROVIDE MORE WORK FOR THE STAFF
7. IT MIGHT BE DIFFICULT TO GET OUT OF YOUR CAR AT RUSH HOUR BECAUSE
   A. CHILDREN ARE GOING HOME FROM SCHOOL
   B. THERE AREN'T ENOUGH CARS FOR ALL THE PEOPLE
   C. PEOPLE ARE WALKING FAST AND RUSHING TO GET HOME
   D. THERE ARE A LOT OF BAGGAGE AT THE STATION

8. THE SUBWAY IS CONNECTED TO THE SURFACE LEVEL BECAUSE IT LINKS TO
   A. BUSES AND STREETCARS
   B. ESCALATORS AND PLATFORMS
   C. AUTOMOBILES AND TRUCKS
   D. LOWER LEVEL AREAS

9. WHY IS THERE MORE TRAFFIC ON THE SUBWAY THAN ON THE NORMAL SURFACE ROUTE?
   A. THERE IS NO POLLUTION ON THE SUBWAY
   B. THE SUBWAY CAN AVOID ACCIDENTS
   C. THERE ARE NO EMERGENCIES ON THE SUBWAY
   D. THE SUBWAY CAN CARRY MORE PEOPLE QUICKLY

10. A WHISTLE BLOWN BY THE GUARD ON THE SUBWAY MEANS THAT
    A. THE TRAIN IS EMPTY
    B. THE DOORS WILL CLOSE
    C. THERE IS AN EMERGENCY
    D. THE TRAIN WILL WAIT

11. THERE ARE PROBABLY MORE ESCALATORS AT SOME STATIONS BECAUSE
    A. THERE ARE PROBABLY MORE FACILITIES
    B. SOME STATIONS ARE LARGER
    C. THERE ARE MORE EXITS
    D. SOME STATIONS ARE BETTER DESIGNED

12. 90% OF ALL OFFICE BUILDINGS WERE BUILT WITHIN A 5 MINUTES WALK FROM THE SUBWAY TO
    A. MAKE IT EASY TO GET TO AND FROM WORK
    B. REDUCE THE NUMBER OF PEOPLE ON THE STREET
    C. ENCOURAGE PEOPLE TO WALK MORE OFTEN
    D. AVOID CONGESTION ON THE STREET

13. THE TTC IS SAID TO BE "THE BETTER WAY" BECAUSE
    A. YOU HAVE TO WAIT FOR TRAINS TO COME
    B. TRAVELLING WITH BAGGAGE IS EASY
C. IT SAVES TIME AND MONEY
D. A CAR IS MORE COMFORTABLE

14. THE CUT AND COVER METHOD WOULD WORK BEST FOR A PART OF THE SUBWAY THAT WENT
   A. OVER A BRIDGE
   B. UNDER A BUILDING
   C. OVER A LAKE
   D. UNDER A STREET

15. THE SUBWAY IS FASTER THAN A BUS BECAUSE
   A. IT HAS AUTOMATIC ENTRANCES
   B. IT HAS MORE DOORS
   C. IT TRAVELS UNDERGROUND
   D. THERE ARE MORE DRIVERS

16. 30 YEARS AGO, THE SUBWAY SYSTEM
   A. DID NOT EXIST
   B. WAS BEING BUILT
   C. HAD CLOSED DOWN
   D. WAS OPENED

17. BEFORE 1954, TORONTO WAS
   A. UNDEVELOPED
   B. NONEXISTENT
   C. OVERPOPULATED
   D. POLLUTED

Correct Answers and Question Type for Subway Multiple Choice

1. D inference/factual  9. D inference
7. C inference        15. C inference
17. A inference
Appendix C

This appendix contains the following:

1. Numbered paragraphs for junkanoo and subway
2. Questions for the analysis of stories
3. Outlines of the stories
Numbered Paragraphs: Junkanoo

Directions: Read the following passage aloud. Remember to think-out-loud as you read.

Our Junkanoo Heritage

1. Junkanoo takes place in the Bahamas. It is an important part of the culture of the Bahamian people despite the fact that its roots are still the source of contention amongst folklorists. What is junkanoo and why is it important to know its history?

2. Junkanoo was held by the slaves who went to the Caribbean islands during the sixteenth and seventeenth centuries. Junkanoo has died out in other Caribbean islands except in Jamaica and Bermuda. It is still held in those countries but not on a large scale. In the Eastern Caribbean, junkanoo has its counterpart in the French influenced "Carnival" which is a pre-lenten celebration.

3. The English custom of "masking" or "mummers" is also said to have some relationship to junkanoo. This is held in Newfoundland during the Christmastime. This custom too is practiced on a very small scale. Junkanoo is also said to have appeared in some form in North Carolina. The drums and instruments were similar in form but their custom did not survive to this century.

4. At present, the Bahamas is the only place where junkanoo is celebrated as a national holiday on Boxing Day and on New Year's Day. How is it that the junkanoo has become almost obsolete in other countries but survived in the Bahamas?

5. Folklorists believe that junkanoo resembles the West African, John Canoe. It is an event said to be celebrated by the West African slaves. However, the origins of junkanoo are uncertain but there are several theories that exist about its beginnings.

6. One theory states that the West African name Janin Canno was derived from the Quoja tribe's Canno - a supreme being who controlled their activities. Janini were the dead who became spirits. They were regarded as patrons or defenders of the tribe. John Kuner or John Kooner from North Carolina, always dressed at Christmastime in the "loudest most fantastic garb of stripes and tatters". He wore a large mask representing either birds beasts or men.

7. There is a West African first fruit ceremony, Kanoo, which is said to have some possible links to junkanoo. This was celebrated by the Bam-bari tribe. There was also in West Africa, an Ashanti dance figure who was known as Jankomo. He was noted for a dance in which he took one step forward and two steps back. It is believed that he too has some connections to junkanoo.
8. Junkanoo is also said to be rooted in the period of slavery. In the pre-emancipation era, the slaves were allowed a special holiday at Christmastime. During this time they were allowed to leave the plantation, and attend a most exciting grand dance. The dance was a tribute to John Canoe. He allowed his slaves to celebrate Christmas and New Year’s Day.

9. After emancipation, the freed slaves continued their celebration but restrictions were placed on junkanoo. As a result, during the latter half of the nineteenth century the Street Nuisance Act was suspended.

10. During the early twentieth century, junkanoo took on a more progressive turn. Confidence in the practice of junkanoo resulted in some changes. Costumes changed from old and tattered clothes to paper fringe. This was done with a sharp cutting implement or by hand.

11. By the mid-1920’s, junkanoo was returned to Bay Street where the participants had been banned. Prizes were now offered and the competition was fierce. Junkanoo became the main winter tourist attraction and contributed to its growth. Around the 1930’s, some costumes were even made of sponges and there were tall hats and huge floats. Pantaloons were also a main feature around this time and some were worn stuffed.

12. To date, the practice of junkanoo has continued to improve but with few changes in some areas. An example is the instruments which remain the same. On some Family Islands, rake and scrape materials are used while in the cities large drums, bugles, whistles, conch horns, and cowbells are used. The drums continue to be made from goat or sheep’s skins which are steeped in lime for several months. They are tautly placed over salt beef barrels or kegs and sun dried. In time they are heated to the desired tone or placed in a deep well. The cowbells’ construction have gone through few changes. They are still made from car rims which are welded into various hollow cowbell shapes with suspended tongues. Their clilickity-clang sounds can still be heard for miles around.

13. Today’s costumes remain similar to the years gone by except that the crepe paper has a more professional finish. Fringing is now done with a pair of shears or scissors. A paste of flour, water, and insecticide continues to be useful for gluing costumes. Needle and thread are basic for sewing the costume parts together. As today’s costumes are more elaborate, huge wire frames are now used.

14. At three a.m. on Boxing Day and New Year’s Day, junkanoo begins. For miles around town the echo of the goat-skin drums can be heard. In the cities junkanoo groups may comprise one to three hundred participants while on the Family Islands the groups are much smaller. Another year is heralded in as junkanoo lives on. Will it continue to thrive or will it be like other countries and die out?
Numbered Paragraphs: Subway

Directions: Read the following passage aloud. Remember to think-out-loud as you read.

Our Subway System

1. Most people do not realize how important the subway system is to them until something drastic happens. What is a subway system and what can it do for a city?

2. The Toronto subway system of public transportation in Ontario, Canada was opened in 1954 by the Toronto Transit Commission (TTC). It has had a large effect on the development of Toronto.

3. Since 1954, Metro Toronto has seen more development than the first 120 years in the history of the city of Toronto. The rapid transit system has played an important role in determining the location of $10 billion in new development along the north-south line. It has also influenced the $20 billion development adjacent to the east-west line.

4. The subway was built to carry a large volume of traffic. The traffic is at least three times more than a normal surface route. It aids the fast and convenient interchange of passengers between the subway and surface route system. The cars are larger and faster than surface cars. They are also more comfortable and have more doors for faster loading. The subway is the backbone of the TTC. 132 of the 141 surface routes connect to the subway. The TTC is said to be the "Better Way".

5. The Toronto system was constructed by three methods of construction called cut-and-cover, open cut and tunnelling. Most of the 59 Toronto stations were constructed using the cut and cover method. See if you can picture this process. Steel piles are inserted into the ground. They are placed in two parallel lines within which the subway will be built. The area between the piles is excavated to expose the sub-surface utilities. These utilities are for example, sewers, telephone lines and electrical conduits. After the subway structure is constructed, the area is filled to restore the surface. Utilities are then relocated and the street repaved. Can you guess what open-cut and tunnelling methods would be like?

6. All the stations are staffed by at least one collector. There are also automatic entrances which are monitored through close-circuit television. All stations are equipped with fire fighting facilities, and stairways or ramps. Subway routes and maps of the surrounding areas are also conveniently displayed. In addition to these features and facilities, there are numerous escalators. The St. Clair West station alone has 14!

7. As the train comes rushing into the station, you will see some of the
632 TTC subway cars. These cars are connected to one another. Depending on the time of day, they may vary in number.

8. When the doors open, you enter before the guard blows the second whistle. At rush hour, you might have some problems getting in or out of your car. This might be especially difficult at Yonge and Bloor station which is one of the busiest. As many as 76,000 people enter this transfer point during rush hour. Luckily, most of the cars are spacious and air conditioned.

9. As the train pulls out of the station, its movement is controlled by an automatic train dispatch at each signal location. The signals can operate by pre-programmed control. They are also controlled by signal operators at the main control centre of the TTC. These signals help to control speed and route.

10. The driver of each train also controls the speed and the stopping of the train at various markers on the platform. The Control Centre looks after emergencies, spacing of the trains and short turns. It is also responsible for calling trains into service especially during rush hour.

11. What happens to the trains late at night? There are three carhouses where the cars are maintained, repaired and cleaned. Having visited one of these they are then ready to resume work as early as six o’clock in the morning. The cycle then starts all over again.

12. Real estate surveys have shown that the construction of 90 percent of all office buildings have occurred within a five minute walk of the subway. Half of all apartment construction have also occurred within a five minutes walk of the subway. These constructions all took place over the past thirty years.

13. In the central core area, many major firms have direct connections to subway stations. These include the Eaton Centre and the Hudson Bay Centre. Away from downtown core, new community centres have developed similarly.

14. The entire subway system network is very busy and well used. In 1985, a record of 428 million riders used the Toronto transit system. The riders rode streetcars, buses, trolley cars and the subway. It is estimated that the total number of jobs located in Metropolitan Toronto will increase by approximately 240,000 to a total of 1,400,000 jobs in the year 2001. What does this mean for the subway system and the city of Toronto?
**Questions for the Analysis of Stories**

The following instructions and questions were given to three graduate students for the purpose of analyzing the stories.

**DIRECTIONS:** Please read the stories carefully and in the order of their placement in the envelope. After you have read each story, please respond to the questions. Additional comments would be greatly appreciated.

1. What do you think are the **MAIN POINTS** of the story?

2. From your perspective, what is the plan/structure or organisation of the this story?

3. How would you describe this story -- expository, narrative, etc. Why?

4. Write a brief summary of this story. No more than 25 words.

5. Additional comments, observations, criticisms etc..

**Outline of Stories**
### Table C-1: Table of Junkanoo Story

#### JUNKANOO STORY

<table>
<thead>
<tr>
<th>GENERAL NOTION</th>
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<tbody>
<tr>
<td>• what is junkanoo</td>
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<td>• its historical development and description</td>
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<tr>
<th>MAIN POINTS</th>
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<tr>
<td>• different theories about its origins</td>
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<tr>
<td>• costumes made and developed</td>
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<td>• instruments made and developed</td>
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<td>• development of junkanoo</td>
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<th>SUPPORTING DETAILS</th>
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<tr>
<td>• places where junkanoo is held</td>
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<tr>
<td>• forms of junkanoo</td>
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<tr>
<td>• time held</td>
</tr>
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<td>• pre-emancipation era</td>
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<tr>
<td>• John Canoe</td>
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<tr>
<td>• instruments used</td>
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<tr>
<td>• etc.</td>
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</table>
Table C-2: Table of Subway Story

**SUBWAY ANALYSIS**

**GENERAL NOTION**
- the importance of the subway to Toronto
- how the subway influenced the growth of Toronto

**MAIN IDEAS**
- how one uses the subway
- how it was built
- description of the subway

**SUPPORTING DETAILS**
- number of people travelling
- construction methods
- workers on subway
- when it started
- number of cars
- etc.
Appendix D

This appendix contains the following:

1. Distribution of raters’ scores on action
2. Descriptions of the 12 Conditions with examples
3. Complete table of actions and 12 conditions
Figure D-1: Scatterplot of Raters 1 & 2 on Action for the Junkanoo Story

Figure D-2: Scatterplot of Raters 1 & 2 on Action for the Subway Story
Description of the 12 Conditions

Condition One (General Processing)

If the goal is to understand the story.....

This condition describes the major goal of reading comprehension and therefore strives to capture generalized processing strategies and the global processing of the texts. This condition differs from all others because it could possibly cover all aspects of comprehension processing but it was limited to less specifiable elements of processing.

Condition One implies specifically understanding the author's purpose through the use of inferencing, restatements, repetitions, questions and statements that reflect curiosity, desire to know more (such statements are neither statements of familiarity or unfamiliarity but statements more of understanding than of states of knowledge). Questions for clarification of text or extensions of text are also indicative of this condition.

Examples: Condition One

Protocol #15

The traffic is at least three times more than the normal surface route.

Probably because everyone wants to go on it. #24351 [The subjects makes an inference based on what is stated in the text.]

Protocol #16

However, the origins of junkanoo are still uncertain but there are several theories that exist about its beginnings.

I think the slaves right, the West African slaves, they had rulers and they didn't want their slaves to be in junkanoo. #32352 [The reader makes an elaboration about the text.]
Protocol #17

As many as 76,000 people enter this transfer point during rush hour. Luckily most of the cars are spacious and air conditioned.

Does that mean that more people just drive to the train station and go on the train and go some place faster because underground won't hold you up. And drop you off on the route station where a lot of other cars come and go? #28351 [The reader attempts to restate what is going on in the story.]

Condition Two (Familiarity)

If the story is about something familiar....

This category implies the obvious use of background knowledge. This differs from number one in that the statement utilizes the familiar concept and in number one it is not clear whether the child’s thoughts are accessing familiar or unfamiliar scripts. Explicit statements of knowledge use, knowledge telling, personal knowledge are evidenced in this condition. This condition was meant to describe specific ideas that related to the students’ use of background knowledge in such cases for example of understanding an unfamiliar concept.

Examples: Condition 2

Protocol #18

At present the Bahamas is the only place where junkanoo is celebrated as a national holiday on Boxing Day and New Year’s Day.

I thought I heard of junkanoo somewhere. # 50462 [Simple statement of recognition of something familiar.]

Protocol #19

By the mid-1920’s the junkanoo was returned to Bay Street.

Which we do now. #32352 [Recognition of a familiar event.]
Protocol #20

Fringing is now done with a pair of shears or scissors.

*I do that.* #50462 [Recognition of the familiar.]

Condition Three

If you meet a familiar word or name.....

This condition was separated from Condition Two so that the specific elements of familiarity could be captured as opposed to more general elements of familiarity. Specific words or names that were recognized and commented upon by the subjects were classified here. This is different from number two because it refers specifically to a familiar word or name that prompts a response. Number two is based on a concept or idea that is more central to the understanding of the story.

Examples: Condition 3

Protocol #21

In the Eastern Caribbean, junkanoo has its counterpart in the French influenced "carnival".

*I know what carnival means but I wonder if they mean the one where you go on rides or not.* #29351 [Subject recognizes a familiar term but is not certain if it applies in this case.]

Protocol #22

The area between the piles is excavated to expose the sub-surface utilities.

*I know that word. We had that for vocabulary one time.* #64361 [The subjects remembers the word from a previous lesson.]

Protocol #23

The Toronto system was constructed by three methods of construction called cut-and-cover, open cut and tunnelling.
It sounds like whoever did the construction and who made the name I mean, the name that made it, cut-and-cover, was a lot of hard work. This cut-and-cover method. #26351 [The subject focusses on one term and talks about it.]

**Condition Four (Unfamiliarity)**

If the story is about something new or unfamiliar.....

This category is based on the recognition of something new or strange to the reader. The ideas here are again more central to the understanding of the story as the condition is based on idea or concept. All statements should reflect a lack of or recognition of limited knowledge of a concept.

This unfamiliar condition is the equivalent to condition two and strives to describe the protocols that depict processing of unfamiliar ideas. Instances of subjects attempting to capture this type of processing are given below.

**Examples: Condition 4**

**Protocol #24**

All the stations are staffed by at least one collector. There are also automatic entrances which are monitored through close circuit television. All stations are equipped with fire fighting facilities.

*I never heard anything like this before. #35352 [Recognition of the unknown.]*

**Protocol #25**

How is it that the junkanoo has become almost obsolete in other countries but survived in the Bahamas?

*I don’t even know why it survived in the Bahamas. # 65361 [Recognition of lack of knowledge.]*

**Protocol #26**

They are tightly placed over salt beef barrels or kegs and sun dries.

*I didn’t know that they used salt beef barrels or kegs and sun dries them.*
Condition Five

If you meet an unfamiliar word or name.....

This condition is similar to Condition three except that here it attempts to describe specifically, unfamiliar words and names.

Examples: Condition 5

Protocol #27

The riders rode streetcars, buses, trolley cars and the subway.

What's trolley cars? [Problems with 'trolley cars'.]

Protocol #28

They are still made from car rims.

What are car rims? #51461 [Problems with term 'car rims'.]

Protocol #29

Folklorists believe that junkanoo resembles the West African. John Canoe.

I don't even know what folklorists means. #05452 [Focuses on the word 'folklorists'.]

Condition Six (Text Problems)

If you find the story puzzling or difficult to understand.....

Here, it should be obvious that the reader is having some difficulty because s/he is puzzled by the events or explanations in the story. The reader makes a statement that reflects a problem in the story. When familiar and unfamiliar scripts induce surprise or exclamation, the statements could be rated as condition six. In condition one, a problem is not defined.

This condition was included to capture protocols that evidenced problems
with the text such as unclear statements and text connections that the subjects might have found difficult. This was to help make evident any weaknesses in the construction of the text and also allowed for the citing of any problematic text parts.

**Examples: Condition 6**

**Protocol #30**

The driver of each train also controls the speed and the stopping of the train at various markers on the platform. The control Centre looks after emergencies, spacing of the trains and short turns. It is also responsible for calling trains into service especially during rush hour.

_Trains? I thought we were talking subways. We’re talking about subways and then it says trains....I don’t know._ #62361 [The subject experiences some difficulty with the changing terms used in the story.]

**Protocol #31**

The traffic is at least three times more than a normal surface route.

_I don’t know what they mean when they say traffic, they don’t mean what I think._ #52462 [This subject also experiences some confusion because what is stated in the text does not match her interpretation.]

**Protocol #32**

One theory states that the west African name Jananin Canno was derived from the Quojas tribe Canno.

_This has me confused._ #29351 [The strange names in the text has the subject confused.]
Condition 7

If the text does not provide sufficient information or makes unsupported statements.....

Again, this condition should be stated or very easily inferred. If the rater knows of specific cases where information has been left out and encounters statements where the readers questioned or manifested problems with these instances in the text, this condition should only apply where the statements reflect some degree of awareness of this case. Condition seven also applies when information is provided by the reader because s/he has stated that information has been left out of the stories.

This condition is relatively close to condition six yet it is still distinctive in that it focuses in on specific elements of text problems that relate to text propositions.

Examples Condition 7

Protocol #33

At present, the Bahamas is the only place where junkanoo is celebrated as a national holiday on Boxing Day and on New Year’s day. How is it that junkanoo has become almost obsolete in other countries but survived in the Bahamas?

Well, they still haven’t said what junkanoo is and I’m wondering what it is. #54462 [The student recognizes that the text has not explained what junkanoo is and says so.

Protocol #34

A paste of flour, water and insecticide continues to be useful for gluing costumes.

Why would you use flour, water and insecticide? #55462 [The student cites another area where information has been left out of the text.]
**Condition Eight**

*If the story contains too much information.....*

Statements here should reflect that the readers are having difficulty processing because there is too much information presented at one time or that there are too many ideas presented in the stories. There will not be too many statements in this category.

This condition continues to focus in on problems related to text so that if the subjects were experiencing special difficulties because of text construction the area could be identified.

**Examples Condition 8**

[NB: None of the protocols were assigned to this condition.]

**Condition Nine**

*If you encounter words that are too difficult to pronounce.....*

There are many students who had difficulty with some of the vocabulary in the stories. This condition should be assigned when the reader indicates that s/he has difficulty pronouncing the words in the stories.

This condition captures some of the basic problems associated with text comprehending. It was hoped that this would have identified any subjects who might have had special problems with processing because of some of the terminology used in the text.
Examples: Condition 9

Protocol #35

The English custom of masking or mummers is also said to have some relationship to junkanoo.

Mummers, in the junk--junko--how do you pronounce that word? #16451
[The student is unable to pronounce the word 'junkanoo'.]

Condition Ten

If you feel that the task is too difficult.....

There are no statements in this category. Statements here should indicate that the reader is having difficulty coping with thinking out loud.

This condition focuses in on the task of thinking out loud. It was included because none of the other condition addressed the demands of thinking out loud and its impact on reading for meaning.

Examples: Condition 10

[NB:There are no examples for this condition as no protocols were given this classification.]

Condition Eleven (Response to Text Question)

If the text asks a question or prompts a response......

In the cases where the text questions, the rater should assign the statements to this condition. No other cases should be assigned to this condition.

This condition was included to capture specific responses that were prompted by the text. The text was so constructed that each story asked questions to encourage the student to think out loud. This condition was designed to see whether this aspect of text was interpreted as a natural inclusion in the text or a specific part of the task. whether the children responded to specific text directives.
Examples Condition 11

Protocol #36

What does this mean for the subway system and the city of Toronto?

Well I think that it's obviously getting like, people are using it a lot, and it was a good step to make. #60461 [The student responds to the text prompt.]

Condition Twelve (Metalevel)

If you reflect on your mental activities while you read.....

This condition refers to statements about mental activities such as any type of meta statements and statements about feelings regarding the stories or their contents. Statements concerning readers' opinions about aspects of the stories etc also go into this category. processing of text

Examples: Condition 12

Protocol #37

In 1985, a record of 428 million riders used the Toronto Transit system.

I've got to read on to find out which one it really is. #23351 [The subject is monitoring his comprehension.]

Protocol #38

The cowbells construction have gone through few changes. They are still made from car rims which are welded into various hollow cowbell shapes with suspended tongues.

They didn't say that you put fire inside the drums to make a better sound. Maybe because they didn't know they could say it. #27351 [The student notes a text shortcoming and hypothesizes about it.]

Protocol #39

He allowed his slaves to celebrate Christmas and New Year's day.

Very trustworthy person. #29351 [The student forms an opinion about the character.]
<table>
<thead>
<tr>
<th>CONDITION</th>
<th>ACTION 0</th>
<th>ACTION 1</th>
<th>ACTION 2</th>
<th>ACTION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 If the goal is to understand the story ...</td>
<td>Make non-meaningful statements</td>
<td>Question text intent, Make simple inference, Restate purpose</td>
<td>Give supporting details from text to support author's intent</td>
<td>Integrate text ideas and connect with main idea to get unified picture of what the author is saying</td>
</tr>
<tr>
<td>2 If the story is about something familiar...</td>
<td>Make simple statements</td>
<td>Try to find what's new in the story and say so Restate the author's intention or see if it supports existing knowledge</td>
<td>Explain what is new Say if you agree/disagree or if it is consistent /inconsistent with what you know</td>
<td>Combine with old knowledge to infer and create new knowledge. Elaborate, clarify your agreements/disagreements.</td>
</tr>
<tr>
<td>3 If you meet a familiar word or name ...</td>
<td>Simply accept text</td>
<td>Acknowledge familiar term or elaborate on it</td>
<td>Recall or use knowledge to support and extend what's stated in the text</td>
<td>Integrate knowledge with text to create new insights and to form new conclusions</td>
</tr>
<tr>
<td>4 If the story is about something new or unfamiliar ...</td>
<td>Reject text without qualification</td>
<td>Acknowledge what is new or unknown, question text</td>
<td>Use familiar scripts to relate to and question ideas in the text, Infer</td>
<td>Connect the story parts to see if the relationship fits</td>
</tr>
<tr>
<td>5 If you meet an unfamiliar word or name ....</td>
<td>Reject text without qualification</td>
<td>Acknowledge the unfamiliar term, question text</td>
<td>Predict or infer meaning from the surrounding words</td>
<td>Summarise text or form text connections and conclusions to check if predictions or inferences have been confirmed or not</td>
</tr>
<tr>
<td>6 If you find the story difficult to understand or puzzling ...</td>
<td>Repeat text</td>
<td>Acknowledge that it is difficult or hard to understand. Question text</td>
<td>Pinpoint difficulty, restate, paraphrase text in simple terms Restate purpose</td>
<td>Connect restatements to form conclusions to create new knowledge</td>
</tr>
<tr>
<td>7 If the text does not provide sufficient information -ion or makes unsupported statements ...</td>
<td>Simply accept or reject text</td>
<td>Question text about lack of information</td>
<td>Make simple inference about missing details or elaborate on omission, backtrack to fill in gaps read ahead</td>
<td>Evaluate text to form hypothesis about what the text is implying</td>
</tr>
<tr>
<td>8 If the story contains too much information ...</td>
<td>Accept or reject text</td>
<td>Acknowledge that there is too much stated</td>
<td>Separate text and tell which parts are difficult. Restate in more familiar terms</td>
<td>Tell how each section relates to the rest of the story, try to integrate text</td>
</tr>
<tr>
<td>9 If you encounter words that are difficult to pronounce ...</td>
<td>Skip it</td>
<td>Say what is difficult, ask for help</td>
<td>Search text for clues to its identification, attempt to sound it out</td>
<td>Recognize why the word is difficult</td>
</tr>
<tr>
<td>10 If you feel that the task is too difficult ...</td>
<td>Give up, say nothing</td>
<td>Repeat text, say the task is hard, change statements to questions</td>
<td>Explain what is difficult and why it is</td>
<td>Evaluate the task and say how it prevents you from understanding the story</td>
</tr>
<tr>
<td>11 If the text asks a question ...</td>
<td>Ignore it, repeat it</td>
<td>Restate the prompt</td>
<td>Answer the prompt by referring to the text or your knowledge</td>
<td>Evaluate the text or the author's intention and form a response about what is implied</td>
</tr>
<tr>
<td>12 If you reflect on what you are doing as you read ...</td>
<td>Report nothing</td>
<td>Say that you are thinking of something</td>
<td>Explain what you are thinking about</td>
<td>Evaluate your thoughts and say if the plan or action is effective</td>
</tr>
</tbody>
</table>
Appendix E

This appendix contains the following:

1. Histograms of verbalizations for country group by skill group
2. Verbalizations by paragraphs
3. Manova results for profile analysis on paragraphs
4. Results of tests of parallelism on verbalizations by paragraphs
Verbalizations

Verbalizations by Paragraphs

Tukey's test for equality of all pairwise means showed the mean number of total vocalizations was significantly different \((p < .05)\) for all pairings of the four groups (see Table E-3). Assuming parallelism, the test of equality of response means for the four groups on the Subway story was rejected at the .05 level. Tukey's test for equality of all pairwise means showed that there was no significant difference in the mean number of total vocalizations made by the Nassau less skilled and Nassau skilled groups. However, all other pairings of the groups showed significant differences \((p < .05)\) in the mean number of total vocalizations (see Table E-3).

The test of equality of treatment levels (Paragraphs) was rejected at the .01 level for both stories. There were considerable differences in the number of vocalizations the subjects made to the paragraphs.
Figure E-1: Histograms of Verbalizations for Country Group by Skill Group.

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<th>Histogram of TlskJ</th>
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**Table E-1:** Manova Results for Profile Analysis on the Paragraphs for Junkanoo.

### Test of Parallelism

**Multivariate Tests of Significance** ($S = 3$, $M = 4 1/2$, $N = 35$)

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<th>Value</th>
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<th>Hypoth. DF</th>
<th>Error DF</th>
<th>Sig. of F</th>
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### Test of Equality of Groups

**Ss of SS, DF, MS, F**

- **WITHIN CELLS**
  - SS: 65.98
  - DF: 84
  - MS: .79
- **CONSTANT**
  - SS: 188.46
  - DF: 1
  - MS: 188.46
  - F: 239.94
  - Sig.: .000
- **GRP**
  - SS: 8.68
  - DF: 3
  - MS: 2.89
  - F: 3.68
  - Sig.: .015

### Test of Treatment Effects (Paragraphs)

**Multivariate Tests of Significance** ($S = 1$, $M = 5 1/2$, $N = 35$)

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<tr>
<th>Test Name</th>
<th>Value</th>
<th>Exact F</th>
<th>Hypoth. DF</th>
<th>Error DF</th>
<th>Sig. of F</th>
</tr>
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<tbody>
<tr>
<td>Pillai's</td>
<td>.60</td>
<td>8.14</td>
<td>13.00</td>
<td>72.00</td>
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</tr>
<tr>
<td>Hotellings</td>
<td>1.47</td>
<td>8.14</td>
<td>13.00</td>
<td>72.00</td>
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</tr>
<tr>
<td>Wilks</td>
<td>.40</td>
<td>8.14</td>
<td>13.00</td>
<td>72.00</td>
<td>.000</td>
</tr>
<tr>
<td>Roys</td>
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</tbody>
</table>

**Univariate F-tests with (1,84) D. F.**

<table>
<thead>
<tr>
<th>Variable</th>
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<th>SS</th>
<th>Hypoth. MS</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
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<tbody>
<tr>
<td>D4-3</td>
<td>13.97</td>
<td>204.37</td>
<td>13.97</td>
<td>2.43</td>
<td>5.74</td>
<td>.019</td>
</tr>
<tr>
<td>D6-5</td>
<td>80.78</td>
<td>208.19</td>
<td>80.78</td>
<td>2.48</td>
<td>32.59</td>
<td>.000</td>
</tr>
<tr>
<td>D7-6</td>
<td>23.46</td>
<td>211.50</td>
<td>23.46</td>
<td>2.52</td>
<td>9.32</td>
<td>.003</td>
</tr>
<tr>
<td>D9-8</td>
<td>20.69</td>
<td>139.20</td>
<td>20.69</td>
<td>1.66</td>
<td>12.49</td>
<td>.001</td>
</tr>
<tr>
<td>D11-10</td>
<td>36.50</td>
<td>148.64</td>
<td>36.50</td>
<td>1.77</td>
<td>20.63</td>
<td>.000</td>
</tr>
<tr>
<td>D12-11</td>
<td>81.40</td>
<td>296.17</td>
<td>81.40</td>
<td>3.53</td>
<td>23.09</td>
<td>.000</td>
</tr>
<tr>
<td>D13-12</td>
<td>160.02</td>
<td>325.23</td>
<td>160.02</td>
<td>3.87</td>
<td>41.33</td>
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</tr>
<tr>
<td>D14-13</td>
<td>32.86</td>
<td>199.68</td>
<td>32.86</td>
<td>2.38</td>
<td>13.83</td>
<td>.000</td>
</tr>
</tbody>
</table>

(e.g. Read D2-1 as the difference between paragraphs 2 and 1.)
Table E-2: Manova Results for Profile Analysis on the Paragraphs for Subway

**Test of Parallelism**
Multivariate Tests of Significance ($S = 3$, $M = 4 \frac{1}{2}$, $N = 35$)

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Value</th>
<th>F</th>
<th>DF</th>
<th>DF</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillais</td>
<td>.50</td>
<td>1.13</td>
<td>39.00</td>
<td>222.00</td>
<td>.290</td>
</tr>
<tr>
<td>Hotelling</td>
<td>.61</td>
<td>1.10</td>
<td>39.00</td>
<td>212.00</td>
<td>.328</td>
</tr>
<tr>
<td>Wilks</td>
<td>.58</td>
<td>1.11</td>
<td>39.00</td>
<td>213.96</td>
<td>.309</td>
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<tr>
<td>Roys</td>
<td>.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Test of Equality of Groups**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>DF</th>
<th>DF</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITHIN CELLS</td>
<td>52.98</td>
<td>84</td>
<td>.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSTANT</td>
<td>143.14</td>
<td>1</td>
<td>143.14</td>
<td>226.93</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRP</td>
<td>5.28</td>
<td>3</td>
<td>1.76</td>
<td>2.79</td>
<td>.046</td>
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<td></td>
</tr>
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</table>

**Test of Treatment Effects (Paragraphs)**
Multivariate Tests of Significance ($S = 1$, $M = 5 \frac{1}{2}$, $N = 35$)

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Value</th>
<th>F</th>
<th>DF</th>
<th>DF</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillais</td>
<td>.68</td>
<td>11.55</td>
<td>13.00</td>
<td>72.00</td>
<td>.000</td>
</tr>
<tr>
<td>Hotelling</td>
<td>2.09</td>
<td>11.55</td>
<td>13.00</td>
<td>72.00</td>
<td>.000</td>
</tr>
<tr>
<td>Wilks</td>
<td>.32</td>
<td>11.55</td>
<td>13.00</td>
<td>72.00</td>
<td>.000</td>
</tr>
<tr>
<td>Roys</td>
<td>.68</td>
<td></td>
<td></td>
<td></td>
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</tr>
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</table>

Univariate F-tests with $(1, 84)$ D. F.

<table>
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<th>Variable</th>
<th>SS</th>
<th>SS</th>
<th>Hypoth. Error</th>
<th>MS</th>
<th>MS</th>
<th>F</th>
<th>DF</th>
<th>DF</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2-1</td>
<td>8.04</td>
<td>84.42</td>
<td>8.04</td>
<td>1.00</td>
<td>8.00</td>
<td>.006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D3-2</td>
<td>12.27</td>
<td>113.83</td>
<td>12.26</td>
<td>1.36</td>
<td>9.04</td>
<td>.003</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D4-3</td>
<td>68.65</td>
<td>269.33</td>
<td>68.65</td>
<td>3.21</td>
<td>21.41</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D6-5</td>
<td>41.32</td>
<td>307.08</td>
<td>41.32</td>
<td>3.66</td>
<td>11.30</td>
<td>.001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D7-6</td>
<td>59.87</td>
<td>156.58</td>
<td>59.87</td>
<td>1.87</td>
<td>32.12</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D8-7</td>
<td>76.85</td>
<td>150.89</td>
<td>76.85</td>
<td>1.80</td>
<td>42.78</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D9-8</td>
<td>36.59</td>
<td>139.05</td>
<td>36.59</td>
<td>1.65</td>
<td>22.10</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D11-10</td>
<td>13.69</td>
<td>135.65</td>
<td>13.69</td>
<td>1.61</td>
<td>8.48</td>
<td>.005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D12-11</td>
<td>7.17</td>
<td>148.58</td>
<td>7.17</td>
<td>1.77</td>
<td>4.05</td>
<td>.047</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D14-13</td>
<td>115.91</td>
<td>296.56</td>
<td>115.91</td>
<td>3.53</td>
<td>32.83</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(e.g. Read D2-1 as the difference between paragraphs 2 and 1.)
Table E-3: Results of Tukey's test for the equality of the mean total number of verbalizations for the four groups on each story.

<table>
<thead>
<tr>
<th>STORY TYPE</th>
<th>STORY TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junkanoo</td>
<td>Subway</td>
</tr>
<tr>
<td>Tlsk</td>
<td>Tlsk</td>
</tr>
<tr>
<td>Nlsk</td>
<td>Nsk</td>
</tr>
<tr>
<td>Nsk</td>
<td>Nsk</td>
</tr>
<tr>
<td>Tsk</td>
<td>Tsk</td>
</tr>
<tr>
<td>25</td>
<td>21.9</td>
</tr>
<tr>
<td>29</td>
<td>26.0</td>
</tr>
<tr>
<td>30.6</td>
<td>26.1</td>
</tr>
<tr>
<td>45.7</td>
<td>38.7</td>
</tr>
</tbody>
</table>

(Critical difference = .71)  (Critical difference = 1.05)

(The underlined means indicate which pairs were significantly different at the .05 level.)
Appendix F

This appendix contains the following:

1. Manova results for condition
2. Manova results for action
3. Average action scores for Junkanoo and Subway
4. Histogram of Nassau skill groups action scores
5. Histogram of Toronto skill groups action scores
**Manova Condition Results**

The Manova results for Condition reported below were based on the transformed proportions. A standard arcsin transformation was used.

A description of the contrast vectors used in the manova are given below.

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast 1</td>
<td>Is a contrast of condition 1 with conditions 2 to 5, or General Processing versus Familiar, Unfamiliar, Text Problems, and Response to Text Question.</td>
</tr>
<tr>
<td>Contrast 2</td>
<td>Is a contrast of conditions 2 and 3 with conditions 4 and 5, or Familiar, Unfamiliar versus Text Problems, and Response to Text Question.</td>
</tr>
<tr>
<td>Contrast 3</td>
<td>Is a contrast of condition 2 with condition 3, or Familiar versus Unfamiliar.</td>
</tr>
<tr>
<td>Contrast 4</td>
<td>Is a contrast of condition 4 with condition 5, or Text Problems versus Response to Text Question.</td>
</tr>
<tr>
<td>Contrast 5</td>
<td>Is a contrast of condition 6 with conditions 1 to 6, or Meta Level versus General Processing, Familiar, Unfamiliar, Text Problems, and Response to Text Question.</td>
</tr>
</tbody>
</table>
Table F-1: Manova Results for Condition on the transformed proportions, showing tests involving 'CONDITION' Within-Subject Effect.

**EFFECT .. COUNTRY BY CONDITION**

Multivariate Tests of Significance ($S = 1, M = 1/2, N = 39$)

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Value</th>
<th>Exact</th>
<th>Hypoth.</th>
<th>Error</th>
<th>Sig. of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillais</td>
<td>.182</td>
<td>5.00</td>
<td>80.00</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td>Wilks</td>
<td>.819</td>
<td>5.00</td>
<td>80.00</td>
<td>.006</td>
<td></td>
</tr>
</tbody>
</table>

Univariate F-tests with (1,84) D. F.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth.</th>
<th>Error</th>
<th>Hypoth.</th>
<th>Error</th>
<th>Sig. of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast 4</td>
<td>.237</td>
<td>.051</td>
<td>.237</td>
<td>.036</td>
<td>6.524</td>
</tr>
</tbody>
</table>

**EFFECT .. CONDITION**

Multivariate Tests of Significance ($S = 1, M = 1/2, N = 39$)

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Value</th>
<th>Exact</th>
<th>Hypoth.</th>
<th>Error</th>
<th>Sig. of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillais</td>
<td>.984</td>
<td>1003.627</td>
<td>5.00</td>
<td>80.00</td>
<td>.000</td>
</tr>
<tr>
<td>Wilks</td>
<td>.016</td>
<td>1003.627</td>
<td>5.00</td>
<td>80.00</td>
<td>.000</td>
</tr>
</tbody>
</table>

Univariate F-tests with (1,84) D. F.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth.</th>
<th>Error</th>
<th>Hypoth.</th>
<th>Error</th>
<th>Sig. of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast 1</td>
<td>168.305</td>
<td>.489</td>
<td>344.517</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Contrast 2</td>
<td>28.409</td>
<td>.137</td>
<td>207.588</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Contrast 5</td>
<td>9.578</td>
<td>.152</td>
<td>63.190</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

**EFFECT .. COUNTRY BY STORY BY CONDITION**

Multivariate Tests of Significance ($S = 1, M = 1/2, N = 39$)

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Value</th>
<th>Exact</th>
<th>Hypoth.</th>
<th>Error</th>
<th>Sig. of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillais</td>
<td>.219</td>
<td>5.00</td>
<td>80.00</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>Wilks</td>
<td>.781</td>
<td>5.00</td>
<td>80.00</td>
<td>.001</td>
<td></td>
</tr>
</tbody>
</table>

Univariate F-tests with (1,84) D. F.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth.</th>
<th>Error</th>
<th>Hypoth.</th>
<th>Error</th>
<th>Sig. of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast 3</td>
<td>1.962</td>
<td>.091</td>
<td>21.641</td>
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</tr>
</tbody>
</table>
### Action Results

Table F-2: Manova Results for Action

#### Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITHIN CELLS</td>
<td>10.71</td>
<td>84</td>
<td>.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSTANT</td>
<td>373.10</td>
<td>1</td>
<td>373.10</td>
<td>2925.70</td>
<td>.000</td>
</tr>
<tr>
<td>COUNTRY</td>
<td>1.98</td>
<td>1</td>
<td>1.98</td>
<td>15.55</td>
<td>.000</td>
</tr>
<tr>
<td>SKILL</td>
<td>.87</td>
<td>1</td>
<td>.87</td>
<td>6.82</td>
<td>.011</td>
</tr>
<tr>
<td>COUNTRY BY SKILL</td>
<td>.33</td>
<td>1</td>
<td>.33</td>
<td>2.55</td>
<td>.114</td>
</tr>
<tr>
<td>(Corrected Model)</td>
<td>3.18</td>
<td>3</td>
<td>1.06</td>
<td>8.31</td>
<td>.000</td>
</tr>
<tr>
<td>(Corrected Total)</td>
<td>13.89</td>
<td>87</td>
<td>.16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R-Squared = .229
Adjusted R-Squared = .201

#### Tests involving 'STORY' Within-Subject Effect

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITHIN CELLS</td>
<td>2.49</td>
<td>84</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STORY</td>
<td>.42</td>
<td>1</td>
<td>.42</td>
<td>14.26</td>
<td>.000</td>
</tr>
<tr>
<td>COUNTRY BY STORY</td>
<td>.75</td>
<td>1</td>
<td>.75</td>
<td>25.29</td>
<td>.000</td>
</tr>
<tr>
<td>SKILL BY STORY</td>
<td>.05</td>
<td>1</td>
<td>.05</td>
<td>1.84</td>
<td>.178</td>
</tr>
<tr>
<td>COUNTRY BY SKILL BY STORY</td>
<td>.01</td>
<td>1</td>
<td>.01</td>
<td>1.19</td>
<td>.667</td>
</tr>
<tr>
<td>(Model)</td>
<td>1.23</td>
<td>4</td>
<td>.31</td>
<td>10.40</td>
<td>.000</td>
</tr>
<tr>
<td>(Total)</td>
<td>3.72</td>
<td>88</td>
<td>.04</td>
<td></td>
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</table>

R-Squared = .331
Adjusted R-Squared = .299
Table F-3: Average Action Scores for Junkanoo and Subway

<table>
<thead>
<tr>
<th></th>
<th>JUNKANOO</th>
<th></th>
<th>SUBWAY</th>
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<tbody>
<tr>
<td>COUNT</td>
<td>LESS</td>
<td></td>
<td>COUNT</td>
</tr>
<tr>
<td>STD. DEV.</td>
<td>SKILLED</td>
<td>SKILLED</td>
<td>row</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td></td>
<td>total</td>
</tr>
<tr>
<td>NASSAU</td>
<td>22</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>.37</td>
<td>.37</td>
<td>.37</td>
</tr>
<tr>
<td>TORONTO</td>
<td>21</td>
<td>23</td>
<td>44</td>
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<tr>
<td></td>
<td>.18</td>
<td>.28</td>
<td>.27</td>
</tr>
<tr>
<td>column</td>
<td>1.32</td>
<td>1.49</td>
<td>1.41</td>
</tr>
<tr>
<td>total</td>
<td>43</td>
<td>45</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>.36</td>
<td>.35</td>
<td>.37</td>
</tr>
</tbody>
</table>
### Less-Skilled Nassau readers, Junkanoo (N = 22).

<table>
<thead>
<tr>
<th>Midpoint</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>1.0</td>
<td>4</td>
</tr>
<tr>
<td>1.1</td>
<td>2</td>
</tr>
<tr>
<td>1.2</td>
<td>0</td>
</tr>
<tr>
<td>1.3</td>
<td>0</td>
</tr>
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<td>1.4</td>
<td>3</td>
</tr>
<tr>
<td>1.5</td>
<td>4</td>
</tr>
<tr>
<td>1.6</td>
<td>0</td>
</tr>
<tr>
<td>1.7</td>
<td>1</td>
</tr>
<tr>
<td>1.8</td>
<td>2</td>
</tr>
<tr>
<td>1.9</td>
<td>4</td>
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### Skilled Nassau readers, Junkanoo (N = 22).

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### Less-Skilled Nassau readers, Subway (N = 22).

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### Skilled Nassau readers, Subway (N = 22).

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**Figure F-1:** Histograms of Nassau Skill Group Action Scores.
**Less-Skilled Toronto readers, Junkanoo (N = 21).**

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<td>1.4</td>
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**Skilled Toronto readers, Junkanoo (N = 23).**

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**Less-Skilled Toronto readers, Subway (N = 21).**

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**Skilled Toronto readers, Subway (N = 23).**

<table>
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<tr>
<td>1.7</td>
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</table>

Figure F-2: Histograms of Toronto Skill Group Action Scores.
Appendix G

This Appendix contains the following:

1. Results for the postquestions: Results & Recall
2. Combined postquestion results (recall and reflect)
3. Manova results for recall and reflect
4. Results for Cloze
5. Results for Multiple Choice
6. Manova results for cloze and multiple choice

PostQuestion: Recall and Reflect Results
### Table G-1: Average Recall Results for Junkanoo

<table>
<thead>
<tr>
<th></th>
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<th>SKILLED</th>
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<th></th>
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</tr>
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<tbody>
<tr>
<td>NASSAU</td>
<td>1.82</td>
<td>1.74</td>
<td>1.79</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>.60</td>
<td>.48</td>
<td>.53</td>
<td>.60</td>
<td>.53</td>
</tr>
<tr>
<td>TORONTO</td>
<td>1.31</td>
<td>1.62</td>
<td>1.47</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>.48</td>
<td>.58</td>
<td>.55</td>
<td>.48</td>
<td>.58</td>
</tr>
<tr>
<td>COLUMN</td>
<td>1.57</td>
<td>1.68</td>
<td>1.62</td>
<td>38</td>
<td>39</td>
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<tr>
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<td>7.7</td>
<td>3.8</td>
<td>3.9</td>
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### Table G-2: Average Recall Results for Subway

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</tr>
</thead>
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<tr>
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<td>.60</td>
<td>.64</td>
<td>.56</td>
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<td>1.64</td>
<td>1.42</td>
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<td>23</td>
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<td>.53</td>
<td>.51</td>
<td>.34</td>
<td>.53</td>
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Table G-1: Average Recall Results for Junkanoo

Table G-2: Average Recall Results for Subway
Table G-3: Manova Results for Recall

### Tests of Between-Subjects Effects.

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<tr>
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<td>.83</td>
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<td>.133</td>
</tr>
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<tr>
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R-Squared = .125
Adjusted R-Squared = .085

### Tests involving 'STORY' Within-Subject Effect.

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<td>.73</td>
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<tr>
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<tr>
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R-Squared = .122
Adjusted R-Squared = .068
### Table G-4: Average Reflect Results for Junkanoo

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### Table G-5: Average Reflect Results for Subway

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<td>1.06</td>
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Table G-4: Average Reflect Results for Junkanoo

Table G-5: Average Reflect Results for Subway
Table G-6: Manova Results for Reflect.

### Tests of Between-Subjects Effects.

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<th>MS</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
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<td>.27</td>
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<td>.44</td>
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<td>.218</td>
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<td>.00</td>
<td>.00</td>
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<td>.01</td>
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</table>

(Corrected Model) .45 3 .15 .55 .653

(Corrected Total) 6.77 26 .26

R-Squared = .067
Adjusted R-Squared = .000

### Tests involving ‘STORY’ Within-Subject Effect.

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<th>MS</th>
<th>F</th>
<th>Sig of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITHIN CELLS</td>
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<td>.00</td>
<td>.01</td>
<td>.940</td>
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<td>SKILL BY STORY</td>
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<td>.35</td>
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<td>.18</td>
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<td>.18</td>
<td>.84</td>
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</tbody>
</table>

(Model) .94 4 .23 1.09 .383

(Total) 5.86 27 .22

R-Squared = .160
Adjusted R-Squared = .014
Table G-7: Combined Postquestions Results

**JUNKANOO**

<table>
<thead>
<tr>
<th></th>
<th>LESS SKILLED</th>
<th>SKILLED</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>row total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NASSAU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEAN</td>
<td>1.70</td>
<td>1.60</td>
<td>1.64</td>
</tr>
<tr>
<td>COUNT</td>
<td>19</td>
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<td>40</td>
</tr>
<tr>
<td>STD. DEV.</td>
<td>.56</td>
<td>.40</td>
<td>0.48</td>
</tr>
<tr>
<td>TORONTO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEAN</td>
<td>1.33</td>
<td>1.33</td>
<td>1.33</td>
</tr>
<tr>
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**SUBWAY**

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Posttests: Cloze and Multiple Choice Results.

Table G-8: Manova Results for Cloze.

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### Table G-9: Average Cloze Scores for Junkanoo

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### Table G-10: Average Cloze Scores for Subway

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**Table G-9:** Average Cloze Scores for Junkanoo

**Table G-10:** Average Cloze Scores for Subway
Table G-11: Manova Results for Multiple Choice.

### Tests of Between-Subjects Effects.

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R-Squared = .489  
Adjusted R-Squared = .471

### Tests involving 'STORY' Within-Subject Effect.

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R-Squared = .497  
Adjusted R-Squared = .473
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**Table G-12:** Average Multiple Choice Scores for Junkanoo

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**Table G-13:** Average Multiple Choice Scores for Subway
Appendix H

Note that ActionJ refers to action junkanoo and that ActionS refers to action subway. The contents of this appendix are the following:

1. Action/Gates scatterplots
2. Action scores and number of vocalizations
3. Scatterplots for action scores and number of vocalizations
4. Crosstabulations with skill groups with conditions and actions
5. Postquestions and action correlations
Figure H-1: ActionJ vs Total Gates for Nassau showing Less Skilled and Skilled Readers (L = less skilled, S = skilled)
**Figure H-2:** ActionS vs Total Gates for Nassau showing Less Skilled and Skilled Readers (L = less skilled, S = skilled)

**Figure H-3:** ActionJ vs Total Gates for Toronto showing Less Skilled and Skilled Readers (L = less skilled, S = skilled)
Figure H-4: ActionS vs Total Gates for Toronto showing Less Skilled and Skilled Readers (L = less skilled, S = skilled)
**Table H-1:** Descriptive statistics for Action Scores and Number of Vocalizations. (N1 = Number of vocalizations for ActionJ; N2 = Number of vocalizations for ActionS.)

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Figure H-5: ActionJ as a function of the Number of Vocalizations for Less-Skilled Nassau Readers.

Figure H-6: ActionS as a function of the Number of Vocalizations for Less-Skilled Nassau Readers.
Figure H-7: Action J as a function of the Number of Vocalizations for Skilled Nassau Readers.

Figure H-8: Action S as a function of the Number of Vocalizations for Skilled Nassau Readers.
Figure H-9: ActionJ as a function of the Number of Vocalizations for Less-Skilled Toronto Readers.

Figure H-10: ActionS as a function of the Number of Vocalizations for Less-Skilled Toronto Readers.
Figure H-11: ActionJ as a function of the Number of Vocalizations for Skilled Toronto Readers.

Figure H-12: ActionS as a function of the Number of Vocalizations for Skilled Toronto Readers.
Crosstabulations of Skill Groups With Conditions and Action for Junkanoo and Subway

Table H-2: Crosstabulations of Action with Condition for Less-Skilled Nassau Readers on Junkanoo

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Postquestions and Action Correlations for Junkanoo and Subway.
Table H-3: Crosstabulations of Action with Condition for Skilled Nassau Readers on Junkanoo

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|        | 51.8 | 17.9 | 7.6 | 3.5 | 13.8 | 5.4 | 100.0 |

Table H-10: Correlations of Postquestions -- Recall, Reflect -- with Action for Junkanoo(J), Subway(S) by Country.

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| Toronto        |                |                |                |                |                |                |
|                | Sig     | | (N)     |         | Sig     | | (N)     |         | Sig     | | (N)     |         |
| RecallJ        | -.04    | .04    | .32     | .28   | -.17   | -.15   | .19     | -.04   | .18    | .23    |
| Sig            |         |         | (20)    | (19)  | (N)    |        |
| (N)            |         |         |         |       | (31)   | (25)  |