PRELIMINARY DATA ON A TEST OF ABILITY TO IDENTIFY THE MAIN
IDEAS OF PARAGRAPHS IN EXPOSITORY MATERIAL

by

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ABSTRACT

The study was designed to collect data on the first and second drafts of a test of ability to recognize the main ideas in paragraphs of expository material.

The study required two major steps. The first step was to design and conduct a preliminary study. In the preliminary study twenty-seven grade six and seven students were administered a Main Ideas in Paragraphs Test on three levels, (grades 3/4, 4/5 and 5/6) consisting of four tasks; Choose the Best Title, Choose the Best Question, Write the Question and Write the Main Idea.

In the second step, the main study, the Main Ideas in Paragraphs Test was administered to 230 fourth, fifth and seventh grade students in the schools.

Scores collected in the study will be used as the data base for further revision of the test.
# Table of Contents

ABSTRACT

LIST OF CHARTS

LIST OF TABLES

ACKNOWLEDGEMENTS

I. The Problem
   A. Statement of the Problem
   B. Rationale for The Study
   C. Design of the Study
      1. Preliminary Study
      2. Main Study
   D. Definition of Terms
   E. Limitations of the Study
   F. Significance of the Study
   G. Organization of the Thesis

II. Review of the Related Literature
   A. The Importance of Teaching Reading In the Content Areas
      1. Summary
   B. Main Ideas of Paragraphs and Reading in the Content Areas
      1. Importance of Teaching Main Ideas in Paragraphs
      2. Studies in Reading for Main Ideas in Paragraphs
      3. Summary
   III. Design of the Study
      A. Materials
      B. Procedures
         1. Preliminary Study
         2. The Main Study
3. Summary ...........................................................................................................23

IV. Results, Discussion, and Recommendations ................................................24
   A. Analysis of Data ..........................................................................................24
   B. Discussion ..................................................................................................29
   C. Recommendations For Future Research ...................................................29
   D. Summary ....................................................................................................29

APPENDIX A ........................................................................................................30
   A. Sample Test Booklet ..................................................................................30
   B. Set A—Choose the Best Title .....................................................................31
   C. Set B—Which Question Does the Paragraph Answer? ............................33
   D. Set C—Write the Question ..........................................................................35
   E. Set D—Write the Main Idea ........................................................................36

APPENDIX B—SAMPLE TEXT BOOKLET ..............................................................37
   A. Subjective Answer Key ..............................................................................37

APPENDIX C—ANSWER BOOKLET ....................................................................38

APPENDIX D—TEACHER'S GUIDE ....................................................................41

BIBLIOGRAPHY ....................................................................................................48
LIST OF TABLES

I Population of the Study 19
II Interrater Reliability for Scoring Generative Responses 21
III Mean Scores on Main Ideas in Paragraphs—Grade Four 24
IV Mean Scores on Main Ideas in Paragraphs—Grade Five 25
V Mean Scores on Main Ideas in Paragraphs—Grade Six 26
VI Mean Scores on Main Ideas in Paragraphs—Grade Seven 27
LIST OF CHARTS


18
I. THE PROBLEM

A. STATEMENT OF THE PROBLEM

The problem of the study was to collect data on the first and second drafts on a test of how to recognize the main ideas in paragraphs of expository material.

B. RATIONALE FOR THE STUDY

For many years reading methodologists have suggested that from grade four upwards children need to learn to read their textbooks (Shores, 1943; McKee, 1948; Spache, 1958; Herber, 1970; Hennicks, 1980; Storey, 1983). Among the skills considered to be important in reading in the content areas is the ability to find main ideas in paragraphs. Reading theorists agree that the ability to understand the main idea of a paragraph is fundamental to reading content material successfully (Shores, 1960; Ferguson, 1969; Shepherd, 1969; Herber, 1970; Spache and Spache 1973; McElwee, 1974; Roehler, 1974; Axelrod, 1975; Alexander, 1976; Dishner and Readence, 1977; Donlan, 1980; Bauman, 1981; Avermann, 1982). It is believed, in fact, that a student will be unable to master higher levels of comprehension in the content areas until he/she can find main ideas.

In an attempt to assist teachers to teach main ideas publishers provide practice materials in finding main ideas (Schick, Schmidt and Schumoeher, 1969; Durrell, Furbush and Ross, 1975; Liddle, 1977; Merrill, 1977; Anderson, Stone and Dolan, 1978; Boning, 1978; Boning, 1980).

In spite of the agreement that there is a need for students to understand the main idea of a paragraph and the fact that commercial
materials are available for students to practice finding the main idea, no one has studied the evolution of the ability in children at the appropriate ages who may or may not have received specific instruction in finding Main Ideas of Paragraphs. Many questions should be answered: Do children begin to develop this skill naturally at about the grade four level and improve it over the years in the school setting or does this skill require careful instruction? Does task type influence the students' ability to identify the main idea of paragraphs? Such questions can only be answered if a valid and reliable test is available for use as a test instrument.

C. DESIGN OF THE STUDY

The study required two major steps:

1. PRELIMINARY STUDY

The first step was to prepare a test that would measure students' ability to find Main Ideas in Paragraphs. The three sources used were instructional materials already written and based on McKee's (1948) proposed levels of difficulty: Main Ideas in Paragraphs 3/4 (Catterson and MacNieil-120 paragraphs); Getting the Main Ideas of Paragraphs 4/5 (Catterson and Hoiland-120 Paragraphs) and Main Ideas 5/6 (Catterson and Holtby-30 Paragraphs). Forty-eight randomly selected paragraphs were packaged in three levels; A, B, and C. Results from applying the Fry Readability Formula indicated these grade levels: level A - grade 3, level B - grade 5, and level C - grade 6.

In addition to the test, a teacher's guide, based on the Canadian Tests of Basic Skills format, was written as a guide for administering the tests. A student answer booklet and an answer key for teachers
were also developed.

The researcher's own grade six/seven class at an elementary school in suburban Vancouver was used in the preliminary study. Twelve grade seven students and fifteen grade six students were given the Main Ideas in Paragraphs Test. Revisions were made to the test on the basis of the results obtained.

2. MAIN STUDY

The revised test was administered to 230 students in two elementary schools in suburban Vancouver. The two schools selected for the study were on an availability basis and were typical of suburban Vancouver schools as stated by a senior school district administrator. Reading scores for all students in the study were derived from the Nelson Reading Skills Test for possible use and further analysis.

D. DEFINITION OF TERMS

Only one definition was required for the study. For the purpose of this study a main idea is defined in A Dictionary of Reading and Related Terms, the official International Reading Association publication, as follows:

1. The central thought, meaning, or gist of a passage,

2. The chief topic of a passage expressed or implied in a word or a phrase, (Harris and Hodges, 1981).
E. LIMITATIONS OF THE STUDY

The limitations of the study are:
1. The sample used in the preliminary study was not randomly selected.
2. The two schools used in the second study were not randomly selected.

F. SIGNIFICANCE OF THE STUDY

This study is seen as having significance in that it will provide a data base for use in revising a projected test of main ideas in paragraphs.

G. ORGANIZATION OF THE THESIS

The thesis is organized into four chapters. Chapter one presents the problem. Chapter two reviews the related literature. Chapter three describes the design of the study and presents the data; and finally, Chapter four summarizes the study and states the conclusions.
II. REVIEW OF THE RELATED LITERATURE

The review of literature is discussed under the following headings: The Importance of Teaching Reading in the Content Areas; The Importance of Teaching Main Ideas of Paragraphs; and Studies Related to Main Ideas in Paragraphs.

A. THE IMPORTANCE OF TEACHING READING IN THE CONTENT AREAS

Teaching reading in the content areas is important. As early as 1943 it was being said that every teacher, regardless of what he/she taught, was a teacher of reading (Shores, 1943). McKee (1948) agreed that there was a need to teach students how to read their textbooks.

Later, Spache (1958) warned that it is important to teach content area reading skills. He pointed out that a student’s good general reading ability is not a guarantee that he/she will read well in the content areas. He stressed the idea that the transfer is not automatic because content areas differ too widely in vocabularies, fact relationships, reasoning, types and background information. Spache concluded that competence in these areas comes only after skillful teaching.

Some twenty years later Earle (1969) expressed the same idea when he said that a student benefits most when content and the reading process are taught together. At almost the same time Niles (1969) was suggesting a need to stress the importance of teaching reading in the content areas when she reminded us that content area teachers, being specialists, often neglect this important area. Still later, Herber (1970) advocated the strong need to teach reading in the content areas.

Earp (1973) insisted that teachers of all types must recognize and accept the idea that reading instruction goes on all day. In the same year...
Spache and Spache (1973) noted that the necessity to teach content area reading becomes even more vital when one realizes the shortcomings of the educational system and the difficulties children have in this area. They claimed that part of the problem that students face is that they learn to read using basal readers and basal readers, containing mostly narrative material, do not adequately prepare a student to read in the content areas.

McElwee (1974) maintained that many students not only cannot read the assigned textbooks but have serious difficulty with commercial, supplementary, and teacher prepared materials, therefore making the teaching of content area reading very important.

Addressing this concern, Catterson (1974), suggested the importance of helping students understand the specific patterns of writing that occur in content areas.

Uprichard (1976) appeared to agree with Catterson's idea when he stated that the mathematical development of children correlates highly with their ability to read mathematics. The relationship between a learner's mathematical development and his/her ability to read mathematics is such, he said, that it is necessary for successful mathematics teachers also to be teachers of reading mathematics.

Lunstrum (1978) believed that a general failure to teach reading in the content areas is the major reason why many students entering university do not read well. He noted (p. 2) that as a student leaves his reading or English class and moves into the content areas much of his/her success depends upon his/her ability to read the material provided in these classes. Starting in about the fourth grade, he pointed out, the student faces content textbooks and the student is expected not only to master the materials but also to learn the types of unique thinking that pertain to
each area. Kurlik (1980) concurred with the opinion that if the student is to have success in this area then he/she must be taught how to read in the content areas.

Further evidence of the importance of learning to read in the content areas is provided by Henrichs and Sisson (1980) who challenged the traditional practise of teaching reading only as a separate subject. In their IV-C Project they found that students often carelessly skimmed the mathematics textbook with little understanding of the material. This necessitates, they say, that students be taught that reading rate must depend on the type and purpose of reading. They concluded that the teaching of reading is essential in all subjects and grades.

An examination of the literature in content area reading by O'Mara (1981) underscored the findings of Henrichs and Sisson. She found that content reading is more complex than reading English prose because it contains technical vocabulary, symbols, and a higher density of information. In the same year Gaskins (1981) supported O'Mara and claimed that even the reading and study skills taught using the nonfictional material that is in basal readers does not "do the job." In her opinion there is little transfer of these skills to the content area textbooks.

Finally, Storey (1982) has warned that, as students move through the system, reading that is extraneous to the reading or English class becomes frequent and important. He said the early emphasis on skill acquisition shifts to information gathering, thereby making reading in the content areas that much more important.
SUMMARY

It seems clear that the literature supports the importance of teaching reading in the content areas. A number of authorities have stated that not only is reading in the content areas important for success in acquiring content information but that it must be actively taught.

B. MAIN IDEAS OF PARAGRAPHS AND READING IN THE CONTENT AREAS

If it is agreed that content area reading should be taught, teachers need to inform themselves about the subskills required. Although the list of subskills required for content area reading is lengthy, one of the most commonly cited is the ability to obtain main ideas of paragraphs. Many writers consider it critical and publishers have produced materials related to it.

1. IMPORTANCE OF TEACHING MAIN IDEAS IN PARAGRAPHS

There is evidence that educators over a period of years have addressed the importance of teaching main ideas in paragraphs. Thorndike (1934), for example, stated that a student's understanding of main ideas in paragraphs cannot be taken for granted. He emphasized that a student's understanding of all the words in a paragraph does not guarantee that he/she understands the main idea of a paragraph. Such an understanding, he thought, depends upon specialized abilities which must be taught.

Some time later, McKee (1948) agreed that a student needs to understand the relationships among sentences in a paragraph and the main idea contained therein. The superior reader, he said, seems to
determine the main idea of a paragraph almost unconsciously. However, he added, most students are not skillful at finding main ideas in paragraphs. McKee encouraged the systematic instruction of main ideas in paragraphs and suggested beginning in elementary school (p 92).

Betts (1954) supported McKee's opinion stating that students need teacher guidance in learning to understand the main ideas of paragraphs.

At about the same time, Durrell (1956) was pointing out that the organization of ideas is taught through various steps which include the teaching of main ideas in paragraphs.

Since content material appears to have inherent difficulties it appears that there is a need for actual teaching to occur. This was suggested by Robinson (1960). He suggested that students, before they will be able to find main ideas readily, will need a great deal of assistance.

Arnsdorf (1963) pointed out that the high readability level of content area textbooks is an important reason to teach students how to find main ideas in paragraphs. A major problem in this area, he said, is that many content area textbooks are often written at a level which is considered higher than the grade level for which they are assigned.

In 1969 Ferguson agreed and pointed out that this problem is especially evident in social studies material which is closely structured and densely packed with ideas and concepts. He believed that the teaching of main ideas in paragraphs is essential for success in content area reading.
The following year Herber (1970) insisted that despite the importance of finding the main idea when reading content area material it seemed that many students, to the detriment of their comprehension were unable to do this task. Hence it is necessary to teach the skill of stating main ideas to ensure that students will be able to comprehend content material at higher levels.

Arnsdorf's (1963) concern with readability was also advanced by Campbell (1972), Janz (1972), and Johnson and Vardian (1973) who all echoed the need to teach main ideas in paragraphs as a means of helping students deal with difficult content area materials. At about the same time, Spache and Spache (1973) concurred that the teaching of main ideas in paragraphs should not be neglected.

Axelford (1975) and Alexander (1976) both have supported Spache and Spache's statement and both have stressed the importance of learning to read for main ideas of paragraphs in content areas. According to Dishner and Readence (1977) being able identify the main idea is the most fundamental of all content area reading skills. They thought that if students are not taught this skill, then other reading/study skills such as recognizing organizations, summarizing, and outlining are weakened.

In agreement with Dishner and Readence are Lunstrum and Taylor (1978) who stated that in order for students to read content material successfully they must be able to bring information together into some form of summary or main idea. Donlan (1980) agreed that being able to distinguish the main idea of a paragraph of content material is often what separates good readers from ineffective readers.
Finally, Kameenui and Carnine (1982) have warned that content area textbooks are often written at a high readability level making them difficult for students to read for main ideas in paragraphs.

2. STUDIES IN READING FOR MAIN IDEAS IN PARAGRAPHS

In spite of the stated importance of reading for main ideas in paragraphs and the related published materials, little is known about students' ability to read for main ideas in paragraphs. A literature review shows that few studies have been conducted to determine the extent to which students are able to find the main ideas in paragraphs.

Otto, Barrett and Koenke (1969) conducted a study to seek descriptive data regarding childrens' main idea statements. They tested 200 second graders and 200 fifth graders from four Madison, Wisconsin schools. There were equal numbers of boys and girls in the study. Each student was tested individually and asked to read and state the main idea of three paragraphs written at the first grade level.

The experimenters found that second grade subjects did not score as well as fifth grade subjects on the task of deriving a literal main idea statement. However, they noticed that many of these second grade subjects were capable of responding with statements which approximated the main idea (ie, title).

Otto, Barrett and Koenke concluded that further research is needed to determine if fifth graders, who appear to be able to formulate main idea statements of simple paragraphs, can do the same with more complex material. They stated that such research might conclude that formal main idea instruction should be postponed until the later elementary years.
Later, Williams and Stevens (1972) attempted to determine the effect of paragraph structure on a pupil’s ability to summarize the main idea and find the topic sentence of a paragraph. The study utilized a population of 382 elementary pupils grades three to six and 531 secondary pupils in grades seven to ten. The experimenters investigated the effect of the placement of the topic sentence at the beginning, middle, or end of a paragraph on the pupils’ ability to underline the topic sentence and to write a title for each paragraph summarizing its main idea. The paragraphs for the elementary and secondary pupils were written at the fourth and sixth grade levels respectively.

Williams and Stevens found that the criterion tasks were much easier for elementary students when the topic sentence was at the beginning of the paragraphs than when it was in the other two positions. On the other hand, paragraphs in which the topic sentence was neither first nor last appeared to cause the most difficulty for secondary students.

Further related research was conducted by Van Blaricom and White (1976) who conducted two experiments. The first experiment was designed to detect any differences between selecting a main idea statement and generating a main idea statement; the purpose of the second experiment was to determine whether the existence of topic sentences in paragraphs had an effect on selecting or generating main idea responses.

The experimenters used 100 fifth graders from a semi-rural school for the first experiment and they used 120 fifth graders from two public schools for the second experiment.
Van Blaricom and White discovered significant differences between the control and experimental groups in the first experiment. They noted that less than fifty percent of the students who were successful in selecting the correct main idea from among four options were also successful in generating a main idea response with comparable success. Also, in the second experiment the scores on both dependent measures (selection and generation) were greater for paragraphs containing topic sentences.

The researchers concluded that the results of these experiments indicate that selecting and generating main ideas are different tasks and that main idea comprehension is affected by paragraph organization. They believe that these conclusions have serious implications for testing.

Three years later Van Blaricom (1979) conducted another study to test the assumption that main idea comprehension is not a single task, but that it is affected by certain factors inherent in the nature of the required task. She identified two factors in her study: passage organization and type of main idea paragraph questions asked. The study questioned whether passage organization and question type affect performance on a main idea task. The study utilized sixty pupils in grades three and four.

The first factor Van Blaricom studied was the effect of question type on main idea performance. She selected three question types of apparent increasing sophistication: the topic, the title, and the main idea statement. The pupils were asked to read twenty paragraphs and to attempt the three tasks for each paragraph.
The second factor studied how the presence of a topic sentence in a paragraph affects main idea comprehension. The pupils were asked to read twenty paragraphs, of which ten had topic sentences and ten did not. Three main idea questions followed each paragraph.

Van Blaricom found that there were degrees of sophistication of main idea comprehension questions and that pupil performance varied with the required task. She also reconfirmed that the presence of topic sentence in a paragraph affects main idea comprehension.

The experimenters concluded, firstly, that an instructional sequence for main idea comprehension should be used in schools. Secondly, there is a need to consider paragraph organization when asking for main idea comprehension and differentiate instruction accordingly.

In a more recent study Bauman (1981) attempted to find out how skillful students are at finding main ideas in paragraphs. A total of 83 third graders and 89 sixth graders were used in this study in their own classrooms. The students read unaltered expository prose from classroom textbooks and main idea comprehension was assessed. The results indicated that students tended not to comprehend the main idea of a paragraph. They did have some success at stating the main idea of one or two sentences but they experienced difficulty with larger thought units. Bauman concluded that educators should continue to teach students how to comprehend main ideas, especially in content area reading materials.
3. SUMMARY

Educators over the years have discussed the importance of teaching main ideas in paragraphs. It is also a skill which must be taught. However, in spite of the fact that a great many authors have stated that finding the main idea of a paragraph is an important content area reading skill, there has been little research done to determine the sequence in which students acquire this skill.
III. DESIGN OF THE STUDY

This chapter presents a description of the materials used in the studies and the procedures employed in collecting data on a test of the ability of intermediate pupils in recognizing the main ideas in paragraphs of expository material.

A. MATERIALS

The study required the administration of a *Main Ideas in Paragraphs* test. Three existing main ideas in paragraphs instructional packages: *Main Ideas in Paragraphs* 3/4 (Catterson and McNeill), *Getting the Main Ideas in Paragraphs* 4/5 (Catterson and Hoiland), and *Main Ideas* 5/6 (Catterson and Holtby), were examined. Each package level consisted of four criterion tasks: A) Choose the Best Title; B) Choose the Best Question; C) Write the Question; and D) Write the Main Idea Statement (two objective tasks and two generative tasks in which answers had to be created).

From these three sets of existing paragraphs and results from the preliminary study, sixty paragraphs were randomly selected for the total test be used in this study. Each test consisted of twenty paragraphs, five paragraphs for each criterion task. The criterion tasks were: A) Choose the Best Title, B) Which Question Does the Paragraph Answer?, C) Write the Question, and D) Write the Main Idea (see samples, Appendix A).

When the *Fry Readability Scale* was applied to the paragraphs in each of the three level packages, the paragraphs were found to be on grade levels 3, 5 and 6, respectively.

In addition to the test, an answer key for each criterion task at each level was also developed (Appendix B). Student answer booklets were designed (Appendix C) and a teacher’s guide based on the format of the
Canadian Test of Basic Skills was written for teachers (Appendix D).

B. PROCEDURES

The procedures of the study involved two major phases:

1. PRELIMINARY STUDY

a. Population

A total of twenty-seven students, fifteen sixth graders and twelve seventh graders, in a suburban Vancouver elementary school were administered the Main Ideas in Paragraphs Test consisting of forty-eight paragraphs, sixteen in each of three levels, four for each criterion task.

b. Test Administration

The preliminary study took place in May 1983. The three test packages were administered during three sittings. Test booklets were scored by the researcher.

c. Analysis of Data and Results

The results of the preliminary study were analyzed using a LERTAP PROGRAM at the University of British Columbia Computing Center. Based on the analysis of the data collected it was found that:

1. A number of the test items were not performing acceptably.
2. The grade seven students scored significantly higher on the test than the sixth graders.
3. Those students who were perceived as being better readers by the teacher scored higher on the test than those students who were perceived by the teacher as being poor readers.
4. The Hoyt Estimate of Reliability for each individual set of paragraphs was not high. However, the reliability for the entire test was found to be 0.86.

5. The range of scores was 16 to 44, with the mean being about 34.

d. Discussion

As a result of the findings obtained from the preliminary study it was concluded:

1. Scoring inconsistencies in the subjectively scored parts of the test demanded a scoring protocol.
2. Some revisions of paragraphs were required.
3. In-service training for administrators of the test is needed to ensure maximum student performance.

2. THE MAIN STUDY

a. Materials

Based on the findings of the preliminary study several changes were made for the major study. These changes were:

1. A number of paragraphs in the Main Ideas in Paragraphs test were altered or deleted by one of the original authors (Catterson). Also, one paragraph and corresponding task were added to each section to bring the total number of paragraphs in the Main Ideas in Paragraphs test to sixty, twenty at each level.
2. Reading scores for each student in the study were obtained from the Nelson Reading Skills Test (1977).
3. An eight point scale, adapted from the Otto, Barrett and Koenke (1969) twelve point scale, was developed for marking the two generative main idea responses (Chart 1).

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No response</td>
<td>0</td>
<td>No response</td>
<td>0/8</td>
</tr>
<tr>
<td>Irrelevant or incorrect material</td>
<td>1</td>
<td>Irrelevant or incorrect material</td>
<td>1/8</td>
</tr>
<tr>
<td>One element partially given</td>
<td>2</td>
<td>One element partially given - a key word but too global</td>
<td>2/8</td>
</tr>
<tr>
<td>One element too generally or specifically stated, plus irrelevant or incorrect data</td>
<td>3</td>
<td>One element too generally or specifically stated, plus irrelevant material or incorrect data</td>
<td>3/8</td>
</tr>
<tr>
<td>One element too generally or specifically stated</td>
<td>4</td>
<td>One element too generally or specifically stated, but no irrelevant or incorrect data</td>
<td>4/8</td>
</tr>
<tr>
<td>Two elements too generally or specifically stated, plus irrelevant or incorrect data</td>
<td>5</td>
<td>Two elements too generally or specifically stated, plus irrelevant or incorrect data</td>
<td>5/8</td>
</tr>
<tr>
<td>Two elements too generally or specifically stated</td>
<td>6</td>
<td>Two elements too generally or specifically stated, but no irrelevant or incorrect data</td>
<td>6/8</td>
</tr>
<tr>
<td>One element correctly stated plus irrelevant or incorrect data</td>
<td>7</td>
<td>One or two elements correctly stated, plus some minor irrelevant or incorrect data</td>
<td>7/8</td>
</tr>
<tr>
<td>One element correctly stated</td>
<td>8</td>
<td>One or two elements stated correctly</td>
<td>8/8</td>
</tr>
<tr>
<td>One element correctly stated plus one element too generally or specifically stated plus irrelevant or incorrect data</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One element correctly stated plus one element too generally or specifically stated</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Two elements correctly stated plus irrelevant or incorrect data</td>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
b. Population and Procedures

The *Main Ideas in Paragraphs* test was administered to 220 intermediate students in eight classes from two schools in suburban Vancouver (Table 1).

**TABLE I - Population of the Study**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number</th>
<th>Grade</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>32</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>5</td>
<td>19</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>6</td>
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</tr>
<tr>
<td>7</td>
<td>33</td>
<td>7</td>
<td>32</td>
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<td><strong>TOTALS</strong></td>
<td><strong>110</strong></td>
<td></td>
<td><strong>120</strong></td>
</tr>
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</table>
The two schools selected for the study are typical of suburban Vancouver elementary schools as stated by senior staff administration.

c. Test Administration

Teachers involved in the testing were provided in-service sessions during which testing procedures were outlined. During the first week in May, 1984 all students were administered each of the three levels of the *Main Ideas of Paragraphs* test. Three sessions were used for testing.

The test answer booklets were collected and marked by the researchers. The eight point scale based on the Otto, Barrett and Koenke (1969) scale for numeric order was used for distributing marks to responses.

To ensure reliability in scoring responses, a reliability measure for the scoring of the generative responses was derived by randomly selecting ten answer booklets which were evaluated by two independent markers. The results from these two independent evaluations were measured for reliability with researchers' results using the *Statistical Package for the Social Sciences (SPSS)* at the University of British Columbia Computing Center. The *Pearson Reliability Coefficients* are presented in Table 2.
<table>
<thead>
<tr>
<th>Level</th>
<th>Raters</th>
<th>Reliability Coefficient</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1/2</td>
<td>.961</td>
</tr>
<tr>
<td></td>
<td>1/3</td>
<td>.961</td>
</tr>
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<tr>
<td></td>
<td>2/3</td>
<td>.999</td>
</tr>
</tbody>
</table>
d. Analysis of Data

The data were analysed using the LERTAP PROGRAM at the University of British Columbia Computing Center. This analysis provided the statistics necessary for answering the questions of the study.

3. SUMMARY

This chapter presented a description of the design of the study. A discussion was presented on the selection of the *Main Ideas of Paragraphs* test and construction of related materials such as the teacher’s guide, answer key and a student’s answer booklet which were used in the major study. In addition reference was made to the subjective marking scale used for scoring responses. Procedures used in both the preliminary study and main study were described.
IV. RESULTS, DISCUSSION, AND RECOMMENDATIONS

The purpose of the study was to collect data on the first and second drafts of a test of ability to recognize the main ideas in paragraphs of expository material. This chapter presents, the results of the data gathered followed by a discussion of their relationship to the questions of the study.

A. ANALYSIS OF DATA

The results obtained from student performance on the Main Ideas in Paragraphs Test are summarized by grade in tables three to six. The tables are the result of a statistical analysis of the data using the LERTAP PROGRAM at the University of British Columbia Computing Centre.

Table 3 shows the results of the data collection in Grade Four.
TABLE 3 - Mean Scores and Standard Deviations on Main Ideas in Paragraphs - Grade Four

(n = 57)

<table>
<thead>
<tr>
<th>Test</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Set A - Choose the Best Title</td>
<td>22.74</td>
<td>9.42</td>
<td>27.79</td>
</tr>
<tr>
<td>Set B - Choose the Best Question</td>
<td>25.26</td>
<td>9.04</td>
<td>25.54</td>
</tr>
<tr>
<td>Set C - Write the Question</td>
<td>8.50</td>
<td>7.20</td>
<td>23.05</td>
</tr>
<tr>
<td>Set D - Write the Main Idea</td>
<td>18.75</td>
<td>12.20</td>
<td>13.70</td>
</tr>
</tbody>
</table>

Table 4 shows the results of the data collection in Grade Five.
TABLE 4 - Mean Scores and Standard Deviations on Main Ideas in Paragraphs - Grade Five 
(n = 50)

<table>
<thead>
<tr>
<th>Test</th>
<th>Level 1 Mean</th>
<th>Level 1 SD</th>
<th>Level 2 Mean</th>
<th>Level 2 SD</th>
<th>Level 3 Mean</th>
<th>Level 3 SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set A - Choose the Best Title</td>
<td>25.12</td>
<td>10.60</td>
<td>26.56</td>
<td>11.01</td>
<td>17.92</td>
<td>9.77</td>
</tr>
<tr>
<td>Set B - Choose the Best Question</td>
<td>27.52</td>
<td>11.45</td>
<td>26.08</td>
<td>10.94</td>
<td>25.44</td>
<td>11.04</td>
</tr>
<tr>
<td>Set C - Write the Question</td>
<td>9.40</td>
<td>7.95</td>
<td>18.80</td>
<td>16.70</td>
<td>15.10</td>
<td>13.10</td>
</tr>
<tr>
<td>Set D - Write the Main Idea</td>
<td>18.30</td>
<td>12.65</td>
<td>14.60</td>
<td>13.10</td>
<td>8.40</td>
<td>8.75</td>
</tr>
</tbody>
</table>

Table 5 shows the results of the data collection in Grade 6.
TABLE 5 - Mean Scores and Standard Deviations on Main Ideas in Paragraphs - Grade Six

(n = 50)

<table>
<thead>
<tr>
<th>Test</th>
<th>Level 1</th>
<th></th>
<th>Level 2</th>
<th></th>
<th>Level 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Set A - Choose the Best Title</td>
<td>27.84</td>
<td>9.73</td>
<td>29.28</td>
<td>9.23</td>
<td>21.12</td>
<td>12.28</td>
</tr>
<tr>
<td>Set B - Choose the Best Question</td>
<td>27.68</td>
<td>9.86</td>
<td>29.29</td>
<td>9.91</td>
<td>22.88</td>
<td>10.72</td>
</tr>
<tr>
<td>Set C - Write the Question</td>
<td>15.10</td>
<td>10.75</td>
<td>24.80</td>
<td>15.40</td>
<td>19.60</td>
<td>12.95</td>
</tr>
<tr>
<td>Set D - Write the Main Idea</td>
<td>16.30</td>
<td>11.90</td>
<td>15.40</td>
<td>13.45</td>
<td>16.20</td>
<td>11.65</td>
</tr>
</tbody>
</table>

Table 6 shows the results of the data collection in Grade Seven.
<table>
<thead>
<tr>
<th>Test</th>
<th>Level 1 Mean</th>
<th>Level 2 Mean</th>
<th>Level 3 Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level 1 SD</td>
<td>Level 2 SD</td>
<td>Level 3 SD</td>
</tr>
<tr>
<td>Set A - Choose the Best Title</td>
<td>28.83</td>
<td>31.24</td>
<td>22.86</td>
</tr>
<tr>
<td></td>
<td>7.94</td>
<td>9.71</td>
<td>10.74</td>
</tr>
<tr>
<td>Set B - Choose the Best Question</td>
<td>29.97</td>
<td>29.97</td>
<td>27.94</td>
</tr>
<tr>
<td></td>
<td>9.31</td>
<td>10.16</td>
<td>8.84</td>
</tr>
<tr>
<td>Set C - Write the Question</td>
<td>13.35</td>
<td>30.80</td>
<td>21.50</td>
</tr>
<tr>
<td></td>
<td>8.51</td>
<td>11.50</td>
<td>12.45</td>
</tr>
<tr>
<td>Set D - Write the Main Idea</td>
<td>22.05</td>
<td>20.30</td>
<td>16.50</td>
</tr>
<tr>
<td></td>
<td>12.00</td>
<td>13.55</td>
<td>10.90</td>
</tr>
</tbody>
</table>

(n = 63)
B. DISCUSSION

The data gathered forms a second stage in the development of the projected test. Use of these data should provide a basis for further development.

C. RECOMMENDATIONS FOR FUTURE RESEARCH

Several recommendations for further research can be made based on the findings of the study. Recommendations are:

1. It is recommended that in research involving student performance on main idea tasks students be given some pretest practice with main ideas. This would reduce the "testing effect".

2. It is also recommended that the effect of paragraph structure on selecting and generating main idea responses be explored further.

3. Once a valid and reliable test is developed, further study is recommended to determine the effects of direct sequential teaching of main ideas in paragraphs to intermediate and secondary students.

D. SUMMARY

The purpose of this study was to collect preliminary data on a test of ability to identify the main ideas in paragraphs of expository material. This involved a preliminary and a main study. This necessitated the development and administration of the Main Ideas in Paragraphs Test. Finally, the results and discussion were presented accompanied with recommendations for future research.


Krulik, S. To Read Or Not To Read, That is the Question. Mathematics Teacher, 1980, v73, 253-257.


Shores, J.H. Reading of Science for Two Separate Purposes as Perceived by Sixth Grade Students and Able Adult Readers. Elementary English, 1960, v37, 461-468.


Thorndike, E. Improving the Ability to Read: Ability to Manage Larger Units. Teachers College Record, Oct., 1934.


APPENDIX A

SAMPLE TEST BOOKLET

Comprehension of Factual Prose
Main Ideas in Paragraphs
B. SET A-CHOOSE THE BEST TITLE

Example:

The teeth are an outgrowth of the skin. They are hard, white and shiny. Their work is to cut, tear, and grind the food. Men and many animals have two sets of teeth. The first set is called the baby, or milk teeth, or the temporary teeth. The other is the permanent set:

1. Facts about teeth
2. Care of the teeth
3. Baby teeth

1) Tomatoes are a kind of fruit. They may be eaten raw or cooked. A long time ago people thought they were not good to eat. They were grown because they were pretty. Then they were called "love apples". They were very small. Now they are large and smooth.

1. Facts about fruits
2. Facts about tomatoes
3. Tomatoes as food

2) When you are having batting practice, do not bat too long at a time. Each time hit only two or three balls. Then stop and think about your mistakes. Hitting too long without stopping may get you into bad habits. You may get into the bad habit of hitting at balls which are not directly over the plate.

1. Hints on batting practice
2. Bad habits in batting
3. Avoid mistakes in batting
C. SET B-WHICH QUESTION DOES THE PARAGRAPH ANSWER?

Example:

Bears have warm coats, but they do not like to be out in cold weather. As soon as winter comes, they find a cave where they go to sleep. If they do not find a den, they dig one in the earth with their claws. They lie down in it and cover themselves with leaves. The days come and go; the wind blows; the snow falls; but the bears do not care.

1. What are the bear’s living habits?
2. What do bears do in wintertime?
3. Are the coats of bears’ warm?

1) The best way to get rid of flies is to keep everything clean. Flies live in filth and lay their eggs in it. If there is no filth about, such as garbage, there will be nothing for the flies to live on, and no eggs to hatch. People in the country must keep their own places clean, but people in the city have the help of garbage trucks.

1. Where do flies lay their eggs?
2. Why should we get rid of flies?
3. What is the best way to get rid of flies?

2) A spider can run along the thin threads of his web. A fly will try to do this, too. Then what a surprise! The fly finds that the web is sticky. Once in, the fly cannot get away. Then the spider hurries out. Quickly he winds more stickly thread about the fly. Soon the fly cannot move at all,
So you see, the spider uses his web to catch food.

1. How does a spider catch a fly?
2. How does the spider’s web feel?
3. What are the uses of a spider’s web?
Example:

People often call the cowbird a lazy bird. It does not build its own nest. It does not sit on its eggs to hatch them. It does not look after its own babies. It lays each egg in another bird’s nest. The other bird does not know that one egg is not her own. She sits on all the eggs until they hatch.

1) Because we cannot live without salt, we are always looking for it. Most of the salt we use comes from salt mines under the ground. In some countries, people get salt from the sea. We get salt from wells, too. A salt well is much like a water well. The salt is brought to the top in pipes.

2) The big island of Borneo is an interesting land. Oil pure enough to use in machines comes bubbling from the ground. Flowers that measure three feet across grow there. Animals of all sizes, from huge elephants to deer no bigger than a rabbit, are found in its dense forests.

3) A parachute is made of silk or of nylon, which is strong yet light in weight. It is made up of twenty-four parts, each shaped like a triangle. They are sewn together with the points of the triangles at the top. The sections do not exactly meet. A small hole is left at the top to permit air to escape. This keeps the parachute steady as it drops.
LEVEL ONE
Set D

E. SET D-WRITE THE MAIN IDEA

Example:

The spider family is a big one. There are spiders everywhere except on high mountains and in extremely cold places where there are no insects to eat. Some spiders are bigger than a man's hand. Others are no bigger than a pin head. Some can kill you with their bite. Others are harmless.

1) In the mill are many machines. First, a machine cut the logs into tiny pieces. After the pieces were soaked in water, another machine beat them until it finally was pressed out between hot rollers. What had once been a tree was now a sheet of paper!

2) Before there were electric lights, a man walked through the streets of the town all night long. He watched to see that all was well, so people called him "The Watch". He carried a lantern to light his way through the dark streets. Every hour he called out the time and the weather. For example, at nine o'clock on a starry night, people might hear him cry "Nine o'clock and all is clear!"

3) Oysters that contain pearls are usually different in appearance from other oysters. If you see a beautiful, perfectly shaped oyster, you will know it is only good for its meat. Pearl oysters are badly shaped and the shells do not fit together well. Indeed, the uglier the oyster is, the more certain you can be that there might be a pearl in it.
A. SUBJECTIVE ANSWER KEY

Level One;

Set C:
1. Where can we get salt from?
   Where do people get salt from?
2. Why is the island of Borneo an interesting land?
3. How is a parachute made?

Set D
1. Making of paper.
   How (a sheet of) paper is made.
2. Work of the watchman.
   What the watchman did.
   How the watchman made the town light.
3. Picking an oyster with a pearl in it.
Comprehension of Factual Prose
Main Ideas in Paragraphs

Name: ____________________________
Grade: ____________________________
School: ____________________________
Date: ____________________________

Nelson:
Vocab.- ___ Comp. - ___ Total - ___

ALL ANSWERS ARE TO BE
RECORDED IN THIS BOOKLET
LEVEL ONE

Set A Choose the Best Title

Example: 1....2....3

1. 1....2....3
2. 1....2....3
3. 1....2....3
4. 1....2....3
5. 1....2....3

Set B What Question Does the Paragraph Answer?

Example: 1....2....3

1. 1....2....3
2. 1....2....3
3. 1....2....3
4. 1....2....3
5. 1....2....3

Set C Write the Question

Example: How are Cowbird eggs hatched?

1) ___________________________?
2) ___________________________?
3) ___________________________?
4) ___________________________?
5) ___________________________?

Set D Write the Main Idea

Example: What Makes our seasons.

1) ___________________________?
2) __________________________?
3) __________________________?
4) __________________________?
5) __________________________?
Comprehension of Factual Prose

Main Idea of Paragraphs
Teacher's Guide

1) Nature and Purpose of the Test

This test provides a measurement of the skill of comprehending the main idea of a paragraph using factual prose. The measurement of this skill could be an important factor in assisting the teacher develop a science or social studies program which meets the needs of his/her students. The test results should not be used to replace teacher judgement, but rather to supplement it. It is suggested that results be used as an additional measure that will augment other information the teacher has about the student to meet his/her learning needs.

II) Description of the Test Battery

The test battery consists of three separate tests covering a range from grade three to grade six. Each test contains twenty individual paragraphs. The tests for each grade level consists of four subtests: a) Choose the Best Title; b) What Question is Answered?; c) Create the Question; and d) State the Main Idea. These subtests provide measurements of skills in different areas related to understanding main ideas in paragraphs.

All of the tests are contained in a single booklet. Each pupil taking the test begins with the first test and works through as much of the test as he/she is capable of completing.

Separated answer sheets are provided to be used with the tests for recording purposes.

It is not intended that this test be taken during one sitting. Several sittings may be needed at the teacher's discretion.

III) Preparations for Testing
The procedures being stated in this guide are being duplicated in other classes. By closely following the same outlined procedures the teacher will ensure the validity of the test scores of his/her class. If directions to the pupils vary, some may receive too little assistance and others too much. Therefore, it is extremely important to follow the directions exactly as they are stated.

Students should know why they are taking the tests and the intended use of the results. In addition, they should be stimulated to earnest effort if the test scores are to be valid.

IV) Directions for Administering the Tests

A. Step One:

After all of the students have been seated say, speaking slowly and distinctly:

"WE ARE NOW GOING TO TAKE THE MAIN IDEAS IN PARAGRAPHS TEST. IT IS IMPORTANT THAT YOU DO YOUR BEST ON THESE TESTS. OTHERWISE THEY WILL NOT GIVE A TRUE PICTURE OF WHAT YOU KNOW."

B. Step Two:

Distribute the test booklets and answer sheets. When this has been done, say:

"ON THE FRONT OF YOUR ANSWER BOOKLET ARE SOME BLANKS THAT WE WILL FILL IN. WRITE YOUR FULL NAME IN THE BLANK AFTER THE WORD NAME. ALSO WRITE YOUR GRADE, YOUR SCHOOL AND THE DATE IN THE BLANKS."

C. Step Three

When the students have finished filling in the blanks, say:

"THE TEST BOOKLET WILL BE USED BY OTHER PUPILS IN OTHER
CLASSES, YOU ARE TO MARK ALL YOUR ANSWERS ON THE ANSWER SHEET. YOUR ANSWER SHEET WILL HELP YOU KEEP THE RIGHT PLACE. IT HAS ANSWER SPACES FOR ALL OF THE QUESTIONS YOU ARE TO ANSWER.

D. Step Four

Have the students turn the page and locate Test 1, Set 1 on both test and answer booklet. Then say:

"WE ARE NOW READY TO TAKE TEST 1, SET 1. TO HELP YOU UNDERSTAND HOW TO ANSWER THE TEST EXERCISES AN EXAMPLE, IS GIVEN AT THE THE BEGINNING OF THE SET. READ THE PARAGRAPHS UNDER THE WORD EXAMPLE. (PAUSE) WHAT IS THE BEST TITLE TO DESCRIBE WHAT THIS PARAGRAPH IS MOSTLY ABOUT? (PAUSE) YES #1, "FACTS ABOUT TEETH" IS CORRECT. NOTICE ON YOUR ANSWER SHEET, BESIDE THE WORD EXAMPLE THAT THE NUMBER ONE HAS BEEN CIRCLED TO SHOW THAT THE FIRST ANSWER IS CORRECT. YOU ARE NOW TO CHOOSE THE BEST TITLE FOR PARAGRAPHS 1, 2, and 3. BE SURE TO RECORD YOUR ANSWERS ON THE ANSWER SHEET. IF YOU FINISH BEFORE THE OTHERS, READ A BOOK QUIETLY. YOU MAY BEGIN, IF YOU HAVE A QUESTION RAISE YOUR HAND."

E. Step Five:

After the students have begun work on the test, check to make sure that each one is working in the right section of the test and recording answers in the appropriate manner. The students should be given a reasonable amount of time to finish.

F. Step Six:
Say:

"WE ARE NOW READY TO TAKE TEST 1, SET 2. FIND YOUR PLACE IN YOUR TEST AND ANSWER BOOKLETS. REMEMBER YOU ARE TO MAKE NO MARKS IN THE TEST BOOKLET. TO HELP YOU UNDERSTAND HOW TO ANSWER THE TEST EXERCISES, AN EXAMPLE IS GIVEN AT THE BEGINNING OF THE SET. READ THE PARAGRAPH UNDER THE WORD EXAMPLE. (PAUSE) WHICH QUESTION DOES THE PARAGRAPH BEST ANSWER? (PAUSE) YES #2. IS CORRECT. NOTICE ON YOUR ANSWER SHEET BESIDE THE WORD EXAMPLE, THAT THE NUMBER TWO HAS BEEN CIRCLED TO SHOW THAT THE SECOND ANSWER IS CORRECT. YOU ARE TO CHOOSE THE QUESTION THAT IS BEST ANSWERED BY PARAGRAPHS 1, 2, or 3. BE SURE TO RECORD YOUR ANSWERS ON THE RIGHT PART OF THE ANSWER SHEET. YOU MAY BEGIN. IF YOU HAVE QUESTION RAISE YOUR HAND."

G. Step Seven:

Say:

"YOU ARE NOW READY TO TAKE TEST 1, SET 3. FIND YOUR PLACE IN THE TEST BOOKLET AND YOUR ANSWER BOOKLET. READ THE PARAGRAPH UNDER EXAMPLE SILENTLY. (PAUSE). CAN YOU THINK OF A QUESTION THAT ALL OF THIS PARAGRAPH ANSWERS? YES, "HOW ARE COWBIRDS HATCHED?" WOULD BE A CORRECT ANSWER. NOTICE ON YOUR ANSWER SHEET, BESIDE THE WORD EXAMPLE THAT THE QUESTION HAS BEEN WRITTEN ON THE LINE. YOUR ARE TO WRITE A QUESTION THAT IS ANSWERED BY EACH OF 1, 2, and 3. REMEMBER THAT THE QUESTION YOU WRITE SHOULD BE ABOUT WHAT THE WHOLE PARAGRAPH IS
ABOUT AND NOT JUST A SMALL PART OF THE PARAGRAPH. IF
YOU FINISH BEFORE THE OTHERS READ A BOOK QUIETLY, YOU
MAY BEGIN. IF YOU HAVE A QUESTION, RAISE YOUR HAND AND
I WILL HELP YOU AFTER THE OTHERS HAVE BEGUN.”

Circulate around the classroom to make sure that each student is
working on the right section of the test.

H. Step Eight:

Say:

"WE ARE NOW READY TO TAKE TEST 1 SET 4. FIND YOUR PLACE
IN YOUR TEST AND ANSWER BOOKLET. READ THE PARAGRAPH
UNDER THE WORD EXAMPLE SILENTLY. (PAUSE) CAN YOU SAY
WHAT THIS PARAGRAPH IS ALL ABOUT? (PAUSE) YES, "WHAT
MAKES OUR SEASONS” IS CORRECT. THIS IS CALLED THE MAIN
IDEA OF THE PARAGRAPH. NOTICE ON YOUR ANSWER SHEET,
BESIDE THE WORD EXAMPLE, THAT THE MAIN IDEA HAS BEEN
WRITTEN ON THE LINE, YOU ARE TO WRITE THE MAIN IDEA FOR
EACH OF PARAGRAPHS 1, 2, AND 3. REMEMBER THE MAIN IDEA
IS WHAT THE WHOLE PARAGRAPH IS ABOUT, YOU MAY BEGIN. IF
YOU HAVE A QUESTION RAISE YOUR HAND.”

Circulate around the classroom to make sure that each student is
working on the right section of the test. I. Step Nine:

Steps four to eight are repeated for Test 2 and again for Test 3.
You must, of course, make changes regarding the examples when the
instructions are read. The needed information is in the answer and test
booklets.

J. Step Ten:
Before returning the materials please fill in each student's reading number on the front of each answer booklet. Each student should be assigned a number from one to five which corresponds to this scale: 1) excellent reader, 2) good reader, 3) average reader, 4) fair reader, or 5) poor reader.

THANK YOU FOR YOUR COOPERATION.