A COMPARATIVE STUDY OF TWO METHODS
IN INVOLVING THE INCIDENTAL LEARNING
OF SPELLING AND VOCABULARY

by

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A COMPARATIVE STUDY OF TWO METHODS INVOLVING THE
INCIDENTAL LEARNING OF SPELLING AND VOCABULARY

The present study was undertaken as a comparison of two methods of learning the spelling and meanings of words. It was specifically concerned with the incidental learning of the spelling and meanings of words as a result of seeing and writing them in context. The central problem as finally established was: Do pupils, learning by a method designed to develop spelling ability, also learn the meanings of the words so studied? Do students, learning by a method designated to develop vocabulary ability, also learn the spelling of the words so studied?

To attempt a study of this problem, eighty words, selected from among a list of words most needed to be taught to the experimental group, were chosen as the subject matter of the experiment. Two groups worked with the same eighty words. The material was presented to the pupils in the form of work-sheet type lessons. These work-sheets served not only to control the time factor and to practically eliminate the teacher variable, but also as a means of introducing the experimental variable in the learning situation. Group A, learning by a method designed primarily to develop spelling ability, utilized a good standard spelling method based on the practice recommended by Arthur I. Gates and used by him and his co-authors in 'The Canadian Pupils' Own Vocabulary Speller'.

Group B, learning by a method designed primarily to develop vocabulary ability, used a method wherein they read numerous paragraphs and sentences containing the eighty words comprising the experimental material. The eighty words were presented in such a manner that the pupil met each of them five times at regular intervals throughout the course of the experiment. Each time a word was met the pupil was required to look at it and write it in a contextual situation. At no time were the pupils of Group B informed that they were learning spelling or vocabulary—they were merely "working and playing with words".

Eight grade seven classes in the junior high schools of New Westminster, B.C. acted as experimental subjects. Data concerning chronological age, I.Q., and scores on author-constructed tests in spelling and word meaning, were collected for each pupil. No significant difference appeared between the two groups in any of these measures. The reliability of the spelling test (r = .94) and the word meaning test (r = .88) was established by using a control group composed of six grade seven classes (170 pupils in all) from the adjoining municipality of Burnaby, B.C. The control group was given the tests on the opening day of the experiment and again on the closing day of the experiment, but received no instruction. At the close of the experiment the spelling and word meaning tests were again administered to the experimental groups as a basis for comparison of gains. Complete data in spelling and word
meaning were available for 100 members of Group A and 107 members of Group B. The experiment, including pre-tests and post-tests in the subject matter, required two forty-minute periods per week for six weeks, while the experiment proper required eight forty-minute periods.

### MEAN GAINS MADE BY GROUP A AND GROUP B

**POST-TEST IN SPELLING**

<table>
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<tr>
<th>Group</th>
<th>No. of Cases</th>
<th>Mean Initial Score</th>
<th>SD</th>
<th>Mean Gain</th>
<th>Diff in Means</th>
<th>SEM_diff</th>
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MEAN GAINS MADE BY GROUP A AND GROUP B
POST-TEST IN VOCABULARY

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SUMMARY OF FINDINGS

1. After four weeks' instruction, highly significant gains in spelling and vocabulary were made by both Group A and by Group B. The control group, on the other hand, produced no change approaching significance in either spelling or vocabulary over the same period.

2. No significant difference was demonstrated in achievement in spelling between a method of learning designed primarily for spelling achievement and based on a "good standard spelling technique" (Group A Method) and a method designed primarily for vocabulary achievement wherein the pupil reads the word in context and writes it a number of times (Group B Method). It is noted, however, that the mean gains
recorded did favor the Group B Method. This was demonstrated by comparisons involving the entire A and B groups.

3. For "good" spellers, Method B wherein the pupil reads the word in context and writes it a number of times, was demonstrated to be significantly superior to a method designated as "good standard spelling technique".

4. For "poor" spellers no significant difference is demonstrated between Method A and Method B. This was demonstrated by a comparison of gains made by the "poor" spellers of Group A and the "poor" spellers of Group B. Recorded gains indicated that Method A ("good standard spelling technique") did, however, favor the "poor" spellers.

5. A highly significant difference was demonstrated in achievement in vocabulary between a method designed primarily to develop spelling ability (Group A Method) and a method designed primarily to develop vocabulary (Group B Method). Here Method B, designed primarily to develop vocabulary was demonstrated to be significantly superior as a method of developing vocabulary.

6. A comparison of mean gains made by pupils "good" in vocabulary produced no significant difference between Method A and Method B although Method B was favored. This was demonstrated by comparisons involving a limited number of cases from Group A and Group B. The small number of cases, plus the fact that mean scores made on the initial administration of the vocabulary test were high, suggests doubt as to the
validity of the findings in the present case.

7. Comparison of gains made by pupils "poor" in vocabulary showed no significant difference between the two methods. Here again, however, significance was approached in favor of a method designed primarily for vocabulary development.

CONCLUSIONS

Probably the only general conclusions which may be drawn from the results of the present study are:

1. That the two methods of learning the spelling and meaning of words increase spelling ability significantly and in roughly the same degree. A subjective assumption, based on informal questioning of pupils, is that learning in context (Method B) proved more interesting to the pupil.

2. That "good" spellers make greater gains in spelling ability when learning by a method which involves reading words in context and writing them a number of times. (Method B)

3. That for grade seven pupils a method primarily designed for developing vocabulary does increase vocabulary ability to a significantly greater degree than a method of learning words based on "good standard technique".

4. That the two methods do not prove equally effective with "good" and "poor" spellers or the pupils who are "good" and "poor" in vocabulary ability.
ACKNOWLEDGMENTS

This study was made possible through the cooperation of Mr. R. S. Shields, Municipal Inspector of Schools for the City of New Westminster, Mr. C. G. Brown, Municipal Inspector of Schools for the Municipality of Burnaby, and by the principals and teachers of the junior high schools within the above mentioned areas, particularly Miss V. Bowell, Mr. W. D. Clarke, and Dr. L. McAdam who actively participated in the experiment.

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The author is especially grateful to his sponsor, Dr. John R. McIntosh, of the University of British Columbia. His insistence upon accuracy and attention to detail has given the author an appreciation of sound experimental technique which will extend far beyond the present study.
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INTRODUCTION

In the school year 1940-41 the author decided to investigate the efficiency of the test-study method of spelling which he was then using with some seventy students of grade five and six. Two lists of one hundred words were prepared. They were chosen alternately out of the prescribed spelling text-book from among words not yet formally taught. All the students were carefully taught one list of one hundred words by the test-study method while the words contained in the other list were carefully avoided in the formal spelling lesson period. The experiment lasted four weeks, twenty-five words being taught each week. At the end of the experimental period the students were tested on both lists. Results obtained indicated that after many hours of careful teaching the mean score made on the taught list was only slightly higher than the mean score made on the list receiving no formal teaching. Recognizing the many short-comings of the experimental technique, the results still remained disturbing. Two possible explanations suggested themselves: 1. The teaching was extremely poorly done. 2. Pupils learn to spell by some means other than as the result of formal spelling instruction. The author naturally chose to accept tentatively the second explanation. Reasoning further it appeared logical to assume that the
writing vocabulary which some adults have at their disposal is greater than the number of words they have been formally taught in the classroom situation. Now learning cannot take place without perception and response on the part of the learner. The response may be due to an active and deliberate effort to learn or to some stimulus of an incidental nature. Therefore words not formally "taught" may have been learned either by an active and deliberate effort of the learner or as a result of meeting them as part of written material or writing them for some purpose other than to learn their spelling and meaning. A subsequent search of the literature concerning incidental learning of a writing vocabulary led to the formulation and statement of the present problem as outlined in the pages to follow.

THE BACKGROUND OF THE STUDY

It has been reputedly demonstrated by numerous experiments that the development of a writing vocabulary through the teaching of spelling "in context" or through "incidental learning" is inferior to a formal and direct teaching procedure involving "a good standard practice". Winch, Hawley and Gallup, and McKee among others investigated the teaching of spelling in


context form rather than the conventional list or column method. Both the Winch and the Hawley and Gallup studies failed to indicate any superiority of the context method, even when the criterion was context spelling. McKee's studies, involving some 275 grade seven pupils, are pertinent as they involved numbers of subjects and grade levels similar to those used in the present study. His studies purposed to determine the relative efficiency of the common column form and certain context forms in the teaching and testing of spelling. The contexts involved were the phrase, the sentence, and the paragraph. McKee summarizes his findings by stating:

The conclusion to be drawn from the results of the three experiments is that context exercises, as used in this investigation, do not constitute a procedure in the teaching of spelling which is as efficient as the column form.4

In each of the above experiments the scores made by groups taught by the column method were significantly greater than those obtained by the group taught by the context method. Winch used small numbers of students in each of his eight experiments, not over twenty-five students in any one group, and based his findings on a maximum of four periods of teaching. In addition each group was taught by a man eager to prove the superiority of his own method. His results are therefore open to criticism.

The Hawley-Gallup and McKee studies were carefully planned and carried out but their concept of just what is indicated by "the context method of teaching spelling" is at definite

variance with that held by the writer. In both experiments the subjects were taught the selected words by the same technique. The presentation and testing of the words were the only variables. McKee makes this point quite clear when he writes:

The method of teaching was that suggested in the Horn-Asbough Speller. This method provides that the spelling lesson, consisting of twenty words, be continued for a period of one week....Throughout the investigation this method, with one exception, was followed exactly in all its details. The deviation refers to the fact that whenever a pupil used a context form, he studied the words in this form and was tested during the week on that form.

The writer's concept of teaching by the context method involves placing the student in a situation where he will critically perceive all the test words in context and write each a number of times. Should the student be primarily concerned with learning the spelling of the word, the meaning may also be learned. Conversely, should the student be primarily concerned with learning the meaning of the word then the spelling of such word may be mastered. The emphasis is placed on the creation of a situation conducive to concentrated visual perception and accurate reproduction where the learning of the spelling and use of the word may develop incidentally.

Experimental evidence of the significant role played by visual perception in spelling is available. The studies made by Gates and Sister Mary of the Visitation are basic and

fundamental. Gates' study involves the construction of tests to measure capacities such as perception and association. His thirteen tests included tests of reading and spelling in addition to those of perception and associative learning. The series of tests were given to representative learners—about 310 school children—grades one to six in all—and the results were analyzed by means of correlation. The analysis indicated a correlation of .78 between level of recognition and pronunciation of words and spelling. The correlation between word perception and spelling—when intelligence was eliminated by partial correlation—was .54. On the basis of the results of this experiment Gates states, "Ability to perceive word forms....is substantially associated with reading and spelling ability."

In her study Sister Mary of the Visitation also set out to estimate the part played by visual perception in reading and spelling. She constructed a series of nine tests of visual perception and used as subjects sixty-two grade four children, and forty-eight grade two children. Besides the perception tests, group tests in reading, spelling, and intelligence were given to all the subjects. Sister Mary correlated the various tests with one another. All perception tests involving words or groups of letters showed high correlation with spelling. Her findings thus parallel very closely those obtained by Gates.

9. Ibid., p. 441.
10. Ibid., p. 442.
Other studies such as those by Gilbert and Williamson have corroborated the results obtained by both Gates and Sister Mary of the Visitation.

A limited amount of experimentation has been undertaken to investigate the development of spelling ability by incidental means. Gates and Graham carried out a study to compare the interest and ability in spelling developed by a program devoted partly to spelling games, puzzles, problems, work with words, directed word activities, etc., with a program based almost exclusively upon direct study of word lists by the familiar study-test and test-study plans. Thirty-eight classes totaling 1,565 pupils from grades two to eight inclusive served as subjects for the study which extended over a period of fifteen consecutive weeks. Results of this carefully controlled experiment indicated that the two methods increased spelling ability in roughly equal degree but the program combining word study with word games and other activities proved more interesting both to the student and to the teacher.

A study by Gilbert also involved the incidental learning


of spelling. He used 380 men and women students of junior, senior, and graduate university levels. The study was concerned chiefly with three questions: Does reading for the purpose of being able to answer questions on the context result in any improvement in spelling for words encountered in the selection? Do good spellers surpass poor spellers in the amount of learning in spelling acquired through reading? Is improvement in spelling effected by virtue of a slow reading rate? The findings of this experiment indicate clearly that college students do improve their spelling through reading even when the material is only read once and when attention is not directed toward improvement in spelling. Secondly, good spellers are able to pick up more spelling through their reading than poor spellers. Rate of reading between those who acquire little spelling and those who acquire much showed no significant difference.

Inasmuch as incidental learning is the critical factor in the present study, a search of the literature on this subject was made. McGeoch defines incidental learning as "Learning which apparently takes place without a specific motive or a specific formal instruction and set to learn the specific activity or material in question." It is axiomatic that much of every day learning of every day life is of this incidental sort. While many studies of this type of learning have been

made, those of Pan and Jenkins are particularly significant to the present problem. Pan's experiment, as reported by McGeoch, demonstrated that practice inevitably occurs in a context of stimuli other than those from the material the subject is motivated to learn. Evidence that contextual material has been learned must be classed as an indication of incidental learning. Pan's subjects learned paired associates with other words typed above and below the pairs to be associated. The presence of context words related to the response word, illustrated by Match Zoo ----- Smoke, facilitated learning. Where the context words Pipe were related to the stimulus word or to the response word or to both the stimulus and the response words, learning of the paired associated was facilitated. Still other context words had an inhibiting effect on learning. The fact that the context words did have an effect on learning, although subjects were told they were unimportant, indicates that these words were in some way connected with the words to be learned. The study made by Jenkins serves to throw further light on the concept of incidental learning. His experiment raised the question, "Does incidental learning occur without any 'set' to learn?" A student, who thought he was only an experimenter, read syllables of a list of twenty, as each appeared in the window of


a drum, to a subject who was instructed to learn the syllables as they were read to him. Twenty-four hours later both reader and learner were asked to list as many of the syllables as they could remember. Results were obtained on twenty-four readers and twenty-four learners. The mean recall under instruction to learn was 15.9 and under instruction only to read was 10.8. Thus incidental learning on the part of the reader was clearly indicated and the results were in keeping with similar experiments in the field. However, Jenkins went further. On carefully questioning the readers he found that they, with one exception, indicated set to learn varying all the way from that of a fleeting and casual nature to a definite intent to learn. We may conclude, therefore, that all incidental learning may be a function of set—that learning is motivated although it often seems not to be. It is this more liberal interpretation of incidental learning that is accepted in the present study. Students, in learning to spell words by "good standard practice", may learn the meanings of the words incidentally; students, in learning the meanings of words in context, may learn to spell such words incidentally.

Do pupils learn the spelling and meanings of words as an incidental by-product of seeing them in context and writing them? The work done in this field, while not lacking in quantity, falls short in three respects: the work in context learning has emphasized a way of presentation and testing spelling rather than an actual learning situation; the vital part played by perception in learning to spell, while well
established experimentally, has not been investigated in a context method of learning to spell and know the meanings of words. Finally, studies in incidental learning of spelling have emphasized a teaching technique for the selection of words and time of presentation rather than a method of learning on the part of the student. It was in order to meet these criticisms that the present study was undertaken.

PURPOSE AND STATEMENT OF THE PRESENT PROBLEM

The purpose of our study is therefore to evaluate the effectiveness of two methods of learning words. Two matched groups will be required to learn a similar list of words; one group by a method primarily designed to develop spelling mastery, and one group by a method primarily designed to develop vocabulary ability. The effectiveness of each method to develop ability in both spelling and vocabulary will be evaluated. Questions to which answers will be sought by this study are:

1. Do students, learning by a method designed to develop spelling ability, also learn the meanings of the words so studied?
2. Do students, learning by a method designed to develop vocabulary ability, also learn the spelling of the words so studied?
3. By which method do students make the greater gains in spelling?
4. By which method do students make the greater gains in vocabulary?
5. By which method do "good" spellers make the greater gains in spelling?

6. By which method do "poor" spellers make the greater gains in vocabulary?

7. By which method do students of "good" word meaning ability make the greater gains in spelling?

8. By which method do students of "poor" word meaning ability make the greater gains in vocabulary?
CHAPTER II
THE PLAN AND SETTING OF THE EXPERIMENT

An experimental study was to be undertaken in order to compare the effectiveness of learning to spell and know the meanings of words by a method designed primarily to develop spelling ability with a method designed primarily to develop vocabulary. The many varying factors within the ordinary classroom situation would have to be taken into consideration and the study adjusted to control them as far as possible. The students participating in the experiment would be selected so that they were comparable in all factors which might have a bearing on the results of the critical factors in the study. In order to make the research as true to actual conditions as possible, the study would be carried on with the least possible modification of normal classroom procedure.

THE PLAN OF THE STUDY

Two groups of children comparable in age, grade, educational background, social and economic status, and general academic ability would be selected. Both groups would work with the same words for exactly the same length of time. One group, hereinafter designated as Group A or the "Spelling Group", would study the words through the use of prepared lesson sheets, designed for the purpose of learning to spell such words. One group, hereinafter designated as Group B or the "Vocabulary Group", would work with the same words through the use of prepared lesson sheets designed for the purpose of learning the meaning of the word. This would necessitate the construction
of practice exercise sheets for each group. The length and content of such exercise sheets would be determined by such factors as: the material to be learned, the available working time in the normal classroom period, the desirability of eliminating the teacher factor as far as possible, and the experimental variable. It was proposed to extend the experiment over a period of time sufficiently long to ensure that learning in each group would result in a measurable change and that differences, if any, would have an opportunity to emerge. This factor would determine the number of exercise sheets to be prepared.

Information, as a basis for equating the groups at the beginning of the experiment and for measuring changes in growth as a result of the experiment, would have to be obtained. Relevant information on each child, including grade, chronological age, I. Q., spelling ability, and vocabulary knowledge, would have to be tabulated. As the experiment directly involved the learning of the spelling and meaning of a specific list of words, tests to measure such learning would have to be constructed. These tests would be used in equating the groups when administered as pre-tests immediately prior to the experiment. Administered as post-tests immediately following the experiment they would serve to indicate gains, and differences in gains, if any.

Inasmuch as author-made tests in spelling and vocabulary would be required, a control group would become a necessity. This group would be given the two tests on the same dates as such tests were administered to Group A and Group B. The
control group would again be given the tests immediately following the experiment. It would not be given the experimental material. The results of the testing in this group would make possible a statistical measure of the reliability of the author-made spelling and vocabulary tests. The pre-tests would also serve as a means of checking the validity of the vocabulary test.

THE SETTING OF THE STUDY

The subjects for the two experimental groups were the grade seven classes of the junior high schools in the city of New Westminster, British Columbia. All grade seven students in the city, with the exception of those dropped because of absenteeism during the experiment and seven who were dropped during the equating process, participated in the experiment. New Westminster is a city with an estimated population of some thirty thousand, and is the centre of a well established lumbering and fishing industry. The population is basically of British extraction, with a considerable minority of Scandinavian and Central European stock. A sprinkling of Italian, Chinese, and East Indian make up the remainder. Subjects were, therefore, drawn from a representative cross section of society and from typical Canadian junior high schools. The following table indicates in more detail the selection of the two experimental groups. (See page 15.)

It will be noted that Group A consisted of one hundred students and included 46 boys and 54 girls; while Group B consisted of 109 students and included 50 boys and 59 girls.
TABLE I

THE TWO EXPERIMENTAL GROUPS USED IN THE STUDY

<table>
<thead>
<tr>
<th>GROUP</th>
<th>SCHOOL</th>
<th>DIVISION NUMBER</th>
<th>BOYS</th>
<th>GIRLS</th>
<th>TOTAL</th>
<th>TEACHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Lister</td>
<td>11</td>
<td>10</td>
<td>12</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>Lister</td>
<td>9</td>
<td>12</td>
<td>14</td>
<td>26</td>
<td>2</td>
</tr>
<tr>
<td>A</td>
<td>Howay</td>
<td>8</td>
<td>13</td>
<td>13</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>A</td>
<td>McBride</td>
<td>4</td>
<td>11</td>
<td>15</td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>46</td>
<td>54</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Lister</td>
<td>10</td>
<td>13</td>
<td>14</td>
<td>27</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>Lister</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>Howay</td>
<td>9</td>
<td>10</td>
<td>16</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>McBride</td>
<td>5</td>
<td>13</td>
<td>15</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>59</td>
<td>109</td>
<td></td>
</tr>
</tbody>
</table>

Approximately one-half of the grade seven students from each of the three junior high schools were placed in Group A while the other half made up Group B. As all grade seven classes in the city of New Westminster were unselected or heterogeneous groups, the placement tended to produce roughly equated groups. While the point will be discussed in more detail in a section to follow, it may be noted from Table I that each of the four teachers carrying out the experiment supervised one group in each of the two methods—a procedure which helped to control the teacher variable.

The experiments were carried on in the three junior high schools of New Westminster from March 7 to April 1, 1949. This period was chosen principally for three reasons: a study of records showed it to be a period of comparatively high and constant attendance, thus lessening the chances of serious losses.
of subjects through absenteeism during the experiment; secondly, the students would have been in junior high school for six months, a period sufficiently long to adjust to a new type of school and to develop a fair degree of ability in self-study—a technique required in the experimental situation.

A more detailed break-down of the timing of the experiment is indicated in the time-table listed below:

<table>
<thead>
<tr>
<th>Date</th>
<th>Period</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday, March 4</td>
<td>1</td>
<td>Initial Test in Spelling to Group A, Group B, and Control Group.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Initial Test in Vocabulary to Group A, Group B, and Control Group.</td>
</tr>
<tr>
<td>Monday, March 7</td>
<td>3</td>
<td>Group A - Spelling Exercise (Practice). Group B - Work and Play With Words (Practice).</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Group A - Spelling Exercise II. Group B - Work and Play With Words—Part II.</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Group A - Spelling Exercise IV. Group B - Work and Play With Words—Part IV.</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Group A - Spelling Exercise V. Group B - Work and Play With Words—Part V.</td>
</tr>
<tr>
<td>Thursday, March 24</td>
<td>9</td>
<td>Group A - Spelling Exercise VI.</td>
</tr>
</tbody>
</table>


Group B - Work and Play With Words--Part VI.

**Tuesday, March 29**

**Period 10** - Group A - Spelling Exercise VII.
Group B - Work and Play With Words--Part VII.

**Thursday, March 31**

**Period 11** - Group A - Spelling Exercise VIII.
Group B - Work and Play With Words--Part VIII.

**Friday, April 1**

**Period 12** - (a.m.) Post-testing in Spelling--Group A, Group B, and Control Group.

**Period 13** - (p.m.) Post-testing in Vocabulary--Group A, Group B, and Control Group.

**THE EQUATING OF THE GROUPS**

**The Method:** The two groups described in the preceding section, in addition to being of the same grade, were equated on the basis of chronological age expressed in months, I. Q., initial score on the spelling test, and initial score on the vocabulary test. The technique employed in equating these two groups was to match them on each of the four variables, eliminating those subjects who could not be equated on all the variables, so as to make range, mean, and standard deviation of the groups statistically equal. In computing the means and standard deviations a class interval of five was used in the distribution. (See Table II, page 18.)

**Chronological Age:** The difference between the means is .39 months or approximately twelve days. The critical ratio gives every indication that this difference may be attributed to

* Initial tests in spelling and vocabulary are described in Chapter III.
### TABLE II

SIMILARITY OF THE TWO EQUATED GROUPS WITH RESPECT TO AGE, I.Q., SPELLING, VOCABULARY

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>C. A. in Months</th>
<th>I.Q.</th>
<th>Spelling</th>
<th>Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Range</td>
<td>Mean</td>
<td>S.D.</td>
<td>Range</td>
</tr>
<tr>
<td>A</td>
<td>100</td>
<td>140-180</td>
<td>157.20</td>
<td>6.52</td>
<td>70-139</td>
</tr>
<tr>
<td>B</td>
<td>107</td>
<td>142-182</td>
<td>156.81</td>
<td>9.35</td>
<td>57-137</td>
</tr>
</tbody>
</table>

* Dominion Group Test of Intelligence, Intermediate, Form B was administered to all groups by the author

### TABLE III

RELIABILITY OF MEAN DIFFERENCES FOR AGE, I.Q., SPELLING AND VOCABULARY OF THE TWO GROUPS

<table>
<thead>
<tr>
<th></th>
<th>C. A. in Months</th>
<th>I.Q.</th>
<th>Spelling</th>
<th>Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>SDD</td>
<td>D</td>
<td>SDD</td>
</tr>
<tr>
<td>A - B</td>
<td>.39</td>
<td>1.115</td>
<td>.349</td>
<td>-.36</td>
</tr>
</tbody>
</table>

* Values of "t" at the 5% and 1% levels of significance with 100 degrees of freedom are 1.984 and 2.626 respectively.
to chance.

**Intelligence Quotient:** The difference between the means is -0.36. According to the critical ratios the difference is not statistically significant.

**Initial Spelling Test:** The difference between the means is 0.21. Here, too, the critical ratio shows that the difference observed could readily have occurred by chance.

**Initial Vocabulary Test:** The difference between the means here is only 0.09. Once again the critical ratios reveal that the difference is due to chance.

We may safely state, then, that at the one per cent level of confidence the two groups are satisfactorily equated on the five variables, namely: grade, age, I. Q., initial spelling test, and initial vocabulary test. It is assumed that these variables are potent factors in an experimental situation involving the learning of the spelling and meaning of words. Table II gives in detail the similarity of the two equated groups with respect to age, I. Q., initial spelling test, and initial vocabulary test, while Table III is a tabulation of the reliability of mean differences for the four variables of the groups.

**LIMITATIONS OF THE STUDY**

The plan of the study, as outlined in the preceding pages of the present chapter, assumes several limitations. They may be briefly noted as follows:

1. The study was limited to a population of grade seven pupils.

Results of the study, then, may not be safely applied to
age groups which deviate greatly from the late childhood and early adolescent years.

2. The subject matter learned was eighty words chosen from among the words that grade seven children need most to be taught. Results of this study should not be applied to other school subjects; caution must be observed in applying the results to the development of vocabulary of specific school subjects such as the terminology of science or social studies.

3. The study was comparative. It involved a comparison of two methods of learning words; one method designed primarily to develop spelling ability and based on good standard practice, the other method designed primarily to develop vocabulary and based on seeing and writing words in context. The study does not presume to suggest any one method of learning words to the exclusion of other possible methods. Moreover the study makes no effort to enter the field of spelling disabilities or remedial instruction.

4. In short, the study involves a comparison of two methods of learning a specific list of words by grade seven pupils.
CHAPTER III
THE SELECTION AND PREPARATION
OF THE EXPERIMENTAL MATERIAL

THE SELECTION OF A WORD LIST

The type of material used in the present experiment was governed by the nature of the experiment. Being an experiment in the evaluation of two methods of learning the spelling and meaning of words, the experimental material must of necessity be words. Just which words to use, however, was finally decided on the basis of two criteria. The words used must be of some practical and immediate value to the subjects concerned. Secondly, the words must be sufficiently difficult to produce measurable growth as a result of learning. The words chosen in the present study were taken from the "Canadian Pupils' Own Vocabulary Speller" which is based directly on the Rinsland List. The author felt that this list met the first requirement, namely that the words must be of immediate and practical value. Gates states in this regard, "The Rinsland list reveals which words need most to be taught. No other listing of words actually used by children in the several grades even remotely approaches this list in size, validity, and value." It was


decided that a list of words that would produce a mean score of about thirty-five per cent accuracy on the pre-test should be used. Such a list would be sufficiently difficult to produce measurable gains as the result of study. In order to arrive at such a list two hundred words were chosen at random from the grade seven and grade eight lists of the "Canadian Pupils' Own Vocabulary Speller". These words were in turn broken down into four lists of fifty words each and administered to four typical grade eight classes. Using the results of this preliminary run, one hundred words producing a mean score of 43.8% were listed. From this list of one hundred words, eighty words, producing a mean score of 40.76% at the grade eight level, were finally selected. The list, as finally presented to Group A, was as follows:

**SPELLING EXERCISE I**

- species
- mammals
- inhabitants
- hemisphere
- apparent
- occurred
- italicized
- expedition
- aviator
- souvenir

**SPELLING EXERCISE II**

- spinach
- raisin
- proteins
- restaurant
- medicinal
- sufficient
- porous
- yolk
- safety
- cellulose

**SPELLING EXERCISE III**

- reins
- tombs
- pyramids
- excursions
- ancient
- cemetery
- impatient
- wrought
- architecture
- idol

**SPELLING EXERCISE IV**

- intelligence
- trait
- efficiency
- essential
- exhausted
- possibility
- thorough
- recognition
- recommend
- principle
The results of the administration of the above eighty words to Group A and Group B in the form of a pre-test in spelling produced a mean score of 27.99 or 34.99%. Thus a list of words of practical and immediate value which were sufficiently difficult to produce measurable gains through learning was established.

**THE SPELLING TEST**

The spelling test consisted of the eighty words listed in the preceding section. The word, accompanied by a sentence illustrating its use, was read by the teacher conducting the experiment. The students wrote the words in column on specially-prepared answer sheets. When tested for reliability on 170

* The complete Spelling Test and a sample answer sheet for the test is included as Appendix A in the present study.
subjects in the control group, the test produced a product-moment correlation coefficient of .94-.089 by the test-retest technique.

THE WORD MEANING TEST

This test was constructed by the author and was designed to test the students' knowledge of the meanings of the words comprising the experimental material. The test took the form of a multiple-choice word meaning test consisting of eighty items. The stimulus words were those used in the spelling test, that is to say, the stimulus words were those comprising the experimental learning material. The five choices were secured on the basis of the following specifications:

a. The correct choice
A word which was listed as a correct synonym in Roget's "International Thesaurus," and also in Webster's "New International Dictionary," should be the correct answer. Each synonym was further checked with Thorndike's "Teacher's Word Book" to obtain a synonym which is familiar to the student.

b. The alternate responses
1. A word which is obviously absurd and having no connection with the stimulus word.
2. A word which is close in meaning to the stimulus word or one which has no relation to the stimulus word but which, in


the opinion of the author, may be confusing to the child.

3. A word which has a beginning similar to the stimulus word.

4. A word which has an ending similar to the stimulus.

In a very few cases, where the stimulus word had no synonym or no familiar synonym, the five responses were chosen in terms of the use of the stimulus word. Each item of the test was finally arranged in the form of a short sentence. The students were required to underline the word which most correctly completed the sentence and write its number in brackets placed to the right of each item. Kelly found that the judgment of the test maker in selecting optional responses by a technique similar to that used by the author is approximately as valid in word meaning tests as is the laborious task sometimes suggested of securing the incorrect responses by tabulating the responses from recall tests.

The word meaning test produced a product-moment correlation coefficient of reliability of .88 when tested on 169 students in the control group by the test-retest method. A further check by the split-halves technique gave a correlation coefficient of reliability of .85 when corrected for extenuation. In the latter case a random sampling of fifty cases from the control group was used. The following procedure was adopted in an attempt to establish the item validity of the test. An experimental form of the test was administered to fifty grade eight students. An analysis of results was made which

indicated that fourteen of the eighty items failed to distinguish "poor" students and "good" students. These items were adjusted and the test re-administered to a different group of one hundred grade eight students. The item analysis made on the results of the second trial run indicated that all items distinguished between "good" and "poor" students. The validity of the test, as indicated by its reliability as well as by the item analysis outlined above, appeared to be satisfactory. However a final check on the results made by the students participating in the experiment was made. So as to make the selection of cases as representative as possible, the pre-word meaning tests completed by all students participating in the experiment, 379 cases in all, were arranged in order of magnitude of raw score. From the 379 tests, 100 were drawn so as to get a representative sampling over the entire distribution. The item analysis indicated that seventy-eight out of the eighty items distinguished between "good" and "poor" students. The word meaning test as used appears as Appendix B in the present study.

GROUP A EXERCISES

Nine lesson outlines were prepared for Group A. The first lesson was for practice purposes only. The eight following spelling exercises contained the experimental material, ten words being introduced in each lesson. These lessons were designed for learning to spell words by "good standard practice". Each lesson followed very closely the pattern established in the introductory practice exercise. By way of illustration, Spelling Exercise (Practice) and Spelling Exercise I were as follows:
### SPELLING EXERCISE (PRACTICE)

**Group C**

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Division</th>
<th>School</th>
</tr>
</thead>
</table>

I. Here are your 10 new Spelling words for to-day.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. eager</td>
<td>anxious</td>
<td>John was eager to do his best in school.</td>
</tr>
<tr>
<td>2. design</td>
<td>draw the plan for</td>
<td>It requires skill to design aeroplanes.</td>
</tr>
<tr>
<td>3. expensive</td>
<td>costly</td>
<td>Bill could not buy an expensive gift.</td>
</tr>
<tr>
<td>4. Harbour</td>
<td>place where ships find shelter</td>
<td>The ship sailed into a safe harbour.</td>
</tr>
<tr>
<td>5. humidity</td>
<td>dampness</td>
<td>The humidity in the air causes collars to wilt.</td>
</tr>
<tr>
<td>6. official</td>
<td>person holding public office</td>
<td>Mr. Saunders is a well-known bank official.</td>
</tr>
<tr>
<td>7. notify</td>
<td>give notice to</td>
<td>You should notify the postoffice when you change your address.</td>
</tr>
<tr>
<td>8. recreation</td>
<td>amusement</td>
<td>People play tennis for recreation.</td>
</tr>
<tr>
<td>9. tavern</td>
<td>an inn</td>
<td>We stayed overnight in an old tavern.</td>
</tr>
<tr>
<td>10. vicinity</td>
<td>neighbourhood</td>
<td>There is heavy traffic in the vicinity of large cities.</td>
</tr>
</tbody>
</table>

Study your new words. Your Spelling Record Book tells you how to study a word. Cover your word with your practice paper while you write it. Be sure to study each word at least once. You will have about one minute for each word. To finish you just can't waste time. If you find you still have time left after you have studied all the words, go back and review them all quickly again. Do not

Go right on to the next page.
go on with the next exercise until your teacher tells you to.

II. Getting Acquainted with Your Words.

A. Fill in the missing hard spots:
   e__ger; des__n; expen__v__; harb__r; hum_d_ty;
   not____; tav____; recr__tion; v__c_n ty.

B. Write to-day's word which is a synonym for the words listed below. Check with your list of words and meanings at the beginning of the lesson sheet if you are not sure which word to use. Be sure to spell the word correctly.
   1. dampness ____________________.
   2. anxious ____________________.
   3. amusement ____________________.

C. Write to-day's word containing these little words.
   1. sign ____________________.
   2. not ____________________.
   3. off ____________________.

D. Each of the following sentences has a blank space in it. One of the words you studied to-day will fit each sentence. If you are not sure which word to use check with the meaning and use of the word as given at the beginning of this lesson. When you are sure you know the right word write it in the blank space. Be sure you spell the word correctly.
   1. Did you ______________ the office or your absence from school?
   2. The ______________ was a welcome sight after our long journey.
   3. After working hard we all need some ______________.
   4. The heat and ______________ in the air were unpleasant.
   5. The pupils were ______________ to start the game.
   6. My uncle knows how to ______________ buildings.

Go right on to the next page.
7. The suit was too ______________ to buy.
8. The boat anchored in the ______________ while the storm lasted.
9. An ______________ from the fire department visited our school last week.
10. A bear was shot in the ______________ of Surrey.

Your teacher will now check your work.

III. Turn this paper over and write the 10 words your teacher will dictate.

IV. Now check your words with the list at the beginning of page 1. Draw a line through each word you misspelled.

V. Now take your Spelling Record Book and—
   a. Record your score in your Spelling Progress Chart.
   b. Write the words you misspelled in your Never Again List. Check them carefully with the list on page one. Be sure they are right this time.

   End of the Test.

---

**SPELLING EXERCISE I**

**Group C**

Name __________________________  Date __________________

Division ________________________  School __________________

I. Here are your 10 new spelling words for to-day.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. species</td>
<td>kind</td>
<td>The fir is a species of evergreen.</td>
</tr>
<tr>
<td>2. mammals</td>
<td>animals that give milk</td>
<td>Mammals feed their young with milk.</td>
</tr>
<tr>
<td>3. inhabitants</td>
<td>residents</td>
<td>The island inhabitants were friendly.</td>
</tr>
<tr>
<td>4. hemisphere</td>
<td>a half globe</td>
<td>We live in the Northern Hemisphere.</td>
</tr>
</tbody>
</table>

Go right on to the next page.
5. apparent plain His brightness was apparent.
6. occurred happened The accident occurred in the dense fog.
7. italicized emphasized The last word in the sentence was italicized.
8. expedition a trip for a definite purpose Scott's expedition to the Antarctic was a success.
9. aviator pilot The aviator landed the plane safely.
10. souvenir a thing to remind The picture was a souvenir of the picnic.

Study your words. Your Spelling Record Book tells you how. Cover the word with your practice paper while you write it. Be sure to study each word at least once. You will have about one minute for each word. To finish you just can't waste time. If you find you still have time left after you have studied all the words, go back and review them all quickly again. DO NOT go on with the next exercise until your teacher tells you to.

II. Getting Acquainted with Your Words.
A. Fill in the missing hard spots:
   occu___ed; exp__d__tion; spe___s; s___ven_r;
   avi_tor; _talici__ed; a_par_nt; hemis__ere;
   ma_m__ls; inhabit__nts;
B. Do as follows:
   1. Write to-day's word which has the prefix "hemi"
      ________
      "in"
      ________
   2. Write to-day's word which has the suffic "ed"
      ________
      "tion"
      ________
   3. Write to-day's word which is a synonym for:
      a. kind: ______________________
      b. dwellers: ____________________

   Go right on to the next page.
C. Each of the following sentences has a blank space in it. One of the words you studied to-day will fit each sentence. If you are not sure which word to use check with the meaning and use of the word as given at the beginning of this lesson. When you are sure you know the right word write it in the blank space. (Be sure you spell the word correctly.)

1. The visitors were welcomed by the friendly _______ of the village.

2. The _______ word was the most important word in the paragraph.

3. The destructive fire _______ while the owners of the house were at the show.


5. Many a strange _______ of animal is found in Australia.

6. The cow and the whale are both _______ because they feed their young on milk.

7. There are great water areas in the southern _______ of our earth.

8. It is _______ that our attempt will be successful.

9. My uncle brought back a _______ from Holland which reminds him of his war experiences.

10. An _______ has recently made a non-stop flight around the world.

Your teacher will now help you check part II of your work.

III. Put your practice paper away.
Turn this paper over and write the 10 words your teacher will dictate.

IV. Next carefully check your words with the list at the beginning of page 1. Draw a line through each word you
misspelled.

V. Now take your Spelling Record Book and—

a. Record your score in your Spelling Progress Chart.

b. Write the words you misspelled in your Never Again List. Be sure they are right this time. Check them carefully with the list on page one.

THE SPELLING RECORD BOOK

A small booklet entitled "My Spelling Record Book" was prepared for use by all subjects in Group A. It contained information on how to study a word, space for the correct spelling of words misspelled, and a chart where progress from lesson to lesson could be noted.

"My Spelling Record Book" served to keep before the student the technique for studying a word as adopted in the present experimental study. The section on how to study a word was as follows:

HOW TO STUDY A WORD

1. Say the word softly as you look at it. Move your lips but make no sound.

2. Say it again in syllables. Now spell the word in syllables.

3. Cover your word with your practice paper and write it.

4. Now compare your word with the correct spelling. If it is right, write the word twice more. If it is wrong, go back and do steps 1, 2, and 3 again.

5. Do each word like this.

The method set forth above is simple, direct, quick, and easily learned. Dr. Gates recommends it in preference to the

more elaborate many-step methods in common practice. "My Spelling Record Book" served further to motivate the student and to indicate words requiring special attention.

**GROUP B EXERCISES**

Nine lesson outlines were prepared for Group B. As in the case of Group A, the first lesson was for practice purposes only. The eight following lessons contained the eighty words comprising the experimental material as was the case with the lesson outlines prepared for Group A. At this point the similarity between the lesson outlines for each group ceased. While the Group A lessons were designed primarily for learning to spell words, Group B lessons were designed primarily for learning the meanings of words. Each lesson consisted of five exercises and are illustrated and described below. (Note: In order to illustrate the method by which the subjects of Group B were required to critically observe and write five times each of the eighty words comprising the experimental material, the ten words from Spelling Exercise I for Group A will be used. These words are: species, mammals, inhabitants, hemisphere, apparent, occurred, italicized, expedition, aviator, and souvenir.)

**WORK AND PLAY WITH WORDS--PART I, SECTION I**

I. Read this paragraph:

The expedition to the northern hemisphere was carefully planned. It was our intention to study the mammals of this part of the earth. Our destination was an isolated Indian village. When we arrived we immediately set out in search of mammals. Before starting our aviator suggested that we take a few of the native inhabitants along. This proved an excellent suggestion as it was soon apparent that

Go right on to the next page.
they were skilled huntsmen. We obtained a little-known species of reindeer. I was fortunate in getting an excellent picture of the beast which I keep as a souvenir. On the back of my picture I've written in italicized words "An exciting adventure". This was indeed the most exciting adventure that ever occurred to me.

Getting Word Meanings. In the space at the right, write the underlined word from the above paragraph which means: (Be sure to write the word correctly and neatly.)

1. kind or type
2. animals that give milk
3. residents
4. a half globe
5. plain
6. happened
7. a trip for a definite purpose
8. emphasized
9. a pilot
10. a thing to remind

In the above exercise it will be noted that the student was required to match a word taken from a paragraph with its meaning. The critical words were underlined in the paragraph to assure their use in the written portion of the exercise.

WORK AND PLAY WITH WORDS--PART II, SECTION II

II. In each sentence write the word that fits the best. Here are the words to use:

- species
- mammals
- inhabitants
- hemisphere
- apparent
- occurred
- aviator
- souvenir
- italicized

1. The __________ of the island were unfriendly to the explorers.

Go right on to the next page.
2. The great mass of the world's population is found in the northern _____________.

3. A mysterious accident ____________ in Burnaby last Saturday.

4. The polar ____________ brought back some penguins for the zoo.

5. The ____________ was decorated for his record-breaking flight.

6. Huge ____________ roamed the prairies before the coming of the white man.

7. Mr. Brown found a strange ____________ of bird nesting in his cherry tree.

8. My father has a ____________ of his trip hanging in his study.

9. The last word in the sentence was ____________.

10. Some mistakes are ____________, others are more difficult to notice.

The words met in a paragraph on the first day of the experiment proper were, on the following day of the experiment, met as a list. The students were required to select the word and write it in the sentence where it best fitted.

WORK AND PLAY WITH WORDS—PART III, SECTION III

III. Here is a story you have read before. This time some words have been left out. Each of the words listed below fits a blank space in the paragraph. Write the words in the spaces where they best fit. Be sure to write them correctly. Here are the words to use.

- species
- hemisphere
- aviator
- mammals
- apparent
- souvenir
- inhabitants
- occurred
- italicized
- expedition

The ____________ (1) to the northern ____________ (2) was carefully planned. It was our intention to study the four-footed ____________ (3) of this part of the earth. Our

Go right on to the next page.
destination was an isolated Indian village. When we arrived we immediately set out in search of mammals. Before starting our __________(4) who flew us in suggested that we take a few of the native __________(5) along. This proved an excellent suggestion as it was soon __________(6) that they were skilled huntsmen. We obtained a little-known __________(7) of reindeer. I was fortunate in getting an excellent picture of the beast which I keep as a ________.(8) On the back of my picture I've written in __________(9) words "An exciting adventure". This was indeed the most exciting adventure that ever __________(10) to me.

The third time the students saw and wrote the words they were required to place them in the blank spaces of a paragraph where they best fitted.

WORK AND PLAY WITH WORDS--PART IV, SECTION IV

IV. Now let's try matching some words and meanings. After each definition write the word it explains. These words are old friends, aren't they. Here they are:

species  inhabitants  apparent  expedition  souvenir  mammals  hemisphere  occurred  aviator  italicized

1. animals that feed their young with milk....__________
2. residents or dwellers.................................
3. obvious or easily seen..............................
4. happened.............................................
5. a short trip.......................................... 
6. half globe............................................
7. pilot; one who operates an aeroplane............

Go right on to the next page.
8. something by which to remember; a memento
9. kind
10. emphasized; printed in slanted letters

On meeting the words for the fourth time the students matched the words with their meanings but without the aid of seeing the word in context as was the case in Exercise I.

WORK AND PLAY WITH WORDS--PART V, SECTION V

V. Now read these sentences. Carefully note the underlined word in each sentence.

1. The visitors were welcomed by the friendly inhabitants of the village.
2. The italicized word was the most important word in the sentence.
3. The destructive fire occurred while the owners of the house were at the theatre.
5. Many a strange species of animal is found in Australia.
6. The cow and the whale are mammals because they both feed their young on milk.
7. There are great water areas in the southern hemisphere.
8. It is apparent that our attempt will be successful.
9. My uncle brought back a souvenir from Holland.
10. An aviator has recently made a non-stop flight around the world.

Getting word meanings from sentences. In the space at the right, write the underlined word from the above sentences which means: (Be neat--be correct.)

1. kind
2. animals that give milk
3. residents
4. a half globe

Go right on to the next page.
5. plain; easily seen  
6. happened  
7. emphasized; written in slanting form  
8. a trip for a definite purpose  
9. pilot of an aircraft  
10. a thing to remind

On meeting the words for the fifth and last time the students selected them from sentences and matched them with their correct meanings. This exercise was similar to exercise one and served to round out the student's experience with the word.
CHAPTER IV
EXPERIMENTAL PROCEDURE

THE TEACHER'S MANUAL

Two weeks prior to the beginning of the experiment all participating teachers met with the author. The general plan of the experiment was outlined and the necessity of strict controls emphasized. As a result of this conference, and one held two days later, a Teacher's Manual was prepared by the author. The manual outlined in detail the procedure as to pre-experiment activities, pre-testing, timing, lesson procedure, scoring, recording, and post-testing. A copy of the manual was supplied to each teacher on Monday, February 28, four days before the experiment started. The teachers thus had time to study the manual carefully, which they did. As the manual played a most important part in the standardization of procedure, it is included in the present study as Appendix C.

CONTROL OF THE TEACHER FACTOR

The personality of the teacher is a very important factor in any teaching situation and was therefore given consideration in the present study. An attempt was made first to eliminate the teacher factor as far as possible and secondly to equalize the teacher factor where elimination was impossible. In the first place prepared lesson sheets formed the basis of the students' lessons. These lesson sheets were sufficiently detailed to place the teacher more in the position of a supervisor than an instructor. In all cases where the teacher actively entered the learning situation, such as in the reading
of the words to be studied in Group A exercises or in reading the introductory paragraph in Group B exercises, verbatim instructions were given from which the teacher was not to deviate. In order to equalize the teacher factor it was decided to have each teacher teach by both methods. Thus each of the four participating teachers taught one class from Group A and one class from Group B. The author participated actively in the experiment and this fact made possible an additional means of standardizing the teacher factor. On Monday, March 4, all teachers were present in the author's classroom as he conducted the Practice Lesson for his Group A class, followed by the Practice Lesson for his Group B class. They then returned to their respective schools and proceeded with the introductory lessons for their own groups. Throughout the experiment the author was able to observe each participating teacher conduct at least two lessons. The teachers appeared to be carrying out the instructions carefully. As a result of the precautions taken the effect of the personality of the teacher was fairly well controlled.

ADMINISTERING THE PRE-TESTS AND POST-TESTS

The pre-tests, both spelling and word meaning, were administered to Group A, Group B, and the Control Group on Friday, March 4. The spelling test was administered to all groups during the first period in the morning and the word meaning test to all groups during the first period in the afternoon. A standardized procedure was established for the administration of both tests and was patterned after the procedure used in
most standardized achievement tests. The detailed and explicit instructions were included as part of the Teacher's Manual and were thus available for reference at all times. All tests were scored by the teachers administering them according to instructions laid down and recorded in a prepared class record sheet which was included as part of the manual. The tests were then re-scored by the author and all scores re-checked against the class record sheets. Very few adjustments were necessary indicating, in our opinion, much careful attention to detail in the carrying out of the experiment.

The procedure followed in the administration of the pre-tests was followed exactly in the administration of the post-tests, the same tests being used in each case. These final tests were given on Friday, April 1, the day immediately following that on which the last exercises for both groups were completed.

**TYPICAL PROCEDURE FOR GROUP A EXERCISES**

The following "Directions to Teachers" is typical of the procedure followed in all Group A exercises.

**DIRECTIONS TO TEACHERS**

When the class is assembled, distribute the appropriate Spelling Exercise and one-half sheet of newsprint to each student. The Spelling Exercise will be distributed face down. Then have each student place his copy of "My Spelling Record Book" on his desk, opened at the page entitled "How to Study a Word". Then say, "Turn over your spelling exercise. Here are your ten new spelling words for to-day----(Read the ten words slowly and distinctly.)----You will have exactly eight minutes to study these words. Be sure to study each word exactly as your "Record Book" tells you----Remember to cover each word as you write it. The newsprint, on which you will write each word, may be used to cover the word.
You will all finish if you work steadily but you can't waste time. Begin now."  

At the end of eight minutes say, "Stop work. Now go on with part two of the exercise, 'Getting Acquainted With Your Words'. You will have exactly ten minutes to complete part two. Start now." When the ten minutes time allowed has elapsed say, "Now each one check his own work as I give you the correct answers for part two. Any spelling errors makes the word wrong."

Section A - Pronounce and spell each word, emphasizing the 'missing hard spots'.

Section B - Pronounce and spell the required antonym, synonym, or word as the case might be.

Section C - Pronounce and spell the required word.

Section D - Read the sentences or paragraph and emphasize the omitted word.

The students may note their total score on section two. The scores on this section will not, however, be recorded. Checking of section two will take about five minutes.

Immediately after checking section two, say, "Now turn your exercise paper over and write to-day's words. The words are----"(Pronounce the word clearly and distinctly, use the word in the illustrative sentence given in part one of the exercise, and pronounce the word again.)

When the ten words have been dictated, have each student mark his own work and carry out the instructions given in part IV and V of the exercise. Dictating and checking will take about seven minutes. Do not exceed this time limit.

Use the unexpired portion of the period to record results of the spelling test in the Class Record. Do not spend any more of the period in the teaching of spelling.

Note: Students finishing the required tasks before the allowed time is up should be encouraged to check their work or study words selected by themselves from their "Never Again" list.

It will be noted that students of Group A spend exactly eight minutes in studying the day's spelling words and ten
minutes in completing the exercise "Getting Acquainted With Your Words".

**TYPICAL PROCEDURE FOR GROUP B EXERCISES**

The following "Directions to Teachers" is typical of the procedure followed in all Group B exercises.

**DIRECTIONS TO TEACHERS**

When the class is assembled, distribute the appropriate "Work and Play With Words" exercise. Say, "Here is our 'Work and Play With Words' exercise for to-day. Look at part one. Follow the paragraph at the top of the first page while I read it aloud for you." Read the paragraph.

Now say, "Now do the exercise for section one. Then go right on and finish section two, three, four, and five. You will have eighteen minutes to complete the exercise. You will all be able to finish if you work steadily. You can't waste time, however, if you wish to finish. Begin now." (Start timing here.)

Allow eighteen minutes working time. Move quietly about the room to see that instructions are being carried out and to encourage all students to work steadily.

When the eighteen minutes time has elapsed, say, "Stop work. You will now check your own work for to-day. Words misspelled must be counted wrong. Here are the correct answers for part one-----" (Write the numbers one to ten on the blackboard. Before each number write the correct word. When part one has been checked, erase the words and continue on with section two, three, four, and five in the same way.) Instruct the students to find their total score.

Checking will take about twelve minutes. Use the unexpired time of the period for recording scores in the Class Record. Do not spend any additional time on the day's exercise.

**Note:** Students finishing the required task before the allowed time is up should be encouraged to check their work or read silently from their literature text.

Group B students work for exactly eighteen minutes on each day's exercises. Thus Group A and Group B spend exactly the same amount of time in study and individual work each day.
The total amount of time that each group is given for learning the experimental material is therefore equivalent.

**SUMMARY OF EXPERIMENTAL PROCEDURE**

In the organization of the experiment and presentation of lessons the basic objective was to equalize as far as possible all factors, with the exception of the experimental variable, which may have had a bearing on the final outcome. General procedure contributed to this objective in the following ways:

1. The preparation of the Teachers' Manual served to emphasize the importance of standard procedure in the experimental situation and as a means of controlling the experimental procedure.

2. The use of identical tests for both groups served to control the testing procedure.

3. Teachers taught the lessons to both groups. This would tend to equalize the effect of differences in teacher personality and teaching ability.

4. Teachers observed the author teach a demonstration lesson to a class from each group.

5. The teaching of all teachers was observed and discussed at least once for each method.

6. The teacher's role was largely supervisory. The prepared lesson sheets eliminated the active participation of the teacher to a considerable degree. Where the teachers actively entered the experimental situation each teacher for each group taught the same material in exactly the same way.
CHAPTER V
ANALYSIS OF RESULTS

SPELLING ACHIEVEMENT OF THE TWO GROUPS

Immediately following the completion of the final exercise of the experiment the pupils were tested again in spelling. The test used was the same as had been administered on the opening day of the experiment. This provided a basis for a comparison of the two groups in spelling achievement. Table IV summarizes the results for the total population of Group A and Group B. The formula used for computing the standard error of the difference in means was:

$$SE_{M_{diff.}} = \sqrt{(SE_{M_1}^2 + SE_{M_2}^2)(1 - r_{xy}^2)}$$

In the present study the coefficient of correlation between the pre-test in spelling and the post-test in spelling, based on scores made by both groups, was for example .88. It will be recalled that the groups were equated on the basis of the pre-test in spelling and in word meaning. Such

| TABLE IV |
| MEAN GAINS MADE BY GROUP A AND GROUP B |

POST-TEST IN SPELLING

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Cases</th>
<th>Mean Initial Score</th>
<th>SD</th>
<th>Mean Gain</th>
<th>Diff. in Means</th>
<th>SE_{M_{diff.}}</th>
<th>Diff./SE_{M_{diff.}}</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100</td>
<td>28.10</td>
<td>18.84</td>
<td>22.45</td>
<td>1.94</td>
<td>1.25</td>
<td>1 *</td>
</tr>
<tr>
<td>B</td>
<td>107</td>
<td>27.89</td>
<td>19.12</td>
<td>24.39</td>
<td></td>
<td>1.552</td>
<td></td>
</tr>
</tbody>
</table>

\* Values of "t" with 204 degrees of freedom (from Fisher's tables): 1% level of significance - 2.601  
5% level of significance - 1.972
correlations, based on the particular groups concerned, were therefore used.

Inspection of Table IV reveals that no significant difference emerged from the operation of the experimental variable although both groups made substantial gains in mean score; the mean on the final test for Group A was 50.55, and the corresponding mean for Group B was 52.28. It will be noted that the slight difference in mean gains which did emerge was in favor of Group B (learned in context by a method primarily devoted to vocabulary development).

A comparison of results made on the post-test by "good" and "poor" spellers within Group A and Group B is revealing. A "good" speller is designated as one who made a score on the pre-test in spelling greater than one standard deviation above the mean, while a "poor" speller is designated as one who made a score on the pre-test in spelling lower than one standard deviation below the mean. Table V summarizes the results for

<table>
<thead>
<tr>
<th>TABLE V</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN GAINS MADE BY GROUP A (&quot;GOOD&quot; SPELLERS) AND GROUP B (&quot;GOOD&quot; SPELLERS)</td>
</tr>
<tr>
<td>POST-TEST IN SPELLING</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Cases</th>
<th>Mean Initial Score</th>
<th>SD Mean Gain</th>
<th>Diff. in Means</th>
<th>SEMdiff</th>
<th>Diff/SEdiff</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>19</td>
<td>54.20</td>
<td>4.50</td>
<td>15.42</td>
<td>5.2630</td>
<td>3.058</td>
</tr>
<tr>
<td>B</td>
<td>19</td>
<td>52.47</td>
<td>5.29</td>
<td>20.68</td>
<td>5.2630</td>
<td>3.558</td>
</tr>
</tbody>
</table>

* Values of "t" with 35 degrees of freedom (from Fisher's tables): 1% level of significance - 2.728 5% level of significance - 2.032
the "good" spellers within the two groups.

Table V reveals that there is a significant difference in the means in favor of Group B "good" spellers. As the number of cases is not large statistical computations were based on raw scores. An obtained critical ratio as great as 3.558 justifies the assumption of significance. Hence, in the case of "good" spellers, a method whereby the students critically observe and write words in context is demonstrated to be significantly superior to a method designated as "good standard practice" in the development of ability to spell.

Table VI presents the results for the "poor" spellers within the two groups. The table indicates that there is no significant difference in means as between the "poor" spellers.

<table>
<thead>
<tr>
<th>TABLE VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN GAINS MADE BY GROUP A (&quot;POOR&quot; SPELLERS) AND GROUP B (&quot;POOR&quot; SPELLERS)</td>
</tr>
<tr>
<td>POST-TEST IN SPELLING</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Cases</th>
<th>Mean Initial Score</th>
<th>SD</th>
<th>Mean Gain</th>
<th>Diff. in Means</th>
<th>SEM diff.</th>
<th>Diff/SEM diff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20</td>
<td>5.70</td>
<td>4.78</td>
<td>14.89</td>
<td>17.4</td>
<td>2.68</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.920</td>
<td>.898</td>
</tr>
</tbody>
</table>

* Values of "t" with 35 degrees of freedom (from Fisher's tables): 1% level of significance - 2.728 5% level of significance - 2.032

of Group A and the "poor" spellers of Group B. It will be noted that the mean initial scores favored Group A. The difference in means, being only .992, is not statistically
significant. The difference in means revealed in the post-test continued to favor Group A "poor" spellers. We do not, however, demonstrate the superiority of either method in developing ability to spell in "poor" spellers under the present circumstances.

**Vocabulary Achievement of the Two Groups**

As was the case in spelling, the pupils were also tested in vocabulary immediately following the completion of the final experimental exercise. The test used was the same as had been administered on the opening day, namely the author-made word meaning test discussed in Chapter III. Thus a basis for the comparison of the two groups in vocabulary achievement was established. The results for the total population of Group A and Group B in vocabulary achievement are summarized in Table VII. The formula used for computing the standard error of the difference in means was the one used for spelling, namely:

$$SEM_{\text{diff.}} = \sqrt{(SE_{M1}^2 + SE_{M2}^2)(1 - r_{xy}^2)}$$

The correlation which was used was the correlation between performance on the first administration of the word meaning test and performance on the second administration of the word meaning test for the particular group being used. Thus the correlation between the pre-test in vocabulary and the post-test in vocabulary, based on scores made by both groups, was .84. Again it will be recalled that the groups were equated on the basis of word meaning ability as measured by the pre-test in vocabulary.
Inspection of Table VII indicates that very significantly greater gains were made by Group B. That is to say the method of learning words followed by Group B is demonstrated to be

**TABLE VII**

**MEAN GAINS MADE BY GROUP A AND GROUP B**

**POST-TEST IN WORD MEANING**

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Cases</th>
<th>Mean Initial Score</th>
<th>SD</th>
<th>Mean Gain</th>
<th>Diff. in Means</th>
<th>SEM</th>
<th>Diff / SEM</th>
<th>Diff / SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100</td>
<td>54.15</td>
<td>10.31</td>
<td>10.25</td>
<td>3.39</td>
<td>.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>107</td>
<td>54.06</td>
<td>10.46</td>
<td>13.64</td>
<td></td>
<td></td>
<td></td>
<td>4.307</td>
</tr>
</tbody>
</table>

* Values of "t" with 204 degrees of freedom (from Fisher's tables): 1% level of significance - 2.601 5% level of significance - 1.972

significantly superior to the method followed by Group A under circumstances prevailing in the present experimental study.

A comparison of results made on the post-test in vocabulary by students classified as "good" in vocabulary and "poor" in vocabulary follows. The method of designating "good" and "poor" vocabulary students follows the pattern established in the case of the "good" and "poor" spellers. Table VIII presents in summary form the results for the "good" vocabulary groups within Group A and B. The table reveals that there is no statistically significant difference in the means of the two groups on the post-test in vocabulary. The "good" vocabulary section from Group B showed a slightly higher mean gain. Caution is suggested in drawing conclusions on the basis of these results partly because of the limited number of cases
TABLE VIII
MEAN GAINS MADE BY GROUP A ("GOOD" VOCABULARY) AND GROUP B ("GOOD" VOCABULARY)
POST-TEST IN VOCABULARY

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Cases</th>
<th>Mean Initial Score</th>
<th>SD</th>
<th>Mean Gain</th>
<th>Diff. in Means</th>
<th>SE_{Mdiff}</th>
<th>Diff./SE_{Mdiff}</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>13</td>
<td>69.15</td>
<td>2.37</td>
<td>4.38</td>
<td>1.21</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>70.70</td>
<td>1.55</td>
<td>5.60</td>
<td>1.55</td>
<td>1.550</td>
<td></td>
</tr>
</tbody>
</table>

* Values of "t" with 20 degrees of freedom (from Fisher's tables):
  1% level of significance - 2.845
  5% level of significance - 2.086

and partly because of the high mean scores made on the pre-test. The maximum score on the vocabulary test was 80 and it will be noted that Group A "good" vocabulary section obtained a mean score on the pre-test of 69.15 while the Group B "good" vocabulary section produced a mean score of 70.7. Thus the possibility of growth in achievement through learning was limited.

TABLE IX
MEAN GAINS MADE BY GROUP A ("POOR" VOCABULARY) AND GROUP B ("POOR" VOCABULARY)
POST-TEST IN VOCABULARY

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Cases</th>
<th>Mean Initial Score</th>
<th>SD</th>
<th>Mean Gain</th>
<th>Diff. in Means</th>
<th>SE_{Mdiff}</th>
<th>Diff./SE_{Mdiff}</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>16</td>
<td>31.75</td>
<td>8.33</td>
<td>14.56</td>
<td>4.88</td>
<td>2.85</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>18</td>
<td>30.38</td>
<td>12.43</td>
<td>19.44</td>
<td>2.85</td>
<td>1.715</td>
<td></td>
</tr>
</tbody>
</table>

* Values of "t" with 31 degrees of freedom (from Fisher's tables):
  1% level of significance - 2.750
  5% level of significance - 2.042
Table IX is a summary of results made by the "poor" vocabulary students from Group A and Group B. Here again the table reveals no significant differences in the means of the two groups although significance is approached in favor of Group B. Small numbers of cases again suggest caution in drawing conclusions.
CHAPTER VI

SUMMARY AND CONCLUSIONS

The present study was undertaken as a comparison of two methods of learning the spelling and meaning of words. The author was primarily concerned with the fact that some individuals apparently possess the ability to spell and use a larger number of words than they have been taught in formal spelling instruction. Do pupils learn to spell words incidentally as a result of seeing and writing them in context?

The central problem as stated was: Do pupils, learning by a method designed to develop spelling ability, also learn the meanings of the words so studied? Do students, learning by a method designed to develop vocabulary ability, also learn the spelling of the words so studied? By which method do the pupils make the greater gains in spelling? By which method do the pupils make the greater gains in vocabulary? Do pupils of varying degrees of ability in spelling and vocabulary react to the two methods in the same way?

To attempt a study of this problem, eighty words, selected from among a list of words most needed to be taught to the experimental group, were chosen as the subject matter of the experiment. Two groups worked with the same eighty words. The material was presented to the pupils in the form of especially constructed work-sheet type lessons. These work-sheets served not only to control the time factor and to practically eliminate the teacher variable, but also as a means of introducing the experimental variable in the learning situation.

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Group A, learning by a method designed primarily to develop spelling ability, utilized the following methods of study:

1. Read the ten words for the day's study assignment while the teacher pronounced them aloud.
2. Studied the assigned ten words for eight minutes by a specific and well-established technique.
3. Worked for ten minutes on an exercise designed to concentrate attention on the "hard spots" and on the writing of the day's words.
4. Corrected the day's exercise under teacher guidance.
5. Wrote the day's words from teacher dictation.
6. Corrected dictation, recorded results in "Pupil's Record Book", and correctly wrote all misspelled words in "Never Again" test.

Group B, learning by a method designed primarily to develop vocabulary, utilized the following methods of study:

1. Read silently from the work-sheets while the teacher read aloud the paragraph from Exercise I. Ten underlined words contained in this paragraph were taken from the eighty words comprising the experimental material.
2. Worked for eighteen minutes as follows:
   a. Wrote the ten underlined words of Exercise I before their respective meanings.
   b. Wrote each word of a given list of ten words from the experimental material in the blank spaces of ten given sentences.
c. Wrote each word of a given list of ten words from the experimental material in the blank spaces of a given paragraph.

d. Wrote each word of a given list of ten words from the experimental material before its respective meaning.

e. Wrote each of ten underlined words from ten given sentences before its respective meaning. The underlined words were selected from the experimental material.

Note: The eighty words comprising the experimental material were presented in such a manner that the pupil met each of them five times at regular intervals throughout the course of the experiment. Each time a word was met the pupil was required to look at it and write it in a contextual situation.

3. Students checked their own exercises as the teacher wrote the correct answers on the blackboard.

Eight grade seven classes in the junior high schools of the city of New Westminster, B. C., acted as experimental subjects. Data concerning chronological age, I. Q., and scores on author-constructed tests of spelling and word meaning, were collected for each pupil. No significant differences appeared between the two groups in any of these measures. The reliability of the spelling test \( r = .94 \) and the word meaning test \( r = .88 \) was established by using a control group composed of six grade seven classes (170 pupils in all) from the adjoining municipality of Burnaby, B. C. The control group was given the tests on the opening day of the experiment and
again on the closing day of the experiment, but received no instruction. At the close of the experiment the spelling and word meaning tests were given to the experimental group as a basis for comparison of gains. Complete data in spelling and word meaning were available for 100 members of Group A and 107 members of Group B. The period, including pre-tests and post-tests in the subject matter, covered four weeks. The experiment proper required two forty-minute periods per week for the four weeks.

**SUMMARY OF FINDINGS**

1. After four weeks' instruction, highly significant gains in spelling and vocabulary were made by both Group A and by Group B. The control group, on the other hand, produced no change approaching significance in either spelling or vocabulary over the same period.

2. No significant difference was demonstrated in achievement in spelling between a method of learning designed primarily for spelling achievement and based on a "good standard spelling technique" (Group A Method) and a method designed primarily for vocabulary achievement wherein the pupil reads the word in context and writes it a number of times (Group B Method). It is noted, however, that the mean gains recorded did favor the Group B Method. This was demonstrated by comparisons involving the entire A and B groups.

3. For "good" spellers, Method B wherein the pupil reads the word in context and writes it a number of times, was
demonstrated to be significantly superior to a method designated as "good standard spelling technique".

4. For "poor" spellers no significant difference is demonstrated between Method A and Method B. This was demonstrated by a comparison of gains made by the "poor" spellers of Group A and the "poor" spellers of Group B. Recorded gains indicated that Method A ("good standard spelling technique") did, however, favor the "poor" spellers.

5. A highly significant difference was demonstrated in achievement in vocabulary between a method designed primarily to develop spelling ability (Group A Method) and a method designed primarily to develop vocabulary (Group B Method). Here Method B, designed primarily to develop vocabulary was demonstrated to be significantly superior as a method of developing vocabulary.

6. A comparison of mean gains made by pupils "good" in vocabulary produced no significant difference between Method A and Method B although Method B was favored. This was demonstrated by comparisons involving a limited number of cases from Group A and Group B. The small number of cases, plus the fact that mean scores made on the initial administration of the vocabulary test were high, suggests doubt as to the validity of the findings in the present case.

7. Comparison of gains made by pupils "poor" in vocabulary showed no significant difference between the two methods. Here again, however, significance was approached in favor
of a method designed primarily for vocabulary development.

CONCLUSIONS

Probably the only general conclusions which may be drawn from the results of the present study are:

1. That the two methods of learning the spelling and meaning of words increase spelling ability significantly and in roughly the same degree. A subjective assumption, based on informal questioning of pupils, is that learning in context (Method B) proved more interesting to the pupil.

2. That "good" spellers make greater gains in spelling ability when learning by a method which involves reading words in context and writing them a number of times. (Method B)

3. That for grade seven pupils a method primarily designed for developing vocabulary does increase vocabulary ability to a significantly greater degree than a method of learning words based on "good standard technique".

4. That the two methods do not prove equally effective with "good" and "poor" spellers or the pupils who are "good" and "poor" in vocabulary ability.
APPENDIX A

SPELLING TEST I-A

DIRECTIONS TO TEACHERS:

Read the number of the word and the word, then use the word in the sentence and repeat the word thus, "Number one - occurred - My birthday occurred on Tuesday - occurred." Emphasize the word when used in the sentence but do not exaggerate its pronunciation or attempt to syllabilize it. Adjust your speed to the average writing speed of the class. Be generous.

When the answer sheets have been distributed and the class is ready to begin, say:

"I am going to dictate a Spelling test of eighty words. At the top of the answer sheet write your name (pause), now the name of your school (pause), now the name of your teacher of English (pause), now your grade and your division, which is.... .... Now write today's date, which is........ (give day, month, and year.) When writing the words, be sure that you put each word beside its proper number. If you miss a word leave the space blank so the next word is beside its own number. The first word is......... (etcetera)"

Collect the answer sheets immediately, and check them to see that the information at the top has been properly given.

1. occurred My birthday occurred on a Tuesday. occurred
2. species The fir is a species of evergreen. species
3. tombs The tombs of the dead were of marble. tombs
4. unconscious The man lay unconscious from the blow. unconscious
5. mischievous The mischievous boy woke the baby. mischievous
6. italicized The last word was italicized. italicized
7. exhausted The horses were exhausted by the long trip. exhausted
8. cellulose Cellulose makes paper. cellulose
9. obedient The obedient animals obeyed their master. obedient
10. horrified We were horrified when the house caught fire. horrified
11. intelligence The intelligence of the child was evident. intelligence
12. secede No province will secede from the dominion. secede

Continued on the next page.
13. excursion The **excursion** to the beach was most **pleasant**.
14. souvenir The picture was a valuable **souvenir**.
15. inhabitants The island **inhabitants** welcomed visitors.
16. aviator The **aviator** landed the plane.
17. mammal The cow is a **mammal**.
18. privileges Good work deserves special **privileges**.
19. hemisphere The northern **hemisphere** has large land areas.
20. phosphorus The **phosphorus** glowed in the dark.
21. recognition He received **recognition** for his efforts.
22. murmur A low **murmur** was apparent.
23. warrant The judge issued a **warrant** for her arrest.
24. spinach The **spinach** was tender.
25. raisin Mother made **raisin** cookies.
26. peculiar The whistle had a **peculiar** sound.
27. impatient The **impatient** children wanted to go.
28. alien An **alien** cannot be a citizen.
29. certain I’m **certain** we shall go.
30. possibility There is no **possibility** of his coming.
31. omitted We **omitted** the last question.
32. platinum She wore a **platinum** ring.
33. pyramids The kings of Egypt built **pyramids**.
34. restaurant He had lunch in the **restaurant**.
35. trait A good **trait** is kindness.
36. wrought The ornament was **wrought** with beauty.
37. interfere The snow will **interfere** with the cars.
38. essential An **essential** part was missing.
39. burglar The **burglar** entered by the window.
40. peasant In Europe the **peasant** tills the land.
41. committed The man **committed** a crime.

Continued on the next page.
42. scheme  I like the color **scheme** of the picture.
43. delegates The **delegates** came from many schools.
44. colonel A **colonel** wears a crown and two stars.
45. cautious The **cautious** man walked slowly.
46. hurriedly The cat sprang **hurriedly** aside.
47. thorough They completed a **thorough** job.
48. cemetery We bury the dead in a **cemetery**.
49. proteins Meat contains **proteins**.
50. precious The **precious** stone was lost.
51. allegiance He swore **allegiance** to Canada.
52. idol The baby was its mother's **idol**.
53. tuberculosis Tuberculosis can be cured.
54. similar Ann's dress is similar to Mae's.
55. expedition The hunting **expedition** was a failure.
56. inquiry Did you make **inquiry** as to its loss?
57. apparent His error was **apparent** to all.
58. principle Explain the **principle** of the pump.
59. superintendent The progress satisfied the **superintendent**.
60. safety The **safety** patrol does good work.
61. courteous A **courteous** boy is kind.
62. yolk The egg **yolk** is yellow.
63. ancient They gazed at the **ancient** wall.
64. antecedent Each pronoun has an **antecedent**.
65. chloroform Chloroform was first used in 1847.
66. recommend Can you **recommend** this book?
67. reins The driver held the **reins** lightly.
68. dissolved The sugar **dissolved** in the tea.
69. architecture The home was inspired by Greek **architecture**.
70. porous Water drains easily from **porous** soil.
71. indebted To whom am I **indebted** for this gift?
72. efficiency His **efficiency** was gained through practice.
73. sufficient We have **sufficient** time to go with you.
74. financial The **financial** arrangements are completed.

Continued on the next page.
| 75. commission | The government **commission** studied school costs. |
| 76. medicinal   | The rhubarb is a **medicinal** plant.               |
| 77. microscopic | **Microscopic** plants live in the air.            |
| 78. foreigners  | **Foreigners** often make good Canadians.          |
| 79. sewage      | Sewage is carried off in pipes.                    |
| 80. superstition| "Unlucky 13!" is a popular **superstition**.        |

End of the Test.
SPELLING TEST I-B

Name:............................ Name of School:......................
Teacher:.......................... Grade:..... Division:.......... 
Date:..............................

1................................. 21.................................
2................................. 22.................................
3................................. 23.................................
4................................. 24.................................
5................................. 25.................................
6................................. 26.................................
7................................. 27.................................
8................................. 28.................................
9................................. 29.................................
10................................. 30.................................
11................................. 31.................................
12................................. 32.................................
13................................. 33.................................
14................................. 34.................................
15................................. 35.................................
16................................. 36.................................
17................................. 37.................................
18................................. 38.................................
19................................. 39.................................
20................................. 40.................................

Go right on to the next page.
End of the Test.
APPENDIX B

WORD MEANING TEST II-B

Name: ___________________________ Date: ___________________________

Division: _________________________ School: __________________________

Directions. In each exercise one of the five numbered words will complete the sentence most correctly. Underline this word. Place the number of the word you have underlined in the brackets to the right of the sentences.

Samples.

A. To label is to - 1 carry 2 lower 3 mark 4 hold 5 supply.......................(3)

B. A lens is made of - 1 iron 2 glass 3 wood 4 wheat 5 felt.........................(2)

C. Filthy means - 1 capable 2 violent 3 fatal 4 foul 5 fearful..........................(4)

1. Phosphorus is used to make - 1 matches 2 shoes 3 ink 4 glue 5 steel..............( )

2. Spinach is a kind of - 1 piano 2 vegetable 3 root 4 spindle 5 tie.....................( )

3. Raisins are made from - 1 plums 2 yeast 3 grapes 4 damsons 5 jacks.............( )

4. Chloroform is a kind of - 1 coal 2 leaf 3 anaesthetic 4 chlorophyll 5 uniform......( )

5. Tombs are - 1 books 2 songs 3 statues 4 libraries 5 graves.............................( )

6. A murmur is a - 1 whisper 2 breeze 3 drug 4 death 5 canoe...........................( )

7. A restaurant is a kind of - 1 cafeteria 2 stimulant 3 restroom 4 automobile 5 horse.................................................( )

8. A colonel is a kind of - 1 disease 2 poetry 3 officer 4 harness 5 medicine...........( )

9. A yolk is part of an - 1 engine 2 entertainment 3 equipage 4 egg 5 envelope....( )

Go right on to the next page.

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10. Architecture refers to style in - 1 cars 2 aeroplanes
   3 ships 4 clothes
   5 buildings.............( )

11. Unconscious means - 1 cruel 2 stupid 3 unaware
   4 guilty 5 famous..............( )

12. Hurriedly means - 1 hastily 2 slightly 3 carelessly
   4 terribly 5 eagerly...........( )

13. A cemetery is a - 1 building 2 field 3 dormitory
   4 crematorium 5 graveyard...........( )

14. A burglar is a - 1 beggar 2 musician 3 villager
   4 highwayman 5 robber...........( )

15. Inhabitants are - 1 residents 2 messengers 3 clothes
   4 laborers 5 houses.............( )

16. Pyramids are large - 1 churches 2 tombs 3 libraries
   4 statues 5 mountains...........( )

17. Safety means - 1 hate 2 security 3 attachment
   4 aged 5 patrol..................( )

18. Foreigners are - 1 citizens 2 forgers 3 laborers
   4 strangers 5 enemies...........( )

19. Occurred means to have - 1 influenced 2 finished
   3 accompanied 4 happened
   5 told...........................( )

20. To be exhausted is to be - 1 defeated 2 strange
    3 clean 4 weary 5 brave...( )

21. Intelligence means - 1 wisdom 2 aptitude 3 praise
    4 justice 5 liberty...............( )

22. A souvenir is a - 1 medicine 2 tool 3 memento
    4 dress 5 book...................( )

23. An impatient person is - 1 sick 2 restless 3 tall
    4 famous 5 careless...........( )

24. To be certain means to be - 1 correct 2 sure
    3 covered 4 inserted
    5 imprisoned...................( )

25. A possibility is a - 1 possession 2 wager 3 chance
    4 nightingale 5 hook............( )

26. A thorough job is - 1 exciting 2 through 3 pure
    4 careful 5 complete...............( )

Go right on to the next page.
27. **Tuberculosis** is a kind of 1 disease 2 tube 3 insect 4 germ 5 escalator

28. An **expedition** is a 1 display 2 bicycle 3 help 4 ride 5 journey

29. **Mammals** are 1 twigs 2 mothers 3 animals 4 prophets 5 ditches

30. **Delegates** are 1 weaklings 2 servants 3 captives 4 representatives 5 orders

31. To be **cautious** is to be 1 slow 2 entangled 3 foolish 4 warned 5 careful

32. **Ancient** means 1 before 2 accident 3 old 4 worn 5 seafaring

33. To be **dissolved** is to be 1 worked 2 unfinished 3 melted 4 explained 5 stirred

34. **Cellulose** comes from 1 fish 2 animals 3 air 4 plants 5 cans

35. An **alien** is a 1 reel 2 psychologist 3 bachelor 4 friend 5 foreigner

36. Our **traits** are our 1 characteristics 2 fingers 3 gifts 4 prayers 5 dishes

37. A **peasant** is a 1 bird 2 nut 3 food 4 farmer 5 salesman

38. An **antecedent** refers to a 1 pronoun 2 mountain 3 planet 4 food 5 adverb

39. **Superstition** is a belief in 1 signs 2 money 3 horses 4 honesty 5 truth

40. **Obedient** means 1 credulous 2 mild 3 clumsy 4 dutiful 5 funny

41. **Horrified** means 1 fearful 2 disgusted 3 angered 4 hurt 5 amiable

42. **Privileges** are 1 controls 2 customs 3 expenses 4 rights 5 rewards

43. **Peculiar** means 1 amusing 2 jolly 3 queer 4 mercenary 5 exacting

Go right on to the next page.
44. **Platinum** is a kind of - 1 metal 2 goose 3 saying
   4 sail 5 platform....................( )

45. A **superintendent** is a - 1 director 2 supercharger
   3 tyrant 4 saddle 5 Frenchman( )

46. An **essential** thing is - 1 agreeable 2 necessary
   3 useful 4 sweet 5 dispensable..............( )

47. A **scheme** is a - 1 design 2 plan 3 trick 4 theme
   5 fish........................................( )

48. A **precious** stone is - 1 odd 2 costly 3 brittle
   4 pre-cut 5 beautiful......................( )

49. **Apparent** means - 1 two 2 spectre 3 simple
   4 parental 5 plain..........................( )

50. **Financial** refers to - 1 magazines 2 debt 3 endings
   4 money 5 races..............................( )

51. **Species** is a - 1 tree 2 condiment 3 group 4 kind
   5 fish........................................( )

52. To **interfere** is to - 1 prevent 2 meddle 3 terrify
   4 separate 5 enjoy..........................( )

53. A **courteous** person is - 1 courtly 2 afraid
   3 beauuteous 4 polite
   5 thoughtful..................................( )

54. **Efficiency** is - 1 gaiety 2 speed 3 loss 4 skill
   5 fully........................................( )

55. A **warrant** is a - 1 request 2 steamboat 3 reason
   4 permit 5 burrow............................( )

56. **Committed** means - 1 acted 2 performed 3 finished
   4 judged 5 invited............................( )

57. An **inquiry** is a - 1 duty 2 shout 3 request
   4 search 5 question..........................( )

58. **Reins** are - 1 rules 2 downpours 3 straps
   4 tethers 5 kings.............................( )

59. **Italicized** words are - 1 misspelled 2 foreign
   3 emphasized 4 omitted
   5 decreased....................................( )

Go right on to the next page.
60. To be **omitted** is to be - 1 helped 2 inoculated  
3 frightened 4 skipped  
5 sent...........................( )

61. Allegiance means - 1 numerous 2 friendship 3 fear  
4 joy 5 loyalty......................( )

62. To **recommend** is to - 1 restart 2 blame 3 praise  
4 start 5 cheat........................( )

63. To be **indebted** is to be - 1 healthy 2 invited 3 owing  
4 poor 5 sad...........................( )

64. To be **sufficient** is to be - 1 enough 2 empty  
3 painful 4 comical  
5 full.................................( )

65. A **commission** is a - 1 stamp 2 help 3 party  
4 missionary 5 duty...................( )

66. Sewage is - 1 dressmaking 2 garbage 3 bones  
4 drainage 5 forests..................( )

67. To receive **recognition** is to get - 1 hurt 2 appreciation  
3 candy 4 money  
5 knowledge...........................( )

68. An **aviator** is a - 1 birdhouse 2 driver 3 dragon  
4 lawyer 5 pilot........................( )

69. A **hemisphere** is a - 1 halfglobe 2 planet 3 problem  
4 cloud 5 ball........................( )

70. **Mischievous** means - 1 annoying 2 cruel 3 famous  
4 envious 5 dishonest...............( )

71. Secede means to - 1 discourse 2 hold 3 attack  
4 withdraw 5 spread...................( )

72. An **excursion** is a - 1 message 2 pardon 3 outing  
4 show 5 fruit........................( )

73. **Proteins** are foods that contain - 1 poison 2 water  
3 nitrogen 4 fat  
5 potatoes...........................( )

74. Similar means - 1 gay 2 different 3 familiar  
4 simple 5 like...........................( )

75. A **principle** is a - 1 sidewalk 2 rule 3 king  
4 beginning 5 disciple................( )

Go right on to the next page.
76. Medicinal means - 1 healing 2 musical 3 agricultural
   4 division 5 helpful

77. A porous cloth is - 1 dry 2 open 3 clean 4 torn
   5 thick

78. Microscopic means - 1 clear 2 unimportant 3 small
   4 large 5 speaker

79. To be wrought means to be - 1 made 2 tickled
   3 assembled 4 woven
   5 hurt

80. An idol is a - 1 loafer 2 phantom 3 flat iron
   4 model 5 false god

End of the Test.
APPENDIX C

GENERAL INSTRUCTIONS FOR SPELLING EXPERIMENT

**Important:** Keep these instructions for reference throughout the experiment. Add specific Lesson Instructions to this folder as received.

A. **General Nature of the Experiment.** This is an experiment to determine the relative merits of developing ability to write and know the meaning of words by "good standard practice" as compared to a method whereby the student sees and writes the word in context. Group C, class following "good standard practice", will study the spelling and use of eighty words by the use of eight prepared work-sheets. Group E, class learning in CONTEXT, will meet and write the same eighty words in five different contexts through the use of eight prepared work-sheets. Each group will be tested before and after the experimental lessons. In addition each group will be tested in spelling immediately following lesson five and prior to lesson six. An examination of the gains of each group will show which has made the most progress.

B. **Duration of the Experiment.** The experiment will be carried out on the basis of two lessons per week. Prior to the experiment proper a practice lesson will be given to each group. Pre-testing will require two periods and the post-testing two periods. The experiment, will, therefore, require thirteen periods.

C. **Instructions Re Tests:** Pre-tests (both word meaning and spelling) must be given in the week in which the FIRST two lessons of the experiment are given. **N.B.:** The whole experiment is invalidated unless the pre-tests are given prior to the first lesson of the experiment proper.

- **Test I-B - Word Meaning:** This test must be given before the Spelling test. Detailed instructions for this test are given under Word Meaning (Test I-B).

- **Test I-A - Spelling Test of eighty words:** This test must be given at one sitting after the vocabulary test and before the first lesson of the experiment. Detailed instructions for this test are given under Spelling Test (Test I-A).

D. **General Instructions Re Lessons**

1. **Length of Lesson Period.** The lessons are designed to fit a forty minute period. Actual lesson time is about thirty-three minutes thus allowing time for distribution of materials, recording scores, passing in of papers, and other routine matters.
2. **Control of the Time Factor.** Under experimental conditions the time factor is of utmost importance and every effort should be made to control it.

a. Time given for studying words and for the exercises must be strictly observed. For all other parts of the lesson, the times given are merely suggestions for the guidance of the teacher. As a rule, the teacher should find that time required is slightly less than the time stated. He should be careful, however, not to exceed the time.

b. The teacher should keep a watch in plain view as a check against exceeding the time. There should be no need, however, to hurry the lesson.

c. If possible arrangements should be made with the office not to be disturbed during the periods in which these lessons are being carried on. A "Testing - Do Not Disturb" sign placed outside the door might eliminate interruptions.

d. Should the lesson be unfinished due to any unavoidable interruption make no effort to complete the work at a future sitting but note the fact on the back of the class record sheet.

e. If, for any reason, a lesson is missed the teacher should try to schedule the lesson for another period during the same week and before the time for the next regular lesson. If this is impossible, the lesson should be done at the next regular period and the lesson it displaces scheduled for a period before the next regular lesson. A missed lesson should not be held over until the end. All must follow in the proper numerical order.

3. **Student Attitude Toward Experiment.** Generally speaking students should not be told that they are participating in a scientific experiment. Group C may be told that they, along with other students in New Westminster, are going to learn their spellings for the next few weeks by the use of study sheets. Group B should not be told that they are learning to spell words. They, if curiosity is evidenced, may be told that for the next few weeks they will be getting acquainted with many new words by working with them in work-sheets.

Both groups, should the question arise, may be informed that a record of their scores will be kept and will "count on the reports".

Above all do not inform students of the essential nature of the experiment.
4. **Keeping the Class Record**

a. In the "group" space write:
   - "Control" - if control group.
   - "C" - if group is learning by "good standard practice".
   - "E" - if group is learning by CONTEXT.

b. Fill in the names of the pupils in alphabetical order.

c. In the column marked "S" write "M" or "F" indicating the **sex** of the pupil.

d. In the columns under "Intelligence Score" fill in the chronological age, mental age, and intelligence quotient in the appropriate columns. Give C. A. and M. A. in **months**.

e. At the end of each period the results of the pupils' exercises should be recorded in the appropriate column. For Group C simply insert the number of words spelled correctly when dictated (Maximum - 10). For Group E insert number of words correctly written (Maximum - 50).

5. **The Post-Tests.** Final tests will be scheduled for the last two periods of the experiment. As these will be the same as those given at the beginning of the experiment, instructions for the administration of the Pre-tests will apply. (See Manual Instructions for Administration of Test.)

6. **Treatment of Completed Tests and Exercises.** All completed tests and exercises should be stored away by the teacher and kept until collected.
PRE-EXPERIMENT ACTIVITIES

1. Prior to giving Group C the Practice Exercise be sure that--

   a. The group is familiar with the technique for learning a word as laid down for this experiment. Do this by spending ten minutes in demonstrating and having the class carry out the technique. Follow the plan as laid down in the student's Spelling Record Book. Do not deviate. Use these words for demonstration purposes: magazine, prescription, population, cement, exactly.

   b. Explain the following terms: "prefix", "suffix", "synonym", "antonym". Use the following examples for demonstration purposes:

      Prefix:  
        a. predate  
        b. postscript  
        c. enable

      Suffix:  
        a. settlement  
        b. learning  
        c. extension

      Synonyms: (Words which mean the same or almost the same.)
        a. big - large  
        b. rich - wealthy  
        c. residence - home

      Antonyms: (Words which are opposite in meaning.)
        a. large - small  
        b. wealthy - poor  
        c. friend - enemy

2. Administer Practice Exercise in Spelling (Group C) to Group C.

   a. Observe instructions and time limits strictly as laid down in instructions for administering Group C exercises.

      Note: Do not record results.
ADMINISTERING THE PRE-TESTS

General: Before commencing ensure that the classroom shall be undisturbed for a period of at least forty minutes by any outside influence whatever. Inside the classroom make the pupils as comfortable as possible and remove all distracting elements. Take every reasonable precaution against copying.

Ensure that each pupil has a sharp pencil, and that spare pencils are available in case of breakage. Erasers may be used.

Important: Administer Word Meaning Test before Spelling Test.

I. Word Meaning Test II-A — Specific Instructions

a. When the class is assembled and the preliminary arrangements completed say—

"You will each be given a booklet in which you will show how well you know the meanings of some words. Leave it face downwards on your desk until you are told what to do. Do not take up your pencils until you are told to do so. (Distribute Booklets.) You must listen very carefully to what I say. Work quickly and carefully. Turn over your booklets. Take up your pencils. After the word 'Name' write your name. (Pause) After 'School' write the name of your school. (Pause) Now write the name of your teacher of English (Pause), now your grade and division which is ___________. Now write to-day's date which is __________(give day, month, and year.)

In each exercise one of the five numbered words will complete the sentence most correctly. Underline this word. Place the number of the word you have underlined in the brackets to the right of the sentence.

Look at sample A. 'To label is to - 1 carry 2 lower 3 mark 4 hold 5 supply.' The word 'mark' completes the sentence most correctly so 'mark' has been underlined. 'Mark' is word number 3 so the figure 3 has been placed in the brackets to the right of the exercise. Look at sample B. Which word should be underlined? (Wait for Answer.) Yes, a lens is made of glass so we underline 'glass' and place its number, which is 2, in the brackets. Now underline 'glass' and place '2' in the brackets to the right of sample B. Now do sample C. (Pause) You should have underlined the word 'foul' and written the figure '4' in the brackets. Do each exercise in this way. Be sure to do every page — there are eighty exercises altogether. Ready — Go!"

(Continued on next page.)
When work has started move quietly about the room to ensure that each pupil is following directions. Allow twenty-four minutes working time for the test. This time should be ample. It is to be noted, however, that this is a power test and the time is adjusted to the speed of the slower pupils. At the expiration of twenty-four minutes collect the booklets immediately.

b. **Directions for Scoring Word Meaning Test II-A**

1. Mark errors only by a short horizontal line directly before the number of the exercise. This is important as the experimenter plans to re-check scoring by placing a vertical line across the horizontal line.

2. Omissions are to be scored as errors.

3. Ignore incorrect underlining or lack of underlining. Be guided in scoring by the number placed in the brackets.

4. If two numbers are written in the brackets, score as an error.

5. The score is the **number correct**.

II. **Spelling Test I-A**

a. See Spelling Test I-A -(Directions to Teachers.)

b. **Directions for Scoring:**

1. Mark errors only by a short horizontal line directly before the number of the word. This is important as the experimenter plans to re-check scoring by placing a vertical line across the horizontal line.

2. Obvious misspellings are wrong.

3. Omissions are to be scored as errors.
PROCEDURE FOR GROUP A EXERCISES

Directions to Teachers

When the class is assembled, distribute the appropriate Spelling Exercise and one-half sheet of newsprint to each student. The Spelling Exercise will be distributed face down. Then have each student place his copy of 'My Spelling Record Book' on his desk, opened at the page entitled 'How to Study a Word'. Then say, "Turn over your spelling exercise. Here are your ten new spelling words for to-day----- (Read the ten words slowly and distinctly.) You will have exactly eight minutes to study these words. Be sure to study each word exactly as your 'Record Book' tells you. Remember to cover each word as you write it. The newsprint, on which you will write each word, may be used to cover the word. You will all finish if you work steadily but you can't waste time. Begin now."

At the end of eight minutes say "Stop work. Now go on with part two of the exercise, 'Getting Acquainted With Your Words'. You will have exactly ten minutes to complete part two. Start now." When the ten minutes time allowed has elapsed say, "Now each one check his own work as I give you the correct answers for part two. Any spelling errors makes the word wrong."

Section A - Pronounce and spell each word, emphasizing the 'missing hard spots'.

Section B - Pronounce and spell the required antonym, synonym, or word as the case might be.

Section C - Pronounce and spell the required word.

Section D - Read the sentences or paragraph and emphasize the omitted word.

The students may note their total score on section two. The scores on this section will not, however, be recorded. Checking of section two will take about five minutes.

Immediately after checking section two, say, "Now turn your exercise paper over and write to-day's words. The words are----- (Pronounce the word clearly and distinctly, use the word in the illustrative sentence given in part one of the exercise, and pronounce the word again.)

When the ten words have been dictated, have each student mark his own work and carry out the instructions given in part IV and V of the exercise. Dictating and checking will take about seven minutes. Do not exceed this time limit.

Use the unexpired portion of the period to record results of the spelling test in the Class Record. Do not spend any
more of the period in the teaching of spelling.

Note: Students finishing the required tasks before the allowed time is up should be encouraged to check their work or study words selected by themselves from their 'Never Again' list.
PROCEDURE FOR GROUP B EXERCISES

Directions to Teachers

When the class is assembled, distribute the appropriate 'Work and Play With Words' exercise. Say, "Here is our 'Work and Play With Words' exercise for to-day. Look at part one. Follow the paragraph at the top of the first page while I read it aloud for you." Read the paragraph.

Now say, "Now do the exercise for section one. Then go right on and finish section two, three, four, and five. You will have eighteen minutes to complete the exercise. You will all be able to finish if you work steadily. You can't waste time, however, if you wish to finish. Begin now." (Start timing here.)

Allow eighteen minutes working time. Move quietly about the room to see that instructions are being carried out and to encourage all students to work steadily.

When the eighteen minutes time has elapsed, say, "Stop work. You will now check your own work for to-day. Words mis-spelled must be counted wrong. Here are the correct answers for part one------." (Write the numbers one to ten on the blackboard. Before each number write the correct word. When part one has been checked, erase the words and continue on with section two, three, four, and five in the same way.)

Instruct the students to find their total score.

Checking will take about twelve minutes. Use the unexpired time of the period for recording scores in the Class Record. Do not spend any additional time on the day's exercise.

Note: Students finishing the required task before the allowed time is up should be encouraged to check their work or read silently from their literature text.
GENERAL INSTRUCTIONS

WORD MEANING AND SPELLING - CONTROL GROUP

To the teacher:

A. Your group (grade seven) is serving as a control group in a spelling experiment which is being carried out in the schools of New Westminster. This study involves the critical study of two methods of learning spelling.

Generally speaking, the students should not be told that they are subjects in an experiment. Assume the attitude that the tests are routine.

Tests should be administered during the week of March 14 to 18. (The earlier in the week the better.) Tests will require two class periods. Word Meaning Test must be given prior to the Spelling Test. Give the Spelling Test at one sitting.

B. Treatment of Completed Tests and Materials:

When completed, return all tests, unused test forms, and the Record Sheets to your School Board Office. The Record Sheets, along with the necessary test forms, will be returned to you for administering and recording the results of the post-tests.

Note: Keep your copy of the Test Instructions and your copy of the Spelling Test as these identical tests will be re-administered during the week of April 11 to 15 and recorded on the Record Forms used for the pre-test.

C. Keeping the Class Record:

1. Fill in the names of the pupils in alphabetical order.

2. In the column marked 'S' write 'M' or 'F' to indicate the sex of the pupil.

3. In the columns under 'Intelligence Score' fill in the chronological age (in months), the mental age (in months), and the I. Q. of the latest results of the Dominion Intermediate A intelligence test.

4. Under 'VC' (pre-test) fill in the pupil's score on the Word Meaning Test. (Score is the number of items correct.)

5. Under 'SP' fill in the pupil's score on the Spelling Test. (Score is the number of words correctly spelled.)

The author is most appreciative of your invaluable assistance in this matter.
SPELLING EXPERIMENT

Directions Re Post-test - Control Group

1. The tests (both Word Meaning and Spelling) that were used for the pre-test will now be used for the post-test.

2. The instructions supplied for administering the pre-tests will apply in administering the post-tests.

3. You are reminded to administer the Word Meaning test prior to the Spelling test.

4. Instructions for scoring the pre-tests will apply in scoring the post-tests.

5. The record sheets used for recording the results of the pre-tests will also be used in recording the results of the post-tests.

6. Tests should be completed as early in the week of April 11 to 14 as possible. (Note: Friday, April 15 is a school holiday.)

7. Please turn in all test papers, unused forms, record sheets, and instruction sheets to the School Board Office as soon as completed.
BIBLIOGRAPHY


