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VOCABULARY LEARNING THROUGH READING GERMAN PROSE (EBACHER METHOD) WITH OR WITHOUT AURAL REINFORCEMENT.

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TO DETERMINE WHETHER AURAL-VISUAL LEARNING OF VOCABULARY IN CONTEXT IS MORE EFFECTIVE THAN ONLY VISUAL LEARNING, AND TO CONTRIBUTE STATISTICAL BASIS TO THE ASSUMPTION THAT AURAL FAMILIARITY WITH THE LANGUAGE FACILITATES MORE EFFICIENT LEARNING AND RETENTION OF VOCABULARY, A PROJECT WAS UNDERTAKEN AT EARLHAM COLLEGE THAT INVOLVED TWO GROUPS OF FIRST-YEAR COLLEGE STUDENTS. USING ERICH MARIA REMARQUE'S "DREI KAMERADEN" AS THE TEXT (WITH INTERLINEAR ENGLISH TRANSLATION AND A PHASING OUT OF VOCABULARY ITEMS AFTER THE TENTH OCCURRENCE), GROUP ONE READ THE MATERIAL ALONE FOR THE FIRST EIGHT WEEKS, AND IN THE SECOND EIGHT WEEKS READ WHILE SIMULTANEOUSLY LISTENING TO TAPES OF THE SAME TEXT. GROUP TWO DID THE SAME THING IN REVERSE ORDER. WRITTEN VOCABULARY TESTS WERE ADMINISTERED IN THE FIRST, SECOND, FIFTH, AND SIXTH WEEKS OF EACH 8-WEEK TERM, AND DICTATED TESTS IN THE OTHER FOUR WEEKS. RESULTS SHOW THAT, EXCEPT FOR THE SLIGHT POSITIVE EFFECTIVE OF TEXT WITH TAPE REINFORCEMENT IN THE SECOND TERM, THE EXPERIMENT DID NOT PROVE THAT THE USE OF TAPES AS AURAL REINFORCEMENT HAD ANY SIGNIFICANT EFFECT OVER THE TEXT ONLY METHOD. RECOMMENDATIONS ARE INCLUDED, AS WELL AS TABLES AND GRAPHS ON STUDENTS' LANGUAGE ABILITY, GROUP AVERAGES, AND TEST SCORES. (SS)

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WITH OR WITHOUT AURAL REINFORCEMENT

by

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June 1961

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-- Robert R. Brewster  
Earlham College  
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June 16, 1961

# Vocabulary Learning Through Reading German Prose (Ebacher Method)

## With or Without Aural Reinforcement

### I. Background, Problem, Objectives.

There is a common assumption in language instruction that aural familiarity with the language facilitates more efficient learning and retention of vocabulary in that language. This assumption has not been conclusively confirmed or refuted by experimentation.

The following experiment is an attempt to contribute to the statistical basis concerning this assumption. The main objective of this study is to determine whether aural-visual learning of vocabulary in context, through reading German narrative prose while simultaneously listening to tapes of this same material being read, is more effective than visual learning of vocabulary in context, i.e., reading the same German narrative prose text without the accompanying tape. The effectiveness of these two methods is to be evaluated in terms of performance on objective vocabulary tests, to be described below.

### II. Preparation of Materials.

#### A. Preparation of experimental (Ebacher) text.

##### 1. Choosing and abridging text.

With the permission of the editor,<sup>1</sup> an abridgement of Erich Maria Remarque's post-war (1936) novel Drei Kameraden<sup>2</sup> was undertaken, based primarily on the Peebles text edition of 1951.<sup>3</sup> This was compared with the original,<sup>3</sup> from which about three passages were added, and a total of about one page subtracted from the Peebles text. The Peebles text, it

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1. Peebles, Waldo C., Professor of German, Boston University, Boston, Mass.
  2. Peebles, Waldo C., ed., Drei Kameraden, American Book Co., N.Y., 1951.
  3. Remarque, E. M., Drei Kameraden, Verlag Kurt Desch, München, 1959.

was found, in its abridgement retains the exact wording of the original novel. Thus the entire experimental (Ebacher) mimeographed text<sup>4</sup>(165 pp.) consisted of excerpts with continuity, but not simplifications in language and style, from the original Remarque novel. This then, is mature, unsimplified, modern German narrative prose, normally used by third semester (intermediate) students of German in U.S. colleges, now used in this experimental form (Ebacher method) by a beginning student of German after the first three weeks (15 hours of class contact).

## 2. Method of preparing abridged text (Ebacher method)<sup>5</sup>

This procedure consisted of following steps:

- (a) typing the German manuscript, triple-spaced, pica type
- (b) typing interlinearly, elite type, the English equivalent of the German word or phrase above, in its exact meaning according to the German context
- (c) keeping a frequency check on these German words or phrases thus translated, by vocabulary and idiom cards
- (d) phasing the English translated word or phrase out, omitting it from translation after the first ten occurrences of the German counterpart
- (e) omitting from English translation, of:
  - (1) all cognates, (2) all proper names, (3) all forms of der, die, das, as various meanings of "the"(of the, to the), (4) all forms of dieser, as various meanings of "this", (5) all ein-words (forms of ein, kein, and possessive adjectives), (6) all forms of personal pronouns

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4. Brewster, R. R., ed., Drei Kameraden by Erich Maria Remarque, Abridged and Adapted to the Ebacher Rapid Reading Method by Robert R. Brewster, Earlham College, Richmond, Indiana. Under Research Contract No. SAE-8831, U.S. Office of Education, Washington, D.C.

5. First developed by Professor J.P. Ebacher for French at Xavier University, Cincinnati, Ohio.



(f) purchasing plastic grids, with alternate opaque and clear bands, with spacing such that when one superimposes the grid on the mimeographed text page, and adjusts it to the first line of German text, one sees all the lines of German text on the page and can read along in German as in any text. When one needs to find the meaning of a word or phrase in English, one slips the grid down one line, glances at the English interlinear equivalent, then slips the grid back up to the German line position so as to read on in German

(g) collating fifty copies of this mimeographed Ebacher method text for experimental use as a language laboratory text for beginning students of German at Earlham College

(h) having master tapes made, three sides, 7" reels of extra-play Mylar tape, spoken at normal rate of speed by a native speaker. <sup>6</sup> Twenty copies of each side of 7" reel were made simultaneously in the Earlham Language Laboratory.

### III. Procedure of Experiment.

#### A. Experiment design.

##### 1. Grouping students by paired associates.

At the end of the first week of classes of Term I, 60 students were chosen and paired according to language ability, as indicated on their College Entrance Examination Board, Scholastic Aptitude Test Verbal (S.A.T.V.) scores and their performance in raw score totals on the Carroll-Sapon, Psychological Corporation, Language Aptitude (L.A.T.) tests. Two groups of 30 each were formed by pairs, each with close a balance as possible as to year in college (only freshmen and sophomores were chosen) and as to sex. Of these two groups of paired students, 24 remained in the smaller group

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6. Buchinger, Hans W., Ph. D., University of Königsberg, Assistant Professor of Languages, Earlham College, Richmond, Indiana.

(Group I) after the first term, due to drop-outs and failures. The paired associates of these 24 Group I students were then chosen to form Group II for the entire experiment period of two terms of eight weeks each.<sup>7</sup> In these paired groups of 24 each, Group I students consisted of 18 men, 6 women; Group II students, of 15 men, 9 women; in each group there were 18 freshmen and 6 sophomores.

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The grouping was done, after consultation, by pairing, with the College Board Verbal score as the dominant factor. Students were paired (e.g. I-1 with II-1) on the basis of the closest S.A.T.V. scores. However, if there was a wide discrepancy in the L.A.T. scores of these pairs, the closeness of the L.A.T. score was then taken into consideration. Therefore, looking at the columns in Table A, Appendix, vertically, one sees irregularities in the descending order of the S.A.T.V. scores (examples: I-8 and I-9 vs. II-8 and II-9, because of their accompanying L.A.T. scores). This grouping cut across the class section lines, so that no complete group, I or II, was in any single classroom or lab situation simultaneously.

## 2. Design in class use.

Group I were given only the experimental text (Drei Kameraden described above) in the first term, (8 weeks).<sup>9</sup> Group II, in the same eight weeks, Term I, were given the experimental text plus the tapes of this same text in German language, by a native speaker, spoken at a normal rate of speed (cf. above). In the second term of eight weeks, the process was reversed, Group I now receiving text with tape, Group II now receiving text only. The design, then, was this:

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7. cf. Appendix, Table A

8. McDowell, James V., Ph. D., Dept. of Psychology and Testing Bureau, Earlham College, Richmond, Indiana.

9. Revision of Design as per letter of Dec. 28, 1960, to Research Division, Language Development Section, Division of Higher Education, Office of Education, Washington, D.C.

|          | <u>Term I(8 Weeks)</u> | <u>Term II(8 Weeks)</u> |
|----------|------------------------|-------------------------|
| Group I  | Text Only              | Text With Tape          |
| Group II | Text With Tape         | Text Only               |

### 3. Lab procedure.

One 50-minute period per week for a sequence of two eight-week periods was devoted to the application of this experiment. After a trial 50-minute period, the regular experimental lab periods followed this pattern:

- (a) Distribute the experimental text to all students.
- (b) Distribute the accompanying tape (covering about 50 pp. of text or five abridged chapters of the novel per tape side) to the users of tape (Group II students in Term I, Group I students in Term II).
- (c) Distribute progress sheets (sample in Appendix) to all students.
- (d) Students check their starting point in reading according to progress sheet.
- (e) Allow time for students with tapes to adjust tape and find corresponding place on tape of their starting point.
- (f) Signal to "start first reading."
- (g) First reading continues 25 minutes. All students (both groups) read text only, without tapes.
- (h) Signal to "stop first reading." Directions: "Write down under Week 1 (Week 2, etc., according to the week of the experiment), item 4, Time of first reading, 25 minutes. Item 5, Week 1, amount read, page and line number to which you have just read. Item 6, review time, write in, 10 minutes. Turn back to the page and line number of your own starting point in today's reading. Signal to "start review reading." This 10-minute period is the experimental period as affects tape users vs. non-tape users. This review period was chosen so that no playback was necessary,



but rather, complete simultaneous listening to tape, while reading, was achieved from the first week of the experiment on.

(i) Signal to "stop review reading." Directions: "Write down page and line number to which you have reviewed. If you have reviewed your own reading completely, put down the word 'once.' If you have had extra review time, put down the word 'once' and the page and line number of your second re-reading." The number of pages reviewed by the tape users was fairly uniform, controlled by the speed of the tape. The amount reviewed by non-tape users was more variable, dependent on individual reading speed. The non-tape users were urged not to pause over individual words while reading in review.

(j) Experimental texts and tapes were collected, and not used by the students until one week later, at the next 50-minute lab session.

#### IV. Testing.

The vocabulary tests were given with a one-day interval lapse of time, in the classroom session on the day after the lab day. It was necessary to do this because of the desirability of having the longest possible continuity of reading, 25 minutes, with 10 minutes review, and allowing sufficient time for distribution of materials, directions, adjustment of tapes, and seating arrangements, and other considerations common to language laboratories. All (84) students of first year German at Earlham College in Terms I and II, Sept. to March 1960-61, took part in the entire experiment and tests as part of the regular class work, although the results of only 24 pairs (cf. above) are being considered in this research. The purpose of the experiment was explained to the students and they were encouraged to cooperate fully. However, the test

grades of the experiment did not count toward the final grade of the student. In this sense there was no coercion on the student to do his best on the experiment tests. All students knew this by the time the first term grade reports came out, in Dec. 1960.

#### A. Preparation of Vocabulary Tests.

##### 1. Type of test.

Tests in Weeks 1, 2, 5, 6, of each term consisted of 50 mimeographed German words directly from the experimental text (e.g. "kannte" not changed to "kennen" ; "Häuser" not changed to "Haus"). The students wrote the English equivalent opposite the German word. These tests will be referred to as "written" tests (Appendix, Table E). Tests in Weeks 3, 4, 7, 8 were dictated tests, in which the classroom teacher, in this case the author of this report, spoke each of the 50 German vocabulary items twice, slowly. These tests will be referred to as "dictated" tests (Appendix Table F; also note, Tables B and C).

##### 2. Selection of vocabulary items.

The selection of vocabulary for the tests, both written and dictated, followed this method. In the process of interlinear translation of the experimental text, all German words translated were indexed as to frequency of occurrence in the text (3-occurrence to 10-occurrence words). The vocabulary on these cards were then indexed, with chapter and page references. From this word list were selected 60% of the items of highest frequencies, 40% of the items of less high frequency, for each vocabulary test. The frequency of each word, of course, progressed from week to week, the students having seen the item progressively more times, even though in the section of the text tested, the item may have occurred only twice or three times. For example, in Test 1 (Week 1) covering pp. 1-6 the item "aber" had occurred 3 times. By Test 2 (Week 2), covering pp. 6-11, "aber" had occurred 6 times since page 1, and so forth up to 10 times, when

the item "aber" was dropped from translation and from testing. An example of a low frequency word, one chosen for the last 40% (or 20 items) on the test, was in Test 1 (Week 1) "nebeinander", a 1-occurrence word in Test 1. By Test 2 (Week 2) "nebeinander" was a 2-occurrence word. In Test 3 (Week 3) it did not occur at all in the pages 11-18 covered by Test 3, therefore it remained a 2-occurrence word as a cumulative vocabulary item, and was not tested that week. By highest frequency item selection (60%) the following is meant. If 3-occurrence words were the highest frequency words (as in Test 1, Week 1) then all 3-occurrence words up to 30 items out of 50 were chosen for the test. The remaining "less high frequency" words (20 out of 50) were chosen in descending order, from the 2-occurrence words, and then from the 1-occurrence words. This method continued until, in most of Term II, 7-10 occurrence words were high frequency words (60%), and 6-3 occurrence words were "less high" frequency words (40%) on the vocabulary tests.

### 3. Reading material covered by each vocabulary test.

The number of pages on which the test was based each week was a variable, dependent on the least number of pages read by a student in either group. The number of pages successively covered by tests in Term I (8 weeks) was 6, 5, 7, 5, 5, 5, 6, 4; in Term II (8 weeks) 6, 7, 11, 10, 12, 11, 13, 10. The lower numbers in Week 8 of each term are due to ending the term's testing at the end of a chapter. There was an interval of five weeks between Test 8 Term I and Test 1 Term II.

### 4. Grading of weekly vocabulary tests.

The grading was all done by the same person, an assistant in German with competent knowledge of German and of statistics, on the basis of 50 items with perfect score 100, 2 points off for incorrect meaning of the English equivalent, 1 point off for grammatical errors (tense, case, number, etc.). The results were entered on the progress sheets (Appendix--

10. Stratton, Dorothy, major in mathematics and German, Earlham College, Richmond, Indiana.

Sample) and seen by the student in the following lab period, just before he started his next reading.

## V. Evaluation of Results of the Experiment.

### A. Objective test results

#### 1. Text with tape vs. text only, week by week, within each term.

The test results of the eight tests corresponding to the eight weeks of each term are shown in Tables B and C of the Appendix. As may be seen in Graph A in the Appendix, derived from Tables B and C, the average week by week performance of the users of text only (Group I) was above that of users of text with tape (Group II) in each of the eight weeks of Term I. The difference varied from 1 to 6 points out of 100, the perfect score for all vocabulary tests given. Score differences by weeks were: 1-4-1-6-1-1-2-5.

Within Term II text with tape (Group I) was above text only (Group II) in each of the dictated tests (Weeks 3, 4, 7, 8) by 2 to 4 points out of 100. Score differences by weeks were: 2-4-3-4. Within Term II text only (Group II) was above text with tape (Group I) in each of the written tests by differences of 1 to 4 points out of 100. Score differences by weeks were: 1-4-1-1.

This would indicate that the reinforcement of learning by tapes did not take its effect until Term II, the second eight weeks, and then, in the dictated tests only. But the amount of difference, 2 to 4 points out of 100 was not considered statistically significant.

#### 2. Text with tape vs. text only. Group performance in entire term.

This may be seen in Table G, Appendix. The differences in performance, from the point of view of the text with tape group, show again that there is generally no significant difference in the performance of the group with aural-visual means of vocabulary learning (text with tape) and those with only visual (text only) means. The performance of text with



tape students on dictated tests within Term II, however, again showed a better performance than the text only students, by +3.688 out of 100. This affected the total performance on all-vocabulary tests within Term II and here was the only other instance in which text with tape was above text only in performance, by a difference of .542, an insignificant difference. All other difference scores, with minus prefix, showed that the text with tape did slightly worse than the text only, by statistically non-significant differences.

3. Text only proceeding to text with tape, and vice versa, differences in progress in time (Term I to Term II).

These figures are shown in Table H. The average progress by group, proceeding from text only to text with tape, was taken as the basis for comparison, since the hypothesis of the experiment was that adding the aural reinforcement to the visual learning of vocabulary should aid in vocabulary learning. In Table H we see that adding the tape to the text only had a slight effect only in the grand average differences of the dictated vocabulary tests, an improvement in this category, by +1.063 out of 100. In written tests only, starting with text only and proceeding to text with tape was worse (-3.771) than having the background of tape reinforcement, then being deprived of tapes (text with tape to text only). This caused the results in all-vocabulary tests to be slightly worse (-1.625) for the users of text only, who proceeded to reinforcement in learning by text with tape. All these figures were not significant differences. However, the pattern of slight advantage to text with tape students on the dictated vocabulary tests (+1.063) prevailed, due to Term II figures.

4. Conclusion.

In conclusion, then, except for the slight positive effect of text with tape reinforcement in the second term of eight weeks, as shown in the difference score (+3.688 and +1.063), the statistical results of



this experiment do not prove that there is a significant effect, either positive or negative, of the use of tapes as aural reinforcement to only visual, in vocabulary learning through reading German prose, as designed in this experiment.

A statistical significance test, t-test, was run on the basis of Table D figures, and the significance factor  $t$  was 1.0673, a statistically not significant factor.

#### B. Subjective Appraisal.

Possible reasons why this experiment did not show a significant difference, either positive or negative, between the two methods of vocabulary learning through reading German prose, by text only, or by text reinforced with simultaneous listening to tapes:

1. The total experiment time of tape vs. non-tape use, 10 minutes, each of 16 times, spread over 16 weeks with a 5-week interval between the two 8-week terms, may have been too diluted and insufficient a learning time.

2. Since regular class work involved considerable use of lesson tapes, uncontrolled, outside of class, on four of the five class days per week not involved in this experiment, the two groups may have levelled out because of the random use of these class tapes.

3. Since the testing in this experiment was entirely testing of passive vocabulary, German to English, with the students writing down the answers in English, it may be that the learning of such vocabulary is not affected significantly by aural reinforcement to visual learning.

4. S.A.T.V. scores, used as dominant factors in the division into two control groups in this experiment, may not be a valid index of foreign language vocabulary learning ability. L.A.T. total raw scores, also used as a regulating factor in the two control groups, may have been too

inclusive, and only the vocabulary learning (Paired Associates, Part V) partial scores on these tests possibly should have been used.

#### 5. Student motivation.

The irregularity in descending order of test scores (Tables B and C) of individual students I-1 to I-24 and II-1 to II-24, may be due to the fact that, given no compulsion (no score counted on the final class grade of the student), there was no prediction as to the motivation of each student to do the work up to his ability in this experiment.

#### C. Recommendations.

1. Using a longer period than 10 minutes per experiment hour for the control by tape with text vs. text only procedure. With beginning students, however, who have few (in this case 15) contact hours of the language behind them, one would have to guard against frustration from frequent short rewinding of tape to catch individual words, due to the fact that the students could not keep up with simultaneous listening and reading. The tapes were used in the review period, because aural reinforcement by simultaneous continuous listening to tapes was one of the stipulations in the proposal to this project.

2. Stricter control of students, individually, and not by lab sections of up to 25 students, so as to give each student, individually, the appropriate vocabulary test as he completes a controlled amount of reading at his own reading speed. Also, stricter control of all factors, by individual supervision.

3. Using control groups, not from ongoing German classes which are affected day after day by class learning, but from the fresh volunteer students at short intervals in the two methods, visual only and aural-visual.

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June 16, 1961

APPENDIX

Table A

Division by Verbal and Language Ability

| Group I |           |          | Group II |           |          |
|---------|-----------|----------|----------|-----------|----------|
| Student | S.A.T.V.* | L.A.T.** | Student  | S.A.T.V.* | L.A.T.** |
| I-1     | 734       | 156      | II-1     | 747       | 162      |
| I-2     | 704       | 159      | II-2     | 698       | 149      |
| I-3     | 685       | 122      | II-3     | 674       | 124      |
| I-4     | 670       | 129      | II-4     | 666       | 129      |
| I-5     | 640       | 119      | II-5     | 668       | 149      |
| I-6     | 635       | 147      | II-6     | 628       | 145      |
| I-7     | 608       | 129      | II-7     | 608       | 126      |
| I-8     | 583       | 131      | II-8     | 589       | 141      |
| I-9     | 588       | 94       | II-9     | 576       | 109      |
| I-10    | 581       | 115      | II-10    | 573       | 133      |
| I-11    | 569       | 111      | II-11    | 571       | 113      |
| I-12    | 553       | 153      | II-12    | 557       | 125      |
| I-13    | 558       | 109      | II-13    | 551       | 107      |
| I-14    | 529       | 135      | II-14    | 557       | 125      |
| I-15    | 536       | 104      | II-15    | 539       | 135      |
| I-16    | 512       | 113      | II-16    | 512       | 113      |
| I-17    | 519       | 99       | II-17    | 506       | 91       |
| I-18    | 502       | 75       | II-18    | 493       | 91       |
| I-19    | 483       | 133      | II-19    | 480       | 130      |
| I-20    | 482       | 108      | II-20    | 486       | 118      |
| I-21    | 454       | 119      | II-21    | 457       | 119      |
| I-22    | 442       | 114      | II-22    | 476       | 115      |
| I-23    | 439       | 80       | II-23    | 467       | 97       |
| I-24    | 383       | 82       | II-24    | 358       | 97       |

\* S.A.T.V.: Scholastic Aptitude Test; College Entrance Examination Board; Verbal score.

\*\*L.A.T.: Modern Language Aptitude Test; Carroll-Sapon, The Psychological Corporation, (Raw score total).

Table B

Weekly Interval Performance on All Vocabulary Tests

|                |          | <u>Group I</u>              |           |           |          |          |           |           |          |                                  |           |           |          |          |           |           |  |
|----------------|----------|-----------------------------|-----------|-----------|----------|----------|-----------|-----------|----------|----------------------------------|-----------|-----------|----------|----------|-----------|-----------|--|
|                |          | <u>Term One (Text Only)</u> |           |           |          |          |           |           |          | <u>Term Two (Text with Tape)</u> |           |           |          |          |           |           |  |
| <u>Week</u>    | <u>1</u> | <u>2</u>                    | <u>3*</u> | <u>4*</u> | <u>5</u> | <u>6</u> | <u>7*</u> | <u>8*</u> | <u>1</u> | <u>2</u>                         | <u>3*</u> | <u>4*</u> | <u>5</u> | <u>6</u> | <u>7*</u> | <u>8*</u> |  |
| <u>Student</u> |          |                             |           |           |          |          |           |           |          |                                  |           |           |          |          |           |           |  |
| I-1            | 52       | 75                          | 66        | 72        | 79       | 74       | 80        | 75        | 88       | 77                               | 76        | 73        | 76       | 72       | 72        | 68        |  |
| I-2            | 51       | 64                          | 56        | 72        | 68       | 67       | 70        | 58        | 79       | 67                               | 43        | 73        | 80       | 72       | 69        | 56        |  |
| I-3            | 27       | 43                          | 37        | 34        | 40       | 41       | 48        | 39        | 58       | 46                               | 48        | 43        | 58       | 49       | 33        | 41        |  |
| I-4            | 43       | 63                          | 56        | 78        | 61       | 65       | 61        | 51        | 64       | 67                               | 71        | 65        | 66       | 71       | 72        | 66        |  |
| I-5            | 32       | 69                          | 46        | 44        | 64       | 63       | 54        | 47        | 68       | 65                               | 74        | 62        | 73       | 73       | 65        | 64        |  |
| I-6            | 33       | 40                          | 40        | 41        | 53       | 52       | 49        | 46        | 59       | 63                               | 70        | 54        | 64       | 57       | 59        | 52        |  |
| I-7            | 39       | 54                          | 44        | 52        | 72       | 64       | 71        | 60        | 72       | 71                               | 80        | 80        | 83       | 81       | 71        | 65        |  |
| I-8            | 40       | 65                          | 56        | 45        | 60       | 59       | 57        | 58        | 63       | 69                               | 77        | 62        | 73       | 74       | 71        | 61        |  |
| I-9            | 37       | 52                          | 49        | 42        | 58       | 54       | 54        | 50        | 71       | 63                               | 67        | 73        | 67       | 75       | 71        | 63        |  |
| I-10           | 42       | 67                          | 61        | 60        | 70       | 67       | 78        | 65        | 81       | 77                               | 81        | 73        | 81       | 71       | 85        | 71        |  |
| I-11           | 29       | 41                          | 42        | 30        | 41       | 56       | 52        | 47        | 56       | 41                               | 60        | 58        | 57       | 49       | 46        | 42        |  |
| I-12           | 41       | 56                          | 34        | 54        | 65       | 56       | 55        | 43        | 57       | 60                               | 58        | 56        | 65       | 62       | 67        | 58        |  |
| I-13           | 48       | 59                          | 51        | 45        | 58       | 57       | 46        | 50        | 62       | 56                               | 59        | 59        | 57       | 56       | 59        | 56        |  |
| I-14           | 30       | 62                          | 50        | 51        | 64       | 57       | 64        | 61        | 76       | 72                               | 75        | 60        | 78       | 71       | 75        | 69        |  |
| I-15           | 37       | 55                          | 44        | 42        | 53       | 59       | 54        | 47        | 66       | 59                               | 64        | 58        | 64       | 62       | 65        | 46        |  |
| I-16           | 23       | 39                          | 28        | 29        | 41       | 39       | 47        | 42        | 52       | 49                               | 40        | 52        | 54       | 45       | 49        | 34        |  |
| I-17           | 29       | 49                          | 32        | 30        | 44       | 45       | 55        | 31        | 48       | 23                               | 39        | 45        | 53       | 35       | 38        | 27        |  |
| I-18           | 25       | 36                          | 22        | 22        | 37       | 27       | 28        | 19        | 27       | 23                               | 14        | 58        | 13       | 23       | 20        | 4         |  |
| I-19           | 26       | 51                          | 37        | 45        | 51       | 50       | 39        | 41        | 58       | 42                               | 54        | 50        | 46       | 39       | 50        | 42        |  |
| I-20           | 26       | 33                          | 28        | 27        | 47       | 37       | 38        | 33        | 54       | 44                               | 40        | 47        | 42       | 42       | 44        | 36        |  |
| I-21           | 28       | 53                          | 45        | 39        | 63       | 52       | 55        | 51        | 73       | 57                               | 69        | 58        | 65       | 64       | 61        | 47        |  |
| I-22           | 35       | 38                          | 39        | 28        | 42       | 38       | 50        | 46        | 62       | 51                               | 68        | 56        | 54       | 42       | 50        | 59        |  |
| I-23           | 28       | 51                          | 50        | 30        | 53       | 50       | 44        | 48        | 55       | 59                               | 53        | 63        | 51       | 49       | 45        | 39        |  |
| I-24           | 21       | 34                          | 22        | 37        | 49       | 47       | 56        | 39        | 60       | 45                               | 49        | 51        | 57       | 39       | 38        | 45        |  |
| <u>Average</u> |          |                             |           |           |          |          |           |           |          |                                  |           |           |          |          |           |           |  |
|                | 34       | 52                          | 43        | 44        | 56       | 53       | 55        | 48        | 63       | 56                               | 60        | 60        | 62       | 57       | 57        | 50        |  |

\* Dictated vocabulary test.

All non-starred weeks indicate written (non-dictated) vocabulary tests.

All scores on basis of 100-perfect score.



Table C

Weekly Interval Performance on All Vocabulary Tests

|                           |    |    |    |    |    |    |    | <u>Group II</u>      |    |    |    |    |    |    |    |    |
|---------------------------|----|----|----|----|----|----|----|----------------------|----|----|----|----|----|----|----|----|
| Term One (Text with Tape) |    |    |    |    |    |    |    | Term Two (Text only) |    |    |    |    |    |    |    |    |
| Week 1                    | 2  | 3* | 4* | 5  | 6  | 7* | 8* | 1                    | 2  | 3* | 4* | 5  | 6  | 7* | 8* |    |
| <u>Student</u>            |    |    |    |    |    |    |    |                      |    |    |    |    |    |    |    |    |
| II-1                      | 29 | 59 | 54 | 44 | 65 | 54 | 50 | 50                   | 66 | 72 | 63 | 67 | 67 | 71 | 61 | 49 |
| II-2                      | 38 | 64 | 54 | 42 | 62 | 34 | 57 | 58                   | 55 | 64 | 63 | 54 | 64 | 62 | 48 | 47 |
| II-3                      | 30 | 54 | 53 | 49 | 66 | 67 | 66 | 53                   | 67 | 67 | 76 | 62 | 69 | 70 | 62 | 58 |
| II-4                      | 34 | 56 | 54 | 38 | 63 | 52 | 60 | 52                   | 69 | 62 | 68 | 60 | 62 | 63 | 64 | 49 |
| II-5                      | 23 | 34 | 46 | 38 | 54 | 55 | 53 | 52                   | 59 | 60 | 61 | 68 | 74 | 54 | 55 | 61 |
| II-6                      | 26 | 42 | 46 | 43 | 62 | 54 | 49 | 52                   | 72 | 55 | 67 | 40 | 59 | 52 | 55 | 44 |
| II-7                      | 36 | 56 | 42 | 39 | 54 | 59 | 58 | 41                   | 70 | 66 | 69 | 60 | 70 | 52 | 58 | 39 |
| II-8                      | 24 | 38 | 27 | 22 | 42 | 41 | 46 | 39                   | 54 | 56 | 54 | 53 | 61 | 60 | 47 | 43 |
| II-9                      | 35 | 53 | 52 | 48 | 61 | 56 | 57 | 59                   | 72 | 63 | 66 | 65 | 73 | 69 | 61 | 56 |
| II-10                     | 41 | 49 | 55 | 37 | 49 | 55 | 59 | 50                   | 66 | 50 | 57 | 57 | 60 | 66 | 54 | 45 |
| II-11                     | 28 | 42 | 32 | 28 | 51 | 41 | 45 | 32                   | 53 | 57 | 47 | 43 | 58 | 57 | 55 | 44 |
| II-12                     | 33 | 39 | 43 | 40 | 55 | 59 | 59 | 39                   | 61 | 64 | 60 | 55 | 60 | 58 | 45 | 43 |
| II-13                     | 28 | 41 | 39 | 24 | 50 | 43 | 47 | 38                   | 49 | 46 | 49 | 48 | 58 | 58 | 52 | 44 |
| II-14                     | 43 | 45 | 36 | 52 | 52 | 48 | 48 | 49                   | 63 | 64 | 65 | 50 | 73 | 57 | 54 | 50 |
| II-15                     | 36 | 42 | 40 | 40 | 59 | 59 | 60 | 52                   | 76 | 67 | 63 | 67 | 78 | 67 | 68 | 65 |
| II-16                     | 30 | 34 | 36 | 34 | 36 | 41 | 45 | 33                   | 47 | 39 | 36 | 55 | 53 | 39 | 44 | 42 |
| II-17                     | 28 | 31 | 27 | 25 | 53 | 45 | 46 | 35                   | 66 | 50 | 40 | 48 | 54 | 48 | 48 | 44 |
| II-18                     | 38 | 56 | 34 | 31 | 56 | 54 | 52 | 38                   | 70 | 67 | 48 | 52 | 61 | 63 | 43 | 44 |
| II-19                     | 28 | 40 | 35 | 39 | 44 | 50 | 47 | 46                   | 73 | 56 | 53 | 65 | 61 | 52 | 54 | 49 |
| II-20                     | 32 | 57 | 41 | 29 | 57 | 54 | 52 | 31                   | 59 | 55 | 38 | 27 | 55 | 49 | 34 | 29 |
| II-21                     | 46 | 54 | 44 | 38 | 57 | 62 | 58 | 39                   | 72 | 67 | 56 | 56 | 61 | 54 | 51 | 49 |
| II-22                     | 32 | 55 | 39 | 48 | 57 | 54 | 54 | 47                   | 69 | 69 | 67 | 64 | 64 | 68 | 63 | 51 |
| II-23                     | 28 | 43 | 30 | 36 | 44 | 44 | 43 | 45                   | 60 | 56 | 62 | 59 | 50 | 51 | 49 | 39 |
| II-24                     | 46 | 69 | 56 | 55 | 66 | 65 | 64 | 55                   | 76 | 65 | 60 | 60 | 64 | 61 | 67 | 55 |
| <u>Average</u>            |    |    |    |    |    |    |    |                      |    |    |    |    |    |    |    |    |
|                           | 33 | 48 | 42 | 38 | 55 | 52 | 53 | 43                   | 64 | 60 | 58 | 56 | 63 | 58 | 54 | 46 |

\* Dictated vocabulary test. All non-starred weeks indicate written(non-dictated) vocabulary tests. All scores on basis of 100-perfect score.

Table D

All Vocabulary Tests: Averages\*

| Group I       |           |              |            | Group II      |              |           |            |
|---------------|-----------|--------------|------------|---------------|--------------|-----------|------------|
| Student       | Text Only | Text w. Tape | Difference | Student       | Text w. Tape | Text Only | Difference |
| I-1           | 71.625*   | 75.250*      | 3.625      | II-1          | 50.625*      | 64.500*   | 13.875     |
| I-2           | 63.250    | 67.375       | 4.125      | II-2          | 51.125       | 57.125    | 6.000      |
| I-3           | 38.625    | 47.000       | 8.375      | II-3          | 54.750       | 66.375    | 11.625     |
| I-4           | 59.750    | 67.750       | 8.000      | II-4          | 51.125       | 62.125    | 11.000     |
| I-5           | 52.375    | 68.000       | 15.625     | II-5          | 44.375       | 61.500    | 17.125     |
| I-6           | 44.250    | 59.750       | 15.500     | II-6          | 46.750       | 55.500    | 8.750      |
| I-7           | 57.000    | 75.375       | 18.375     | II-7          | 48.125       | 60.500    | 12.375     |
| I-8           | 55.000    | 68.750       | 13.750     | II-8          | 34.875       | 53.500    | 18.625     |
| I-9           | 49.500    | 68.750       | 19.250     | II-9          | 52.625       | 65.625    | 13.000     |
| I-10          | 63.750    | 77.500       | 13.750     | II-10         | 49.375       | 56.875    | 7.500      |
| I-11          | 42.250    | 51.125       | 8.875      | II-11         | 37.375       | 51.750    | 14.375     |
| I-12          | 50.500    | 60.375       | 9.875      | II-12         | 45.875       | 55.750    | 9.875      |
| I-13          | 51.750    | 58.000       | 6.250      | II-13         | 38.750       | 50.500    | 11.750     |
| I-14          | 54.875    | 72.000       | 17.125     | II-14         | 46.625       | 59.500    | 12.875     |
| I-15          | 48.875    | 60.500       | 11.625     | II-15         | 48.500       | 68.875    | 20.375     |
| I-16          | 36.000    | 46.875       | 10.875     | II-16         | 36.125       | 44.375    | 8.250      |
| I-17          | 39.375    | 38.500       | -.875      | II-17         | 36.250       | 49.750    | 13.500     |
| I-18          | 27.000    | 22.750       | -4.250     | II-18         | 44.875       | 56.000    | 11.125     |
| I-19          | 42.500    | 47.625       | 5.125      | II-19         | 41.125       | 57.875    | 16.750     |
| I-20          | 33.625    | 43.625       | 10.000     | II-20         | 44.125       | 43.250    | -.875      |
| I-21          | 48.250    | 61.750       | 13.500     | II-21         | 49.750       | 58.250    | 8.500      |
| I-22          | 39.500    | 55.250       | 15.750     | II-22         | 48.250       | 64.375    | 16.125     |
| I-23          | 44.250    | 51.750       | 7.500      | II-23         | 39.125       | 53.250    | 14.125     |
| I-24          | 38.125    | 48.000       | 9.875      | II-24         | 59.500       | 63.500    | 4.000      |
| Grand Average | 48.000    | 58.068       | 10.068     | Grand Average | 45.833       | 57.526    | 11.693     |

\*Each figure indicates average of eight weekly scores, as shown in Tables B and C, Terms One and Two.

Table E

Written Vocabulary Tests: Averages\*

| Group I       |           |              |            | Group II      |              |           |            |
|---------------|-----------|--------------|------------|---------------|--------------|-----------|------------|
| Student       | Text Only | Text w. Tape | Difference | Student       | Text w. Tape | Text Only | Difference |
| I-1           | 70.000*   | 78.250*      | 8.250      | II-1          | 51.750*      | 69.000*   | 17.250     |
| I-2           | 62.500    | 74.500       | 12.000     | II-2          | 49.500       | 61.250    | 11.750     |
| I-3           | 37.750    | 52.750       | 15.000     | II-3          | 54.250       | 68.250    | 14.000     |
| I-4           | 58.000    | 67.000       | 9.000      | II-4          | 51.250       | 64.000    | 12.750     |
| I-5           | 57.000    | 69.750       | 12.750     | II-5          | 41.500       | 61.750    | 20.250     |
| I-6           | 44.500    | 60.750       | 16.250     | II-6          | 46.000       | 59.500    | 13.500     |
| I-7           | 57.250    | 76.250       | 19.500     | II-7          | 51.250       | 64.500    | 13.250     |
| I-8           | 56.000    | 69.750       | 13.750     | II-8          | 36.250       | 57.750    | 21.500     |
| I-9           | 50.250    | 69.000       | 18.750     | II-9          | 51.250       | 69.250    | 18.000     |
| I-10          | 61.500    | 77.500       | 16.000     | II-10         | 48.500       | 60.500    | 12.000     |
| I-11          | 41.750    | 50.750       | 9.000      | II-11         | 40.500       | 56.250    | 15.750     |
| I-12          | 54.500    | 61.000       | 6.500      | II-12         | 46.500       | 60.750    | 14.250     |
| I-13          | 55.500    | 57.750       | 2.250      | II-13         | 40.500       | 52.750    | 12.250     |
| I-14          | 53.250    | 74.250       | 21.000     | II-14         | 47.000       | 64.250    | 17.250     |
| I-15          | 51.000    | 62.750       | 11.750     | II-15         | 49.000       | 72.000    | 23.000     |
| I-16          | 35.500    | 50.000       | 14.500     | II-16         | 35.250       | 44.500    | 9.250      |
| I-17          | 41.750    | 39.750       | -2.000     | II-17         | 39.250       | 54.750    | 15.500     |
| I-18          | 31.250    | 21.500       | -9.750     | II-18         | 51.000       | 65.250    | 14.250     |
| I-19          | 44.500    | 46.250       | 1.750      | II-19         | 40.500       | 60.500    | 20.000     |
| I-20          | 35.750    | 45.500       | 9.750      | II-20         | 50.000       | 54.500    | 4.500      |
| I-21          | 49.000    | 64.750       | 15.750     | II-21         | 54.750       | 63.500    | 8.750      |
| I-22          | 38.250    | 52.250       | 14.000     | II-22         | 49.500       | 67.500    | 18.000     |
| I-23          | 45.000    | 53.500       | 8.000      | II-23         | 39.750       | 54.250    | 14.500     |
| I-24          | 37.750    | 50.250       | 12.500     | II-24         | 61.500       | 66.500    | 5.000      |
| Grand Average | 48.750    | 59.427       | 10.677     | Grand Average | 46.937       | 61.375    | 14.438     |

\* Each figure indicates average of four weekly scores, as shown in Tables B and C, Terms One and Two.

Table F

Dictated Vocabulary Tests: Averages

| Group I       |           |              |            | Group II      |              |           |            |
|---------------|-----------|--------------|------------|---------------|--------------|-----------|------------|
| Student       | Text Only | Text w. Tape | Difference | Student       | Text w. Tape | Text Only | Difference |
| I-1           | 73.250*   | 72.250*      | -1.000     | II-1          | 49.500 *     | 60.000 *  | 10.500     |
| I-2           | 64.000    | 60.250       | -3.750     | II-2          | 52.750       | 53.000    | .250       |
| I-3           | 39.500    | 41.250       | 1.750      | II-3          | 55.250       | 64.500    | 9.250      |
| I-4           | 61.500    | 68.500       | 7.000      | II-4          | 51.000       | 60.250    | 9.250      |
| I-5           | 47.750    | 66.250       | 18.500     | II-5          | 47.250       | 61.250    | 14.000     |
| I-6           | 44.000    | 58.750       | 14.750     | II-6          | 47.500       | 51.500    | 4.000      |
| I-7           | 56.750    | 74.000       | 17.250     | II-7          | 45.000       | 56.500    | 11.500     |
| I-8           | 54.000    | 67.750       | 13.750     | II-8          | 33.500       | 49.250    | 15.750     |
| I-9           | 48.750    | 68.500       | 19.750     | II-9          | 54.000       | 62.000    | 8.000      |
| I-10          | 66.000    | 77.500       | 11.500     | II-10         | 50.250       | 53.250    | 3.000      |
| I-11          | 42.750    | 51.500       | 8.750      | II-11         | 34.250       | 47.250    | 13.000     |
| I-12          | 46.500    | 59.750       | 13.250     | II-12         | 45.250       | 50.750    | 5.500      |
| I-13          | 48.000    | 58.250       | 10.250     | II-13         | 37.000       | 48.250    | 11.250     |
| I-14          | 56.500    | 69.750       | 13.250     | II-14         | 46.250       | 54.750    | 8.500      |
| I-15          | 46.750    | 58.250       | 11.500     | II-15         | 48.000       | 65.750    | 17.750     |
| I-16          | 36.500    | 43.750       | 7.250      | II-16         | 37.000       | 44.250    | 7.250      |
| I-17          | 37.000    | 37.250       | .250       | II-17         | 33.250       | 45.000    | 11.750     |
| I-18          | 22.750    | 24.000       | 1.250      | II-18         | 38.750       | 46.750    | 8.000      |
| I-19          | 40.500    | 59.000       | 18.500     | II-19         | 41.750       | 55.250    | 13.500     |
| I-20          | 34.000    | 41.750       | 7.750      | II-20         | 38.250       | 32.000    | -6.250     |
| I-21          | 47.500    | 64.750       | 17.250     | II-21         | 44.750       | 53.000    | 8.250      |
| I-22          | 40.750    | 58.250       | 17.500     | II-22         | 47.000       | 61.250    | 14.250     |
| I-23          | 43.000    | 50.000       | 7.000      | II-23         | 38.500       | 52.250    | 13.750     |
| I-24          | 38.500    | 45.750       | 7.250      | II-24         | 57.500       | 60.500    | 3.000      |
| Grand Average | 47.354    | 57.375       | 10.021     | Grand Average | 44.729       | 53.687    | 8.958      |

\*Each figure indicates average of four weekly scores, Weeks 3, 4, 7, 8, of each term of each group as shown in tables B and C.

Table G

Differences in Group Performance Based on Grand Averages (Tables, D, E, F)

1

|                                       | <u>Text with Tape</u>    | <u>Text Only</u> | <u>Difference</u><br>(based on Text<br>with Tape<br>Performance) |
|---------------------------------------|--------------------------|------------------|--|
| <u>All Vocabulary Tests</u>           |                          |                  |  |
| 1. Within Term I                      | 45.833 (II) <sup>2</sup> | 48.000 (I)       | -2.167   |
| 2. Within Term II                     | 58.068 (I)               | 57.526 (II)      | + .542   |
| <u>Written Vocabulary Tests Only</u>  |                          |                  |  |
| 1. Within Term I                      | 46.937 (II)              | 48.750 (I)       | -1.623   |
| 2. Within Term II                     | 59.427 (I)               | 61.735 (II)      | -1.948   |
| <u>Dictated Vocabulary Tests Only</u> |                          |                  |  |
| 1. Within Term I                      | 44.729 (II)              | 47.543 (I)       | -2.525   |
| 2. Within Term II                     | 57.375 (I)               | 53.687 (II)      | +3.688   |

Table H

3

Differences in Progress of Group Performance Based on Grand Average Differences

(Tables D, E, F)

|  | <u>Text Only to Text</u><br><u>with Tape</u> | <u>Text with Tape to</u><br><u>Text Only</u> | <u>Difference</u><br>(based on<br>Proceeding from<br>Text Only to Text<br>with Tape) |
|--|--|--|--|
| 1. <u>All Vocabulary Tests</u>                     | 10.068                                       | 11.693                                       | -1.625   |
| 2. <u>Written Vocabulary</u><br><u>Tests Only</u>  | 10.677                                       | 14.438                                       | -3.771   |
| 3. <u>Dictated Vocabulary</u><br><u>Tests Only</u> | 10.021                                       | 8.958  | +1.063   |

1. Difference: Points on basis of 100-perfect score.

2. Group I or Group II, in parentheses

3. Progress: Progress in time (Term I to Term II) from one method to the other.



Progress Sheet--Sample

1. NAME \_\_\_\_\_ 2. Section \_\_\_\_\_

| 3. Week                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------------------------|---|---|---|---|---|---|---|---|
| 4. Time of first reading |   |   |   |   |   |   |   |   |
| 5. Amount Read           |   |   |   |   |   |   |   |   |
| 6. Review Time           |   |   |   |   |   |   |   |   |
| 7. Amount Reviewed       |   |   |   |   |   |   |   |   |
| 8. Vocabulary Test       |   |   |   |   |   |   |   |   |
| a) Written               |   |   |   |   |   |   |   |   |
| b) Dictated              |   |   |   |   |   |   |   |   |
| *9. Comprehension Test   |   |   |   |   |   |   |   |   |
| a) Written               |   |   |   |   |   |   |   |   |
| b) Dictated              |   |   |   |   |   |   |   |   |

\* Item 9 results are not a part of the subject of this report (cf. title of this report).

Group I Text Only: Unbroken line  
Group I Text with Tape: Broken line

### GRAPH A

Group II Text Only: Unbroken line  
Group II Text with Tape: Broken line

