

A COMPARATIVE STUDY OF THREE METHODS OF
INSTRUCTION IN VOCABULARY ON ACHIEVE-
MENT OF STUDENTS IN THE
ADULT INSTITUTE

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PREFACE

Teachers are constantly challenged to help their students learn more and to learn it more effectively. This study grew out of a desire of the author to find a method of vocabulary instruction that would promote more efficient vocabulary development. The results of this study should be of interest to teachers of reading and other language arts who are seriously striving to increase their students' word knowledge.

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CHAPTER I

PRESENTATION OF THE PROBLEM

Introduction

Most authorities in the field of secondary and college reading support the inclusion of special vocabulary development either apart from or within the confines of the reading or English classes. Since there is so little disagreement as to the value of a course in vocabulary development, it seems unusual that there is so little agreement as to the best materials and organization to produce this desired development, and that so few courses of vocabulary development are taught in high school or college.

Vocabulary Development is a course placed in the curriculum of the Adult Institute, a part of the Oklahoma City Public School System. The Institute sessions are held at night, and courses are offered both for high school credit and enrichment or review. Those who attend the Institute are largely senior high school students who are attempting to earn extra credit toward graduation, and adults of varying ages and abilities who have returned to school in an attempt to improve themselves.

A teacher in these courses has the responsibility for instructing some twenty students, who may range in age from seventeen to forty-five and who possess a wide range of achievement levels. With their

different backgrounds, language development, interests, and reasons for attending this class, the composition of this described student body is considered typical of adult classes throughout this country.

In a brief survey of the factors motivating these twenty adults to come to class three hours each Wednesday for thirteen weeks, it would appear they all had confidence and ability to improve their scholastic, social, or vocational positions with an improved vocabulary. There were other course offerings in English, reading, and related fields in which they could have enrolled, but they chose to enroll in vocabulary development.

Statement of the Problem

Can students, enrolled in the Adult Institute, experience growth in vocabulary to a measurable degree after a thirteen-week, three-hour weekly instructional program in vocabulary development? Does a greater vocabulary insure greater comprehension of material read? Can a course in vocabulary offer substantial benefits resulting in gains in vocabulary, comprehension, and total reading?

Three methods of instruction were utilized and the impact that each of these had on vocabulary, comprehension, and total reading achievement was analyzed and compared statistically. Program A, the contrived-contextual method of vocabulary instruction, introduced new words directly from a word list and a word book with students furnishing the context within which the words were studied. In Program B, the wide-reading contextual program, new words were introduced from natural context; these were words a student finds in his own reading, and a programmed context furnished word book. Program C, was a practical

senior high school English course, in which the primary objective was to improve written and oral communication. Vocabulary was integrated in this total program.

The purpose of this study was an attempt to answer the questions posed above, and to determine which of these three programs would result in the greater vocabulary, comprehension, and reading achievement.

Definition of Terms

The following are definitions and clarifications of terms as they are applied in this study:

Contrived-Contextual Program A. This is an experimental program of vocabulary development that is dependent on the student to furnish the context within which he studies the word. The words to be learned are studied in categories, analyzed as to common parts, and used in sentences. The Fourteen Master Word List and Word Power Made Easy supplied the words to be studied. These words were first introduced out of context, studied as to pronunciation and meaning, and were then placed in student-furnished context in an attempt to insure permanency. This program is more teacher directed than Program B.

Wide Reading Contextual Program B. This experimental program of vocabulary development is considered a natural reading approach to developing a greater vocabulary. Words are introduced in the students' self-selected natural reading context and are first studied within that context; they are then studied to extend meaning and facilitate pronunciation. Word Clues, a programmed vocabulary book that provides context and uses the contextual approach, was used to supplement the

students' wide reading word study.

Senior High School Practical English Program C. This control program emphasized the improvement of oral and written communication. The language-experience approach was utilized with material afforded by the student on whatever level he could function. Vocabulary improvement, as well as pronunciation, sentence structure, and punctuation were integral parts of this program.

The Nelson-Denny Reading Test, Form A and Form B (1960), Houghton Mifflin Company, Boston. Each form of this test contains 100 items to measure vocabulary and 36 items to measure reading comprehension. These tests are designed for use in grades nine through sixteen and are easily administered in a single thirty-minute class period, plus the time required to distribute and collect materials. They are designed to provide a useful measure of reading in terms of vocabulary and comprehension.

Otis Self-Administering Tests of Mental Ability, Higher Examination: Form A for High Schools and Colleges (1928), Harcourt, Brace, & World, Inc., New York. This test yields a single intelligence quotient score for examinees.

Word Clues (1962), Educational Developmental Laboratories, New York, New York. The Word Clues Workbooks are developed on the premise that a word has no meaning of itself but derives it from its functioning in the context of a sentence as a whole. Context is furnished with the word as a functioning part of the whole. Three frames are given to each word. Seven workbooks are available for grades seven through thirteen. Each workbook consists of 30 lessons of 10 words each, a total of 300 words per level. These workbooks have

a programmed format to allow each student to work at his own rate to insure maximum participation and active learning, and to provide reinforcement through immediate knowledge of correctness of response. EDL WORD CLUE TESTS are tests accompanying the material; these were used to place students in the proper workbook. These tests are untimed and are designed to determine the starting level of students who will be working in the Word Clues Series. They are standardized, however, and could be used for purposes of measurement and evaluation.

Word Power Made Easy, Norman Lewis, (1961), Perma Books. A higher level book of vocabulary development that is to appeal to the more adult student. Words are introduced in categories, pronunciation is given, as well as definitions and derivations. This book was used in the Contrived Contextual Program A.

The Adult Institute. This is a part of the Oklahoma City Public School System and is a fully accredited evening school. Courses are offered for high school credit, enrichment, and review.

Limitations of the Study

1. The small sample size in each group of students; approximately twenty students were enrolled in each class at the Adult Institute, but not all finished the courses and could not be counted in the final sample size.
2. The thirteen-week period given to vocabulary development may not have afforded the time necessary to reveal gain or permanency of vocabulary development to a measurable degree. This is the average length of a session in the Adult Institute.
3. Both experimental groups were taught by the same teacher.

This could have resulted in a teacher carry over effect, but would eliminate the different teacher interaction influence.

4. Lack of random assignment - intact groups were used in this study.

Significance of the Study

1. The results of this study could, to some extent, suggest the value of vocabulary taught as a course separate and apart from the other language arts.

2. The results of this study should suggest which of the three programs promoted the greatest growth in vocabulary.

3. The results of this study could reveal which of the three kinds of programs would contribute most to growth in reading comprehension as shown on The Nelson-Denny Reading Tests.

4. The results of this study should reveal which of the three programs contributed most to total reading growth.

Summary

In summary, this study was one of comparing the impact of two experimental methods of vocabulary instruction with that of a third control method, practical senior high school English, on the achievement of students enrolled in the Adult Institute. There was pre and post testing in each of these three programs to determine the achievement gain in the areas of vocabulary, comprehension and total reading.

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

There is currently a number of systems to promote vocabulary development. Some of these make a popular appeal from the paperback bookstands that are so common-place in our world today. These paperback vocabulary books (10), (17), (18), (19), (20), (24), (42) are largely of the self-help variety, and as Winship (53) states, "They have all the appeal of a Hollywood diet in reverse: Put on intellectual weight in a hurry." This is not to suggest these little books should be ignored by educators; on the contrary, they are filled with interesting explanations, content, and drill, with suggestions for motivating students.

Gruber (20) has produced what he chooses to call "Programmed Learning Without a Machine." This programmed vocabulary book takes one through frame after frame of guessing, looking-up in a dictionary, and repetitive drill. Research in vocabulary development would indicate all serious students of vocabulary would likely need to meet a word several times before it is learned. Yet, there is some doubt that permanency would result from this contrived contextual efficiency.

Vocabulary workbooks aimed at the secondary level classroom might be better utilized as helpful supplementary material in the classroom rather than independently as some authors appear to intend

that they be used. Workbooks such as Brown and Salisbury's (9), Brown (8), and Taylor's (49) are of the type that appear to be of value when utilized with other material of vocabulary instruction. DeVitis and Warner (14) urge teachers to experiment with their workbook and attempt to find the best way individuals and student groups can learn.

There are three chief flaws in vocabulary building books according to Darlington (13). First, there are too many words included which a student already knows; second, there are many words too far above the average student's learning threshold; and, third, there is the failure to give enough content to rivet the new words to student's consciousness.

Wide and extensive reading is considered by many to be an excellent way to build a vocabulary. Van Horn and Janes (51) express the opinion that wide reading is effective only if: (1) The student identifies new words, (2) the student used context clues to get the meanings, and (3) the student uses the dictionary to look up unfamiliar words. According to Weiss (54) and Roberts (41), if a student cannot be encouraged to extend the amount and kind of reading he does, then vocabulary growth is not likely to be experienced, and if experienced, is not likely to be permanent.

Newspaper reading was stressed by Schail (42) as a ready means of building vocabulary. Weiss (54, 55) believes the large majority of research studies seem to justify well-motivated vocabulary training which grows out of the student's reading experience or other use of words. O'Donnel (36) found a high correlation between vocabulary scores and level of comprehension in reading. Lynch (29) states that there is no substitute for steady practice in writing and speaking

for cumulative experience in reading. Eicholz and Barbe (15) investigated the thinking of English teachers in regard to vocabulary development with a questionnaire. The results of this study revealed that teachers believed that vocabulary should be taught in context as a part of other studies. Johnson's (27) recommended procedure for attacking unfamiliar words in the reading concept of vocabulary development is: (a) check it and skip it, (b) break it up, (c) sound it out, (d) look it up. Otto and McMenemy (40) suggest that wide reading and the consequent enrichment of vocabulary it brings is the most natural, and perhaps, the most effective way to develop vocabulary. Hafner (22) is supportive of the reading road to vocabulary development. He suggests that the ability to use context aids and interpretation principles will give the students the meanings of most words.

If we are to accept the opinions of these educators, then we must accept the premise that learning the meanings of words in context is superior to learning the meanings of words in isolated drill or contrived context. But, even though the reading road to vocabulary development is highly endorsed by the majority of authorities in this area, a word of caution is sounded by a number of educators who have tried this method. Thompson (40) has suggested how slow and tedious vocabulary growth normally can be and that the time requirements for reading training are such that little time is left for vocabulary training. Johnson (27) has suggested the reader meets only two or three strange words per hundred running words. Even though vocabulary development must be a part of any thorough reading program, there is a very real need for much more vocabulary training apart from the

regular reading program. Lee (31) found when students checked strong parts of their reading program, they selected vocabulary as the strongest area and placed it far above all other areas as to its worth. Harris (23) has cited the importance for teachers to use those methods that students use most often after graduation from high school. A questionnaire by Harris (23) distributed to juniors, seniors, and graduate students in Los Angeles State College revealed the most widely used methods when encountering new words, in order of preference, were: the use of the dictionary and employing context clues, learning new words used from lectures, teachers, acquaintances, and the use of origin and derivation.

The dictionary, word lists, and word component lists (where words are broken into prefixes, suffixes, roots, and there is a stress on diction and meaning, and a study of origin and related words) have their advocates and critics as the way to promote vocabulary development. Stauffer, in a study of Thorndike's list, (46) reports that 24 per cent of the 20,000 words in Thorndike's Teacher's Word Book have prefixes and that fifteen of these account for 82 per cent of all the prefixes. This research appears to lend support to the study of common prefixes as a means of building familiarity with word meanings.

Jenkins (26) found the study of a dictionary and index cards with the study of prefixes, suffixes, and word lists superior to workbooks in the study of vocabulary building at the junior and senior high school level.

Darlington (13) expresses the opinion that the traditional method of studying vocabulary lists with instruction to learn the meanings from the dictionary lacks efficiency and promotes retention

problems. Although the dictionary as a vocabulary development tool is widely accepted, (how much use of the dictionary) optimum use is open to considerable argument. Massey and Moore (33) gave five clues for perceiving words that are strange in printed form: word form clues, phonic clues, structural clues, context clues, and the dictionary. Warner (52) states that all workbooks stress the importance of dictionary usage but strange uses are made of them such as, accents placed on rare words and roots. Schail (42) suggests a special notebook in which you write down unfamiliar words; he recommends that the reader should not stop reading, but when he has finished, have a session with the dictionary. Coon (10) is of the opinion that a student should use the newspaper, dictionary, pencil, and notebook method to vocabulary development. Strang (48) says that students should check lightly, unfamiliar words not defined in their context, and later look them up in a dictionary. She further suggests the use of small cards with the word at the top, a synonym at the bottom, and in the middle of the card, a sentence using the word. This was made as a suggestion for adults to keep up with a recently acquired vocabulary. Weiss (55) states that instruction directed toward vocabulary development is largely based on the use of the dictionary. Instruction and practice in dictionary usage can be carried to such a point that a pupil feels helpless without a dictionary or a labor-saving substitute (a teacher who will define unknown words). Johnson (27) suggests that a student in his lifetime has learned no more than a few dozen words by looking them up in the dictionary. However, he gives dictionary usage as a fourth step in his procedure for developing vocabulary. Corbin (12), Strang (48), Massey and Moore (33) all sound a word of caution in

regard to vocabulary development that depends too much on word recognition skills and superficial learning and not enough on functional meaning. They express the collective opinion that there are too many students and adults who manipulate words, but who lack understanding and the ability to think critically. There may be a sentence with no new words, yet it can be loaded with new concepts. Students can be pronouncing words but not getting understanding from their reading. Whether a student has attained a deeper, personal insight into the processes of language and a lasting desire to use it can probably best be judged by him and his teacher.

Vocabulary instruction appears to lend itself well to a programmed type of material. There is considerable argument, however, as to the worth of such programmed instruction in vocabulary development. Coulson (11) suggests a technique of programmed instruction for different tasks and for different student variables, such as interest, need, and ability. Programmed instruction could be integrated with other educational methods to produce desired student performance. Brown (8) has stated that programmed material demands an active reader rather than a passive one. He maintains that the psychology of learning is respected with the immediate checking of the right answer which serves to re-enforce it, and wrong answers are corrected before they have a chance to become established, and re-enforcement is capitalized on in programmed material. The fourteen words to be studied in the programmed vocabulary authored by Brown (6) contain the twenty most important prefixes and the fourteen most important roots--the most important because they are found in over 14,000 words in common use, or close to 100,000 words found in an unabridged dictionary.

Hill (25) asserts the most significant variable of programmed material will be the organization of the material as it is presented to the learner. If one considers auto-instructional type material such as found in the paperback vocabulary building books as programmed materials, the organizational patterns of many could be questioned. Arnestine (2) concluded from his studies that programmed instruction is an inadequate device for any sort of teaching with the possible exception of such relatively isolated learnings as drill in spelling or the multiplication tables.

The Word Clues Series authored by Taylor (49) and others seem to be one of the first ventures in the field of programmed vocabulary. Tests are provided to place the student in a certain grade level book. These programmed workbooks give practice in understanding an unfamiliar word within context without the use of a dictionary. Only when context clues are exhausted should one use the dictionary.

Though vocabulary skills appear easily isolated for study and measurement, the instruments for the measurement of vocabulary appear of questionable validity. Langer (28) states that present tests of vocabulary are not adequate measures of pupils' understanding of word meanings. The word has no meaning unless there is a concept for it. Word meaning has dimension other than those tested by the usual multiple choice vocabulary tests, and not vocabulary size, but the dimension of concepts with which words are associated appears most vital. Osenburg (38) suggests the use of a qualitative test of vocabulary that will be more diagnostic than the usual multiple choice vocabulary tests and that quality and quantity can be measured at the same time. Each word in his test is listed above four sentences and

is in some degree related to these four sentences. They are scored as 1-4 according to the word's relation to the sentence. The value of such a diagnostic test as this is readily appreciated; however, it has many serious disadvantages, such as: longer time to administer, longer time to grade, does not give up information readily, and must be studied for the answers. In checking on the progress and needs of individuals in vocabulary growth, Allen (1) devised what he calls an individual vocabulary building device. Based on a one-word-a-day vocabulary-building plan, the students chose a word from any source, copied it in a sentence in a vocabulary notebook, and handed in an exact duplicate on a six-by-eight card. At the end of two-week intervals, each student submitted a work sheet containing all words he selected, listed in the lefthand column and numbered from one to ten. Listed alphabetically, the definitions appeared in the opposite column. These papers were distributed to students who made up tests for the student whose name appeared on the sheet. This produced a more effective word power and personal interest in vocabulary building, and was also a means of testing vocabulary.

Another test designed to give student and teacher a concrete view of vocabulary level is one by Gulick and Holmes (21). With this test, each student is given a score showing the number of words he knows. This test was developed from the Thorndike-Lorge list of 30,000 words. Seven different alternates were introduced to mislead anyone with a hazy idea of a word. Definite misleads were introduced to equalize scores between the brash guessers and the timid or conservative. The results of this test should allow the teacher to build intelligently on the capacities of individuals.

The Nelson-Denny Reading Test (6), (7), (8) is currently a widely used test to measure vocabulary and reading rate at the secondary, college, and adult level. It has two forms, A and B, and is easily administered to a total class in a single class period. The normal working time is thirty minutes. This test serves as a predictive screening, and broadly diagnostic instrument.

The Word Clues Tests (49) have two forms, A and B, and one form of the Appraisal AA. Each form contains 98 words, 14 for each level corresponding to the Word Clues Workbooks from grades seven through thirteen. These tests allow for standardized evaluation at the beginning and the end of a course, semester, or school year.

There are numerous informal appraisals that can be teacher produced and drawn from available vocabulary lists. One such vocabulary test is included in Flesch and Witty's book (16). This test has 22 vocabulary items, and with the understanding that the average high school graduate has, the subject gets about fifteen of these correct. A student can determine about where he thinks he stands according to the number right on this particular instrument. Students appear to find this type of survey test challenging and enjoyable. Bracken (4) suggests that a teacher could use the four ways of finding a pupil's learning power suggested by Strang (47), and also record and observe fluency in oral language. Kottmeyer (30) pointed out that disabled readers are usually aurally familiar with a much larger vocabulary than they can recognize in print, but concern here must be with the printed vocabulary.

Smith and Dechant (45) suggest that all learners need security, success, and social acceptance to succeed in any subject. Failure of

any kind threatens one's self-esteem and the esteem he receives from others. Botel (3), Otto and McMenemy (40), and Smith and Dechant (45) say that to prevent failure and break down of learning, a student should be allowed to work on his own instructional level whether in vocabulary development or any other curricular area.

Summary

1. There appears to be considerable agreement as to the worth of vocabulary development utilizing real context as the most natural way.
2. The dictionary is indispensable in vocabulary development.
3. Traditional vocabulary lists used to increase vocabulary with the dictionary in which to look up meanings can become dull and lack efficiency.
4. Direct word study can improve vocabulary development.
5. To retain new words, there must be considerable repetition.
6. There is considerable disagreement regarding materials to use, and in what amounts these should be used to bring about greater vocabulary development.
7. Programmed instructional material in vocabulary is meager.
8. The method of vocabulary development ordinarily used by the student should be utilized in his classroom vocabulary development.
9. There appears to be disagreement relative to the organization of materials to promote vocabulary development.
10. There is considerable disagreement regarding evaluation and what constitutes a valid measurement of vocabulary.
11. There is general agreement that students should be instructed

in vocabulary on a level where they can expect success.

After reviewing the relevant research and literature regarding vocabulary development, it became apparent that there is a need for the selection of a method, a selection of materials, and the organization of these materials into a time-plan schedule before one can attempt to instruct a course in vocabulary. Two distinct methods of vocabulary instruction appear in the review, that of wide-reading (the natural contextual method), and the second, that of direct vocabulary instruction from word lists, or word books, (the contrived contextual method). These methods, and a selection and organization of reviewed materials became an integral part of the following study.

CHAPTER III

METHODOLOGY AND DESIGN

Introduction

The primary purpose of this study was to investigate the impact of three methods of vocabulary instruction on the achievement of students enrolled in the Oklahoma City Adult Institute at John Marshall High School. Two experimental groups were taught using different methods of vocabulary instruction. A third group, the control group, were enrolled in a practical senior high school English program, where vocabulary development was integrated with a program emphasizing oral and written communication skills. The achievement test scores of this control group were compared with the scores of the two experimental groups. To compare the achievement resultant from these three programs, it was necessary to investigate the prior achievement and mental ability of the individuals enrolled in each of the three groups. These factors, rather than the particular treatment, could influence the vocabulary achievement. The basic design of this study was pre-test--treatment--post-test.

Procedures

Approximately sixty students enrolled in the Adult Institute at John Marshall High School in Oklahoma City participated in the

study, twenty students in each of the three programs. The three programs ran successively, they were all instructed at the same location. The same teacher instructed in the two experimental programs. A regular Adult Institute instructor taught the control group. The same pattern of instrument administration was followed for all subjects in the three groups. All students were administered The Nelson-Denny Reading Test, Form A, and the Otis Self-Administering Test of Mental Ability prior to instruction. Each student received three hours of instruction (less twenty minute break time) per week from six o'clock to nine o'clock each Wednesday for a period of thirteen weeks. Absenteeism was reduced to a minimum with only one absence allowed those students seeking credit toward high school graduation.

All students were administered The Nelson-Denny Reading Test, Form B, upon completion of thirteen weeks of instruction. An analysis of the data resulting from the statistical computations discussed should determine the relationship that exists between the three groups, and aid in determining any difference in achievement as revealed by pre and post-testing data in vocabulary, comprehension, and total reading growth among any one of the three methods of vocabulary instruction.

Materials Used in Teaching Vocabulary Development

Instructional Program A: Core Program--Contrived Contextual Material

Word Power Made Easy (Norman Lewis)--
Master Word Lists

Webster's Seventh New Collegiate Dictionary

Roget's Thesaurus

Teacher Motivational Oral Encouragement

Instructional Program B: Core Program--Wide-Reading-Contextual
Materials

Library books and periodicals - EDL Word
Clues

Webster's Seventh New Collegiate Dictionary

Roget's Thesaurus

Teacher Motivational Oral Encouragement

Instructional Program C: Practical Senior High School English
(Control Group)

Emphasis on oral and written communications
of students

Language-experience approach with individual
assistance in word usage, pronunciation,
sentence structure, and punctuation.

Organizational Patterns for Vocabulary
Development Programs A, B, and C

Program A: 3-hour period: Contrived Contextual Core Program.

- A. One-hour activity with meanings and Master Word List, word analysis skills, and use of dictionary.
- B. Thirty-minute oral discussion of words and usage as encountered in word list activity.
- C. Twenty-minute break.
- D. One-hour study in Word Power Made Easy, Norman Lewis.
- E. Ten-minute evaluation and review period.

Program B: 3-hour period: Wide-Reading-Contextual Core Program

- A. One-hour library reading. Notebook for vocabulary containing new words. Turn in (3 cards) one word on a three-by-five card each evening at the close of this hour. These words will be matched by words in the student's vocabulary notebook. On these cards students will give the definition, a sentence, and a synonym of the new word. These cards will be used later to prepare an individual

vocabulary test for each student.

- B. Thirty-minutes oral discussion of new words and concepts encountered while reading. Sharing of material in which word was found.
- C. Twenty-minute break.
- D. One hour in autoinstructional programmed Word Clues at different levels as determined by the Word Clues pre-instructional tests.
- E. Ten-minute evaluation and review period.

Program C: 3-hour period: Practical Senior High School English (Control Group)

- A. Vocabulary development integrated with the regular practical language arts in the traditional Adult Institute English Program--discussion--writing--correcting errors--extending skills--discussing--writing--reading.

Instruments Used in Study

Otis Self-Administering Tests of Mental Ability: Higher Examination: Form A for High Schools and Colleges. This test was administered prior to instruction. It affords an estimate of each student's mental ability by yielding an intelligence quotient which was recognized as possibly influencing the progress students might experience in this study. Seventy-five items constitute this examination and are in a single list; these are answered by the examinee without interruption. After the printed directions are understood by the student and a signal given to begin, the examination is totally self-administering. The test material is varied, the time limit is flexible, and the scoring is simplified.

The Nelson-Denny Reading Test, Form A. This test was administered to each participant prior to his receiving any instruction.

The test was administered the first thirty-minute class period as a pre-test to determine vocabulary achievement, comprehension, and total reading levels of each participant prior to instruction in each of the three groups in this study.

The Nelson-Denny Reading Test, Form B. This test was administered to each participant subsequent to his having received thirteen weeks of instruction. The test was administered the final thirty minutes of the final class period in each of the three groups and was utilized as a post-test to reveal the achievement in vocabulary, comprehension, and total reading following thirteen weeks of instruction in each of the three groups.

Statistical Design

Hypothesis one, there exists no significant difference in vocabulary growth among the groups after instruction when initial differences between the three groups have been adjusted with respect to initial achievement (as revealed on The Nelson-Denny, Form A, pre-test), and intellectual aptitude (as revealed on the Otis Self-Administering Test of Mental Ability).

Hypothesis two, there exists no significant difference in reading comprehension among the groups after instruction when initial differences between the three groups have been adjusted with respect to initial achievement (pre-test, The Nelson-Denny Reading Test, Form A), and intellectual aptitude (Otis Self-Administering Test of Mental Ability).

Hypothesis three, there exists no significant difference in total post course reading growth among the three groups when initial

differences among the three groups have been adjusted with respect to reading achievements (pre-test, The Nelson-Denny Reading Test, Form A), and intellectual aptitude (Otis Self-Administering Test of Mental Ability).

There are three dependent variables: (1) vocabulary test scores, (2) comprehension test scores, and (3) total reading scores as measured on The Nelson-Denny Reading Test, Form B, following instruction. The experimental independent variable was the method of instruction. The three dimensions of this independent variable were: Experimental Program I, Experimental Program II, and the Practical High School English Program III. The controlled (extraneous) variables were intelligence and achievement. The reader will notice that the pre-test, The Nelson-Denny Reading Test, Form A, is used as a control for achievement, while Form B of The Nelson-Denny Reading Test provides the dependent variable data.

A check on the variance homogeneity was made prior to administering other statistical tests. If the F value revealed significance indicating the possibility of heterogeneous variances, then Bartlett's Test was administered to determine the homogeneity of variance. The single analysis of covariance technique was applied to analyze the differences among methods for each of the dependent variables to find the significance level of each. For any significant difference found among the three methods of instruction, Duncan's Multiple Range Test was utilized to indicate location of this difference.

The combined sample size of the three groups was thirty-six, the number of subjects who served in the thirteen-week vocabulary

study and received both pre and post-testing. Alpha, the level of significance is set at .05 and applies to a two-tailed test.

TABLE I

CLASS MEETING SCHEDULES OF THREE
INSTRUCTION GROUPS

Group	Students in Study	Meeting Time	Date	Instructional Period
1. Contrived Contextual - Program A	12	Wednesday	Winter 1967	13 Weeks of
2. Wide Reading Natural Contextual - Program B	10	6:00-9:00	Spring 1968	Instruction
3. Practical Senior High School English	14	P.M.	Spring 1969	For All
	Total - 36	All Groups		Groups

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

This chapter contains a discussion of the findings of the statistical tests used in this study. These tests were used to determine the significance of the data collected by the investigator. This data was collected from the pretest and posttest instruments, the Otis Self-Administering Test of Mental Ability and The Nelson-Denny Reading Test, Form A, serving as pretest instruments, and The Nelson-Denny Reading Test, Form B, serving as the posttest instrument. The data from the two experimental groups and the one control group were prepared for analysis by the Oklahoma State University Computer Center. The .05 level of significance was used to judge the significance of all statistical tests. The rejection of any hypothesis was non-directive. Therefore, two-tailed tests of significance were employed.

A total of thirty-six students in the three groups took the pretests, treatment, and posttest, and were included in the final samples. This number is considered typical for the size of three classes of students who attend and finish courses in the Adult Institute. Since these three classes were intact groups, there was no way the investigator could randomize the sample to equate the independent variable with respect to possible confounding variables. For this reason, the single

analysis of covariance technique was selected. This technique is a combination of analysis of variance and multiple regression techniques. The single analysis of covariance allowed the investigator to statistically equate the independent variable groups (the three methods of instruction) with respect to intelligence quotients, to prior achievement in vocabulary, comprehension, and total reading, and to view any mean difference that resulted as accruing from the instructional method. There is always the basic danger when dealing with intact groups to have unknown confounding variables influencing the relationships under study.

Results of Hypotheses Tested

Hypothesis one: there is no significant difference in vocabulary growth among the groups following instruction when initial differences between the three groups have been adjusted with respect to initial achievement and aptitude. The single analysis of covariance technique was used to test hypothesis one. As shown in Table II, this null was accepted. The posttest scores on Form B of The Nelson-Denny Reading Test were used as the criteria, and the pretest scores on Form A, The Nelson-Denny Reading Test were used as controls on achievement as was the Otis Self-Administering Test of Mental Ability on each analysis of covariance in this study.

It is concluded from an analysis of this data that there is no significant difference in vocabulary growth among the mean posttest scores resulting from the three instructional methods. The F value of 0.433 is less than the F Table value of 3.32, and the F ratio must be greater than one to reveal significance. Hypothesis one is accepted.

TABLE II

SINGLE ANALYSIS OF COVARIANCE COMPARISONS FOR
THE THREE INSTRUCTIONAL GROUPS IN VOCABULARY

Source	DF	YY	Sum Squares Due	Sum Squares About	DF	Mean Square
Treatment (Between)	2	299.5508				
Error (Within)	33	5585.1992	2629.6194	2955.5798	30	98.5193
Treatment + Error (Total)	35	5884.7500	2843.8652	3040.8848	32	
Difference for Testing Adjusted Treatment Means				85.3049	2	42.6525
F = 0.433		From Table F df 2/30, F at .05 = 3.32				

Hypothesis two: there is no significant difference in reading comprehension among the three groups when initial differences between the three groups have been adjusted with respect to initial achievement and intellectual aptitude. The single analysis of covariance technique was used to test hypothesis two. The results of this technique appear in Table III.

The F value of 0.647 is less than the Table F of 3.32; therefore, hypothesis two is accepted.

TABLE III

SINGLE ANALYSIS OF COVARIANCE COMPARISONS FOR
THE THREE INSTRUCTIONAL GROUPS
IN COMPREHENSION

Source	DF	YY	Sum Squares Due	Sum Squares About	DF	Mean Squares
Treatment (Between)	2	666.2852				
Error (Within)	33	5567.7148	2776.5493	2791.1655	30	93.0388
Treatment + Error (Total)	35	6234.0000	3322.5173	2911.4827	32	
Difference for Testing Adjusted Treatment Means				120.3171	2	60.1586
F = 0.647 From Table F df 2/30, F at .05 = 3.32						

The comprehension achievement resultant from Program A (Contrived Contextual), Program B (Wide Reading Natural Contextual), and Program C (Practical Senior High School English) revealed no significant difference among the three programs when tested with a single analysis of covariance as revealed on Table III.

Hypothesis three: there is no significant difference in total post reading scores among the three instructional groups when initial differences among the three groups have been adjusted with respect to reading achievement and intellectual aptitude. The single analysis of covariance technique was again used to test hypothesis three.

The calculated F value as shown on Table IV is 0.037; the critical F value, for this given degrees of freedom, is 3.32. The results of

this analysis of covariance for the three groups in total reading achievement afforded an acceptance of hypothesis three, there is no significant difference among the three instructional groups in total post reading scores.

TABLE IV
SINGLE ANALYSIS OF COVARIANCE COMPARISONS FOR
THE THREE INSTRUCTIONAL GROUPS IN
TOTAL READING

Source	DF	YY	Sum Squares Due	Sum Squares About	DF	Mean Square
Treatment (Between)	2	1473.5000				
Error (Within)	33	18407.2500	10870.7070	7536.5430	31	243.1143
Treatment + Error (Total)	35	19880.7500	12326.3437	7554.4062	33	
Difference for Testing Adjusted Treatment Means				17.8633	2	8.9316
F = 0.037 From Table F df 2/31, F at .05 = 3.32						

A fourth, single analysis of covariance technique was applied to data collected in this study to control for the influence of intelligence on the achievement of students in the three instructional groups. The results of this test appear in Table V.

The F value of 2.238 is less than the Table F value for two and thirty-one degrees of freedom at the .05 level of confidence. An examination of the data contained in Table V, reveals no significant difference among the three instructional groups with regard to

intelligence. Therefore, intelligence would not have been an influencing factor in determining the achievement resulting on posttest scores following instruction.

TABLE V
SINGLE ANALYSIS OF COVARIANCE COMPARISONS FOR
THE THREE INSTRUCTIONAL GROUPS
ON INTELLIGENCE

Source	DF	YY	Sum Squares Due	Sum Squares About	DF	Mean Squares
Treatment (Between)	2	19.0625				
Error (Within)	33	3161.2500	1584.6199	1576.6301	31	50.8590
Treatment + Errors (Total)	35	3180.3125	1376.0295	1804.2830	33	
Difference for Testing Means				227.6528	2	113.8264
F = 2.238 From F Table df 2/31, F at .05 = 3.32						

The T Test for Each Instructional Group

Three separate correlated t tests were computed on the pretest and posttest data for each instructional group. This statistical technique does not deal with the covariates utilized in the tests of covariance, therefore, no adjustments were made in these tests for initial achievement or intelligence. An analysis of covariance, shown in Table V, revealed no significant difference in intelligence among the three groups; intelligence would not influence the results of these t tests.

The purpose for utilizing the t tests was to determine the difference in vocabulary, comprehension, and total reading scores for each instructional group following the thirteen weeks instruction.

Tables VI, VII, and VIII show the calculations and results of these three tests for each instructional group. Table VI shows the three t tests for Program A (Contrived Contextual). The results of these tests reveal no significant gain in vocabulary, comprehension, or total reading for Program A, pretest, posttest scores.

TABLE VI

THE T TEST--CONTRIVED CONTEXTUAL PROGRAM A

VOCABULARY MEANS	
<u>Pretest</u>	<u>Posttest</u>
27.9167	32.1667
T-Statistic = 1.71119 Degrees of Freedom = 11 Vocabulary Not Significant	
Significant if T = 2.201 at the .05 Level with Eleven Degrees of Freedom	
COMPREHENSION MEANS	
<u>Pretest</u>	<u>Posttest</u>
36.8333	38.0000
T-Statistic = 0.40130 Degrees of Freedom = 11 Comprehension Not Significant	
TOTAL READING MEANS	
<u>Pretest</u>	<u>Posttest</u>
64.7500	70.1667
T-Statistic = 2.07567 Degrees of Freedom = 11 Total Reading Not Significant	

TABLE VII

THE T TEST--WIDE READING NATURAL
CONTEXTUAL PROGRAM B

VOCABULARY MEANS	
<u>Pretest</u>	<u>Posttest</u>
31.0000	35.7000
<p>T-Statistic = 2.73336 Degrees of Freedom = 9 Vocabulary Gain is Significant.</p>	<p>Significant if T = 2.262 at the .05 Level for Nine Degrees of Freedom.</p>
COMPREHENSION MEANS	
<u>Pretest</u>	<u>Posttest</u>
33.8000	33.0000
<p>T-Statistic = 0.25796 Degrees of Freedom = 9 Comprehension Not Significant.</p>	
TOTAL READING MEANS	
<u>Pretest</u>	<u>Posttest</u>
64.8000	68.7000
<p>T-Statistic = 1.22054 Degrees of Freedom = 9 Total Reading Not Significant.</p>	

TABLE VIII

THE T TEST--PRACTICAL SENIOR HIGH SCHOOL
ENGLISH PROGRAM C

VOCABULARY MEANS

<u>Pretest</u>	<u>Posttest</u>
19.5714	28.5714

T-Statistic = 2.51005
Degrees of Freedom = 13
Vocabulary Gain is Significant.

Significant if T = 2.160 at the
.05 Level for Nine Degrees of
Freedom.

COMPREHENSION MEANS

<u>Pretest</u>	<u>Posttest</u>
28.8571	27.8571

T-Statistic = 0.35115
Degrees of Freedom = 13
Comprehension Not Significant.

TOTAL READING MEANS

<u>Pretest</u>	<u>Posttest</u>
48.4246	56.4286

T-Statistic = 1.39892
Degrees of Freedom = 13
Total Reading Not Significant.

Table VII gives the results of the three t tests for Program B (Wide Reading Natural Contextual). Pretest and posttest means were examined to determine if there was any significant difference in the three achievement areas. The t to be significant must be equal to or greater than 2.262 (Table T Value) at the .05 level of confidence for nine degrees of freedom. The calculated t statistic for vocabulary was 2.73336, which is significant at the .05 level. The calculated t for comprehension, Program B, as revealed on Table VII, was 0.25796 with nine degrees of freedom. This t for comprehension was not significant at the .05 level of significance. The calculated t for total reading was 1.22054 with nine degrees of freedom. This t was not significant at the .05 level for total reading.

An examination of Table VIII, the t tests for Program C (Practical senior High School English), reveals a significant gain in vocabulary with a calculated t statistic of 2.51005 with thirteen degrees of freedom. The t to be significant must be equal to or exceed 2.160 (the Table T Value), at the .05 level of significance. There was no significant gain in comprehension or total reading achievement as revealed on the t tests for Program C.

Summary

The four single analyses of covariance enabled the investigator to determine whether significant differences existed among the three instructional groups in vocabulary, comprehension, or total reading achievement following thirteen-weeks of vocabulary instruction. The use of the F test provided the information necessary to determine significance levels. Results of the tests of covariance allowed the

investigator to accept the three null hypotheses of Chapter III. There is no significant difference in vocabulary, comprehension, or total reading achievement among the three instructional groups after initial differences had been adjusted with respect to initial achievement and intellectual aptitude. Hypotheses one, two, and three were accepted at the .05 level of confidence. Program A (Contrived Contextual), Program B (Wide Reading Natural Contextual), and Program C (Practical Senior High School English) did not differ significantly from each other in vocabulary, comprehension, or total reading achievement following thirteen weeks of instruction.

The pretest and posttest mean scores for the three instructional groups as revealed on the t tests are shown on Tables VI, VII, and VIII. An examination of Table VI, the three t tests for Program A, reveals no significant gain in vocabulary, comprehension or total reading growth for this program.

Table VII, the three t tests for Program B, reveals a significant gain in vocabulary, but no significant gain in comprehension or total reading.

Table VIII, the three t tests for Program C, reveals a significant gain in vocabulary for this instructional program, but no significant gain in either comprehension or total reading.

The raw data used for all statistical tests appears in the appendix.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purposes of this study were to determine whether vocabulary, comprehension, or total reading growth could be influenced appreciably by thirteen weeks instruction in vocabulary. Three different methods of instruction were used: Program A, the contrived contextual method, Program B, the wide reading, natural contextual method, and Program C, the practical senior high school English method, (acting as a control method). The second purpose was to determine whether a significant difference existed in achievement among the three instructional groups possibly suggesting a preferred method of instruction in vocabulary. Basically the design of this study was pretest-treatment-posttest. The thirty-six students included in the final study were thirty-four senior high school students attending the Adult Institute to receive credit toward graduation and two adults returning to school for enrichment. The final number in each group was: Program A, contained twelve students, Program B, contained ten students, and Program C, contained fourteen students. Each group were administered the pretest instruments: The Nelson-Denny Reading Test, Form A, and the Otis Self-Administering Test of Mental Ability. Each group received thirteen weeks instruction in vocabulary using a different treatment, after which a posttest was

administered, The Nelson-Denny Reading Test, Form B.

Three null hypotheses were tested in this study. Variance homogeneity among the three groups was a prerequisite to the use of the single analysis of covariance. Four single analyses of covariance were applied to the test data to equate the three groups on four control variables: intelligence, vocabulary, comprehension, and total reading achievement measured with the pretest instruments, and to determine if a significant difference existed among the three dependent variables; vocabulary, comprehension, and total reading achievement as measured on the posttest instrument. The three null hypotheses were accepted when the results of the three single analyses of covariance tests were analyzed and revealed no significant difference among the three instructional groups in vocabulary, comprehension, and total reading achievement.

Results of the three t tests computed for each of the three instructional method groups revealed a significant gain in vocabulary for Programs B and C. There was no significant gain in either comprehension or total reading achievement for Programs B and C. The results of the three t tests for Program A revealed no significant gain in vocabulary, comprehension or total reading.

Conclusions

The findings of this study appear to support several conclusions. The first conclusion would be an acceptance of hypothesis one, that there exists no significant difference in vocabulary growth among the three instructional groups (Programs A, B and C), when initial differences among the groups have been adjusted with respect to initial

vocabulary achievement and intellectual aptitude.

The second conclusion would be the acceptance of hypothesis two, that there exists no significant difference in comprehension achievement among the three instructional groups (Programs A, B, and C) when initial differences among the groups have been adjusted with respect to initial comprehension achievement and intellectual aptitude.

The third conclusion would be the acceptance of hypothesis three, that there exists no significant difference in total reading achievement among the three instructional programs after adjustment for initial differences in total reading and intellectual aptitude.

The fourth conclusion would be, that the three instructional programs are comparable methods of vocabulary instruction, with no one method revealing superiority in achievement over that of another. This conclusion is supported by both the results of the analyses of covariance and the t tests.

The fifth conclusion would be, that comprehension and total reading growth do not necessarily result from instruction in vocabulary. This conclusion is supported by the results of the t tests.

All conclusions discussed above should be considered with the limitations listed in Chapter One clearly in mind. Generalizations to other students and other geographical locations should be undertaken with caution. Further study providing comparable data are needed to support these conclusions.

Recommendations

This study was one of comparing the impact of two experimental methods of vocabulary instruction with that of a third control method,

practical senior high school English, on vocabulary, comprehension, and total reading achievement.

Program A, the contrived contextual method, taught directly from master word lists, and a vocabulary building book seems to be comparable in efficiency and achievement with the other two methods of instruction. Program B, the wide reading natural contextual method, where the emphasis was on meeting unknown words in their natural contextual setting in periodicals, newspapers, books, etc., seems comparable to Program C, the practical senior high school English method, where the writing approach to vocabulary development was stressed.

The investigator feels that another study with a different student group at the senior high level and with the different educational environment of the senior high school may reveal different results with a similar study. Other studies could help answer questions raised by this and other investigations: Is there a best method of instructing students in vocabulary development? Is thirteen weeks of instruction enough time to reveal permanency in vocabulary development? Does an improved vocabulary result in improved comprehension and improved reading?

The results of this study suggest that a student may improve his vocabulary without any measurable improvement in comprehension and reading. The results of this study do support the possibility of different instructional methods of vocabulary development producing similar increases in achievement. A teacher could feel confident, from the results of this study, in using the method, or methods, she feels most appropriate for her students. There is a strong belief on the part of the investigator that highly motivated mature students, in the

contrived contextual method of instruction, learn unknown words as well as in the discovery method of instruction (wide reading), where unknown words are met in their natural context. However, in the contrived contextual method, a teacher should allow opportunity for students to respond to newly acquired words in connected materials so they would form a habit of responding to the message conveyed by connected words rather than responding to isolated word meanings.

Other investigators conducting similar studies, on methods of instruction in vocabulary, might find it interesting to analyze the growth in grammar that takes place as a result of this instruction. The parts of speech, correct usage, and verbal or written sentence structure could not be ignored in any of the three methods of instruction in this study.

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APPENDIX

BASIC DATA ON TREATMENT GROUPS USED
IN ALL STATISTICAL TESTS

TABLE IX

PRETEST I.Q. SCORES FOR THREE GROUPS
(N = 36)

Contrived Contextual Group (N = 12)	Natural Contextual Group (N = 10)	Practical English Group (N = 14)
110	103	100
97	104	94
86	96	87
115	93	108
98	94	106
102	113	103
111	94	102
118	106	116
93	103	97
90	107	85
113		119
105		106
		92
		119

No significant difference in intelligence among the groups at .05 level.

TABLE X

DATA USED IN THE ANALYSIS OF COVARIANCE, GROUP
 A, (CONTRIVED CONTEXTUAL) PRETEST, POSTTEST,
 THE NELSON-DENNY READING TEST, FORMS
 A AND B RAW SCORES

Student Number	PRETEST SCORES			POSTTEST SCORES		
	Voc.	Comp.	Total Reading	Voc.	Comp.	Total Reading
1	38	52	90	46	44	90
2	12	14	26	13	14	27
3	12	12	24	17	28	45
4	56	50	106	60	54	114
5	36	24	60	29	34	63
6	16	28	44	23	36	59
7	27	22	49	17	24	41
8	26	58	84	47	42	89
9	15	34	49	27	26	53
10	22	44	66	28	32	60
11	40	54	94	35	62	97
12	35	50	85	44	60	104

TABLE XI
 PRETEST

DATA USED IN THE ANALYSIS OF COVARIANCE, GROUP
 B, (NATURAL CONTEXTUAL) PRETEST, POSTTEST,
 THE NELSON-DENNY READING TEST, FORMS
 A AND B RAW SCORES

Student Number	PRETEST SCORES			POSTTEST SCORES		
	Voc.	Comp.	Timed Reading	Voc.	Comp.	Timed Reading
13	30	36	66	43	34	77
14	27	34	61	41	20	61
15	26	38	64	35	46	81
16	13	16	29	17	34	51
17	25	22	47	27	14	41
18	44	42	86	47	40	87
19	34	40	64	33	34	67
20	28	24	52	29	26	55
21	40	44	84	43	30	73
22	43	52	95	42	52	94

TABLE XII

DATA USED IN THE ANALYSIS OF COVARIANCE, GROUP
C, (PRACTICAL ENGLISH) PRETEST, POSTTEST,
THE NELSON-DENNY READING TEST, FORMS
A AND B RAW SCORES

Student Number	PRETEST SCORES			POSTTEST SCORES		
	Voc.	Comp.	Timed Reading	Voc.	Comp.	Timed Reading
23	19	32	51	21	18	39
24	14	30	44	29	16	45
25	8	12	20	12	16	28
26	26	32	58	13	12	25
27	19	28	47	27	26	53
28	26	36	62	28	38	66
29	25	26	51	32	40	72
30	25	38	63	36	34	70
31	10	20	30	20	20	40
32	14	18	32	27	20	47
33	27	48	75	35	52	87
34	21	26	47	70	44	114
35	19	26	45	28	24	52
36	21	32	53	24	28	52

VITA §

Mary Louise Blevins

Candidate for the Degree of

Doctor of Education

Thesis: A COMPARATIVE STUDY OF THREE METHODS OF INSTRUCTION IN VOCABULARY ON ACHIEVEMENT OF STUDENTS IN THE ADULT INSTITUTE

Major Field: Elementary Education

Biographical:

Personal Data: Born in Chandler, Oklahoma, October 19, 1923, the daughter of Edward Everett and Stella Lee Burget.

Education: Attended grade school and high school in Dewey, Oklahoma; graduated from Dewey High School in 1941; received the Bachelor of Arts degree from Central State College, Edmond, Oklahoma, in June 1949; received the Master of Education degree from the University of Oklahoma, Norman, Oklahoma, in June of 1954, with a major in Elementary Education and a minor in psychology; completed requirements for the Doctor of Education degree in Elementary Education and Reading at Oklahoma State University in May 1970.

Professional Experience: Graduate Assistant (Supervisor and teacher of student teachers), Elementary Education Department at Oklahoma State University, 1968-1969; Teacher Coordinator, Northwest Classen High School, Oklahoma City, 1965-1968; Reading Consultant, Oklahoma City Public School System, 1959-1965; Reading Clinician, Dyslexia Clinic, University Hospital, Oklahoma City, 1959-1962; Consultant and Clinician dual position for three-year federal grant period. Reading Clinician, Central State College, Edmond, Oklahoma, summer, 1959; Reading Instructor, Oklahoma State University, NDEA Institutes, summers of 1963 and 1965; Elementary Special Education, Harrison Elementary, Oklahoma City, 1956-1958; Elementary Special Education, Mark Twain, Oklahoma City, 1955-1956; Reading Teacher and Assistant Principal, Crooked Oak Elementary, Oklahoma City, 1952-1955; Aircorp Cadet Teacher, Central State College, Edmond, Oklahoma, 1951-1952; Crooked Oak High School Business Teacher, Oklahoma City, Oklahoma, 1950-1951; Social Studies and Home Economics Teacher, Boistfort High School, Boistfort, Washington, 1949-1950.

Professional Organizations: International Reading Council, Oklahoma Reading Council, Guthrie Reading Council, Council for Exceptional Children, National Education Association, Oklahoma Education Association.