THE EFFECT OF SELECTED SHORTHAND TRANSCRIPTION DRILLS UPON TRANSCRIPTION SKILL DEVELOPMENT

DISSERTATION

Presented to the Graduate Council of the North Texas State University in Partial Fulfillment of the Requirements

For the Degree of

DOCTOR OF EDUCATION

By

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Denton, Texas
December, 1976

This study was an experimental design, using twenty-two variables, twelve covariates, and six criterion measures. The purpose of the study was the effect of the use of selected transcription drills in beginning shorthand on the ability of students to produce both typewritten copy and mailable letters from shorthand notes. The bases for comparison were five-minute timed transcription tests, three-minute dictation tests, and thirty-minute mailable letter production tests, of both previewed and unpreviewed material.

One hundred and seventy-nine first-year shorthand students from eleven high schools in Fort Worth, Texas, participated in this study during the school year of 1973-1974. The classes were selected for the experimental or control groups on the socio-economic status of the schools in which they were located.

Students in the experimental group used transcription drills from the beginning of the first trimester of shorthand and were introduced to typewritten transcription the second week of the fall trimester. These students were taught transcription skills by intensive use of transcription drills. Students in the control group were never formally taught transcription, used no drills, and were taught in a traditional
manner except that typewritten transcription was introduced the sixth week of the fall trimester.

Students using selected drills transcribed previewed material transcription tests at speeds higher than students not using drills. The level of significance was .04. There were no significant differences on transcription tests of unpreviewed material. There were no significant differences in the experimental and control groups for accuracy scores on either previewed or unpreviewed material for the transcription tests.

Students in the experimental group achieved an Index of Success score higher than that for students in the control group on three-minute dictation tests for both previewed and unpreviewed material. The F value of 2.71 on previewed material was not significant at the .05 level; however, the F value of 20.34 on unpreviewed material was significant beyond the .01 level.

A total of 374 (61.82 percent) three-minute dictation tests were passed by the experimental group and a total of 231 (38.18 percent) were passed by the control group. Of the experimental group 89.01 percent, and 77.27 percent of the control group, passed at least one three-minute test.

Students in the experimental group achieved an Index of Success score higher than that for students in the control group on thirty-minute mailable letter production tests for both previewed and unpreviewed material. The F value of
15.73 on previewed material was highly significant beyond the .01 level of significance and the F value of 10.61 on unpreviewed material was also highly significant beyond the .01 level of significance.

A total of 760 (69.41 percent) mailable letters were passed by the experimental group and a total of 335 (30.59 percent) were passed by the control group. Of the experimental group 77 percent, and 61 percent of the control group, passed at least one mailable letter.
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CHAPTER I

INTRODUCTION

While the demand for competent stenographers and secretaries is great, there is a critical shortage of people prepared for these positions. A look at the classified advertisement sections of large metropolitan newspapers in this country offers further evidence of this need. Figures compiled by the U. S. Department of Labor (9, p. 16) show clerical workers to be the largest group of workers. Over sixteen million clerical workers will be required to replace those who leave and those additional workers needed between 1974-1985 (9, p. 18). Of the categories of clerical workers listed by the U. S. Department of Labor, the category for which there is the greatest demand is the stenographic and secretarial (9, p. 81). The number of estimated annual openings for stenographers and secretaries from 1974 until 1985 is 439,000, the largest number of yearly job openings for any category of workers (10, p. 9).

The enrollment in shorthand courses has been declining in secondary schools throughout the nation. When first-year shorthand class enrollment declines, so does second-year enrollment. It takes three or four first-year classes to make one class of twenty-five to thirty second-year students. In
the state of Texas, the problem has been compounded by the tendency to offer only one year of shorthand instruction. This is illustrated by Texas Education Agency figures for the school year 1973-74, showing a total enrollment of 19,613 students in first-year shorthand classes and only 1,559 students in the second-year shorthand program, a decrease of over 92 percent. This decline is alarming in view of the report by the Department of Labor indicating that 71 percent of all stenographic and secretarial personnel completed their stenographic and secretarial training at the high school level in 1972 (8, p. 35).

To effectively serve the needs of the business community and of the many young people who will enter this field of employment, new ways must be devised to obtain a marketable skill with only one year of shorthand instruction. Most schools offer very little typewritten transcription in the first year of shorthand; those who do offer transcription spend little time in formal teaching of procedures and techniques. Students enrolling for only one year of shorthand might have a marketable skill if the emphasis upon development of transcription skills, normally delayed until the second year of a high school shorthand program, could be introduced in the one-year program. In this way, the critical shortage of workers could be eased. In addition, members of the work force, of which women comprise 40 percent, would have a better opportunity to secure one of the many jobs available.
Statement of the Problem

The problem of this study was the effect of selected transcription drills in beginning shorthand on production of typewritten copy and mailable letters.

Purposes of the Study

The specific purposes of the study were to determine the impact of selected transcription drills in shorthand on

1. Student's transcription rate on timed transcription tests;
2. Student's accuracy on timed transcription tests;
3. Student's transcription rate on mailable letter transcription production tests;
4. Student's accuracy on timed mailable letter production tests;
5. Student's dictation speed on three-minute dictation tests and speed and accuracy in transcription;
6. Student's dictation recording speed on mailable letter transcription tests.

Hypotheses

To carry out the purposes of this study the following hypotheses have been formulated.
1a. Students using selected transcription drills would achieve significantly higher adjusted mean transcription rates on timed transcription tests of previewed material than would students not using such drills.

1b. Students using selected transcription drills would achieve significantly higher adjusted mean transcription rates on timed transcription tests of unpreviewed material than students not using such drills.

2a. Students using selected transcription drills would achieve significantly higher adjusted levels of accuracy on timed transcription tests of previewed material than students not using such drills.

2b. Students using selected transcription drills would achieve significantly higher adjusted levels of accuracy on timed transcription tests of unpreviewed material than students not using such drills.

3a. Students using selected transcription drills would be able to record previewed dictation tests at rates equivalent to those attained by students not using such drills.

3b. Students using selected transcription drills would be able to record unpreviewed dictation tests at rates equivalent to those attained by students not using such drills.

4a. Students using selected transcription drills would achieve significantly higher and more accurate transcription rates, recorded at higher speeds, on previewed mailable letter
production tests, as measured by an Index of Success score, than students not using such drills.

4b. Students using selected transcription drills would achieve significantly higher and more accurate transcription rates, recorded at higher speeds, on unpreviewed mailable letter production tests, as recorded by an Index of Success score, than students not using such drills.

Background and Significance of the Study

Shorthand transcription has customarily been delayed until the second year of shorthand training. However, as the enrollment has declined, there are fewer and fewer classes of first-year shorthand; and since it normally takes three or four classes of beginning shorthand to make one advanced class, second-year shorthand is not offered, even though there still remains a great demand for stenographers. In addition, few schools have had typewriters available for typewritten transcription for the first-year shorthand.

Much of the literature presents suggestions and methods for teaching transcription in the second year. The literature includes the use of various drills to aid in teaching transcription, but no study has tested the validity of the use of these drills in first or second-year shorthand. If the entire process of shorthand and transcription could be speeded up to include training in transcription and if
selected drills could enhance this process, then such a one-year high school shorthand program could better prepare young people to enter the world of work than does the traditional one-year program. This would in turn ease the shortage of stenographers and secretaries.

Since the vast majority of students in Texas do not take a second year of shorthand instruction, it becomes necessary that typewritten transcription be introduced in the first year of shorthand. The following statement by Cochran gives two reasons:

> Early transcription makes it possible for the student with only two semesters of shorthand to be better prepared to find and to hold a job. Early transcription also enables the student who takes advanced training in stenography to progress at a more rapid rate (2, p. 20).

Jester in his time study of the shorthand transcription process, made the following recommendation:

> Now that the process of transcription has been clearly depicted, the question of effective methods to be used in achieving these results appears. Therefore, one or more experimental studies on methods of teaching transcription are clearly indicated as the result of this study (5, p. 122).

Since no research was found validating the use of transcription drills to improve the transcription process, the information gained could be valuable for shorthand teachers, business teachers, educators, and authors. A teacher's decision to use selected transcription drills should be based
on the findings of research, rather than solely upon the opinions of authors and publishers (1, p. 98).

Anderson says that the entire area of transcription is rich in opportunities for informal classroom research. She states that much has been written on the teaching of transcription, but little follow-up research has actually been carried out in classroom situations (3, p. 131-132).

Hampton conducted a study to determine the most effective time to introduce typewritten transcription in first-year shorthand classes. He used a number of drills to introduce typewritten transcription at various points, but no analysis was made of the effect of the drills on the end product. One of his recommendations to be considered by future researchers was

Teachers should have no hesitation about introducing typewritten transcription drills early in the first-year shorthand class since it appears that achievement in theory knowledge, transcription rate, and dictation speed is not adversely affected by the introduction of typewritten transcription drills early in the first-year shorthand class (4, p. 146).

Hampton further states that an additional study should be conducted replicating his study in which "achievement in mailable letter production would be tested as well as achievement in shorthand theory knowledge, transcription rate, and dictation speed" (4, p. 148).
A study was conducted by Jester (6) to identify and analyze the many activities involved in the shorthand transcription process. Jester found that the non-typing activities of transcription consumed more of the total time than the transcription process. He also found a significant positive correlation of .677 between straight copy typing rate and typing rate in transcription, with the slower typists being the slower transcribers (6, p. 33). Jester says, "Transcription training must include more than drill in typing from shorthand notes" (6, p. 38).

Rankin found that "the trend toward deferred introduction of transcription continued until the late 1950's when several specialists advocated an accelerated beginning shorthand course with typewritten transcription during the first semester" (7, p. 366). She further stated that "the procedures recommended by authors and publishers of shorthand-transcription materials have not, in many instances, been based upon valid research." In her conclusions she asked these questions:

What is the difference in transcription rate by the class which has had intensive drill in transcription from shorthand plate material and the class in which all transcription time has been devoted to transcription of the students' own notes?

What is the optimum time to begin transcription at the typewriter?

Since most schools in Texas offer only one year of shorthand and few students in such programs attain a vocational level skill, it is obvious that some changes in teaching methodology need to be introduced. Otherwise, as has been pointed out by Anderson (1, p. 110), there is little justification in continuing to offer a limited, one-year shorthand program which fails to meet the requirements of the business world.

These statements by researchers would seem to indicate that there is a need for improving methodology based on sound evidence of research and for improving the end product of one year of shorthand instruction.

Definition of Terms

The terms used in this study will be defined as follows.

Transcription is the process of converting shorthand notes into typewritten material.

Shorthand Laboratory is a room equipped electronically with listening stations, audio headsets, a console, and multiple tapes.

A Selectric Typewriter is a style of machine in which the typing device is a single element rather than typebars.

The Index of Success is derived by adding together the score for three-minute dictation tests and the score for mailable letter production tests. The score for each of
these is obtained by multiplying the number of times passed by the speed and dividing by ten.

Production Tests are given for a timed interval of thirty minutes; during this time students transcribe dictated shorthand notes into mailable copy.

Transcription Speed Tests are given for a timed interval of five minutes in which students transcribe from shorthand plate material, from their own shorthand notes written for homework, or from their own shorthand notes written from dictated material.

Trimester Plan is one in which students attend class for eighty minutes a day, five days a week, approximately sixty days or twelve weeks of instruction, and complete a semester's work.

Basic Assumptions

It is assumed that students in the experimental and control classes will have had similar skills in the application of English usage.

Collection and Analysis of the Data

Permission was granted by the Research Department of the Fort Worth Public Schools to conduct the study in the twelve high schools of the district. The six high schools in which special transcription drills were conducted in shorthand classes were designated as experimental classes. The schools
in which these classes and the control classes were located were matched on the basis of socio-economic status of the schools as designated by the Research Department of the school system (see Appendix E).

Control classes were taught in the traditional manner of teaching shorthand, except that these students started transcription at the typewriter on Monday of the sixth week of school.

The experimental group was given speed transcription tests from their textbook for practice from the first class day of the second week of school. During the next six weeks, additional five-minute transcription tests were given from shorthand notes from their textbook for ten to fifteen minutes a day. After this period of time, new material was introduced by the teacher and students transcribed in letter style, correcting all errors, and other lessons were continued. After the winter trimester began and for the remainder of that trimester, additional drills were conducted in the experimental classes. During the sixth week of the fall trimester of this study, all students in both experimental and control groups were given a five-minute timed writing and a five-minute transcription speed test from shorthand plate material.

The experimental and control groups were compared on English grades, typewriting grades, number of semesters of English, number of semesters of typewriting, and whether
students were concurrently taking these subjects. Analysis of covariance was utilized as a statistical technique because intact groups were used. The means of the experimental and control groups were computed for each criterion and a Fisher's t test was used to determine whether there was a significant difference in the means.

An analysis was made of the relationships of students' scores on the five-minute transcription speed tests and on the five-minute straight copy typewriting tests with the above variables. After the transcription drills were administered to the experimental group, transcription speed tests, three-minute dictation tests, and production tests graded on a mailable letter basis were administered to both groups during the last seven weeks of the second trimester. Comparison of changes beyond those attributable to initial differences were determined through the analysis of variance procedure.
CHAPTER BIBLIOGRAPHY


CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

The related literature for this study is grouped under three categories: (1) the importance of shorthand, (2) the method of introducing typewritten transcription, and (3) related research.

The Importance of Shorthand

There are an estimated 237,000 annual openings for stenographers and secretaries; this figure is higher than for any other job category (2, p. 21). At a time when secretaries represent a total of 2,922,000 members of the work force and women hold 99 percent of the stenographic and secretarial positions, there is a trend toward reduced enrollments in shorthand at the high school level (12, p. 69). Anderson says that "to add to the problem of a shortage of workers is the trend of many high schools to offer only one year of shorthand" (4, p. 158). Tonne also mentions this as an evolving trend:

The fact that most students in high school take only one year of shorthand should have a significant influence on shorthand theory. Most teachers of shorthand question whether adequate mastery of the basic skill can be developed in that length of time. Even if it can be, this brief period of learning leaves little or no time for attaining skill in transcription which most teachers recognize as vitally necessary to job preparation (40, p. 12).
In addition, Pullis feels the problem of an inadequate supply of workers is intensified by the fact that a second year of shorthand is taken by less than 40 percent of the first-year enrollment and is offered in only half as many schools. In one-fourth of the states, less than 20 percent of the students who complete the first-year course enroll in second-year shorthand (30, p. 70).

Enrollment figures for New York State showed a total of 20,000 students completing two years of shorthand study in 1965; these figures declined to 15,000 for 1971. In the city of New York, where the demand for secretaries and stenographers is critical, the enrollment in first-year shorthand was 14,651 students in 1969 and 12,147 for 1970. At the same time that the shorthand enrollment in New York declines, the demand for secretaries increases. In 1968, 2,500,000 persons were employed in this occupation; and by 1970, the need was expected to be 2,833,000 (35, p. 30).

Rose and Senter conducted a study on shorthand users with data obtained from the Sunday edition of eighty-two newspapers representing forty-five states and the District of Columbia. The major purposes of the study were to determine (1) the employment opportunities for shorthand writers, (2) the types of jobs open to shorthand writers, (3) the level of jobs open to shorthand writers, (4) shorthand requirements for job entry, (5) educational requirements for job entry,
opportunities in various areas of business, and (7) the salary of shorthand writers.

Major findings and conclusions were

(1) The number of jobs for shorthand writers is large, and the opportunities for employment are great; (2) jobs include full-time, part-time, and temporary work, and range from the executive secretarial level to general office work; (3) shorthand is a job requirement at all secretarial levels; (4) most businesses require a shorthand speed of eighty words a minute for beginning employment; (5) most businesses do not specify an educational level for entry into secretarial jobs; (6) most secretarial jobs are in the "business and finance" area, but many secretarial jobs are open in "legal," "medical," and other areas; and (7) most beginning shorthand writers can expect to earn from $420 to $500 a month at initial employment (35, p. 6).

One method of combating this problem may be to develop an entry-level shorthand and transcription skill during the first year of shorthand instruction. One method suggested by much of the literature in the field of business education and by authors of teaching methods books is to introduce shorthand transcription at an earlier stage, thus condensing instruction and having students emerge from a one-year program with a marketable skill. While this method has been suggested, few research studies have been conducted to test the validity of this project, other than the ones by Brent (10), Hampton (18), and Hauppa (19).

Liles feels it is likely that more of the accepted principles of teaching methodology exist without sound research in the field of shorthand than in any other business subject (29, p. 52). Anderson also states that much has been written
about teaching transcription but that little follow-up research has actually been carried out in classroom situations. She asks questions that are provocative in their implications:

What procedures build transcription skill most rapidly? At what point should transcription be introduced? Should we wait until the third semester as is frequently recommended to introduce typed transcripts? If we do, what is to happen to the pupil who takes shorthand for only one year? What procedures should be followed by the small high schools which offer only one year of shorthand? At least one authority has said it is impossible to build satisfactory shorthand and transcription skills in one year. If that is the case, what justification is there for the one-year programs now being offered in many states? Or have the teachers in these schools developed teaching techniques which should be shared with others?

How much transcription skill does a pupil build by typing from shorthand plate material? How much time is needed to build sound transcription techniques through the use of such material? Does extensive use of plate material for transcription build a higher transcription rate when this skill is transferred to the transcription of the pupil's own shorthand notes? How much carry-over can be expected? How much improvement in transcription rate can be attained through practice on typing from print material? Should this type of drill be included in the shorthand course, or should teachers expect that sufficient skill should have been built in typewriting classes to make this unnecessary? How valuable in building skill are the transcription exercises which drill on repetitive typing from shorthand outlines, one-minute speed-building practices, and the like? How much difference would there be in transcription rate at the end of the semester in a class in which such drills were used extensively and in another class in which all available time was devoted to transcription of the students' own shorthand notes? (5, p. 131, 132).

Pullis also states that a great deal of shorthand research activity may have been undertaken in the past few years because so much teaching methodology has been largely dictated
by authors of shorthand material who were guided by personal opinions rather than by research (30, p. ii).

Method of Introducing Typewritten Transcription

Anderson says that many schools continue to offer only one year of shorthand even though one-year students do not acquire enough skill in taking dictation or in transcribing to be vocationally competent. She adds that recent research studies showed that only 19 percent of the students at the end of a one-year shorthand program could transcribe a mail-able letter. Research emphasizes the importance of teaching correct techniques of transcription (3, p. 92).

Liles points out two prevailing fallacies concerning the teaching of transcription: (1) that one semester of transcription is enough, and (2) that longhand transcription is a good substitute for transcription at the typewriter. He also believes that transcription should be introduced during several lessons (29, p. 52).

Leslie gives the opinion that

The teaching of transcription is one of the newer branches of commercial education. Until very recent years, no one even thought of teaching transcription. Even yet, little has been done to give transcription the same definite place in the curriculum that is given to shorthand or typewriting. Possibly because transcription is a composite skill, it is not so easily reduced to a teaching routine as the other subjects in the curriculum (27, p. 75).
Pullis says,

Shorthand teachers recognize that without the development of transcription ability the knowledge of a shorthand system is of minimal value, since the extent to which shorthand writers utilize shorthand for personal note-taking and letter-writing can scarcely justify the time and effort required to master the subject for personal use (31, p. 70).

In addition, Pullis believes that when transcription is deferred, shorthand teachers must never assume that students will achieve this skill on their own; transcription must always be taught. An additional statement sums up his viewpoint:

Since the majority of high school students will complete only one year of shorthand instruction, the ability to record dictation in the first-year course must not become an end in itself. The ultimate value of the shorthand program will certainly depend upon the extent to which students are capable of producing acceptable typewritten copy from shorthand notes recorded at reasonable rates. Effort must, therefore, be made to achieve a realistic balance between the development of recording and transcribing skills, for in truth, shorthand has not been taught if the student cannot transcribe (31, p. 94).

Anderson corroborates Pullis' statements with: "It is true that research has shown students can learn shorthand outlines in one year, but they do not acquire sufficient skill in taking dictation or in transcribing to be vocationally proficient" (3, p. 92). She says that "without the second year of shorthand, most students will not acquire marketable skills unless transcription can be intensified and improved in the one-year course" (6, p. 158).
Leslie in his methods book assumes an ideal teaching situation for transcription; a double period—one for advanced shorthand and one for transcription for students who have completed one year of shorthand with no typewritten transcription. Under such circumstances, he believes "there is no arbitrary point at which typewritten transcription must be begun. The longer it is deferred, however, the better the results will be" (25, pp. 235-238). This ideal plan can seldom be utilized because shorthand is offered for a single period.

Leslie makes several suggestions for the introduction of transcription. First, students should progress by short steps for rapid and easy progress and should be successful in undertaking each step. A few timed writings can help to determine the levels of straight-copy typewriting speed and accuracy. It is usually helpful to have the learners copy a few letter styles from a textbook to determine their present skill level. This introduction should be brief; there is sound psychological value in building the learner's confidence by enabling him to use the right techniques of transcription from the first (25, p. 237).

The method Leslie describes for this purpose is to turn to a letter from homework practice and have the class read it together. Then he has one or two students read it individually and call attention to any problems. Then he has them set up the typewriters by the teacher's directions, omitting inside
address and starting with a salutation such as "Dear Sir."
Then Leslie recommends for this and the next ten class periods, students may circle errors but not erase. He has the teacher continue to give margin stops for the first few days, but the students start with correct letter style from the beginning. Leslie then recommends students transcribe the letter at their own rate several times and then type a timed transcription. From this, students gradually progress to more difficult material (25).

Leslie says that "care should be exercised to be sure that the learner is not introduced to transcription before he is quite ready for it" (26, p. 26).

Reynolds believes that gradual introduction to the transcription process should begin with the transcription of shorthand plates of dependable legibility which the learner has been taught to read for transcription. This gives the student familiarity with the material and a basis for comparing transcription rates with rates for typewriting from straight copy (34, p. 13).

Wanous and Whitmore give a number of suggestions for easy introduction of transcription, such as having students read shorthand for transcription in thought units and giving drills such as call-the-throw and short one-, two-, and three-minute drills to develop quick responses. Thought-typing drills and fifteen-second drills in which students try to type the line
several times are also useful. Another useful device is comparison typing: students type the copy as a regular timed writing; then type the same copy from shorthand notes and compare their rates (41).

Lamb gives a number of drills for use in teaching transcription, including thought-typing drills as outlined by Balsley (Whitmore), call-the-throw drills, and comparison tests. Another drill recommended by Lamb is a transcription drill in which students are required to transcribe from three to five minutes, keeping their eyes on their shorthand notes and keeping the carriage moving (23, p. 109).

Reed gives several basic psychological principles of skill building as they pertain to shorthand transcription methods:

Tie the new learning in with something familiar. Be as simple as possible at the beginning, and then proceed to the more complex. Be fun--interesting--but at the same time, challenging and stimulating. Provide variety in such a way that new practices contain many of the components of the previous ones. Make the student feel successful--that he is progressing with each step (33, p. 13).

Reed advocates the use of a number of devices to be used to stimulate transcription training, such as one-minute timed writings of simple sentences, one-minute timed writings of sentences with punctuation and spelling problems, calling-the-throw transcription drills, reach-a-goal paragraphs, and checking the transcription rate on new-matter dictation with straight copy typing (33).
Lee expresses her opinion that typewritten transcription must be taught carefully and thoroughly and that a specific portion of class time should be spent on the development of this skill. She recommends a variety of short, repetitive drills similar to those used in the typewriting class to help students develop transcription skills. An example of this would be thirty-second or one-minute drills on both repetitive sentence material and paragraph material. While doing drill work, students should use a fifty-space line, typing ten words a line, to facilitate the computation of rates of transcription. Some effective drills, she believes, are a simple sentence repetitive drill, sentences with punctuation and number emphasis, goal-setting drills, and transcription rate drills. Additionally, she gives these reasons for early typewritten transcription:

1. When typewritten transcription is introduced during the early stages of shorthand learning, the transcription skill is likely to be more highly developed than if it were delayed to the second semester or second year.

2. The fact that only about one-third of the beginning shorthand students enroll in a second-year course requires the development of transcription skill to a fairly high degree of proficiency during the first year of instruction (24, pp. 7-9).

Featheringham and Wheeler, also proponents of transcription training, express the opinion that the teacher's "primary function is to encourage students to strive for the production
of a mailable transcript as the end result of the transcription process" (14, p. 18). Methods suggested by them include the instruction of the students to transcribe from familiar shorthand plate material and, after the mastery of this phase, to transcribe from easy material of their own notes which are copied from previously assigned shorthand plates. In the third stage, the students transcribe from notes which are dictated from familiar material. Finally, and probably halfway through the course, the students transcribe from notes which have been dictated from unfamiliar material. The difficulty of the material is increased gradually throughout the remainder of the course (14, p. 19).

Leslie and Zoubek feel that it is necessary for a beginner to have an opportunity to develop correct techniques of transcribing before the pressure of results forces him into incorrect techniques. This would seem to indicate a need to introduce transcription in simple stages. They recommend that a student progress by short, easy steps in which he feels successful. Recommended procedures include the giving of pretests in the form of straight-copy typewriting tests, shorthand dictation tests, and the typing of form letters. They give three steps in the introduction to transcription.

1. Transcribe very easy material that will require few setup problems.

2. Transcribe from the student's own shorthand notes.
3. Transcribe from dictated material two short, simple business letters. Students should use letterheads from almost the first day of transcription (28, pp. 26-27).

In their methods book, Dry and Dry state that in some schools typewriters are available from the beginning; whereas in others, typewriters are not available until the transcription course begins. They prefer typewritten transcripts from the beginning. They also recommend that the class read the letters in concert before transcribing from the shorthand textbook. The second stage of transcription, according to Dry and Dry, is for students to transcribe from their own low-speed, controlled shorthand notes, first in simple paragraph style and later in letter style. Then the next stage is from high-speed notes. They further say "the desired end result of all shorthand teaching is production of mailable transcripts. If a transcript is not mailable or usable, it is worthless to an employer, or to anyone else" (13, p. 144).

Douglas, Blanford, and Anderson recommend that students be introduced to machine transcription through the transcription of "shorthand plates that the students have been assigned to read and write previously for homework practice." While in this period, "emphasis should be placed on reading in thought units, keeping the eyes on the shorthand notes, and typing smoothly as the shorthand notes are being read" (11, p. 193). They give the second stage of transcription as the transcription of notes written from homework practice, the third stage
as the transcription of practiced dictation material, the fourth as transcription of new-matter dictation of short business letters, and the fifth stage as the transcription of new-matter dictation of medium-length letters. The additional suggestion is made that the teacher move through these stages rather quickly in a one-year program so that as much time as possible can be given to transcription of the student's own notes.

In this same text, the authors give a number of special transcription drills that are especially valuable for introducing transcription and for increasing transcription speed and accuracy.

1. Transcribing in thought units. The material to be transcribed is marked in thought units with dotted or colored lines, and the students are instructed to read and transcribe in thought units, keeping the carriage moving at all times.

2. Comparison of typing and transcription rates. The first day in transcription, the students may be given a five-minute timing on some straight copy material to determine their typing rates. They may next be given a five-minute timing on the same material written in shorthand. The transcription rate on straight copy is then compared with the typing rate.

3. A drill emphasizing the importance of accurate typing. The teacher may use a straight-copy drill to compare the typing and transcription rates of the students when they are required to correct all their errors. The drill is then repeated, the objective being to reduce the time required to correct errors.

4. Comparison of typing and transcription rates on letter copy.
5. Transcription of the same letter from shorthand notes two or three times to increase the students' transcription rate.

6. Drill on typing from shorthand outlines written on the board selected from words and phrases appearing in the letter to be transcribed.

7. A preview of the difficult shorthand outlines in the letters to be dictated for transcription.

8. Dual-purpose sentence drills.
   a. Six weeks before introducing letter transcription, the students transcribe a sentence in shorthand from the text for one-half minute. They repeat the drill several times, their objective being to increase the number of times they transcribe the sentence within the time allowance.
   b. Two to four weeks before introducing letter transcription, the teacher dictates a sentence to the students which they record in shorthand. The students' objective is to increase the number of transcripts of the sentence in each one-half minute timing.
   c. When most of the students have increased their transcription rate, the teacher may change from a speed to an accuracy objective on the one-half minute timings. The students should try to reduce their errors to not more than one error in a half-minute.

   a. The students transcribe a paragraph from a shorthand plate for one minute. They repeat the drill several times, their objective being to increase the amount of transcribed material on each timing.
   b. When students have increased the amount transcribed by at least one line of typing, they take another one-minute timing on the paragraph, this time typing for accuracy. The drill is continued until most of the students are making not more than one error a minute.
10. Transcription power drive. This drill is designed to improve both speed and accuracy in transcription.

11. Eyes on copy. The students are timed to see how long they can transcribe a paragraph or sentence drill, keeping their eyes on the copy.

12. Manipulation drills. The students transcribe a series of sentences requiring a sixty-space line, but with their machines set for a fifty-space line. They must use the margin release to complete each sentence but are to concentrate on doing so without looking up from their shorthand notes.

13. Pacing the transcription rate. The teacher dictates a letter which the students are to transcribe. He then dictates the same material again on tape two or three times, gradually increasing the rates, such as at twenty-five, thirty, and thirty-five words a minute. The students listen to the dictation on the tapes while transcribing the letter from their shorthand notes. The objective is to transcribe the letter each time as rapidly as the material is dictated on the tape. This procedure stresses fluency in transcription and emphasizes the importance of developing a rhythmic pattern in transcription (11, pp. 202-203).

Grubbs suggests that teaching students how to transcribe is easy if the teacher follows these transcription-typing steps.

First, use familiar plate material to initiate and cement correct transcription-typing habits. Second, use unfamiliar plate material to continue the development of correct typing habits and to introduce limited decision-making situations. Third, use self-written notes of previously practiced material to accustom your students to typing from their own shorthand notes. Fourth, use self-written notes of new-matter material that is related to materials practiced as homework to help your students become accustomed to making a variety of transcription decisions while typing from their own notes (16, p. 25). He also gives a five-week calendar for a transcription-typing approach designed for the third semester of shorthand, in
which transcription is customarily introduced. In this calendar, five periods are allowed for transcribing easy plate material assigned for homework. The next five lessons are also from plate materials, but students have written different lessons for homework. The third step is one week of transcription of self-written notes dictated from homework written the night before. The final step is the transcription of self-written notes dictated from material related to that written for homework.

Grubbs also believes that all typing in transcription class should be from shorthand copy. He states that students benefit from the same type of drills used in typewriting classes and identifies some of those as the variable-line writing, which gives the same psychological advantage as guided or paced typewriting, but does not require previously counted material; hence it may be used with students' self-written notes. Another drill Grubbs recommends is the scribble typing drill in which students retype over the lines they have typed from shorthand notes and try on one-minute timings to type further each time (16, p. 27).

Balsley believes the purpose of transcribing from plates is that, by controlling the difficulty of the transcription process, the teacher can maximize the learning of her students and give them a sense of growth. By giving them a familiar setting—seventy-space line, double spacing, five-space
indentation, and not correcting typing errors--they can focus their efforts on new activity. In addition to giving single purpose drills such as vocabulary drills, she also gives technique drills such as stroking and operating special keys where needed (9, p. 206).

Russon, who is very much in agreement with those advocating early introduction to transcription, states, "My philosophy is to begin simple transcription at the end of the fourth week of the first semester" (36, pp. 34, 36). She believes in this even if students are still in first-year typewriting. She thinks that transcription skill does not grow by itself, but must be taught, and that this "important skill" should be started in the first semester and developed consistently through the entire shorthand course. She believes that first semester students should transcribe their three-minute takes with margins set for a fifty-space line, a made-up inside address, the teacher's name as the typed signature, and one letter style, such as modified block. During the second semester, her goal is to perfect the students' transcription skills to the point where they can produce four mailable letters in thirty minutes, dictated at sixty words a minute. Russon believes that in schools offering only one year of shorthand instruction, efforts must be redoubled to meet these standards. She also believes that if typewriters are available the first semester, then she
would introduce students in one day to setting up the transcript in letter form, reading in thought phrases, keeping the typewriter moving at an even rate, using the dictionary, proofreading, and correcting errors (36).

Procedures for beginning transcription in the second-year class are given by Allen.

The student should next progress to transcribing from a short, simple plate. The letter should be first read and reread in class with the spelling and punctuation being thoroughly discussed until every student is familiar with the letter. The setup should be given and the time allowed for transcription should be long enough for the slowest student to complete the letter. Additional practice should be provided for the fastest pupils.

After the pupils have gained confidence, they may continue to transcribe from the shorthand copy. That is, the student reads and copies from the text for homework; then, without further help transcribes the same letters the next day in class from homework.

After success has been attained with practiced materials, new material may be dictated to the class. The letters should be short and simple and should be dictated at an easy rate. The teacher should liberally preview new and difficult words on the blackboard (1, p. 195).

New material should gradually become longer and increasingly difficult.

Related Research

Pullis has compiled a monograph outlining various research studies illustrating various points of methodology in the shorthand field. Although none of these studies bear a direct relationship to the introduction of transcription, he makes a number of observations, one of which is:
The past decade has seen a marked increase in shorthand research, research designed primarily to determine whether certain widely propounded teaching methodologies are pedagogically sound. Perhaps this has resulted from the fact that a higher percentage of students fail shorthand than any other subject in public secondary schools. On the other hand, such research activity may have been undertaken because teaching methodology in shorthand has been largely dictated by authors of shorthand learning materials who are guided by personal opinion rather than by classroom experience and controlled research (30, p. ii).

After discussing the failure rate of shorthand students, Pullis (30) continues, "Such statistics have caused many instructors to wonder whether serious questions should not be posed concerning currently promoted methods and materials for teaching shorthand" (30, p. ii). Pullis concludes his monograph with a discussion of considerations in teaching transcription such as, for optimum results, not beginning formal transcription any sooner than necessary (30, p. 69).

Anderson says,

For the past thirty-five years, shorthand teachers have tended to base their teaching practices upon recommendations presented in the teacher's manuals accompanying the shorthand texts, deviating from these suggestions slightly as they found other techniques they preferred or which they felt secured better results. Unfortunately, teachers have all too often taken for granted that any statements about methodology appearing in print must be based on scientific evidence, when as a matter of fact, they have ordinarily been based on nothing other than opinions and beliefs (4, p. 98).

Rankin, in an analysis of all shorthand and transcription research done from 1900-1960, also found that "the procedures recommended by authors and publishers of shorthand-
transcription materials have not, in many instances, been based upon valid research" (32, p. 445).

In a discussion of the research compiled on the National Business Entrance Tests in shorthand for 1953, Frink stated that 54 percent of the high school students and 35 percent of the college students failed the stenographic tests, which were dictated at eighty words a minute. She further noted that students' ability to transcribe a mailable letter dictated at 60 words a minute ranged from 11 to 20 percent after one year of shorthand instruction. She believes that the situation is further intensified by the fact that vocational use is the primary ultimate purpose for which the majority of all students enroll in shorthand and that no further stenographic instruction is received by the majority of the graduates (15, pp. 13-14).

Anderson and Bright conducted a research study in the state of Texas in 1949 including 1,088 first-year shorthand students and 1,131 students in 1951. In 1949, they found 11.70 percent passed one mailable letter at 40 words a minute, 19.59 percent at 50, 12.20 percent at 60, 23.01 percent at 70, and 26.44 percent at 80. In 1951, they found 7.55 percent passed a mailable letter at 40 words a minute, 10.58 percent at 50, 4.78 percent at 60, 7.26 percent at 70, and 16.80 percent at 80 (7, pp. 117-120).

Balsley conducted a study to determine the actual transcription practices in offices. The selected practices upon which she reported were limited to 332 firms and no attempt
was made to select a random sample of business firms throughout the United States. The study was a report of certain kinds of commonly used transcription practices in the 332 business firms (8).

Thomas developed a transcription study, the major purpose of which was the development of a criterion for the measurement of shorthand transcription production. He compiled a list of leading writers in this field, and forty-six experts were asked to submit names of the ten most-noted authorities. From these names he chose twenty-three ranking authorities, invited them to participate, and submitted to them a questionnaire with criteria for the measurement of shorthand transcription. However, nothing was included in his study regarding methods of teaching transcription (39).

Gryder, in a study somewhat related to that of Thomas, obtained from selected groups of business educators and specialists in transcription their opinions and their degree of agreement or disagreement on selected issues in the teaching of transcription at the secondary level. In his suggestions for further research, he recommends that

> According to the findings of this study, the urgent need for additional research in typewriter transcription is evident. Research pertaining to the contribution of typewritten transcription in the secondary school curriculum should receive greater study in view of the current trend toward increased emphasis on vocational education on the secondary school level (17, p. 190).
One additional suggestion Gryder made was that "comprehensive studies to differentiate the achievement in schools offering one year of shorthand with those offering two years of shorthand would be extremely meaningful in curriculum construction" (17, p. 190).

Jester conducted a study to identify and analyze the many activities involved in the shorthand transcription process. He found that the non-typing activities of transcription consumed more of the total time than the transcription process. Jester says that "transcription training must include more than drill in typing from shorthand notes" (20, p. 38).

The study most closely related to the teaching of transcription drills is that of Hampton in which he varied the time at which typewritten transcription was introduced in first and second semester shorthand. Although he used various drills to introduce typewritten transcription at these points, no analysis was made of the effect of the drills on the end product. His conclusions were that the time at which typewritten transcription was introduced has no effect on shorthand theory knowledge, three-minute transcription rates, and three-minute dictation speeds attained by the lower one-third or the upper one-third of the classes (18).

Keller conducted a study in which he compared achievement of students who were introduced to typewritten transcription on the first day of shorthand instruction to those who were
not introduced to typewritten transcription until the last grading period. He compared them on the basis of dictation writing speed, typewritten transcription speed, and typewritten transcription accuracy. His conclusions were that students introduced to early transcription achieved higher dictation writing speeds even though they had less dictation speed practice. He also concluded early transcription had no negative effects on transcription speed and accuracy and may have positive effects on accuracy (22).

Another closely related study is one done by Anderson (6) in which she used a transcription approach to second-semester high school shorthand in the experimental group while the control group was taught by traditional speed building methods. No three-minute dictation tests were ever given to the experimental group, yet one of the major findings of the study was that "the experimental group was significantly better on the mailable letter production tests at the seventy-words-a-minute level than was the control group."

Anderson concludes her discussion of the study,

Perhaps the true significance of this particular study lies in the teaching procedures utilized. If teachers who are teaching in schools offering only one year of shorthand believe that their students need to develop greater transcription skills, they should analyze their teaching procedures to determine what ways they can change techniques. It is obvious that the entire year cannot be devoted to teaching shorthand theory and to skill development. Certainly, theory must be taught and
students must acquire the ability to record dictation. If this is done at the expense of transcription skill, however, the student has little to offer the prospective employer. Considering the increasing demand for well-trained stenographers and secretaries and the declining enrollments in shorthand, it is imperative that teachers continue to search for new techniques which will enable students to attain vocational proficiency in the shorthand program.

The ultimate goal of the study conducted by Anderson was "to train students to the point where they have the stenographic skills necessary to secure and handle initial positions in a business" (6, p. 178).
CHAPTER BIBLIOGRAPHY


CHAPTER III

COLLECTION OF THE DATA

The problem of this study was the effect of using selected transcription drills in beginning shorthand on the ability of students to produce both typewritten copy and mailable letters. The experimental classes were taught with the early typewritten transcription approach, using transcription drills to enhance their progress. The control classes were taught by a traditional approach, except that students were introduced to typewritten transcription during the second half of the first trimester. The control classes had not been formally taught transcription nor had they used drills to enhance their learning process.

Design and Control of the Experiment

Subjects who participated in the study were junior and senior students who were enrolled in first- and second-semester shorthand in the fall and winter trimesters, respectively, of twelve high schools in a large metropolitan school system during the 1973-1974 school year. Permission was granted by the research director and the superintendent of the school district to conduct the study.
Each of the district's schools offered at least one shorthand class during the fall trimester. One school in the experimental group had two classes, and two schools in the control group had two classes. Two classes which met in the fall trimester, one experimental and one control, were not included in the final figures because the classes did not continue during the winter quarter.

All beginning shorthand classes in these twelve schools were taught on the trimester plan, but only those classes completing a year's work in shorthand during the fall and winter trimesters participated in this study. Beginning shorthand classes starting in the fall or winter trimesters and finishing the year's work in the spring trimester were not included in the study.

Selection of classes and teachers.--The schools in which the experimental and control classes were located were matched on the basis of socio-economic status of the schools as designated by the Research Department of the Fort Worth Public Schools and the achievement scores of the schools, also obtained from the Research Department of the school system (see Appendix E). These factors were used as a partial basis for matching the schools, and the additional factor was the teaching experience of the teachers. Of the twelve teachers involved, all except one of each group had completed a graduate level methods class in teaching shorthand and were familiar
with the procedures involved. These two exceptions were involved in the writing of the city course guide (9); one of these teachers was in the experimental group and one was in the control group. Other than this item, the teachers were comparable in ability, experience, and teaching techniques. Because of background, the teachers were familiar with the current shorthand techniques utilized in this study.

All teachers were contacted personally before the in-service education sessions in August, 1973, at which time an in-service education meeting was held for both groups of teachers and procedures that were identical were explained. Additional sessions were held to explain procedures that were different for each group. In addition to the initial in-service meeting, personal conferences were held in each teacher's school as needed throughout the fall and winter trimesters. Another in-service meeting was conducted on January 28, 1974, which was a regular in-service day for all teachers.

Teachers in each group were asked to complete a questionnaire (Appendix F). A tabulation of the results of these questionnaires is presented in Table I:
TABLE I

DATA ON TEACHERS PARTICIPATING IN THE STUDY

<table>
<thead>
<tr>
<th>Personal Data Information</th>
<th>Experimental Group (6 teachers)</th>
<th>Control Group (6 teachers)</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>31-40</td>
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<td>41-50</td>
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<td>Over 50</td>
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<tr>
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<td>2</td>
</tr>
<tr>
<td>7-15</td>
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<td>Over 20</td>
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<td>1</td>
</tr>
<tr>
<td>Years Teaching Shorthand</td>
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<tr>
<td>Graduate Degree within Year</td>
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Plan of the study.--Using the experimental design, this study was an investigation of the effects of using selected drills in transcription in the first year of shorthand at the secondary level. All schools in the study were conducted on the trimester plan of operation in which two trimesters constitutes what is normally the first year of shorthand instruction.

The study was limited to the twelve high schools in a large metropolitan school system during the school year 1973-1974. In these schools, only junior and senior students may enroll in shorthand classes. On August 30, 1973, the subjects consisted of 172 experimental subjects and 156 control subjects, or a total of 328 students. On December 3, 1973, shortly after the beginning of the second trimester, there were 108 students in the experimental group and 97 in the control group, a grand total of 205. This decrease included two classes, one experimental and one control, that did not continue in the winter trimester, as well as other students who failed or dropped out of shorthand during or at the end of the first trimester, and those who did not enroll in the winter trimester but planned to complete their year of shorthand in the spring quarter. At the end of the winter trimester on February 28, 1974, there were a total of 179 subjects, of whom 91 were in the experimental group and 88 were in the control group.
The study was limited to the transcription phase of first-year shorthand; experimental classes began transcription the second week of the first trimester and control classes began transcription the sixth week of the first trimester.

Selection of students.--The experimental classes were limited to junior and senior students who selected first-year shorthand classes in the fall trimester in six of the high schools of the district and who had completed one year of typing. The control classes consisted of junior and senior students who selected first-year shorthand classes in the fall trimester in the other six high schools of the district. It was assumed that students in the experimental and control classes had similar skills in the application of English usage. Only students completing the first-year shorthand course of study in the fall and winter trimesters of the school year 1973-1974 were included.

The majority of students were enrolled in either first- or second-year typewriting or had completed from two to four semesters of typewriting. Students who were concurrently enrolled in first-semester typewriting were eliminated from the study, although they remained enrolled in the classes. It was assumed that the number of students who did not take second-year typewriting was equivalent in all schools. All shorthand classes were conducted in a room equipped with electric typewriters primarily of the IBM Selectric machine style. In
addition, the majority of classes were taught in a room equipped as a shorthand laboratory. One control class was held in the language laboratory with access to the electric typewriting room directly across the hall, and one experimental class had tape recorders and headsets that were used in place of a laboratory.

Procedures for the experimental group.--The experimental group was given daily five-minute transcription tests from the textbook (6) for practice, beginning with the second week of school. During the next six weeks, daily five-minute transcription tests were given from shorthand homework notes or from shorthand notes dictated from the textbook (6). After this period of time, new material (8) was dictated two or three times a week and students transcribed in letter style, correcting all errors. After the winter trimester began and for the remainder of that trimester, additional drills outlined in the Calendar of Activities (Appendix A) were conducted in the experimental classes. From the beginning of the winter trimester, students entered a phase of intensive transcription drills conducted thirty to thirty-five minutes, three days a week.

The drills used in this study are described in a book on methods of teaching business subjects.

1. Transcribing in thought units. The material to be transcribed is marked in thought units with dotted or colored lines, and the students are instructed to read and transcribe in thought units, keeping the carriage moving at all times.
2. Comparison of typing and transcription rates on straight copy. The first day in transcription, the students may be given a five-minute timing on some straight copy material to determine their typing rates. They may next be given a five-minute timing on the same material written in shorthand. The transcription rate on straight copy is then compared with the typing rate.

3. A drill emphasizing the importance of accurate typing. The teacher may use a straight-copy drill to compare the typing and transcription rates of the students when they are required to correct all their errors. The drill is then repeated, the objective being to reduce the time required to correct errors.

4. Comparison of typing and transcription rates on letter copy.

5. Drill on typing from shorthand outlines written on the board selected from words and phrases appearing in the letter to be transcribed.

6. A preview of the difficult shorthand outlines in the letters to be dictated for transcription.

7. Dual-purpose sentence drill. The students transcribe a sentence in shorthand from the text for one-half minute. They repeat the drill several times, their objective being to increase the number of times they transcribe the sentence within the time allowance.

8. Dual-purpose paragraph drill. The students transcribe a paragraph from a shorthand plate for one minute. They repeat the drill several times, their objective being to increase the amount of transcribed material on each timing.

9. Eyes on copy. The students are timed to see how long they can transcribe a paragraph or a sentence drill, keeping their eyes on the copy.

10. Manipulation drills. The students transcribe a series of sentences requiring a sixty-space line, but with their machines set for a fifty-space line. They must use the margin release to complete each sentence but are to concentrate on doing so without looking up from their shorthand notes (3, pp. 202-203).
After approximately six weeks of the second trimester, students had completed this phase of selected drills. During the remainder of the trimester, the only drills were goal drills, in which students were to try to transcribe at a faster speed for each interval of timing. An approximate time of five minutes a day was spent on this activity for three days a week until the end of the term.

Procedures for both the experimental and control groups.— During the first week of the fall trimester of the study, students were given two five-minute timed writings from 101 Typewriting Timed Writings (10). During the sixth week of the winter trimester, they were given an additional five-minute transcription speed test from shorthand plate material (6).

During the last seven weeks of the winter trimester, once a week except on teacher in-service day the fourth week, students were given five-minute transcription tests dictated from new material (5). Twice a week, thirty-minute production tests (see Appendix C) were given from new material (5) provided to the teachers and graded on a mailable letter basis (4). This material was previewed during the first four weeks but not previewed during the last three weeks.

In addition, during the last seven weeks students were given regular three-minute dictation speed tests (11) which measured the speed achieved.
A business education student from a local college graded all materials completed by the students so that one person graded all papers in the same manner. Teachers also graded the papers for their own records. The letter production tests were graded on the basis of mailability (4, pp. 4-5). Errors making a letter unmailable included

1. Misspelled word;
2. Word divided incorrectly at end of line;
3. Typographical error;
4. Transposition of words;
5. Letter too high on page;
6. Letter too low on page;
7. Letter too far to the right of the page;
8. Letter too far to the left of the page;
9. Messy erasure or hole in paper;
10. Material omitted or changed that obviously alters meaning of letter;
11. Omission of date line;
12. Omission of title (Dr., Mr., Mrs.) in inside address;
13. Incorrect punctuation marks for salutation and complimentary close (comma or colon after salutation and no punctuation after complimentary closing);
14. Right margin too ragged or uneven—more than six spaces between longest line and shortest line of body; (A short line at the end of a paragraph is acceptable.)
15. Elimination of punctuation marks between two independent clauses joined by a conjunction;
16. Elimination of comma after introductory clause ("if," "when," and others as given in marginal reminders of the shorthand text);

17. Elimination of comma between words in a series;

18. Elimination of apostrophe to show possessive (this year's program);

19. Omission of enclosure notation when needed.

Procedures for the control group.--Except for those procedures described for both experimental and control groups, the control classes followed the procedures as outlined in the Fort Worth course guide (9) and Appendix B.

Instruments and Testing Procedures

A Calendar of Activities (Appendix A) correlated with the school calendar (Appendix D) by weeks of instruction, was provided to each teacher of the experimental group (Appendix A) and the control group (Appendix B). This calendar was used by each teacher to determine the instructional procedures for each week of the trimester. Each teacher was also given a Calendar of Testing Activities (Appendix C) for the last half of the winter trimester.

The supplementary textbook, Integrated Secretarial Studies (2) was provided for classroom use in each school where experimental classes were conducted, but not to the control classes. This textbook was the source of most transcription drills used in the experimental classes. Material for other drills was obtained from the textbooks (6, 7).
From school counselors, all teachers obtained the following information concerning their shorthand students: cumulative English grades, cumulative typewriting grades, and the Shorthand 1 grade, including number of trimesters of each subject, and whether students were concurrently taking English, typewriting, or Vocational Office Education. In addition, all students were given a five-minute timed typewriting test and a five-minute transcription test from shorthand plates (7) the first week of the second trimester.

These measures, plus the cumulative records, were used to determine if there were significant differences between experimental and control groups.
CHAPTER BIBLIOGRAPHY


5. Gallion, Leona M. and Barbara J. Minnick, Dictation Material for Beginning Shorthand, Terre Haute, Delta Pi Epsilon, undated.


CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

Summary

Permission was granted by the Research Department of the Fort Worth Public Schools to conduct this study in the twelve high schools of the district. The six high schools in which special transcription drills were conducted in the first-year shorthand classes beginning in the fall trimester were designated as experimental classes. The beginning shorthand classes in the fall trimester in the other six high schools of the district were designated as control classes. All beginning shorthand classes in these schools were taught on the trimester plan, but only students completing the equivalent of a year's work in shorthand at the end of the winter trimester were included in the study. Students completing a year's work in the spring trimester were not included.

The schools in which the experimental and control classes were located were matched on the basis designated by the Research Department of the school system (see Appendix E).

The experimental group was given practice speed transcription tests from their textbook beginning with the second week of school. During the next six weeks, additional five-minute transcription tests were given from shorthand homework notes and from dictated shorthand notes from their textbook for ten
to fifteen minutes a day. After this period of time, new material was dictated and students transcribed in letter style, correcting all errors. After the winter trimester began and for the remainder of that trimester, additional drills were conducted in the experimental classes. From the beginning of the winter trimester, students entered a phase of intensive drills conducted from thirty to thirty-five minutes three days a week. At the end of the first six weeks of the second trimester, students completed this phase of selected drills. During the remainder of the trimester, the only drills were goal drills in which students tried to transcribe more words during each successive timing. Five minutes a day was spent on this activity three days a week until the end of the term.

During the sixth week of the fall trimester of the study, students in the experimental and the control groups were given a five-minute timed writing and a five-minute transcription speed test from shorthand plate material. During the last seven weeks of the winter trimester twice a week both groups were given both five-minute transcription tests dictated from new material and thirty-minute production tests from new material. These tests were used for evaluation of the transcription skills of the experimental and control groups.
Procedures for Analysis of Data

The experimental and control groups were compared on English grades, typewriting grades, number of trimesters of English, number of trimesters of typewriting, and whether students were concurrently taking these subjects. Statistical equation of the groups was achieved through analysis of covariance because intact groups were used. The means of the experimental and control groups were computed for each criterion measure and a Fisher's $t$ test was used to determine whether there was a significant difference between the means.

An analysis was made of the relationships of students' scores on the five-minute transcription speed test and on the five-minute straight copy typewriting tests with English grades, typewriting grades, number of trimesters of each, and whether students were concurrently taking these subjects. An analysis of covariance procedure was used to equate these groups on initial transcription speed and initial typewriting speed, and English grades, typewriting grades, number of semesters of English, number of trimesters of typewriting, and whether students were concurrently taking these subjects. After the transcription drills were administered to the experimental group, previewed transcription speed tests, three-minute previewed dictation tests, and previewed production tests, graded on a mailable letter basis, were administered to the experimental and control classes during weeks seven,
eight, and nine of the winter trimester. During the final four weeks of the trimester, unpreviewed new material transcription speed tests, three-minute dictation tests, and mailable letter production tests were given to each group. Comparison of changes beyond those attributable to initial differences were determined through the analysis of variance procedure.

The data obtained for statistical treatment were related to three areas of shorthand transcription: five-minute typewritten transcription tests, three-minute typewritten dictation tests, and thirty-minute typewritten mailable letter tests. The five-minute transcription tests were measured by short dictated letters which students transcribed at the typewriter. The scores were recorded as total number of words transcribed per minute, with the total number of errors. Three-minute dictation tests were dictated at ten-word intervals at speeds from forty through ninety words a minute. Students were required to transcribe at the typewriter with ninety-five percent of the words accurate, including correct grammar and punctuation. Tests not meeting this accuracy score were not included in the study. The dictation speed was a constant rate; the score recorded was the speed achieved and the number of times this speed was achieved. The thirty-minute mailable letter tests consisted of two short business letters of 100 words in each letter. Speeds ranged from a
base of 40 through 90 words a minute, depending upon the plan outlined in the Calendar of Testing Activities (see Appendix C). Students were given thirty minutes to transcribe these letters at the typewriter in mailable form. The speed rate and number of times achieved were the scores recorded.

Scores from these measurements were recorded for each of the subjects in the study, along with an individual subject number, a school number, and a control or experimental designation number. Other scores recorded for each subject included initial and midpoint typewriting scores for both trimesters recorded as gross words a minute with number of errors, and midpoint transcription scores for both trimesters, recorded as total words transcribed a minute, with number of errors. A beginning transcription score was recorded for the second trimester, recorded as total words transcribed a minute, with number of errors. Additional information recorded included number of semesters of English taken, whether students were concurrently taking English, number of semesters of typewriting taken and whether students were concurrently taking typewriting, whether students were concurrently taking Vocational Office Education, the year of their high school career in which they took each semester of typewriting, and their English and typewriting grade averages, a total of twenty-two variables.
These data were entered on IBM keypunch cards for statistical treatment by the Computer Center at North Texas State University. Four hypotheses (each with two parts) were restated in the null form for statistical treatment. The Pearson Product Moment Correlations were computed as a measure of relationship among the demographic variables and pre-measures and interim transcription skills. Table II presents the correlation coefficients.

A correlation of .25 or more was necessary to have a level of significance of .01 (1). Sixty-one positive and nine negative coefficients of correlation met this criterion. A correlation of .20 was necessary to have a level of significance of .05 (1). Eleven negative and ten positive correlation coefficients met this criterion. According to Borg a level of .65 to .85 allows "group predictions that are accurate enough for most purposes" (1, p. 359). There were seven positive correlation coefficients above .65.

Variable three, the year in which students took Typewriting 1, correlated at .93 with variable four, the year in which they took Typewriting 2. Because students tend to take both semesters of typewriting during the same school year, this high correlation holds limited value for the study.

Variable nine, which was the initial five-minute timed writing on August 30, was correlated significantly with variables eleven, seventeen, and nineteen. Variable eleven,
### TABLE II

**CORRELATION MATRIX OF TWENTY-TWO VARIABLES**

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
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</table>

1. No. Sem. Eng. taken
2. No. Sem. Type. taken
3. Yr. took Typewriting 1
4. Yr. took Typewriting 2
5. Yr. took Typewriting 3
6. Yr. took Typewriting 4
7. English grade average
8. Typewriting grade average
9. Five-min. timing speed (beg. 1st tri)
10. Five-min. timing accuracy (" ")
11. Five-min. speed (mid-pt. 1st tri)
12. Five-min. accuracy (mid-pt. 1st tri)
13. Five-min. transpose speed (mid-pt. 1st tri)
14. Five-min. transpose accuracy (mid-pt. 1st tri)
15. Five-min. transpose speed (beg. of 2nd tri)
16. Five-min. transpose accuracy (beg. of 2nd tri)
17. Five-min. speed (beg. of 2nd tri)
18. Five-min. accuracy (beg. of 2nd tri)
19. Five-min. speed (mid-pt. of 2nd tri)
20. Five-min. accuracy (mid-pt. of 2nd tri)
21. Five-min. transpose speed (mid-pt. of 2nd tri)
22. Five-min. transcription accuracy (mid-pt. of 2nd tri)

* .01 level of significance
** .05 level of significance
with a correlation coefficient of .90, was the five-minute
timed writing for the midpoint of the first trimester.
Variable seventeen, with a correlation coefficient of .80,
was the five-minute timed writing at the beginning of the
second trimester and variable nineteen with a correlation
coefficient of .79 was the five-minute timing at the midpoint
of the second trimester. These significant correlations were
expected since all students had completed a minimum of one
year of typewriting and their initial typewriting speed would
tend to correlate with succeeding attempts.

Students who were the fastest typists at the beginning
of the first trimester continued to be the fastest typists
throughout the experiment.

According to Borg, correlations in the range of .35 to
.65 are of little or no use for individual predictions, but
can be used for crude group predictions (1, p. 359). The
thirty-four positive variables that could be considered useful
in this manner by Borg included variable two, semesters
of typewriting taken, which correlated significantly with
variables five, six, nine, eleven, and seventeen. The corre-
lations of variable two with variables five (.44) and six
(.63) were the years students took Typewriting 3 and 4. Of
these correlations, the relationships between two and nine
(.47), eleven, (.43), and seventeen (.37) are considered impor-
tant because these three were the beginning and the midpoint
five-minute timed writing speed score at the beginning of the second trimester. The correlations of two to five and six are not considered important because students had to be enrolled in Typewriting 3 and 4 for there to have been a correlation to number of semesters of typewriting taken.

Variable five, the year in which students took Typewriting 3, correlated significantly with variable six, which was the year in which they took Typewriting 4. This, with a correlation of .58, was expected as students tend to take both trimesters of second-year typewriting during the same school year.

Variable seven, students' English grade average, had a significant correlation of .54 with their typewriting averages and also a coefficient of correlation of .37 with variable twenty-one, their transcription speed at the midpoint of the second trimester. A correlation on all transcription scores of speed and accuracy at a level to be considered useful by Borg (1, p. 359) did not occur. Although correlations significant at the .05 level (1) did occur for variables thirteen (.26), fourteen (-.29), and fifteen (.34), and at the .01 level for twenty-two (.37), these magnitudes were not considered useful by Borg (1, p. 359). A significant level for variables sixteen and twenty-one did not occur. Variables thirteen, fourteen, fifteen, sixteen, twenty-one, and twenty-two were all the speed and accuracy transcription
scores, including the midpoint of the first trimester, the beginning of the second trimester, and midpoint of the second trimester. Grades in English were not a good predictor of achievement in transcription in this study.

Another expected significant correlation which did not occur included variable one, number of semesters of English taken, with all transcription speed and accuracy scores, variables thirteen, fourteen, fifteen, sixteen, twenty-one, and twenty-two.

Variable eight, typewriting grade average, correlated at what Borg (1, p. 359) would consider a useful level with variables nine (.38), eleven (.40), nineteen (.36), and twenty-one (.35), which were five-minute timed writing speed scores and the last transcription speed tests.

The five-minute timed writing given at the beginning of the second trimester, variable seventeen, at .34 was not included as the score was less than the .35 needed for Borg's scale. The students' grade range is restrictive in that students with a "D" grade in typewriting seldom take shorthand.

Variable nine, initial five-minute timed writing on August 30, correlated at the .01 level with speed variables eleven (.90), thirteen (.56), fifteen (.48), seventeen (.80), nineteen (.79), and twenty-one (.39) for both timed writings and transcription scores. All speed variables from eleven through twenty-one correlated with all remaining speed
variables. These variables were all the speed scores, both timed writings and transcriptions, including the midpoint of the first trimester, the beginning of the second trimester, and the midpoint of the second trimester.

Variable ten, initial five-minute timing accuracy score on August 30, correlated with all other accuracy scores, or transcription scores, except variable fourteen. Variable fourteen was the accuracy score for the midpoint first semester five-minute transcription and it had a low negative correlation to the transcription speed scores. This was the first time the classes performed five-minute transcriptions from their own shorthand notes, which would account for variable fourteen's difference from all other accuracy scores. Apparently the students who were most accurate in the first transcription test, retained their relative position throughout the two trimesters.

The Pearson Product Moment Correlations were computed as a measure of the relationship between the first four criterion measures and premeasures and interim transcription skills. Table III presents the correlation coefficients.
<table>
<thead>
<tr>
<th>Timed Writing and Transcription Scores</th>
<th>Criterion Measures</th>
<th>1 5-min. previewed transcription speed</th>
<th>2 5-min. previewed transcription accuracy</th>
<th>3 5-min. previewed transcription accuracy</th>
<th>4 5-min. unpreviewed transcription accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 August 30 5' timing speed</strong></td>
<td>Beginning of first trimester</td>
<td>*</td>
<td>- .17</td>
<td>.60</td>
<td>- .08</td>
</tr>
<tr>
<td><strong>2 August 30 5' timing accuracy</strong></td>
<td>Beginning of first trimester</td>
<td>- .15</td>
<td>.17</td>
<td>- .22</td>
<td>.12</td>
</tr>
<tr>
<td><strong>3 October 8 5' timing speed</strong></td>
<td>Beginning of first trimester</td>
<td>*</td>
<td>**</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td><strong>4 October 8 5' timing accuracy</strong></td>
<td>Mid-point of first trimester</td>
<td>- .15</td>
<td>.13</td>
<td>- .13</td>
<td>.20</td>
</tr>
<tr>
<td><strong>5 October 3 5' transcription speed</strong></td>
<td>Mid-point of first trimester</td>
<td>*</td>
<td>**</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td><strong>6 October 3 5' transcription acc.</strong></td>
<td>Mid-point of first trimester</td>
<td>- .34</td>
<td>.25</td>
<td>- .33</td>
<td>.27</td>
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<tr>
<td><strong>7 December 3 5' transcription speed</strong></td>
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<td>.61</td>
<td>- .15</td>
<td>.57</td>
<td>- .29</td>
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<tr>
<td><strong>8 December 3 5' transcription acc.</strong></td>
<td>Beginning of second trimester</td>
<td>*</td>
<td>**</td>
<td>**</td>
<td>**</td>
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<td><strong>9 December 3 5' timing speed</strong></td>
<td>Beginning of second trimester</td>
<td>- .19</td>
<td>.36</td>
<td>- .24</td>
<td>.23</td>
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<tr>
<td><strong>10 December 3 5' timing accuracy</strong></td>
<td>Beginning of second trimester</td>
<td>*</td>
<td>**</td>
<td>*</td>
<td>**</td>
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<tr>
<td><strong>11 January 7 5' timing speed</strong></td>
<td>Mid-point of second trimester</td>
<td>- .17</td>
<td>.15</td>
<td>- .14</td>
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<tr>
<td><strong>12 January 7 5' timing accuracy</strong></td>
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<td>- .23</td>
<td>.62</td>
<td>- .12</td>
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<td><strong>13 January 7 5' transcription speed</strong></td>
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<td>- .15</td>
<td>.01</td>
<td>- .14</td>
<td>- .05</td>
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<td><strong>14 January 7 5' transcription acc.</strong></td>
<td>Mid-point of second trimester</td>
<td>*</td>
<td>**</td>
<td>*</td>
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</tbody>
</table>

* .01 level of significance  
** .05 level of significance
Criterion measure variable one, which was the speed portion for previewed transcription on the first criterion measure, correlated at what Borg (1, p. 359) would call a moderately useful level with all speed score variables which were all the five-minute timings, whether for timed writings or transcription scores. These were variables one (.47) which was the initial timed writing on August 30, three (.54) which was the midpoint timed writing of the first trimester, five (.51) which was the midpoint transcription speed of the first trimester, seven (.61) which was the transcription speed for the beginning of the second trimester, nine (.44) which was the timed writing speed at the beginning of the second trimester, eleven (.47) which was the timed writing speed at the midpoint of the second trimester, and thirteen (.60) which was the transcription speed of the midpoint of the second trimester. Those students who typed fastest initially also transcribed the fastest.

Criterion measure variable two, which is the accuracy portion for previewed transcription on the first criterion measure, correlated only with variable eight at a level Borg (1, p. 359) would call useful. Variable eight was the accuracy portion of the five-minute transcription given at the beginning of the second trimester. Most correlations were negative due to the fact that the accuracy is an error score, and the lower the score the more desirable it is.
Criterion measure variable three, which is the speed portion for unpreviewed transcription on the second criterion measure, correlated at what Borg (1, p. 359) would call a moderately useful level with variables one (.60), five (.51), seven (.57), nine (.64), eleven (.62), and thirteen (.58). Variable three, with a correlation of .68 correlated at a level which Borg (1, p. 359) would consider useful. These variables are all the speed scores, whether on five-minute timed writings or five-minute transcription tests. Transcription speed and typewriting speed are related although not highly correlated.

Criterion measure variable four, which is the accuracy portion for unpreviewed transcription and is the second criterion measure, was not correlated significantly with the other accuracy variables. Any correlations occurring would have been negative, which meant the lower the accuracy, the higher the speed.

Analysis of Covariance

After examination of correlation coefficients, four variables of the timed writings, in addition to all demographic variables, were utilized as covariants in the analysis of speed and accuracy on five-minute transcription tests. The October 8 speed score, in combination with the other eleven demographic variables, was used as a twelfth covariate in adjusting the criterion measures of previewed
speed, previewed accuracy, and unpreviewed speed. The December 3 accuracy score, in combination with the other eleven demographic variables, was used as a twelfth co-variate in adjusting the criterion measure of unpreviewed accuracy. There were other interim timed writings that had higher correlations with the criterion measures of five-minute transcription speed and accuracy that could not be used because they were taken after the treatment had begun and were considered contaminated data.

Earlier research in the field of shorthand transcription teaching has indicated that certain variables have an effect upon students' transcription progress in shorthand transcription skills. These variables were number of semesters of English taken, whether students were concurrently taking typewriting, English, and Vocational Office Education, the year of the students' high school career in which they took each semester of typewriting, and their English and typewriting grade averages. The data for these variables are presented in Table IV.
<table>
<thead>
<tr>
<th>Computed Variables</th>
<th>Experimental</th>
<th>Control</th>
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<td>3 Number of trimesters of typing taken ....</td>
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</tr>
<tr>
<td>Counted Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Concurrently taking English ....</td>
<td>51</td>
<td>52</td>
</tr>
<tr>
<td>4 Concurrently taking Typing ....</td>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td>5 Concurrently taking Vocational Office Ed. ....</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>6 Year took Typing 1 ....</td>
<td>55 Fr.</td>
<td>61 Fr.</td>
</tr>
<tr>
<td></td>
<td>19 So.</td>
<td>17 So.</td>
</tr>
<tr>
<td>7 Year took Typing 2 ....</td>
<td>50 Fr.</td>
<td>56 Fr.</td>
</tr>
<tr>
<td></td>
<td>23 So.</td>
<td>22 So.</td>
</tr>
<tr>
<td>8 Year took Typing 3 ....</td>
<td>24 So.</td>
<td>24 So.</td>
</tr>
<tr>
<td></td>
<td>29 Jr.</td>
<td>27 Jr.</td>
</tr>
<tr>
<td>9 Year took Typing 4 ....</td>
<td>19 So.</td>
<td>23 So.</td>
</tr>
<tr>
<td></td>
<td>17 Jr.</td>
<td>13 Jr.</td>
</tr>
</tbody>
</table>
On covariate one, number of semesters of English taken, the experimental group had taken a mean of 5.37 semesters, while the control groups had a mean of 5.64 semesters. Essentially the two groups had taken the same number of semesters, the majority of students were juniors and this subject was required.

On covariate three, number of semesters of typewriting taken, the experimental group had taken 2.80 semesters, while the control group had taken 2.95 semesters. All students had to have had two semesters of typewriting to be included in the study and this indicated the majority had taken a third semester.

Covariate ten reflected the English grade average of each group, with the experimental group having an accumulative average of 3.03 and the control group's average being 2.91, with 3.00 representing a "B." Essentially the two groups had a "B" average in English.

Covariate eleven reflected the typewriting grade average of each group, with the experimental groups having an accumulative average of 2.78 and the control group's average being 2.76. Essentially the same grades were earned by each group.

The speed scores of 44.97 words a minute for the experimental group and 43.15 for the control group achieved on October 8 were used as a twelfth covariate for previewed and unpreviewed speed and previewed accuracy. The accuracy
scores of 11.15 total errors for the experimental group and 13.24 total errors for the control group achieved on December 3 were used as a twelfth covariate for unpreviewed accuracy.

On covariate two, fifty-one of the experimental group were concurrently taking English, while fifty-two of the control group were. Covariate four, whether students were concurrently taking typewriting, shows twenty-five experimental and nineteen control students were concurrently taking typewriting. Nine experimental students were concurrently taking Vocational Office Education, while twenty-four control students were.

Covariates six, seven, eight, and nine concerned the high school year in which students took each semester of typewriting instruction. The majority of the students, in both experimental and control groups, took first-year typewriting as freshmen, although business teachers believed the optimum time for first-year typewriting to be the sophomore year (2). The majority of students in both groups took second-year typewriting as sophomores and juniors although it is recommended that it be taken concurrently with shorthand instruction and closer to the expected time of actual employment, unless students plan to take Vocational Office Education (2).

Data Relating to Hypothesis One A

During weeks seven, eight, and nine of the second trimester, students were given three opportunities to transcribe
at the typewriter. Five-minute transcription tests were administered once each week. Students transcribed shorthand notes from dictation of previewed new material. The best of these three scores in terms of highest speed was chosen as the criterion variable for covariance analysis for hypothesis One A. The twelfth covariant for this analysis was the October 8 speed (see Table IV). Table V presents covariance and standard deviation.

**TABLE V**

DATA RELATED TO THE UNADJUSTED AND ADJUSTED MEANS AND STANDARD DEVIATIONS FOR PREVIEWED FIVE-MINUTE TRANSCRIPTION SPEED TEST

<table>
<thead>
<tr>
<th>Group</th>
<th>Unadjusted Means</th>
<th>Unadjusted Standard Deviation</th>
<th>Adjusted Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>20.97</td>
<td>7.81</td>
<td>20.37</td>
</tr>
<tr>
<td>Control</td>
<td>17.98</td>
<td>6.77</td>
<td>18.60</td>
</tr>
</tbody>
</table>

Hypothesis One A was that students using selected transcription drills would achieve significantly higher adjusted mean transcription rates on previewed timed transcription tests than would students not using such drills. The summary of the analysis of covariance used in testing hypothesis One A is presented in Table VI.
TABLE VI

SUMMARY TABLE OF ANALYSIS OF COVARIANCE OF MEAN SCORES FOR BEST SPEED ON PREVIEWED FIVE-MINUTE TRANSCRIPTION TEST

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>(Variance Estimate) Mean Square</th>
<th>F Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Within</td>
<td>166</td>
<td>4942.60</td>
<td>29.21</td>
<td>4.18</td>
<td>0.0424</td>
</tr>
<tr>
<td>Differ.</td>
<td>165</td>
<td>4820.43</td>
<td>133.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>122.17</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The difference was significant at the .04 level so the null hypothesis was rejected and the research hypothesis was accepted.

Data Relating to Hypothesis One B

During weeks eleven, twelve, and thirteen of the second trimester, students were given three opportunities to transcribe at the typewriter. Once each week, students were timed for five minutes while they transcribed shorthand notes from dictation of unpreviewed new material. The best of these three scores in terms of highest speed was chosen as the criterion variable for covariance analysis for hypothesis One B. The twelfth covariant for this analysis was the October 8 speed (see Table IV). Table VII presents covariate means and standard deviation.
TABLE VII

DATA RELATED TO THE UNADJUSTED AND ADJUSTED MEANS AND STANDARD DEVIATIONS FOR UNPREVIEWED FIVE-MINUTE TRANSCRIPTION SPEED TEST

<table>
<thead>
<tr>
<th>Group</th>
<th>Unadjusted Means</th>
<th>Unadjusted Standard Deviation</th>
<th>Adjusted Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>24.69</td>
<td>7.23</td>
<td>24.05</td>
</tr>
<tr>
<td>Control</td>
<td>23.06</td>
<td>7.25</td>
<td>23.72</td>
</tr>
</tbody>
</table>

Hypothesis One B was that students using selected transcription drills would achieve significantly higher adjusted mean transcription rates on unpreviewed timed transcription tests than students not using such drills. The summary table of analysis of covariance used in testing hypothesis One B is presented in Table VIII.
TABLE VIII

SUMMARY TABLE OF ANALYSIS OF THE MEAN SCORES FOR BEST SPEED ON UNPREVIEWED FIVE-MINUTE TRANSCRIPTION TEST

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>(Variance Estimate) Mean Square</th>
<th>F Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>166</td>
<td>4083.14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>165</td>
<td>4078.68</td>
<td>24.72</td>
<td>0.18</td>
<td>0.6717</td>
</tr>
<tr>
<td>Differ.</td>
<td>1</td>
<td>4.46</td>
<td>4.46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The difference was not significant; therefore, the null hypothesis was retained and the research hypothesis was rejected.

Data Relating to Hypothesis Two A

During weeks seven, eight, and nine of the second trimester, five-minute transcription tests were administered once weekly. Students transcribed at the typewriter their shorthand notes from dictation of previewed new material. The best of these scores in terms of lowest number of errors was used as the criterion measure for this hypothesis. The twelfth covariant for this analysis was the October 8 speed (see Table IV). Data reflecting transcription accuracy are shown in Table IX.
TABLE IX

DATA RELATED TO THE UNADJUSTED AND ADJUSTED MEANS AND STANDARD DEVIATIONS FOR PREVIEWED TRANSCRIPTION ACCURACY TESTS

<table>
<thead>
<tr>
<th>Group</th>
<th>Unadjusted Means</th>
<th>Unadjusted Standard Deviation</th>
<th>Adjusted Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>5.48</td>
<td>5.27</td>
<td>5.93</td>
</tr>
<tr>
<td>Control</td>
<td>6.55</td>
<td>6.68</td>
<td>6.08</td>
</tr>
</tbody>
</table>

Hypothesis Two A was that students using selected transcription drills would achieve significantly higher adjusted levels of accuracy on timed previewed transcription tests than would students not using such drills. The analysis of covariance used in testing hypothesis Two A is presented in Table X.
### Table X

**Summary Table of Analysis of the Mean Scores of Accuracy on Previewed Five-Minute Transcription Test**

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>(Variance Estimate) Mean Square</th>
<th>F Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>166</td>
<td>5221.83</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>165</td>
<td>5220.86</td>
<td>31.64</td>
<td>0.03</td>
<td>0.8682</td>
</tr>
<tr>
<td>Differ.</td>
<td>1</td>
<td>0.88</td>
<td>0.88</td>
<td>0.03</td>
<td>0.8682</td>
</tr>
</tbody>
</table>

The difference was not significant; therefore the null hypothesis was retained and the research hypothesis was rejected.

**Data Relating to Hypothesis Two B**

During weeks eleven, twelve, and thirteen of the second trimester, five-minute transcription tests were administered once each week at the typewriter. Students transcribed shorthand notes from the dictation of unpreviewed new material. The best of these scores in terms of lowest errors was chosen and used as the criterion measure for hypothesis Two B. The twelfth covariant for this analysis was the December 3 accuracy score (see Table IV). Data reflecting transcription accuracy on unpreviewed material is presented in Table XI.
### TABLE XI

**DATA RELATED TO THE UNADJUSTED AND ADJUSTED MEAN AND STANDARD DEVIATIONS FOR UNPREVIEWED FIVE-MINUTE TRANSCRIPTION ACCURACY TEST**

<table>
<thead>
<tr>
<th>Group</th>
<th>Unadjusted Means</th>
<th>Unadjusted Standard Deviation</th>
<th>Adjusted Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>4.45</td>
<td>4.02</td>
<td>4.92</td>
</tr>
<tr>
<td>Control</td>
<td>6.22</td>
<td>5.88</td>
<td>5.74</td>
</tr>
</tbody>
</table>

Hypothesis Two B was that students using selected transcription drills would achieve significantly higher adjusted levels of accuracy on unpreviewed timed transcription tests than would students not using such drills. The results of the analysis of covariance used in testing hypothesis Two B are presented in Table XII.
TABLE XII

SUMMARY TABLE OF ANALYSIS OF COVARIANCE OF MEAN SCORES OF ACCURACY ON UNPREVIEWED FIVE-MINUTE TRANSCRIPTION TEST

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>(Variance Estimate) Mean Square</th>
<th>F Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>166</td>
<td>5221.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Differ.</td>
<td>165</td>
<td>5220.86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>1</td>
<td>0.88</td>
<td>0.88</td>
<td>0.03</td>
<td>0.8682</td>
</tr>
</tbody>
</table>

The difference was not significant; therefore the null hypothesis was retained and the research hypothesis was rejected.

Analysis of Variance

Data Relating to Hypothesis Three A

During a period of four weeks, weeks seven through ten of the second trimester, students were given a total of nine opportunities to pass three-minute dictation takes of reviewed new material dictated at ten-word intervals from forty through ninety words per minute. Students were given one test at forty, two at fifty, two at sixty, two at seventy, and one each at eighty and ninety. Speeds ranged from forty and fifty the seventh week through seventy, eighty, and ninety the tenth week (see Appendix C). These results were computed into
an Index of Success score, obtained by multiplying the number of times a speed was achieved by the rate of the speed, and dividing by ten to reduce the size of the score. The range of total Index of Success scores was from 0 to 297 (See Appendix H). The Index of Success scores were statistically treated using one-way analysis of variance. These data are presented in Table XIII.

The Index of Success score showed that the experimental group attained a score that was 2.12 higher than the control group. Thus, the experimental group attained speeds at a higher rate and more frequently than did the control group. The standard deviations for the experimental and the control groups were unusually high and the means low because unsuccessful attempts to pass the three-minute dictation tests were recorded statistically as zeros.

TABLE XIII

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>91</td>
<td>6.81</td>
<td>9.33</td>
</tr>
<tr>
<td>Control</td>
<td>88</td>
<td>4.69</td>
<td>7.80</td>
</tr>
</tbody>
</table>
Hypothesis Three A was that students using selected transcription drills would be able to record previewed dictation tests at rates equivalent to those attained by students not using such drills. To test this hypothesis, the one-way analysis of variance was used to test the differences between the experimental and control groups. The one-way analysis of variance used in testing hypothesis Three A is presented in Table XIV.

TABLE XIV

SUMMARY OF THE ONE-WAY ANALYSIS OF VARIANCE ON PREVIEWED THREE-MINUTE DICTATION TESTS

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>(Variance Estimate) Mean Square</th>
<th>F Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1</td>
<td>201.07</td>
<td>201.07</td>
<td>2.71</td>
<td>0.1014</td>
</tr>
<tr>
<td>Within Differ.</td>
<td>177</td>
<td>13128.54</td>
<td>74.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>178</td>
<td>13329.61</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The one-way analysis of variance of the mean scores yielded an F value of 2.71 which was not significant at the .05 level. Therefore, the null hypothesis was retained and the research hypothesis was accepted.
Data Relating to Hypothesis Three B

During a period of three weeks, weeks eleven through thirteen of the second trimester, students were given a total of twelve opportunities to pass three-minute dictation tests of unpreviewed new material dictated at ten-word intervals from forty through ninety words per minute. Students were given one test at forty, three tests at fifty, four tests at sixty, two tests at seventy, and one test each at eighty and ninety. Speeds ranged from forty to seventy during week eleven, from sixty to ninety during week twelve and during week thirteen from forty to eighty, except that not all speeds in that range were dictated each week (see Appendix C). The results were computed into an Index of Success score, obtained by multiplying the number of times a speed was achieved by the speed rate, and dividing by ten. The Index of Success scores were statistically treated using one-way analysis of variance. These data are presented in Table XV.

TABLE XV

MEAN SCORES AND STANDARD DEVIATIONS OF EXPERIMENTAL AND CONTROL GROUPS OF DATA RELATED TO TOTAL INDEX OF SUCCESS SCORES ON UNPREVIEWED THREE-MINUTE DICTATION TESTS

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>91</td>
<td>15.53</td>
<td>12.64</td>
</tr>
<tr>
<td>Control</td>
<td>88</td>
<td>8.16</td>
<td>8.81</td>
</tr>
</tbody>
</table>
The Index of Success score showed that the experimental group attained a score 7.37 higher than the control group, indicating that the experimental group attained speeds at a higher rate and more frequently than did the control group. The standard deviation scores for both experimental and control groups were unusually high and the means low because unsuccessful attempts to pass the three-minute dictation tests were recorded statistically as zeros.

Hypothesis Three B was that students using selected transcription drills would be able to record unpreviewed dictation at rates equivalent to those attained by students not using such drills. Table XVI presents the one-way analysis of variance used to test hypothesis Three B.

**TABLE XVI**

**SUMMARY OF THE ONE-WAY ANALYSIS OF VARIANCE ON UNPREVIEWED THREE-MINUTE DICTATION TESTS**

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>(Variance Estimate) Mean Square</th>
<th>F Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1</td>
<td>2428.93</td>
<td>2428.93</td>
<td>20.34</td>
<td>0.0001</td>
</tr>
<tr>
<td>Within Differ.</td>
<td>177</td>
<td>21136.45</td>
<td>119.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>178</td>
<td>23565.39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The one-way analysis of variance yielded an F value of 20.34, which was significant beyond the .001 level. Therefore the null hypothesis was rejected and the research hypothesis was rejected. The students in the experimental group did significantly better than did those in the control group, rather than equivalent as hypothesized.

Data Relating to Hypothesis Four A

During a period of four weeks, weeks seven through ten of the second trimester, students were given a total of sixteen opportunities to pass previewed new material dictated at ten-word intervals from forty through ninety words per minute. Students were given two tests at forty, four at fifty, four at sixty, four at seventy, and two at eighty (see Appendix C). Week seven included speeds of forty and fifty, week eight included speeds of fifty and sixty, week nine included speeds of sixty and seventy, and week ten included speeds of seventy and eighty. These sixteen opportunities were confined to eight sessions of thirty minutes each, in which students were to produce mailable letters. During weeks seven and eight no carbon copies were required, while carbon copies were required during weeks nine and ten for letters to be considered mailable. The results were computed into an Index of Success score obtained by multiplying the number of times a speed was achieved as a mailable letter by the speed, and dividing by ten. The Index of Success scores were statistically treated
using one-way analysis of variance. These data are presented in Table XVII.

TABLE XVII

MEAN SCORES AND STANDARD DEVIATIONS OF EXPERIMENTAL AND CONTROL GROUPS OF DATA RELATED TO TOTAL INDEX OF SUCCESS SCORES ON PREVIEWED THIRTY-MINUTE MAILABLE LETTER PRODUCTION TESTS

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>91</td>
<td>22.80</td>
<td>28.96</td>
</tr>
<tr>
<td>Control</td>
<td>88</td>
<td>8.05</td>
<td>19.80</td>
</tr>
</tbody>
</table>

The Index of Success score showed that the experimental group attained a score that was 14.75 higher than the control group's score, indicating that the experimental group attained speeds at a higher rate, more frequently, and more accurately than did the control group. The standard deviations for both experimental and control groups were unusually high and the means were low because unsuccessful attempts to pass the thirty-minute production tests were recorded statistically as zeros.

Hypothesis Four A was that students using selected transcription drills would achieve significantly higher and more accurate transcription rates, from dictation at higher speeds,
on previewed mailable letter production tests, as measured by the Index of Success score. To test this hypothesis, one-way analysis of variance was used to test the differences between the experimental and control groups. The one-way analysis of variance used in testing hypothesis Four A is presented in Table XVIII.

TABLE XVIII

SUMMARY OF THE ONE-WAY ANALYSIS OF VARIANCE ON PREVIEWED THIRTY-MINUTE MAILABLE LETTER PRODUCTION TESTS

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>(Variance Estimate)</th>
<th>F Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Within</td>
<td>1</td>
<td>9742.09</td>
<td>9742.09</td>
<td>15.73</td>
<td>0.0001</td>
</tr>
<tr>
<td>Differ.</td>
<td>177</td>
<td>109600.26</td>
<td>619.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>178</td>
<td>119342.35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The one-way analysis of variance of the mean scores yielded an F value which was highly significant. The null hypothesis was rejected and the research hypothesis was accepted.

Data Relating to Hypothesis Four B

During a period of three weeks, weeks eleven through thirteen of the second trimester, students were given a total of twelve opportunities to pass unpreviewed new material dictated at ten-word intervals from forty through ninety words
per minute. Students were given one test at forty, three tests at fifty, four tests at sixty, two tests at seventy, and one test each at eighty and ninety. Week eleven included speeds of forty, fifty, and sixty, week twelve included speeds of fifty, sixty, and seventy, and week thirteen included speeds of sixty, seventy, eighty, and ninety (see Appendix C). These twelve opportunities were confined to six sessions of thirty minutes each, in which students were to produce mailable letters. During all three weeks carbon copies and envelopes for letters were required for letters to be considered mailable. These results were computed into an Index of Success score obtained by multiplying the number of times a speed was achieved as a mailable letter by the speed, and dividing by ten. The Index of Success scores were statistically treated using one-way analysis of variance. These data are presented in Table XIX.

**TABLE XIX**

**MEAN SCORES AND STANDARD DEVIATIONS OF EXPERIMENTAL AND CONTROL GROUPS OF DATA RELATED TO TOTAL INDEX OF SUCCESS SCORES ON UNPREVIEWED THIRTY-MINUTE MAILABLE LETTER PRODUCTION TESTS**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>91</td>
<td>28.43</td>
<td>32.05</td>
</tr>
<tr>
<td>Control</td>
<td>88</td>
<td>14.83</td>
<td>22.89</td>
</tr>
</tbody>
</table>
The Index of Success scores showed that the experimental group attained a score 13.63 higher than the control group, indicating that the experimental group attained speeds at a higher rate, more frequently, and more accurately than did the control group. The standard deviations for both experimental and control groups were unusually high and the means low because unsuccessful opportunities to pass the thirty-minute mailable letter production tests were recorded statistically as zeros.

Hypothesis Four B was that students using selected transcription drills would achieve significantly higher and more accurate transcription rates, recorded at higher speeds, on unpreviewed mailable letter production tests, as measured by the Index of Success score. To test this hypothesis, the one-way analysis of variance was used to test the differences between the experimental and control groups. The one-way analysis of variance used in testing hypothesis Four B is presented in Table XX.
The one-way analysis of variance of the mean scores yielded an F which was highly significant. Therefore, the null hypothesis was rejected and the research hypothesis was accepted.

Data Related to the Sums of the Scores on Three-Minute Dictation Takes and Mailable Thirty-Minute Production Tests

The Index of Success scores for previewed and unpreviewed three-minute dictation tests and the Index of Success scores for previewed and unpreviewed thirty-minute mailable letter production tests were computed into a grand total Index of Success score. The grand total Index of Success scores were statistically treated using one-way analysis of variance. These data are presented in Table XXI.
## TABLE XXI

MEAN SCORES AND STANDARD DEVIATIONS OF EXPERIMENTAL AND CONTROL GROUPS ON PREVIEWED AND UNPREVIEWED THREE-MINUTE DICTATION TESTS AND PREVIEWED AND UNPREVIEWED THIRTY-MINUTE MAILABLE LETTER PRODUCTION TESTS

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>91</td>
<td>73.57</td>
<td>75.64</td>
</tr>
<tr>
<td>Control</td>
<td>88</td>
<td>54.97</td>
<td>66.25</td>
</tr>
</tbody>
</table>

Although there was no hypothesis formulated about the results of combined scores on the two tests (both previewed and unpreviewed) of three-minute dictation tests and thirty-minute mailable letter production tests, these data are reported as a further aid to analysis of the results. The one-way analysis of variance used in treating the foregoing data is presented in Table XXII.
TABLE XXII

SUMMARY OF THE ONE-WAY ANALYSIS OF VARIANCE ON THREE-MINUTE DICTATION AND THIRTY-MINUTE MAILABLE LETTER PRODUCTION TESTS

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>(Variance Estimate) Mean Square</th>
<th>F Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1</td>
<td>64072.06</td>
<td>64072.06</td>
<td>15.8152</td>
<td>0.0001</td>
</tr>
<tr>
<td>Within</td>
<td>177</td>
<td>717079.74</td>
<td>4051.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differ.</td>
<td>178</td>
<td>781151.80</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The one-way analysis of variance of the mean scores on the sum of the two criterion measures showed an F value of 15.82. The difference in the means between the groups was significant at better than the .0001 level.
An additional source of information with respect to the ability of students in both groups to pass three-minute dictation tests is presented in Table XXIII.

**TABLE XXIII**

**TOTAL NUMBER AND PERCENTAGE OF PREVIEWED AND UNPREVIEWED THREE-MINUTE DICTATION TESTS AT EACH DICTATION SPEED***

<table>
<thead>
<tr>
<th>Speed</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Experimental</strong></td>
<td>4</td>
<td>38</td>
<td>27</td>
<td>30</td>
<td>2</td>
<td>1</td>
<td>102</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>40</td>
<td>30</td>
<td>8</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>83</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Speed</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Experimental</strong></td>
<td>90</td>
<td>69</td>
<td>65</td>
<td>34</td>
<td>14</td>
<td>0</td>
<td>272</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>69</td>
<td>42</td>
<td>24</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>148</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Speed</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Experimental</strong></td>
<td>15.54</td>
<td>17.68</td>
<td>15.21</td>
<td>10.58</td>
<td>2.64</td>
<td>.16</td>
<td>61.82</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>18.02</td>
<td>11.90</td>
<td>5.29</td>
<td>2.98</td>
<td>.00</td>
<td>.00</td>
<td>38.18</td>
</tr>
</tbody>
</table>

*Includes only tests completed with 95 percent accuracy.
A total of 605 three-minute dictation tests, both previewed and unpreviewed material, were passed by both groups. Of this number, 374 (61.82 percent) were passed by the experimental group and 231 (38.18 percent) were passed by the control group. The experimental group passed more than one-third more three-minute dictation tests than did the control group. The largest number of acceptable test scores, 109 (18.02 percent), was passed by the control group at 40 words a minute. The next largest number of passing test scores, 107 (17.68 percent), was passed by the experimental group at 50 words a minute. The next largest numbers of test scores passed were at speeds of 40, 60, and 70 by the experimental group and at 50 by the control group.

The 605 three-minute dictation tests passed represented 16.09 percent of the total of 3,759 three-minute tests dictated. Data not reflected in the table (see Appendix H) revealed that 83.24 percent of both groups passed at least one three-minute dictation test of either previewed or unpreviewed material. Further analysis revealed that of the twenty-one three-minute dictation tests dictated, 89.01 percent of the experimental group and 77.27 percent of the control group passed at least one three-minute dictation test with 95 percent accuracy.
An additional source of information with respect to the ability of students in both groups to transcribe mailable letters is presented in Table XXIV.

**TABLE XXIV**

**TOTAL NUMBER AND PERCENTAGE OF PREVIEWED AND UNPREVIEWED MAILABLE LETTERS AT EACH DICTATION SPEED**

<table>
<thead>
<tr>
<th>Number Previewed Mailable Letters</th>
<th>Speed</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>347</td>
</tr>
<tr>
<td>47</td>
<td>81</td>
<td>100</td>
<td>70</td>
<td>49</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>119</td>
</tr>
<tr>
<td>6</td>
<td>37</td>
<td>48</td>
<td>21</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number Unpreviewed Mailable Letters</th>
<th>Speed</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>413</td>
</tr>
<tr>
<td>12</td>
<td>104</td>
<td>164</td>
<td>77</td>
<td>21</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>216</td>
</tr>
<tr>
<td>10</td>
<td>57</td>
<td>89</td>
<td>39</td>
<td>9</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Percentage of Previewed and Unpreviewed Mailable Letters</th>
<th>Speed</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>69.41</td>
</tr>
<tr>
<td>5.40</td>
<td>16.89</td>
<td>24.11</td>
<td>13.42</td>
<td>6.39</td>
<td>3.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30.59</td>
</tr>
<tr>
<td>1.46</td>
<td>8.59</td>
<td>12.51</td>
<td>5.48</td>
<td>1.37</td>
<td>1.19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the total of 1,095 mailable letters produced, 760 (69.41 percent) were produced by the experimental group. A total of 335 (30.59 percent) were produced by the control group. The experimental group produced more than twice as many mailable letters as did the control group. Differences of this size were larger than could have been anticipated in view of the fact that both experimental and control groups were exposed to transcription during the first and second trimesters (see Appendices A and B). The largest number of mailable letters, 264 (24.11 percent), were produced by the experimental group at 60 words a minute. The next largest number of mailable letters completed by the experimental group were dictated at speeds of 50 and 70 and by the control group at the speed of 60. Of the 5,012 dictated letters, 21.85 percent were transcribed mailably.

Data not reflected in the table (see Appendix H) revealed that 69 percent of both groups produced at least one mailable letter of either previewed or unpreviewed material. Further analysis revealed that of the twenty-eight letters dictated, 77 percent of the experimental group and 61 percent of the control group produced at least one mailable letter.

Summary

Students using selected drills transcribed previewed material transcription tests at speeds higher than students not using drills. The level of significance was .04. There
were no significant differences on transcription tests of unpreviewed material. There were no significant differences in the experimental and control groups for accuracy scores on either previewed or unpreviewed material for the transcription tests.

Students in the experimental group achieved an Index of Success score higher than that for students in the control group on three-minute dictation tests for both previewed and unpreviewed material. The F value of 2.71 on previewed material was not significant at the .05 level; however, the F value of 20.34 on unpreviewed material was significant beyond the .01 level.

A total of 374 (61.82 percent) three-minute dictation tests were passed by the experimental group and a total of 231 (38.18 percent) were passed by the control group. Of the experimental group 89.01 percent, and 77.27 percent of the control group, passed at least one three-minute test.

Students in the experimental group achieved an Index of Success score higher than that for the students in the control group on thirty-minute mailable letter production tests for both previewed and unpreviewed material. The F value of 15.73 on previewed material was highly significant beyond the .01 level of significance and the F value of 10.61 on unpreviewed material was also highly significant beyond the .01 level of significance.
A total of 760 (69.41 percent) mailable letters were passed by the experimental group and a total of 335 (30.59 percent) were passed by the control group. Of the experimental group 77 percent, and 61 percent of the control group, passed at least one mailable letter.
CHAPTER BIBLIOGRAPHY


CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was the effect of the use of selected transcription drills in beginning shorthand on the ability of students to produce both typewritten copy and mailable letters from shorthand notes. The bases for comparison were five-minute timed transcription tests of both previewed and unpreviewed material, thirty-minute mailable letter tests of both previewed and unpreviewed material, and three-minute dictation tests of both previewed and unpreviewed material.

Four hypotheses dealt with speed and accuracy on timed transcription tests, two dealt with speed and accuracy on thirty-minute mailable letter tests, and two dealt with speed and accuracy on three-minute dictation tests.

Six experimental classes and eight control classes from eleven high schools in a large metropolitan school district participated. The classes were selected for the experimental or control groups on the socio-economic status of the schools in which they were located.

Students in the experimental group used transcription drills from the beginning of the first trimester of shorthand and were introduced to typewritten transcription the
second week of the fall trimester. Students in the control group were never formally taught transcription, used no drills, and were taught shorthand in a traditional manner except that typewritten transcription was introduced the sixth week of the fall trimester.

Students in the control group were introduced to transcription the sixth week of school, but formal transcription was not a part of their instructional program. They did transcribe from homework notes and did transcribe their three-minute takes. Students did not transcribe at the typewriter except during weeks one and six, until week seven (see Appendix B). From weeks seven through thirteen, students in the control group transcribed five-minute transcription tests from homework assignments, and some transcription of easy new material.

During the sixth week of the fall trimester of this study, all students in both experimental and control groups were given a five-minute timed writing and a five-minute transcription speed test from shorthand plate material. During the last seven weeks of the winter trimester, once a week both groups were given five-minute transcription tests dictated from new material. Twice a week both groups were given thirty-minute production tests from new material and during the last four weeks were given three-minute dictation tests from new material. The first three weeks of this time period, both groups were given three-minute dictation
tests once a week. All these tests were used for evaluation of the transcription skills of the experimental and control groups.

The experimental group was given practice transcription tests from their textbook beginning with the second week of school. During the next six weeks, additional five-minute transcription tests were given from shorthand homework notes and from dictated shorthand notes from their textbook for ten to fifteen minutes a day. After this period of time, new material was dictated and students transcribed in letter style, correcting all errors. After the winter trimester began and for the remainder of that trimester, additional drills were conducted in the experimental classes. From the beginning of the winter trimester, students entered a phase of intensive drills conducted from thirty to thirty-five minutes three days a week. At the end of the first six weeks of the second trimester, students completed this phase of selected drills. During the remainder of the trimester, the only drills were goal drills in which students tried to transcribe more words during each successive timing. Five minutes a day was spent on this activity three days a week until the end of the term.

An analysis was made of the relationships of students' scores on the five-minute transcription speed tests and on the five-minute straight copy typewriting tests with English grades, typewriting grades, number of semesters of each, and
whether students were concurrently taking these subjects. The analysis of covariance was used to equate these groups on initial transcription speed and initial typewriting speed, and English grades, typewriting grades, number of semesters of English, number of semesters of typewriting, and whether students were concurrently taking these subjects. After the transcription drills were administered to the experimental groups, previewed transcription speed tests, three-minute previewed dictation tests, and previewed production tests, graded on a mailable letter basis, were administered to both the experimental and control classes during weeks seven, eight, and nine of the winter trimester. During the final four weeks of the trimester, new material transcription speed tests, three-minute dictation tests, and mailable letter production tests were given to both groups. Comparison of changes beyond those attributable to initial differences were determined through the analysis of variance procedure.

Hypothesis One A was that students using selected transcription drills (experimental) would achieve significantly higher adjusted mean transcription rates on previewed timed transcription tests than would students not using such drills (control). In testing hypothesis One A it was found that the difference between the adjusted mean scores for the two groups yielded an F value greater than the .04 level. Therefore, hypothesis One A was accepted.
Hypothesis One B stated that students using selected transcription drills (experimental) would achieve significantly higher adjusted mean transcription rates on unpreviewed timed transcription tests than would students not using such drills (control). In testing hypothesis One B it was found that the difference between the adjusted mean scores for the two groups yielded an F value that was not significant; therefore, hypothesis One B was rejected.

Hypothesis Two A was that students using selected transcription drills (experimental) would achieve significantly higher adjusted levels of accuracy on timed previewed transcription tests than would students not using such drills (control). In testing hypothesis Two A it was found that the difference between the adjusted scores for the two groups yielded an F value that was not significant; therefore, hypothesis Two A was rejected.

Hypothesis Two B was that students using selected transcription drills (experimental) would achieve significantly higher adjusted levels of accuracy on unpreviewed timed transcription tests than would students not using such drills (control). In testing hypothesis Two B it was found that the difference between the adjusted scores for the two groups yielded an F value that was not significant; therefore, hypothesis Two B was rejected.
Hypothesis Three A was that students using selected transcription drills (experimental) would be able to record previewed dictation tests at rates equivalent to those attained by students not using such drills (control). In testing hypothesis Three A it was found that the difference between the adjusted scores for the two groups yielded an F value that was not significant. Therefore, the research hypothesis was accepted.

Hypothesis Three B was that students using selected transcription drills (experimental) would be able to record unpreviewed dictation tests at rates equivalent to those attained by students not using such drills (control). In testing hypothesis Three B it was found that the difference between the adjusted scores for the two groups yielded an F value that was significant beyond the .01 level. Therefore, the research hypothesis was rejected. The students in the experimental groups did significantly better than those in the control group.

Hypothesis Four A was that students using selected transcription drills (experimental) would transcribe at significantly higher rates and with significantly greater accuracy than the control group from dictation at higher speeds, on previewed mailable letter production tests, as measured by the Index of Success score. In testing hypothesis Four A it was found the difference between the adjusted scores for the two
groups yielded an F value that was highly significant, beyond the .01 level. The research hypothesis was accepted.

Hypothesis Four B was that students using selected transcription drills (experimental) would achieve significantly higher transcription rates with significantly greater accuracy than the control group, dictation at higher speeds, on unpreviewed mailable letter production tests, as measured by the Index of Success score. In testing hypothesis Four B it was found that the difference between the adjusted scores for the two groups yielded an F value that was highly significant, beyond the .01 level. The research hypothesis was accepted.

Findings

An analysis and interpretation of the data obtained revealed the following.

1. Students tend to take both trimesters of typewriting during the same school year, whether it is first or second-year typewriting. The majority of students in this study took first-year typewriting as freshmen and second-year typewriting as sophomores and juniors.

2. Students who were the fastest typists at the beginning of the first trimester continued to be the fastest typists throughout the experiment.

3. A significant correlation was achieved between students' English grade average and their typewriting grade average.
4. No significant correlation was present between students' English grade averages and their transcription speed and accuracy scores. Grades in English apparently were not a good predictor of achievement in transcription skills in this study.

5. Students' typewriting grade averages correlated significantly with their typewriting timed writing speed tests but were not of sufficient magnitude to be useful as predictive indices.

6. Students' initial accuracy scores correlated significantly with other accuracy scores but were not of sufficient magnitude to be useful as predictive indices. The students who were most accurate initially retained their relative position throughout the two trimesters.

7. Students' five-minute transcription tests for previewed material correlated significantly with all timed writings for speed, whether for timed writings or transcription, but were not of sufficient magnitude to be useful as predictive indices.

8. Students' five-minute transcription tests for unpreviewed material correlated moderately with all timed writings for speed, whether for timed writings or transcription, but were not of sufficient magnitude to be useful as predictive indices.

9. There were no significant correlations for accuracy scores on students' five-minute transcription tests.
10. Students using transcription drills achieved significantly higher results on transcription of five-minute transcription tests of previewed material than students not using these drills.

11. Students using transcription drills did not achieve significantly higher results on transcription of five-minute transcription tests of unpreviewed material than students not using these drills.

12. Students using transcription drills did not achieve significant levels of accuracy on transcription of five-minute transcription tests on previewed and unpreviewed material than students not using these drills.

13. Students using transcription drills achieved higher speeds on previewed three-minute dictation tests than those not using drills, but the results were not significant statistically at the .05 level.

14. Students using transcription drills achieved significantly higher speeds on unpreviewed three-minute dictation tests than those not using drills, and the results were statistically significant beyond the .01 level.

15. Students using transcription drills achieved higher percentages of all speed scores on three-minute dictation tests, except at 40 words a minute, than did students not using drills. Students in the experimental group passed 61.82 percent of all three-minute dictation tests, while students in the control group passed 38.18 percent.
16. Students using transcription drills achieved significantly higher and more accurate transcription rates and higher speeds on both previewed and unpreviewed mailable letter production tests than students not using these drills, and the results were statistically significant at the .01 level.

17. Students using transcription drills achieved a total of 347 previewed mailable letters compared to a total of 119 for students not using drills.

18. Students using transcription drills achieved a total of 413 unpreviewed mailable letters compared to a total of 216 for students not using drills.

19. Students using transcription drills produced 69.41 percent of all mailable letters, while students not using drills produced 30.59 percent of all mailable letters.

20. Students using transcription drills achieved higher percentages of all speeds from forty through ninety on mailable letters than did students not using drills.

21. Of students in the experimental group 89.01 percent, and 77.27 percent of the control group, passed at least one three-minute dictation test out of 21 dictated.

22. Of students in the experimental group, 77 percent achieved at least one mailable letter out of 28 dictated, as did 61 percent of the students in the control group. For both groups, 69 percent achieved at least one mailable letter of either previewed or unpreviewed material.
Conclusions

The following conclusions were formulated from an analysis of the findings of the study.

1. In the beginning stage of first-year shorthand classes, the use of transcription drills will tend to increase the students' transcription rate on previewed five-minute transcription tests.

2. The use of transcription drills in first-year shorthand classes may not necessarily improve the students' accuracy on unpreviewed transcription tests.

3. The use of transcription drills in first-year shorthand classes enables students to record dictation of unpreviewed material and transcribe at higher rates with greater accuracy during three-minute dictation tests.

4. The use of transcription drills in first-year shorthand classes is an effective method which enables students to record and transcribe dictation on previewed material of three-minute dictation tests.

5. The use of transcription drills in first-year shorthand classes enables students to record dictation and transcribe at higher rates, with greater accuracy both previewed and unpreviewed material, during a thirty-minute mailable letter production test.
Recommendations for Further Research

On the basis of the findings and conclusions of this study, the following recommendations are made.

1. It is recommended that a similar study be conducted utilizing other types of drills in order to determine their effectiveness.

2. It is recommended that a study be conducted on the effect various patterns of drills might have on the achievement of three-minute dictation takes and thirty-minute mailable letter production tests.

3. It is recommended that this study be replicated on a semester basis, rather than on a trimester basis, because students tend to improve skill in the longer period of time.

4. It is recommended that a similar study be conducted using computer-controlled dictation materials.
APPENDIX A

CALENDAR OF ACTIVITIES--EXPERIMENTAL GROUP

Shorthand 1
Fall Trimester

Week 1  Introduce the first five lessons the first week of school. Give a five-minute timed writing.

Week 2  After Labor Day, repeat the first five lessons, especially if you have new students coming in. Start students writing the second week (September 28) but start them erasing September 24.

Weeks 2-11  Complete all theory lessons (through Lesson 47) by the end of the eleventh week (November 9). If some classes can complete theory sooner, do so. Start using Russon's ABC's of Dictation as soon as you complete brief forms (after Lesson 33); this is easy new material.

Week 6  Give five-minute timed writings form 101 Timed Writings and five-minute typewritten transcription tests on October 4-5; complete all these by October 8. Transcription will be from plate material with 50-space line and double spacing; students will erase. Do two of each of these and turn in to your consultant for recording.

Week 7  Begin transcription in letter style from homework assignment notes, with erasing.

Weeks 9-13  Give transcription from ABC's of Dictation (easy new material dictated). Transcribe in letter style with errors erased, but no carbons or envelopes.

Shorthand 2
Winter Trimester

Weeks 1-6  Use as supplementary textbook: Integrated Secretarial Studies by Balsley and Robinson, South-Western Publishing Co. Spend approximately 30-35 minutes per day on Tuesday, Wednesday, and Thursday of each of Weeks 1-6 on transcription drills as outlined below. Unless otherwise
directed by instructions in the textbook, all timings will be five minutes.

Week 1  
Lesson 76, p. 211

76A  Typewriting from printed copy.

76B  How to read for thought phrases and type in thought phrases.

76C  Transcribe same material from shorthand plates as typed in 76A—Vocabulary preview.

76D  Teachers dictate same material as 76D and have students transcribe from their own shorthand notes. Teachers: Notice that this step is not included in the textbook for any week.

Follow all directions as given in textbook, especially having students after each drill compare their achievement with previous drill.

Week 2  
Have students do the same drills as last week except from Lesson 77, p. 213, and add: A, B, C, plus dictated notes transcribed.

77D  Erasing and correcting errors.

77E  Comparison writing with corrections.

Week 3  
Drills same as before except from Lesson 78, p. 215. Drills 78A, B, C, D, E, plus dictated notes transcribed.

Week 4  

Week 5  
Christmas Holidays.

Week 6  
Drills same as before except from Lesson 80, p. 220. Drills A, B, C, plus dictated transcribed notes.

Week 7  
On January 7 give two five-minute timed writings from 101 Timed Writings and on January 8 give five-minute transcription tests to record. Turn in to your consultant.
Weeks 7-13 From now on you will use your textbook for material to use for approximately five minutes per day, three days a week, for goal-setting drives. Teachers are to instruct students how to do goal-setting drills:

"Type each sentence as many times as you can in one-half minute. Your teacher will call stop at the end of a half minute, and you should start transcribing the next sentence, trying to transcribe as many words on each succeeding try as you did on the first sentence."

It is preferable that you have students do these drills three days consecutively in one week; Tuesday, Wednesday, and Thursday are again suggested if possible.

| Week 7       | Goal drive 1 from Lesson 23, letter 177, January 8. |
|             | Goal drive 2 from Lesson 24, letter 186, January 9. |
|             | Goal drive 3 from Lesson 25, letter 192, January 10. |

| Week 8       | Goal drive 4 from Lesson 28, letter 216, January 15. |
|             | Goal drive 5 from Lesson 29, letter 224, January 16. |
|             | Goal drive 6 from Lesson 30, letter 231, January 17. |

Weeks 8-14 Give transcription speed tests and production letter tests weekly. Material will be provided to you and results of these tests will be recorded by you.

| Week 9       | Goal drive 7 from Lesson 33, letter 254, January 22. |
|             | Goal drive 8 from Lesson 34, letter 262, January 23. |
|             | Goal drive 9 from Lesson 35, letter 269, January 24. |

| Week 10      | Goal drive 10 from Lesson 38, letter 292, January 29. |
|             | Goal drive 11 from Lesson 39, letter 299, January 30. |

| Week 11      | Goal drive 13 from Lesson 43, letter 331, February 5. |
|             | Goal drive 14 from Lesson 44, letter 339, February 6. |
|             | Goal drive 15 from Lesson 45, letter 346, February 7. |

| Week 12      | Goal drive 16 from Lesson 48, letter 370, February 12. |
Week 13  
Goal drive 19 from Lesson 53, letter 408, February 19.  
Goal drive 20 from Lesson 54, letter 416, February 20.  
Goal drive 21 from Lesson 55, letter 423, February 21.

Week 14  
Give final exams according to test schedule.
APPENDIX B

CALENDAR OF ACTIVITIES--CONTROL GROUP

Shorthand 1
Fall Trimester

Week 1  Introduce the first five lessons the first week of school. Give a five-minute timed writing.

Week 2  After Labor Day, repeat the first five lessons, especially if you have new students coming in. Start students writing the second week (September 4) as you repeat lessons. Transcribe in longhand.

Weeks 2-11  Complete all theory lessons (through Lesson 47) by the end of the eleventh week (November 9). If some classes can complete theory sooner, do so.

Week 6  Give five-minute timed writings from 101 Timed Writings and five-minute typewritten transcription tests on October 4 and 5; complete all these by October 8. Transcription will be from plate material and students will erase, with 50-space line and double spacing. Do two of each of these and turn in to your consultant for recording.

Week 7  Begin transcription from homework assignment notes with five-minute timings, 50-space line, double spacing, but without erasing. Do not let students type until this point, except in Week 1 and Week 6 as directed above.

Weeks 9-13  Give transcription from ABC's of Dictation (easy new material dictated). Transcribe in letter style with errors erased, but with no carbons or envelopes. Do not use ABC's until this point.

Shorthand 2
Winter Trimester

Weeks 1-6  Follow activities as outlined in your course guide. Have students transcribe for ten minutes from homework notes using manuscript form. Errors should be erased. Subtract one word for each overlooked (misplaced words, wrong words, punctuation). Divide the total words typed by ten. This counts 10 per cent of students' grade this six weeks.
Give previewed new material three-minute dictation tests, with typewritten transcription. This counts 50 per cent of students' grade this six weeks.

You may introduce transcription of mailable letters the last three weeks of this six weeks. This counts 20 per cent of students' grade this six weeks. Use standards as outlined in course guide.

Weeks 7-13  Follow Calendar of Testing Activities.

Week 14  Give final exams according to test schedule.
## APPENDIX C

**CALENDAR OF TESTING ACTIVITIES**

### Shorthand 2

**Winter Trimester, January and February, 1974**

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APPENDIX D

FORT WORTH PUBLIC SCHOOLS CALENDAR

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August 27-November 20

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Winter Trimester, 1973-1974
November 26-February 28

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| Week 2     | Dec. 3   | 4  | 5  | 6  | 7  | Dec.  5|
| Week 3     | Dec. 10  | 11 | 12 | 13 | 14 | Dec.  5|
| Week 4     | Dec. 17  | 18 | 19 | 20 | 21 | Dec.  5|
| Week 5     | Dec. 24  | 25 | 26 | 27 | 28 | Dec.  5|
| Week 6     | Jan. 1   | 2  | 3  | 4  | 5  | Jan.  5|
| Week 7     | Jan. 7   | 8  | 9  | 10 | 11 | Jan.  5|
| Week 8     | Jan. 14  | 15 | 16 | 17 | 18 | Jan.  5|
| Week 9     | Jan. 21  | 22 | 23 | 24 | 25 | Jan.  5|
| Week 10    | Jan. 28  | 29 | 30 | 31 | 1  | Feb.  4|
| Week 11    | Feb. 4   | 5  | 6  | 7  | 8  | Feb.  4|
| Week 12    | Feb. 11  | 12 | 13 | 14 | 15 | Feb.  4|
| Week 13    | Feb. 18  | 19 | 20 | 21 | 22 | Feb.  4|
| Week 14    | Feb. 25  | 26 | 27 | 28 |   | Mar.  4|

*While the trimester has only twelve weeks of instruction, the weeks were numbered to include the holidays.

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APPENDIX E

PARTICIPATING SCHOOLS

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Schools are weighted by socio-economic status as designated by the secondary principals of the metropolitan school district in which the study was conducted, by achievement test scores of the students in the schools (these scores are available from the Research Department of the school district), and by information used in matching the schools in a previous research study conducted in the district by Anderson.

School A 4* \[ \text{School G 4} \]
School B 4 \[ \text{School H 3} \]
School C 3 \[ \text{School I 2} \]
School D 2 \[ \text{School J 2} \]
School E 1** \[ \text{School K 2} \]
School F 1 \[ \text{School L 2} \]

\[ 15 \div 6 + 2.5 \quad 15 \div 6 + 2.5 \]

* 4 = high
** 1 = low
APPENDIX F

TEACHER INFORMATION

Shorthand Study

In order to show that teachers in both groups in the study are of comparable experience, age, background, etc., will you please complete the following:

GROUP: Experimental____ Control____

AGE: 21-30____ 31-40____ 41-50____ over 50____

YEARS OF TEACHING EXPERIENCE:______________ (include 1974)

YEARS OF TEACHING SHORTHAND:______________ (include 1974)

UNDERGRADUATE MAJOR:________ MINOR:________

SCHOOL WHERE OBTAINED:________________________________________

SHORTHAND METHODS COURSE: Yes____ No____

HOURS PAST BACHELOR'S DEGREE:______ (as of February 28, 1974)

DATE EXPECTED TO RECEIVE MASTER'S DEGREE:____________________

GRADUATE SHORTHAND METHODS COURSE: Yes____ No____

GRADUATE DEGREE:________ MAJOR:________ MINOR:________

SCHOOL WHERE OBTAINED:________________________________________
APPENDIX G

STUDENT QUESTIONNAIRE

Name_________________________________________ School No._______

Date__________

I am a _____ Junior _____ Senior

(Circle one)

I took Typing 1 as a Freshman Sophomore Junior Senior
Typing 2 as a Freshman Sophomore Junior Senior
Typing 3 as a Freshman Sophomore Junior Senior
Typing 4 as a Freshman Sophomore Junior Senior

I am currently enrolled in Typing 1  2  3  4  none

I am currently enrolled in VOE Lab 1  2  3
VOE Coop 1  2  3  none

I am currently enrolled in English  5  6  7  8  none
# APPENDIX H

## INDEX OF SUCCESS SCORES

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* Experimental scores-- 2001-2097

Control scores-------- 2098-2186
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