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## A Survey of the Cedar City High School Graduates Who have Taken the One-Year Gregg Shorthand Course

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A SURVEY OF THE CEDAR CITY HIGH SCHOOL GRADUATES

WHO HAVE TAKEN THE ONE-YEAR

GREGG SHORTHAND COURSE

by

Richard Manning Webster

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Business Education

UTAH STATE UNIVERSITY  
Logan, Utah

1968

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Richard Manning Webster

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ABSTRACT

A Survey of the Cedar City High School Graduates

Who have Taken the One-Year

Gregg Shorthand Course

by

Richard Manning Webster, Master of Science

Utah State University, 1968

Major Professor: Mrs. Floris S. Olsen

Department: Business Education

Statement of Purpose: The purpose of this study was twofold:

(1) to ascertain the value of the training received in the one-year shorthand program at the Cedar City High School, Cedar City, Utah, as indicated by the graduates of the program; and (2) to suggest ways in which the Cedar City High School business education department may improve the curricula insofar as the one-year shorthand program is concerned.

Methods and Sources Used: A follow-up study in the form of a survey was made of the graduates of Cedar City High School who participated in the one-year shorthand program. Permission to perform the study was obtained from the school administration, and names of participants were taken from the school records. A questionnaire containing pertinent information was sent to each graduate participating in the program during the years 1959-1960 and 1965-1966. The responses of each were compiled as a part of this thesis.

Summary of Findings: After graduating from the vocational shorthand program, students are finding jobs which require little or

no shorthand skill. With 29 out of 76 graduates finding employment in which they can use their shorthand skill, a great deal of information and sources need to be made available to students concerning shorthand job opportunities.

Thirty of the graduates made an effort to strengthen their shorthand skills in business college, junior college, and university programs. Sixty-two (72 per cent) of the responding graduates indicated a lower ability level in shorthand than they had attained in high school. Students may not be aware of the educational opportunities available in the community in which they can refresh their shorthand skills.

The stenographic office practice course is not used to provide practice in dictation and transcription. Sixty per cent of the graduates were allowed to skip this valuable part of the course in which reinforcement of shorthand skills can be accomplished. Evidently, students would rather take other courses in the school curriculum than continue with the advised shorthand program.

Students do not seem to be developing high rates of transcription speeds because of the limited time available in which the skill is taught, learned, and developed. Evidently dictation and transcription skills are taught and learned as separate activities instead of as a fusion of both. The low proficiency demonstrated in transcription activities (18 to 25 words a minute) may indicate the need for a fused program.



## CHAPTER I

### INTRODUCTION

#### Origin and Nature of Problem

Tonne questioned the advisability of one-year shorthand programs by saying:

The fact that most students in high school now 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.

On the other hand, Strony defended one-year shorthand programs when she said:

Five years ago, it would not have been possible to develop a marketable skill in this length of time but now with the simplified version of shorthand, many teachers are doing a superb job with a one-year program. They know where to cut corners, but they make haste slowly the first week or two in order to lay a good foundation of confidence and understanding and to take care of late comers.

Taylor summarized the research related to one-year shorthand programs when she stated:

Studies of achievement of students taking one year of shorthand have not generally supported the contention that one year of shorthand training is sufficient to enable those students to develop enough skill to obtain an office position.

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<sup>1</sup>Herbert A. Tonne. "The Present and Future of Shorthand," Business Education Forum, XV (October, 1960), p. 12.

<sup>2</sup>Madeline S. Strony. "Streamlining Shorthand Instruction," United Business Education Association Forum, IX (October, 1954), p. 12.

<sup>3</sup>Helen Williams Taylor. Determination of Tentative Objectives and Evaluation of Achievement in First-Year Shorthand in High Schools of Georgia. M. S., The University of Tennessee (Knoxville), 1961,

The Cedar City High School in Cedar City, Utah, has a one-year symbol shorthand program in which students can participate. Graduates from this Simplified Gregg Shorthand program have had the experience of learning a marketable skill in a short period of time. What they have done with this skill is of interest to the business educators who have worked hard to make the program worthwhile for the students involved.

#### Purpose of the Study

The purpose of this study was twofold: (1) to ascertain the value of the training received in the one-year shorthand program at the Cedar City High School, Cedar City, Utah, as indicated by the graduates of the program; and (2) to suggest ways in which the Cedar City High School business education department may improve the curricula insofar as the one-year shorthand is concerned.

#### Procedures

A following study in the form of a survey was made of the graduates of Cedar City High School who participated in the one-year shorthand program. Permission to perform the study was obtained from the school administration, and names of participants were taken from school records. A questionnaire containing pertinent information was sent to each graduate and the responses of each were compiled as a part of this thesis.

#### Elements of the Study

The Educational Specifications for the Cedar City High School were obtained. Under the title of Business Education Educational

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pp. 135 cited, NBEQ, (October, 1962), pp. 64-65. See also Ruth I. Anderson and Martha D. Bright, "Lets Look at the One-Year Shorthand Program," Journal of Business Education, XXXI (November, 1951), p. 117.

Considerations the specifications for the shorthand program were

found:

- 2.30 Selected--Stenographic Block Program, the block program is set up for one year's duration. The periods must be consecutive and open only to students selected on the basis of aptitude, intelligence, personality, past performance, and desire to secure vocational skill.

The following elements are included:

- 2.31 Intensive review of typewriting--skill and problem solving.
- 2.32 Shorthand theory and transcription with a minimum goal of 80 WAM for three minutes. Typewriting will be used for all transcription exercises.
- 2.33 The balance of the formal course content will consist of the essential elements of office procedures, skills, knowledges, and related attitudes that are essential for the beginning stenographic employee in the Cedar City community.
- 2.34 Finally, each student will receive from three to five weeks of cooperative work education in a local business office supervised by a member of the business education staff.<sup>4</sup>

#### Delimitations

The study was limited in scope as follows:

1. Only those graduates of the Cedar City High School who had completed the one-year shorthand course at Cedar City High School since 1959 were included.
2. Excluded from consideration was the level of shorthand of each graduate at the time he or she graduated from the one-year shorthand program.

#### Definitions of terms

Marketable skills.--Marketable skills are those skills which

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<sup>4</sup> Educational Specifications for the new Cedar City High School. Stanford University School of Education, Western Regional Center, Educational Facilities Laboratories, New York: 1960, p. 11.

enable a graduate from a vocational shorthand course to acquire initial employment from businessmen who accept these skills as being adequate for beginning work as a stenographer.

Salable skill.--Salable skills are synonymous with marketable skills.

Average ability student.--Average ability students are those who receive a grade of "C" in their academic studies.

One-Year shorthand program.--The term one-year shorthand program as used in this paper means spending only two semesters of 36 weeks duration to develop shorthand skills and knowledges.

CHAPTER II  
SURVEY OF RELATED LITERATURE

An examination of the literature available on the subject of one-year shorthand programs was made. Studies concerning both successful and unsuccessful one-year programs were examined. In addition, practices and principles from studies regarding teacher methods and student learning in successful one-year shorthand programs were explored.

Studies Concerning One-Year Shorthand Programs

Anderson and Bright made a study in 1951 to determine if Gregg Shorthand Simplified would enable teachers to train students to the point of vocational competency in one year. For background and comparison, an investigation of the achievement of students taking one year of shorthand in the high schools of Texas (conducted by Anderson in 1949) was used. Similar materials and procedures were followed throughout the 1951 effort.

As in the 1949 study, findings were based on an analysis of the transcripts of students from 81 high schools in Texas. These schools were selected from towns of 3,000 or more population, representing all parts of the state. The test copy was similar to that used in 1949. The tests consisted of dictation at five different levels: Test I was dictated at 40 words a minute; Test II at 50 words a minute; Test III at 60 words a minute; Test IV at 70 words a minute; and Test V at 80 words a minute. Each test included two letters with

a total dictation period of three minutes. All words in the 1949 and 1951 tests were checked with the Horn-Peterson list and Thorndike's word list. The teacher was instructed to dictate the tests which most nearly fit his students' dictation rates.

A total of 1,131 students from 81 schools were included in the 1951 study. These students had completed approximately eight months of shorthand. Examination of the results of the testing shows that a considerably higher percentage of students transcribed the tests dictated at 40 and 60 words a minute than in 1949. Also, a slightly higher percentage of students in 1951 transcribed the 80 words a minute dictation. There was a decrease of approximately 10 per cent in the number of students transcribing tests below 60 words a minute in 1951 as compared with 1949.

Anderson and Bright had the following to say about the one-year shorthand program as it was being taught at the time:

Unless teachers give more attention to dictation and transcription practice in the one-year shorthand course, such a course in the high school curriculum can scarcely be justified. The simplification of a shorthand system may enable a student to learn shorthand more easily than in the past, but it cannot rectify poor teaching practices. Either transcription training must be provided in the one-year course or the course should in most cases be eliminated from the high school program.<sup>5</sup>

Green made a survey in 1951 in which she found that 71 per cent of the small high schools in Illinois offered only one year of shorthand. Her data came from 175 returned questionnaires (400 accredited Illinois high schools with enrollments of one hundred fifty or less were surveyed; she had a 43.75 per cent response).

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<sup>5</sup>Anderson and Bright, p. 120.

In Green's study, teachers in schools which offered but one year of shorthand were asked to reply to the following:

Query: In your judgment would any of your students be capable of taking office dictation at the end of the year? If so, would you say (a) most of them? (b) about half of them? (c) an exceptional one or two? (d) any other estimate?

TABLE 1.--Replies to Query on Teacher's Evaluation of Vocational Proficiency of Shorthand I Pupils at End of Year

Reply	No. of Schools	Per Cent of Schools
(a) Most of them	12	14.2 <sup>a</sup>
(b) About half of them	20	23.5
(c) An exceptional one or two	35	41.1
(d) Other estimates		
(1) one third	6	7.1
(2) one fourth	4	4.7
(3) None	4	4.7
No reply	4	4.7
Sum	85 <sup>b</sup>	100.0

<sup>a</sup>Two-thirds of these schools had class enrollments of five or less; one-fourth had enrollments under nine; and one had a class of eighteen.

<sup>b</sup>Number of schools actually teaching one year of shorthand only in 1948-1949.

In Green's study of the schools offering but one year of shorthand, 41.1 per cent said perhaps an exceptional one or two would be capable of taking and transcribing office dictation at the end of one year. Twenty per cent thought that approximately 50 per cent of them could, and 14.2 per cent thought that most of them would be

<sup>6</sup>Helen Hinkson Green. "The Present Status of Shorthand in the Small High Schools of Illinois," Unpublished Master's Thesis, University of Colorado, 1949, p. 55.

capable of so doing.<sup>7</sup>

Green also found that 24 of the 28 (85.7 per cent) high schools offering two years of shorthand "thought that two years was a minimum of preparation for vocational use. Seven per cent thought a minimum of two years of preparation not necessary."<sup>8</sup>

Of the 28 responding schools, 16 (57.1 per cent) indicated that the results and values obtained from teaching two years of shorthand "justify its retention as a two-year subject in the curriculum." Twenty-five per cent indicated a second year of shorthand was not justified (7 per cent), and three (3.6 per cent) thought it depended upon the community. (Two schools made replies that could not be considered.)<sup>9</sup>

"If shorthand is offered, two years should be offered if it is at all possible to do so, with the second year's being a part of an integrated unit, such as secretarial practice."<sup>10</sup> This statement was made by Green as a recommendation based on her study of small high schools in Illinois. She also made the following recommendations for up-grading the one-year shorthand program:

1. Pupils should not be admitted until they have successfully completed a year of typewriting.
2. Pupils should not be admitted unless they show marked

<sup>7</sup>Ibid., p. 56.

<sup>8</sup>Ibid., p. 58.

<sup>9</sup>Ibid., p. 60.

<sup>10</sup>Ibid., p. 79.



proficiency in English.<sup>11</sup>

During the 1953-1954 and 1954-1955 school years, 5,522 pupils took one year of shorthand in 322 Iowa Schools. Jones' survey established the following:

1. A large majority of both business educators and pupils favor the teaching of shorthand for vocational purposes.
2. A shorthand writing speed between 75 and 100 words a minute is considered necessary for the beginning stenographer.
3. A shorthand transcription rate of about 25 words a minute is the most probable rate beginning stenographers are expected to attain.
4. Few students are capable of transcribing notes into mailable copy after completing only one year of shorthand training.<sup>12</sup>

Jones reported an investigation made by Ralph Novak which was similar to his own study as reported above. Novak sent a questionnaire to teachers in selected Iowa secondary schools working with one-year shorthand programs. A total of 65.35 per cent of the responding teachers taught the one-year shorthand course for vocational use. Novak found that 62.2 per cent of the students taking the one-year course were enrolled for vocational reasons. Novak also stated that the teaching of shorthand as it had been taught in the small high schools of Iowa was unjustified.<sup>13</sup>

<sup>11</sup>Ibid., p. 80.

<sup>12</sup>D. G. Jones, "An Evaluation of a One-Year Shorthand Program in Secondary Schools with Particular Reference to the Public Secondary Schools of Iowa" (University of Iowa, Unpublished Master's thesis, 1956), p. 90; as cited by Sister Mary Donna Mee, "A Study to Determine the Feasibility of an Accelerated Shorthand Program in the Secondary Schools Conducted by the Sisters of Mercy," (Northern Illinois State University, Dekalb, Illinois, Master's thesis, July 16, 1959), p. 51.

<sup>13</sup>Mee, p. 20.

Colglazier made an inquiry to determine the justification of offering shorthand in the small Indiana high schools. Out of the 611 high schools surveyed, 167 offered a second year of shorthand. He found from his investigation that only 16.6 per cent of the students taking the one-year course obtained employment; 36.6 per cent of the students who completed the one-year course were actually qualified to accept employment as a stenographer.<sup>14</sup>

In a 1959 survey in Illinois in which 250 questionnaires were returned, Toll reported that very few shorthand teachers said that the students in their schools develop sufficient shorthand and transcription ability during one year of shorthand to meet adequately the standards for beginning stenographers in the local community.<sup>15</sup>

MacRae, in his study of the status of shorthand in the Iowa public schools, indicated the following conclusions from the responses of business educators to his survey:

1. Only one-fifth of the teachers in the one-year courses indicated that "most" of the students would be capable of handling office dictation at the end of the one-year program.
2. Standards set for dictation at the end of first-year shorthand varied from 50 to 100 words a minute. Over one-half of the teachers who used a definite grading standard did indicate 60 words a minute as a minimum standard.
3. While scarcely any of the first-year students could qualify for the better stenographic and secretarial positions, the upper-quarter of the second-year students could expect to qualify. "Again, the

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<sup>14</sup>Ibid., p. 62.

<sup>15</sup>Lewis R. Toll, "Shorthand Offerings in Illinois High Schools," Illinois Vocational Progress, XVII (February, 1960), p. 254.

second year of training would vastly upgrade employment potential."<sup>16</sup>

4. Where practicable, two years of shorthand training should be offered.<sup>17</sup>

Douglas, Blanford, and Anderson reported that surveys measuring the dictation and transcription ability of students who had completed only one year of shorthand have shown that the majority of these students were unable to produce a single mailable letter dictated at 60 words a minute.<sup>18</sup>

Frink found that only 11 to 20 per cent of those completing one year of instruction in shorthand in the secondary school were capable of producing mailable transcripts from material dictated at 60 words a minute.<sup>19</sup> The results of Frink's study have been used by other business educators to substantiate poor results, which they claim to be typical of the situation.<sup>20</sup>

The One-Year Shorthand Program as Viewed by  
Business Educators

Based upon the opinions of a limited number of selected business educators, Gratz found that 76.3 per cent of the educators maintained

<sup>16</sup> Donald A. MacRae, "A Study of the Status of Shorthand in the Public Secondary Schools of Iowa, With Special Attention to Standards in First Year Shorthand in Selected Schools," (State University of Iowa, Ph. D. dissertation, February, 1962), p. 272.

<sup>17</sup> Ibid.

<sup>18</sup> Lloyd V. Douglas, James T. Blanford, and Ruth I. Anderson, Teaching Business Subjects (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1958), p. 204.

<sup>19</sup> Inez Frink, "A Comprehensive Analysis and Synthesis of Research and Thought Pertaining to Shorthand and Transcription," Business Education Forum, XVII (October, 1963), p. 12.

<sup>20</sup> Berle Haggblade, "Shortening the Learning Time in Shorthand," Business Education Forum, XVII (October, 1963), p. 11.

that more than three semesters were needed to establish vocational proficiency in symbol shorthand. Twenty-one per cent were of the opinion that initial job competency could be developed in a two-semester course in shorthand.<sup>21</sup>

Kariam, in a 1960 survey of a nation-wide sampling of shorthand teachers, found the following information:

1. Of the teachers answering, 36 per cent agreed that a trend existed in offering only one year of shorthand in high schools; 64 per cent of the teachers did not agree.

2. Eighty-two per cent of the teachers were of the opinion that one year of training was not sufficient for developing vocational competence in shorthand. These teachers also indicated that the one-year course does not provide sufficient transcription training as much of the class time was concentrated upon learning shorthand theory.

He concluded that business education teachers did not consider that the one-year course provided enough time to produce a marketable stenographic skill for high school students.<sup>22</sup>

#### Successful One-Year Shorthand Programs

Gawronski reported that a shorthand program was developed for the academically talented shorthand students. The results of the experiment indicated that the marginal students in the experimental

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<sup>21</sup>Jerre E. Gratz, "A Study of Fundamental Issues in Business Education, Based Upon the Opinions of Business Educators Regarding These Issues," (South-Western Publishing Company: Monograph 106, Major Issues in Business Education; April, 1962), p. 69.

<sup>22</sup>Bill J. Kariam, "Is Shorthand A Dying Subject?" Business Education World, XXXXII (December, 1961), p. 23.

group did not achieve desired standards.<sup>23</sup> Gawronski contended that with proper teaching techniques and methods, gifted (academically talented) students can acquire the same degree of proficiency in shorthand skill in one year as average-ability students can in a two-year shorthand course.<sup>24</sup>

Strony had the following to say about making one-year shorthand programs successful:

They (successful teachers) know where to cut corners, but they make haste slowly the first week or two in order to lay a good foundation of confidence and understanding and to take care of late comers. Writing is introduced about lesson 6. Usually only one letter is assigned for writing practice the first night; two the second night; three the third night, and so on, until the students are writing the whole assignment. From the time writing is introduced, the class takes dictation (with books open) and each piece of material used is dictated two or three times. No attempt is made to cover the entire lesson--it is just sampled. Since every sixth lesson is a review, these teachers go from 5 to 7, from 11 to 13, etc., as teaching lessons, using every 6th lesson for sight reading.<sup>25</sup>

Strony maintained that the amount of time the teacher has for the program is not important. How the teacher uses the time is important. The following general practices were suggested for making the best use of available time:

1. Sell the subject. The first lesson must be presented in an interesting and enthusiastic way so that many students will say, 'That wasn't bad at all.'
2. Take students into your confidence. Tell them how they learn shorthand--that they will not master a lesson

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<sup>23</sup>James A. Gawronski, "A Study to Find the Feasibility of a One-Year Shorthand Course for the Academically Talented," National Business Education Quarterly, XXXVII (October, 1965), p. 20. Marginal students in this study are "C" (average-ability) pupils.

<sup>24</sup>James A. Gawronski, "We Tried a One-Year Shorthand Program for Academically Talented Students," Business Education World, XLII (May, 1964), p. 18.

<sup>25</sup>Strony, p. 12.

immediately; nor will they stay with a single lesson until it is mastered. Let them turn back a few lessons (when they become discouraged) and they will see that a lesson that gave them trouble a week ago is now much easier.

3. Concentrate on the reading approach for at least the first few lessons. It gives the students a chance to become acquainted with the shorthand alphabet before trying to write the characters.

4. Teach them to study. They must be taught what to do and how to do it. . . . it is important to stress the reading of the lesson before it is written.

5. Complete the entire lesson. After the writing is underway for a few days, it is better to write the entire lesson through once than to do half of a lesson twice. It is the re-creation of the outline rather than just the repetition that helps in the final mastery.

6. Allow time for pretranscription training.<sup>26</sup>

Strongy suggested the following activities as a necessary part of every beginning shorthand course:

1. The classroom diet that pays off is one in which the greater part of the period is spent on reading a dictation--dictation of connected matter rather than isolated word lists.

2. Presentation of the new lesson should be placed on the chalkboard in small doses, with frequent recall, and interspersed with other activities.

3. In the early stages, all shorthand should be read from the textbook rather than from homework notes.

4. Preview the new assignment that will be read and written tonight. Since considerable time is spent at the board, in the spelling and reading of word lists, streamline the homework by having the students copy only the connected matter (reading it first, of course). For further streamlining, use the key for a quicker and greater coverage of material.

5. In developing speed, greater progress is made if more time is spent on short takes than on the usual five-minute dictation. One- and two-minute takes at higher and higher speeds (not forgetting control) will make it easier to take a five-minute take at a lower speed.

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<sup>26</sup>Ibid., p. 13.

6. Depending on the length of your course, transcription might be offered when the students are doing about 80 words a minute in shorthand and 40 to 45 words a minute in typewriting.

7. Teachers are able to cover more lessons by merging several lessons into one period of instruction. Lessons containing brief forms should remain separate because of the work that must be done to learn these fundamental forms.

8. Some teachers skip the review lessons, going directly to other lessons. Whenever short class periods present preparation problems the review lessons can be used to fill in where needed.<sup>27</sup>

Himstreet ascribed the success of a shorthand class to the ability of the teacher to plan for the full participation of every member of the class in every activity. He prescribed a two-semester program by which students can reach a point at which they can either go on to advanced shorthand classes or demonstrate writing speeds on three-minute tests in excess of 70 words a minute to show they can succeed in advanced shorthand classes. He suggested that 70 words a minute be a minimum requirement for students receiving a passing grade in the class because some students are capable of writing 120 words a minute at the end of the second semester. The first semester classes are given all the theory in the first semester. This is made possible by omitting the review lessons in the elementary textbook. "Doubling up on assignments late in the semester makes it possible to complete the entire elementary textbook."<sup>28</sup>

Himstreet offered the following principles that have been found valuable in elementary shorthand instruction:

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<sup>27</sup> Ibid., p. 14.

<sup>28</sup> William C. Himstreet, "Shorthand Can Be Taught in Less Time," United Business Education Forum, IX (October, 1954), p. 15.

1. Extensive group reading of the homework assignments. Group reading has the added advantage of forcing each member of the group to read in thought grouping rather than to concentrate on each individual outline. Individual reading of sentences or paragraphs by individual members of the class proves to be a waste of time for any reason other than an occasional check on the progress of individual students. The teacher sets the pace for this reading. The teacher's voice dominates the early reading, but by the sixth or seventh lessons, certain individuals in the class set the reading pace.

2. Intensive writing of dictated material. Fluency in writing, it is believed, is better developed through intensive dictation practice on smaller amounts of material.

3. Rapid automatization of brief forms. A daily one-minute drill using flash cards will make secure these outlines (brief forms) in the minds of the pupils.

4. Spell, spell, spell. Word previews and the introduction of new shorthand principles gain effectiveness when the outlines are spelled according to the sounds involved. Like the use of flash cards in brief form learning, spelling<sup>29</sup> aloud ties the shorthand characters and the sound together.

Himstreet also recommended the following techniques and procedures for the second semester:

1. Extensive and intensive dictation practice. The repetitive speed-building plans call for intensive practice and enable the teacher to meet the needs of the entire class. The introduction of new-material dictation, always adequately previewed, extends the dictation beyond the confines of the textbook, and satisfies the curiosity of students regarding their ability to record dictation of new matter.

2. A systematic theory review. The new textbooks attempt to provide a thorough theory review. In addition, workbooks have been published which correlate theory review with the textbook assignments. An opportunity to bring additional theory review into the classroom occurs when word previews are placed on the blackboard.

3. Short but frequent tests. Only about one-half a class period is required to give two or three writings at varying speeds. The students can then select the test which they wish to transcribe.

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<sup>29</sup> Ibid., p. 16.



4. Recorded practice material. Practice material recorded on some of the modern office machines is becoming a favorite practice in many schools.

5. Early transcription at the typewriter. If at all possible, students should transcribe at the typewriter as soon as they are capable of taking dictation at 60-80 words a minute.<sup>30</sup>

Haggblade suggested the following four major possibilities as ways in which the learning time in shorthand can be reduced sufficiently to get the job done in less than two years:

1. Do a more effective job of teaching.
  - a. Some type of grouping, designed to handle students of different abilities or goals, is a distinct possibility for doing more efficient teaching. It could be done about midway in the second semester.
  - b. Flexible scheduling of some sort may offer the solution to the problem of rigid class schedules.
  - c. . . . the time a student devotes to shorthand outside the classroom could, no doubt, be better used.
2. Improve teaching materials and equipment.
  - a. Probably the most significant advancement in the improvement of equipment available to the teachers of shorthand has been in the use of multiple channel dictation facilities.
  - b. Certainly the availability of typewriters is a major consideration for shortening learning time. The controlled reader is another recent development.
3. Program better students into shorthand classes.
4. Alter the standards. Perhaps the present standard is unrealistic both in terms of what students can do and in terms of what business expects.

Haggblade further said, "It is difficult to justify a symbol-system shorthand for any purpose other than for its vocational use. It is a

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<sup>30</sup>Ibid., p. 17.

rare combination of favorable elements for the public schools to prepare in one year a stenographer competent in such a system."<sup>31</sup>

Hughes Aircraft Company, El Segundo Division, El Segundo, California, extended its in-plant education and training program to include a 15-week session in shorthand instruction in 1963. Employees who had been with the company for two or three years, working in some clerical capacity, were screened carefully and had to meet specific requirements in order to participate. Requirements for participation were: on-record evidence of having typed 50 words a minute; approval of the immediate superior to take the course because class attendance took place during the regular eight-hour work day; rated highly on a standard aptitude test administered by the education department of the company; and a high school graduate or higher. The employees still continued routine secretarial duties while taking the on-the-job training. A college textbook was used and furnished by the company. At the completion of the course, employees were placed in company positions as the need arose (upon recommendation and interview).<sup>32</sup>

The actual class activities in the in-plant stenographic education program were as follows:

1. Students attend formal class sessions twice a week for one and one-half hours each day. Homework assignments are given which require an average of one and one-half hours of work each night for five nights a week.
2. Class sessions during the first seven and one-half weeks are devoted primarily to instruction and demonstration of writing techniques and procedures with dictation of material as time permits. An average of four lessons are completed each week for the first thirteen weeks. The mid-term test takes place at the end of seven and one-half weeks at rates ranging from forty to seventy words a minute on familiar or easy material.

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<sup>31</sup>Haggblade, p. 12.

<sup>32</sup>John W. Harris, "80 Words a Minute in 45 Class Hours," Balance Sheet, XXXXVII (November, 1965), p. 111.

3. Supplementary textbooks are used for dictation purposes. This material is briefly written and relatively easy. Questions from students are welcomed and answered in an attempt to establish and maintain a clear and complete understanding of all material.

4. A relatively easy segment of one of the early lessons is selected for repeated dictation. This exercise, consisting of about sixty words, is dictated approximately two or three times each class day for the first seven and one-half weeks.

5. After the first 13 weeks have passed and all of the new material has been introduced to the students, the instructor devotes the last two weeks to a variety of dictations at 80, 85, and 90 words a minute. Most students never get all the material, but the drilling at these speeds helps to condition them for the 80 words a minute rate to be used at test time.

6. The brief forms are constantly dictated throughout the course at high rates of speed. Demonstration of writing procedure and difficult words and phrasing techniques are emphasized throughout the course as a means of furthering the objective of writing ultimately at 80 words a minute on selected material.

7. It is not assumed that the student will attain the desired rate at the end of the 15-week period on all material, nevertheless, a few do. On easy or relatively fast material, however, our experience has shown that this can be done. The assumption is made that students, after having been placed in an assignment requiring frequent use of their shorthand, will be for the most part working for employers who will be tolerant and understanding of the employee's situation until through constant and frequent use of the newly acquired skill the student's proficiency increases. This time period varies from three to six months.

8. Students who fail to meet the requirement at the end of the session are assigned additional study and given opportunity to participate in other practice sessions without instructional assistance. The students can then be re-tested when they feel they are<sup>33</sup> ready to make another attempt at the 80 words a minute test.

Skimin maintained that prospective stenographers learn to be lazy because too much time is used to cover the shorthand theory. Many of these who fail shorthand courses could become good routine stenographers if teachers could take time to integrate the English

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<sup>33</sup>Ibid., p. 112.

learning which these students need so much. She offered the following approach to learning shorthand in less time as a possible solution to making shorthand a "living" course rather than a "textbook" course:

The fundamental principles of shorthand can be presented in a manner that will enable the learner to construct outlines for the first 5,000 common words very early in the course. By the time that the theory is completed, he can have the ability to write in shorthand and transcribe any word in the English language--not at high rates of speed--but at a reasonable rate, say 80 words a minute, with a relaxed writing and transcribing ability. This ability can be acquired by correlating the interpretation and transcription of his own shorthand notes. His transcribing rate will be commensurate with the rate of typewriting he has acquired. Because of the simplicity of teaching shorthand in this manner, ninety per cent of the time in the classroom can be used for writing and transcribing. Two semesters in the average secondary school means thirty-six weeks or approximately 180 lessons. Since the use of records and tapes in occupational shorthand classes enhances verbatim dictation ability, transcription of notes taken from tapes and records should be a must.<sup>34</sup>

Hart stated, "I believe that more shorthand could be taught in less time than is currently being used in most instances."<sup>35</sup>

Hart suggested the following techniques to be used in making shorthand classes more productive and meaningful from the stand-point of teaching more shorthand in less time:

1. Shorthand speed certificates. If a student knows she is going to be given a certificate stating she achieved a certain speed rate for so many minutes on a given date, she will strive diligently to attain specific goals at reasonable intervals through the year.
2. Start class more promptly. Two minutes a day wasted will probably count up for a decrease in speed of from five to ten words over the course of a nine-month term of training.
3. Make haste during class. Forty-five- or sixty-minute class periods are precious. The conscientious teacher does not

<sup>34</sup> Eleanor Skimin, "Where Does Shorthand Go From Here," Journal of Business Education, XXXV (January, 1959), p. 155.

<sup>35</sup> Mrs. Ethel Hart, "How to Teach More Shorthand in Less Time," Balance Sheet, XLII (March, 1960), p. 298.

cover as much material as she would like to. Consume every moment of class time in learning activity.

4. Vary the class routine. Students will not do their best if they are subjected to the same daily routine and teaching procedure.

5. Be definite about assignments. Instead of consuming valuable dictation time in making a complete assignment every day, have the greater part of it standard for at least two- to four-week intervals. Over a period of nine months this will save nine hours of time which is commensurate to two weeks in the class--ascertained by the rate of three minutes a day saved.

6. Don't make it a reading course. Yes, students have to know how to read before they can write shorthand, but many students report that all they did in their high school shorthand training was to read practically all the time. They do not know if they take dictation at forty or at eighty words a minute because they have had little or no timed writings in the high school course.

7. Transcribe the first year. One day a week, the last eight weeks of the school term, spent in closely supervised transcription will pay high dividends. A minimum amount of transcription homework can be a help too.<sup>36</sup>

Bright had the following to say about the 1949 Texas study performed by her and Anderson:

From the facts, it would seem that much more emphasis must be placed on transcription. It would also seem that until we have improved teaching methods, or simplified shorthand systems, two years of shorthand needs to be offered if the majority of students are to develop sufficient skill for vocational use. The highest dictation rate in these tests was at 80 words a minute, yet many of the students transcribed the lower dictation rates of 40 and 50 words a minute and still could not produce a mailable letter. The main difficulty of the students was not in writing their shorthand but in combining their shorthand and typing skills into a usable product. Neither the shorthand teacher nor the students should be too severely criticized for these transcription deficiencies. Many teachers did agree that it is almost impossible to develop skill in both shorthand and transcription in a single year.<sup>37</sup>

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<sup>36</sup> Ibid., p. 299.

<sup>37</sup> Martha D. Bright, "Achievement of Students in One-Year of Shorthand," The Journal of Business Education, XXV (April 1949), p. 18.

Bright made the following suggestions for improving the one-year shorthand program as a result of the research completed in Texas and in Indiana:

1. If only one year of shorthand is offered, it would be desirable to have a separate period during the last semester for transcription practice. If this is not possible, perhaps the transcription practice might be combined with an advanced typewriting class.
2. Definite standards for selection of students enrolling in shorthand should be provided. Students should certainly be proficient in the operation of the typewriter and should have at least a "C" average in their basic English courses.<sup>38</sup>

Anderson suggested the following improvements in instruction to up-grade teaching methods in the one-year shorthand program. She noted that because most shorthand teachers' handbooks lack research in shorthand program, teachers are going to have to study the one-year program and analyze the factors that will probably contribute most to the success or failure of such an intensive course. Her suggestions were:

1. In the one-year shorthand program the teacher needs to know early in the year the English competencies of her students. If possible, it would be well to study the records of these students the first week of school. The teacher should be especially interested in the student's skill in spelling, punctuation, reading rate, reading comprehension, and vocabulary. These factors will have an important bearing upon shorthand and transcription achievement.
2. Surveys of student accomplishment in the one-year shorthand program have repeatedly shown that students were unable to transcribe letters from shorthand notes according to acceptable letter style. If these knowledges can be taught thoroughly in the typing course, then the time in shorthand class can be devoted to the development of shorthand speed and transcription skill.
3. Students enrolling in the one-year course should be enrolled only because they want to develop as much vocational skill as possible in this limited period of time.

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<sup>38</sup> Ibid.

4. If the teacher cannot gain the interest of all students in the class, she should realize that the pace of the class should be set for those who do want to learn. Until this principle is recognized, it will be impossible to achieve maximum results in the one-year program.

5. The problem in the one-year course is that of stimulating the class to the point where they desire to make the maximum use of every minute in every period. No motivation device should be used in the shorthand classroom that does not provide maximum benefit for the amount of time consumed.

6. Procedures should never be allowed to consume so much class time that they infringe upon time needed for developing skill in reading and writing shorthand. Very little time can be spent in testing in the one-year program.

7. It is imperative that the teacher who has only one year in which to teach shorthand know exactly what he is trying to accomplish. Teachers should not be unduly concerned if their students are unable to complete the entire lesson before going on to the next. As long as the students learn the new theory presented in each lesson and make reasonable progress, it would seem foolish to slow down the entire class for the benefit of a few.

8. In the one-year course the teacher needs to decide when he will introduce new-matter dictation, when he will begin checking the students' reading rate, when he will first introduce dictation tests, and what his goals for the class are going to be.

9. Teachers frequently overlook the fact that students like to watch their progress. Students like to know how much skill they should have at a definite point in the semester. Teachers can capitalize on this desire by developing a scale of reading rates which students should be able to reach.

10. The teacher of the one-year shorthand class will probably find that he needs to introduce writing as early as possible.

11. If the material in the text is too difficult, the teacher can construct and mimeograph material that is even easier. It is wise to have a good deal of repetition of words and phrases so that the outlines will become automatic as soon as possible.

12. It is most important in the one-year course that every student be allowed to progress as far as he is able. This means that frequently the teacher has to dictate several tests, perhaps one at 60, one at 70, and still another at 80. If necessary, he should do so, for students begin to lose interest when they cannot continue to progress as fast as their individual abilities allow them to do so.

13. It is also imperative that all the class time be spent either in reading or in writing shorthand. The teacher should analyze his teaching frequently to see exactly how much of the class<sup>39</sup> period is actually devoted to these two activities.

Bell provided the following suggestions as ways in which the shorthand teacher can more effectively teach in one year what has been taught in two:

1. If a teacher is able to motivate his students properly, there will be little difficulty in teaching them how to write 100 words a minute by the end of the first year, with a significant number of them writing substantially faster. Motivation is strictly the teacher's problem, and fortunately there is more than one way to achieve it.

2. Student-teacher rapport is a must. Oftentimes success for success' sake alone is not enough to spur students to do their best. They frequently need someone to succeed for. The logical 'someone' is the teacher. But unless the proper relationship exists between him and his students, the teacher isn't much help from the standpoint of student motivation.

3. Another factor in motivation is variety of routine. Without sacrificing any of the basic objectives of a good period of shorthand instruction, the day's proceedings can easily be spiced up a bit. Of course the same things need to be done, but there are different ways of doing them.

4. A course of instruction which provides for student activity every minute and demands best work as a rule rather than an exception will soon become a source of pride to the majority of students.

5. If the shorthand system being taught is Gregg, the theory should be covered in approximately 8-9 weeks: This means there will be a doubling up on some of the lessons which present the theory. A minimum writing speed of 60 words a minute should be the goal for the end of the first semester.

6. At the beginning of the second semester the emphasis on dictation increases and some homework assignments, including provisions for various kinds of dictation. The second 18 weeks are given mainly to the development of building writing speed, with frequent but brief sessions devoted to strengthening theory learned earlier and the introduction of new theory variations. Systematic writing sessions at progressively increased rates will bring the class as a whole to the 100

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<sup>39</sup>Ruth I. Anderson, "The One-Year Shorthand Program--Let's Improve it," American Business Education, VIII (May, 1952), pp. 254-259.



words a minute mark by the end of the second semester.<sup>40</sup>

Borland made the following suggestion for improving transcription learning in the one-year shorthand courses:

Students can be taught to read for transcription as they read longhand--by stopping the eye on important words only, rather than seeing every outline--plus<sup>41</sup> the introduction of some shortened outlines in writing.

Rolf maintained that the teaching of transcription in the one-year shorthand course can be crystalized into four major teaching stages. The order in which the separate stages are to be taught is as follows:

1. The Introduction of Practice Matter. After the student has learned to take dictation on practiced material, transcription is introduced--first from the textbook and later from dictated notes. Pre-transcription English study should be begun in class, continued in the shorthand writing assignment, and finally checked in the longhand transcript. The teacher can help make this new activity an enjoyable and rewarding experience by much teacher demonstration on the chalkboard.

2. Improving Shorthand Skill. A first-semester transcription goal for the student to work toward is the ability of the average student to take speed dictation from practiced matter for two minutes at 80 words a minute and attain this speed on the second or third dictation. This goal is reached through well-planned dictation, homework assignments providing considerable amounts of reading and copying well-written shorthand, and through using phonograph dictation records and dictation tapes as supplementary aids to teaching.

3. The Organization of Speed-Development. The class period should be organized to provide the maximum amount of dictation. The teacher should keep in mind that the emphasis on speed building should not be stressed to the point of creating tenseness on the part of the student. The student must remain relaxed if he is to write his best shorthand and be able to produce an accurate transcript. Increased speeds will be achieved through challenge, commendation, and enthusiasm from the teacher.

<sup>40</sup>R. DerMont Bell, "Shorthand: Two Years Is Too Long," Journal of Business Education, XXXV (February, 1959), pp. 199-200.

<sup>41</sup>Helen B. Borland, "Saving Time--For What?" Journal of Business Education, XXVIII (December, 1952), p. 110.

4. Introduction of Machine Transcription. This stage should help the student make the transition from longhand transcription of dictated material to the development of the integrated skill of typewritten transcription. It is believed that if this skill is learned in the first year, faster progress will be made if the student later takes advanced shorthand or should enroll in a secretarial practice course. <sup>42</sup>

Cristensen provided the following suggestions for making the one-year shorthand program a success:

1. Shorthand students are grouped the first week of school for effective learning and the removal of chance of slowing down other students. The class sections become improvement (slow learners) and advanced assignment (fast learners). The groupings are based on (a) aptitude for learning shorthand as demonstrated by classroom participation, (b) English scores on an achievement test with validity and reliability studies, (c) intelligence scores and (d) the results of the Turse Shorthand Aptitude Test. Slow students may achieve remarkable progress in this kind of grouping because of the willingness to work.

2. Shorthand exists as a tool of communication for the student to be able to write ideas in a swift, concise and organized manner. All students in shorthand classes will not get jobs using shorthand, but all of them can use shorthand in some aspect of their job or for their own convenience. The vocational objective is not the only one to be considered in a one-year shorthand course.

3. More homework should be assigned when teaching shorthand in less time. Some students may rebel at the additional homework, but notemaking is not busy work; it is applying a dormant skill to a practical situation to save the student time.

4. The pushing in shorthand class is absolutely necessary when one stops to realize that what one has learned in school (shorthand or any subject) will have carry-over value in the future only if the course has been stimulating. I contend that dictation should be given at a higher speed than the student can take it. Giving dictation at higher speeds will stimulate the learner and will make for greater competence when dictation is given at the slower speeds. <sup>43</sup>

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<sup>42</sup>Marilyn Rolf, "Transcription and the One-Year Shorthand Course," Business Education Forum, XVII (February, 1963), pp. 20,27.

<sup>43</sup>G. Jay Christensen, "How to Teach More in Less Time in Shorthand," Business Education World, XLII (September, 1963), pp. 25-27.

In a pilot project supported by a grant from the United States Department of Health, Education, and Welfare, McMurtrie investigated, with the sponsorship of Skimin, the designing of a new scope and sequence of shorthand and transcription instructional materials to fit a one-semester stenography program.

The "Shorthand Structured-Learning Program," as the investigation was called, included a package of instructional materials, including: textbook, tapes, transparencies, four-minute film clips, and basic instructions for teacher use of an overhead projector.

This individualized approach to learning shorthand was built around the objective of meeting the needs of average and talented high school, adult education, and college students; therefore, the program was tested on each of these levels.

The program was developed to teach the necessary processes required by students to write and transcribe shorthand: ". . . namely, reasoning, analyzing, recalling, associating, decision making, mental organizing and coordinating, translating, and the manual skills of writing and machine transcribing (in other words, attentive learning versus mechanical learning."<sup>44</sup>

A semi-programmed format was developed so that students could work at their own rates in a series of small associated word units. Writing space was provided for the learner to respond with an outline similarly written. The learner always had a writing pattern to follow when constructing his own outlines.

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<sup>44</sup>Patsy Blake McMurtrie, "Development and Evaluation of a One-Semester Stenography Course," U. S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research, Division of Adult and Vocational Research (June, 1966), p. 2. (Summary)

Two of the conclusions from this investigation are significant from the standpoint of trying to teach shorthand skill in less time.

These conclusions are as follows:

1. That the one-semester stenography course, Shorthand Structured-Learning Program, developed under this project showed no significant differences in the shorthand writing and transcribing abilities of students at three levels of educational achievement: high school, college, and adult education.
2. That the Shorthand Structured-Learning Program is a teachable course and adaptable to the needs of average and talented high school, college students, and adult education.<sup>45</sup>

McMurtrie states implications of the pilot study as follows:

It seems very likely that the Shorthand Structured-Learning Program gave them (those students who participated) a needed realistic approach to learning stenographic skills. They could immediately see and understand the necessity of writing legible and correct outlines; the necessity of developing their typewriting skills; the necessity of coordinating the physical and mental functions that are demanded of a stenographer trainee. The important aspect of the program was that they were actively engaged<sup>46</sup> in a method of learning at which they could succeed.

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It seems reasonable and feasible to believe that the Shorthand Structured-Learning Program can reduce by half the amount of time presently being used to train stenographers. The Shorthand Structured-Learning Program meets today's trends by providing a program that shortens instruction time, applies an inter-disciplinary approach to instruction, and presents a flexible program for both the average and talented students.<sup>47</sup>

Mee made a study in which 65 selected secondary high schools were surveyed to obtain information regarding the advisability of establishing a one-year shorthand program in secondary schools. Both

<sup>45</sup> Ibid., p. 79.

<sup>46</sup> Ibid., p. 80.

<sup>47</sup> Ibid., p. 81.

small and large high schools were included.

Forty-seven of the responding schools offered four semesters of shorthand (72.30 per cent), 14 schools offered two semesters (21.53 per cent), and one school offered five semesters of shorthand (.01 per cent).

Mee suggested the following principles as being a necessary part of the one-year shorthand program:

1. Select students who have the desire and ability to learn shorthand.
2. Select teachers who are interested in accelerated program.
3. Have a reason for every activity.
4. Make provisions for individual differences.
5. Use as many varied aids and techniques as possible.<sup>48</sup>

Mee also suggested the following procedures and techniques essential to developing pre-transcription training and a successful program:

1. Give sufficient practice in reading shorthand plates so that students will read at the rate of 150 words a minute before the end of the second semester.
2. Require sufficient writing practice so that students can take dictation at the rate of at least 60 words a minute the second semester.
3. Develop in the student sufficient skill in writing so he will be relaxed when writing under pressure.
4. Give training in office style dictation.
5. Give constant drill on brief forms, phrases, and difficult outlines.
6. Set up definite goals and objectives.
7. Develop a broad vocabulary, both general and business.
8. Give adequate training in punctuation.

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<sup>48</sup>Mee, p. 51.

9. Give adequate training in sentence structure.
10. Give adequate training in usage of words.
11. Stress correct typing techniques.
12. Insist on neatness.
13. Develop a knowledge and sense of artistic arrangement.
14. Give sufficient skill to acquire a transcribing speed rate at least 40 words a minute.
15. Give adequate practice in the use of business forms.
16. Insist on careful proofreading.
17. Make students realize the necessity of correct syllabication.
18. Introduce the use of legal papers.
19. Give dictation at different speeds to provide for individual differences.
20. Make wide use of audio visual aids.<sup>49</sup>

As a conclusion to her study, Mee made the following statement concerning the one-year shorthand program in meeting the needs of business education in the future:

After having made an intensive study of the results of the survey, the major conclusion is: the one-year shorthand program is not only possible but it may be necessary to cope with current trends and demands in educational practices.

#### Prerequisites for One-Year Shorthand Courses

Gratz found that 50 per cent of the selected business educators who were surveyed maintained that shorthand should be offered to all students who have certain minimal prerequisites (I. Q.

<sup>49</sup> Ibid., p. 69-70.

<sup>50</sup> Ibid., p. 79.

scores, English grades, and typewriting speed).<sup>51</sup>

Casey and Heemstra found in an investigation of shorthand students that English grades and total grade-point average are two factors showing promise as predictors of shorthand success at Sheldon High School, Sheldon, Iowa. Statistical correlations were made between I. Q. scores, English grades, typewriting speeds, etc., to see which of any and all available student information could be used as an indicator of the student's succeeding in shorthand.<sup>52</sup>

Anderson maintained that an objective English test is a far better means of determining the ability of the students than are English grades "as the latter vary considerably among teachers and may not necessarily include all the foregoing factors (skill in spelling, punctuation, reading rate, reading comprehension, and vocabulary).<sup>53</sup> She suggested the Purdue English Test or the Shepherd English Placement Test as excellent measures of English competency. She also suggested that better results will be obtained in the classroom study in transcription if students have completed a year of typewriting before enrolling in shorthand.<sup>54</sup>

### Summary

1. Anderson, Bright, Strony, Himstreet, Skimin, Hart, Borland, Rolf, Mee, all contend that transcription and dictation skill should be taught as a fusion of both. In order to make transcription a useful part of the program students must be shown and encouraged to transcribe

<sup>51</sup>Gratz, p. 65.

<sup>52</sup>John P. Casey and Joyce Heemstra, "Development of Criteria for Screening Shorthand Enrollees,," Business Education Forum, XIX (January, 1965), p. 25.

<sup>53</sup>Anderson, p. 254.

<sup>54</sup>Ibid., p. 255.

their work from the beginning of the course.

2. The above mentioned business educators also indicated that a specific block of time be provided near the end of the school year (preferably the last 8 weeks) in which transcription skills could be emphasized.

3. Haggblade and Christensen both suggested that teachers can do a more effective teaching job if they have some type of grouping so students' individual differences and goals can be reached.

4. Green, Haggblade, Bright, Anderson, Mee, all suggested that the one-year program would be more successful if teachers were more selective in the caliber of students allowed in the course. Typewriting ability (45 WAM preferred) and a functional knowledge of English were suggested as musts for enrollees to have.

5. Green, Toll, MacRae, Colglazier, Jones, and Kariam, all found by the survey method that very few students finishing one year of shorthand training were able to do anything with the skill. Many teachers responding to the surveys were skeptical as to the one-year vocational shorthand program being of any practical value.

6. As evidenced by the studies of Jones, MacRae, Bell, and Mee, many teachers were not sure what level of proficiency students should attain. Many teachers who were surveyed had no definite grading standard, while others indicated a minimum standard of 60, 65, and even 70 words a minute with minimum transcription levels varying from 25 to 40 words a minute.

7. Most of the teachers having successful one-year shorthand programs indicated the teacher as being responsible for the success of the program. Motivation by enthusiasm; preparation; knowledge of goals to be reached; use of every minute in constructive activities;



learning reinforced by use of tapes, records and other audio-visual instruments; are all essential parts of the program instituted by a teacher who demands the best from each student.

8. Shorthand activities in a one-year program are learning-oriented. If activities do not aid the student in his learning, they should be omitted. Practice on meaningful material is recommended by successful teachers and heavy home assignments previewed in class are musts. Studying lessons in detail may hinder the student and slow down his learning efforts. As the student continues to use skills briefly presented, he masters them as he becomes more familiar with them in following lessons.

9. Successful teachers of one-year shorthand programs recommended skipping the review lessons and combining two shorter lessons into one class period of instruction. Such a teaching method requires a teacher to have both a predetermined goal and a definite plan for having his students achieve this goal.

10. Teachers having success with one-year shorthand programs suggested spending more time on short takes than on the usual three- or five-minute dictation when building speed.

11. McMurtrie reported the following information for those educators interested in shortening the length of time for teaching shorthand:

The Shorthand Structured-Learning Program may reduce by half the amount of time presently being used to train stenographers. This program meets today's trends by providing a program that shortens instruction time, applies an interdisciplinary approach to instruction, and presents a flexible program for both average and talented students.

## CHAPTER III

### PROCEDURES

#### Obtaining Permission and Graduates' Names

The survey of the one-year shorthand graduates of the Cedar City High School was made possible after permission was received from Principal Clair Morris. Authorization was given to obtain the school records of those graduates participating in the shorthand program from 1959 to 1966. Names of graduates to be surveyed were taken from the class roll books, and addresses were taken from the permanent files of the school. In cases where addresses had changed and where doubt existed as to the present location of some graduates, the class representatives in charge of class reunions were contacted for present addresses if known. Forty-one students had changed addresses since graduating from high school and, where necessary, the parents, relatives, or friends of the graduates were asked for this change-of-address information.

#### Developing the Questionnaire

A trial questionnaire was submitted to four graduates of the one-year program at Cedar City High School who provided criticisms and suggestions for improving the instrument.

#### Initiating the Survey

An introductory letter, questionnaire, and a self-addressed stamped return envelope were mailed to the graduates involved. The

first mailing was sent December 23, 1966. The graduates were encouraged to respond immediately. Thirty-six graduates responded to this first mailing (33.03 per cent). A second mailing was made on January 14, 1967, to get responses from those who had not yet responded to the December 23 effort. Thirty graduates responded to the second mailing (27.53 per cent or a total response at this time of 60.56 per cent). A careful record was kept of those graduates returning the questionnaires, and their responses were recorded. A third attempt was made on February 4, 1967, to get as many additional responses as possible (nine personal contacts were necessary at this point to guarantee returns from some graduates). Twenty responses were received from the third effort (18.34 per cent or a total response of 78.90 per cent). Of the 109 graduates surveyed, 86 responded and all returns were usable.

#### Tabulating the Data

After the responses were received, another check was made to see that duplications had not been made in the process of recording each response. The sums of the responses were tabulated according to the areas in which the graduates were asked to respond.

#### Studying Available Literature

The available literature in the field of one-year shorthand programs was read to find authoritative data, opinions, and suggestions concerning the one-year shorthand curricula used by teachers of shorthand.

CHAPTER IV  
RESULTS AND DISCUSSION

The following information was received from the graduates surveyed who participated in the one-year shorthand program at Cedar City High School in Cedar City, Utah. The responses of the graduates to the questionnaire found in Appendix I are arranged according to the areas to which the graduates were asked to respond; and these responses have been statistically analyzed using chi-square (found in Appendix II) to determine significant differences among the graduates' responses.

The One-Year Shorthand Program

Graduates were asked to respond to the question of whether they would recommend the one-year shorthand course given at Cedar City High School for themselves, others, or not at all. This information gives an indication of the personal receptiveness to the course in general. Of the 86 responding graduates (109 surveyed or 78.9 per cent response):

- 15 (17 per cent)<sup>55</sup> recommended the program for themselves;
- 33 (38 per cent) recommended the course for others but not for themselves;
- 30 (35 per cent) recommended the program both for themselves and for others;
- 8 (10 per cent) did not recommend the course.

Forty-five of the 89 graduates (51 per cent) indicated that the course

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<sup>55</sup>All percentages are computed to the nearest whole per cent.

was of value to themselves, and to other people who might take the course. (Fifteen graduates recommended the course strictly for themselves and 30 graduates recommended the course for others and for themselves.) According to Appendix II-A, the null hypothesis is that the probability of occurrence of the responses in the three categories is the same. As established through statistical analysis, the hypothesis is rejected because the observed differences are significant ( $\chi^2 = 40.68$ , 2df,  $P < .01$ ).

The graduates were asked to respond to the value of the shorthand course in meeting their vocational- and personal-use purposes.

For vocational purposes:

49 (57 per cent) maintained the program was of little or no value.

18 (21 per cent) said the course was of value.

19 (22 per cent) stated the course was very valuable.

The above percentages show that over half of the graduates indicated little or no vocational value in this one-year course (57 per cent). In the absence of any information about how the responses would be distributed in the population, the null hypothesis may be tested that the probability of occurrence of the responses in the three categories is the same. If this hypothesis is true, then the population ratio is 1 : 1 : 1, and an equal number of observations can be expected in each category. According to the information found in Appendix II-B, a  $\chi^2$  value of 21.65, with two degrees of freedom, would occur less than 1 per cent of the time ( $P < .01$ ) when the null hypothesis is true. The conclusion is made that the population ratio must be other than 1 : 1 : 1, and that the observed differences in relative

frequencies are significantly different.

For personal-use purposes:

49 (57 per cent) contended the program was of little or no value.

28 (28 per cent) stated they did receive some value for personal-use activities.

9 (10 per cent) indicated the program was very valuable.

Thirty-seven (43 per cent) were able to use the skill for personal-use purposes as indicated in the above responses.

The null hypothesis is that the probability of occurrence of the responses in the three categories found above is the same. According to Appendix II-C, the hypothesis is rejected at the 1 per cent level ( $P < .01$ ); and the observed differences in relative frequencies are significantly different (chi-square = 16.75, 2df,  $P < .01$ ).

The graduates were also asked to respond to the length of time that they considered should be devoted to the development of a vocational shorthand skill and a personal-use shorthand skill.

The length of time indicated for vocational skill development was:

63 (73 per cent) of the responding graduates indicated at least four semesters of study.

12 (14 per cent) indicated three semesters would be sufficient.

7 (8 per cent) considered one year enough.

4 (5 per cent) indicated that more than four semesters were needed (two indicated 5 semesters; two indicated six semesters).

The null hypothesis is that the probability of occurrence of the responses in the three categories is the same. According to Appendix II-D

the hypothesis is rejected because the observed differences are significant (chi-square = 156.87, 4df,  $P < .01$ ).

The survey further showed the length of time necessary to build skill for personal-use purposes:

62 (72 per cent) of the responding graduates considered two semesters sufficient time.

17 (20 per cent) stated that four semesters was needed to build proficiency for personal-use.

3 (3 per cent) indicated three semesters were needed.

1 (2 per cent) indicated one semester was needed.

3 (3 per cent) indicated more than four semesters were necessary (two indicated 5 semesters; one indicated six).

The null hypothesis is that the probability of occurrence of the responses in the five categories is the same. According to Appendix II-E the hypothesis is rejected because the observed differences are significant (chi-square = 155.39, 4df,  $P < .01$ ).

Of the 86 responding graduates, 30 (34 per cent) did take additional training at an institution of higher learning.

17 at the College of Southern Utah.

6 at the universities in the state.

4 at business colleges in the state.

3 at vocational-technological schools in the state.

The 30 graduates taking the added training did so for the following reasons:

6 (20 per cent) to fill requirements for graduation.

17 (57 per cent) to increase their skill.

7 (23 per cent) to fill requirements for graduation and increase their skill.

Present Level of Shorthand Proficiency

One of the questions asked of the graduates was to identify the level of shorthand proficiency they had at the time of the survey. The following information indicates their responses:

14 (16 per cent) of the graduates said that their level of shorthand skill was higher than when they graduated from high school.

10 (12 per cent) indicated their level of shorthand skill was comparable to the level they had achieved upon graduation from high school.

40 (46 per cent) of the responding graduates indicated a lower level of skill than they had in high school.

22 (26 per cent) reported they had completely lost the skill they had developed in high school.

Sixty-two of the graduates indicated a lower ability level in shorthand than they had attained in high school. The null hypothesis is that the probability of occurrence of the responses in the four categories is the same. According to Appendix II-F the hypothesis is rejected because the observed differences in the relative frequencies are significant ( $\chi^2 = 24.70$ , 3df,  $P < .01$ ).

Table 2 shows the length of time graduates took to find employment upon graduating from high school:

TABLE 2.--Period between finishing High School and Employment

Number of Students	Length of Time
30	Immediately
14	Within one month
15	Within six months
5	Within one year
9	Beyond one year
13	Never employed
Total	86



Table 3 on page 42 indicates the jobs obtained by the responding graduates; value of shorthand training in fulfilling job responsibilities; and the length of time spent in employment by graduates.

#### The Office Practice Course

Because the two-hour block as set up by the Stanford Committee emphasized the use of the office practice class to sharpen secretarial and stenographic skills, an analysis of student responses was made to determine how worthwhile the course had been in developing shorthand skill in dictation and transcription.

Of the 86 responding graduates:

52 (60 per cent) had not taken the office practice portion of the two-hour block. They had been encouraged to take the course, but registration had not been mandatory.

34 (39 per cent) of the graduates had taken the office practice course.

The following are responses regarding the value of the office practice course in developing shorthand dictation and transcribing skills:

3 (09 per cent) indicated the office practice course to be valuable in developing shorthand skills.

31 (91 per cent) indicated the class was of little or no value from the standpoint of developing shorthand skill.

To verify the above information, two class instructors were interviewed, and each indicated that in the office practice course office procedures and skills were taught, but that shorthand dictation and transcription skills were not taught.<sup>56</sup> The null hypothesis

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<sup>56</sup> Interview with Mr. Herman Houston and Mrs. Sharon Olsen. December 21, 1966, Cedar City, Utah.

TABLE 3.--Jobs held by Responding Graduates over the Period of Time Surveyed along with the Value of Shorthand Training in Fulfilling Job Responsibilities

Job Classification	Number of Students	Minimum Length Of Employment	Maximum Length of Employment	Average Length of Employment	Value of SH Training <sup>a</sup>			
					1	2	3	4
Beautician	1		1 year		1			
Bookkeeper	1		6 months				1	
Cabin maid	7	3 weeks	8 months	4 months			7	
Car hop	4	3 months	4 years	20 months			4	
Clerk (cashier)	23	2 weeks	5 years	23 months	1	2	19	1
Key punch operator	2	1 year	3 years	2 years			2	
Nursing	2	9 months	3 years	23 months			2	
Police Officer	1		1 year			1		
Secretary	26	2 months	4 years	16 months	8	11	7	
Steno-typist	1		18 months		1			
Teacher	7	2 years	4 years	30 months		1	6	
Telephone operator	6	3 months	4 years	14 months		1	5	
Waitress	13	3 months	2 years	6 months			13	
Youth Counselor	1		3 months			1		

<sup>a</sup>1, very valuable; 2, valuable; 3, little or no value; and 4, other.

is that the probability of occurrence of the responses in the two categories is the same. The hypothesis is rejected because the observed differences are significant ( $\chi^2 = 23.06$ , 1df,  $P < .01$ ). See Appendix II-G for statistical information regarding this portion of the questionnaire analysis.

The responses of graduates concerning the offering of office practice to other students were:

18 (53 per cent) indicated that the office practice course should be required of every student who takes shorthand.

14 (41 per cent) stated that office practice should be an elective course for all students taking shorthand.

1 (06 per cent) indicated that office practice should be open to all students in the school.

According to Appendix II-H, the hypothesis is that the probability of occurrence of the responses in the categories is the same. The hypothesis is rejected because the observed differences are significant ( $\chi^2 = 12.26$ , 2df,  $P < .01$ ).

#### Summary

The results of the survey can be grouped into five distinct areas to which the graduates were asked to respond: the one-year shorthand program, employment, additional shorthand training after graduation from high school, present level of shorthand proficiency, and the office practice course. Students were asked to give value judgments regarding each area according to their experiences as a result of using or not using their vocational skills. Their responses give an indication of the worth they derived from the one-year course and how their vocational- and personal-use needs and purposes were met.

The following information came from an analysis of the graduates'

responses to the various questions asked on the questionnaire:

1. Forty-one of the 89 responding graduates indicated that the course would be better for someone other than themselves.

2. Over half the graduates (57 per cent) indicated there was little or no vocational value in the one-year shorthand course.

3. Thirty-seven (43 per cent) of the graduates were able to use the shorthand skill for personal-use, even though the skill being taught was vocational in nature.

4. Sixty-three (73 per cent) of the graduates indicated that the length of time necessary to build a vocational skill was at least four semesters.

5. Sixty-two (72 per cent) of the responding graduates considered two semesters of shorthand sufficient time to build skill for personal-use purposes.

6. Seventy-six of the graduates found employment, but only ten were able to find employment in which their skill training was very valuable. Nineteen of these 76 graduates found employment in which their skill training was valuable. The remaining 57 graduates responded that their skill development was of little or no value to them in obtaining employment.

7. Of the 86 responding graduates, 30 (34 per cent) did take additional training in shorthand at an institution of higher learning.

8. Seventeen of the 30 graduates taking the additional training (57 per cent) indicated they did so to increase their shorthand skill.

9. Sixty-two (72 per cent) of the graduates indicated a lower ability level in shorthand than they had attained in high school.

10. Fifty-two of the 86 graduates (60 per cent) had not taken the stenographic office practice portion of the two-hour block. They had been encouraged to take the course, but registration had not been mandatory.

11. Of the 34 graduates taking the stenographic office practice course, 31 (91 per cent) indicated the class was of little or no value from the standpoint of developing shorthand dictation and transcription skills.

12. Eighteen of the 34 graduates taking the office practice course (53 per cent) indicated the office practice course should be required of every student who takes shorthand.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Summary

The Cedar City High School in Cedar City, Utah, Iron County School District, has a one-year block program in Gregg Simplified shorthand and office practice. As established by the Stanford committee, the program is organized into a two-hour block with the shorthand study during the first one-hour period of time and the office practice program during the second hour.

In the six-year period between 1959-60 and 1965-66, 109 students had completed this one-year shorthand program. Even though the office practice class was considered mandatory, many students were not required to register for this portion of the two-hour block.

This follow-up study of the graduates who completed the course was an attempt to determine whether the graduates have been able to use the shorthand skill they developed in the high school program. Because the program was terminal, the information received should be an indication of the value the skill has been to the graduates.

The investigation was limited to the following areas:

1. Whether the graduates would recommend the course.
2. The vocational- and personal-use value of this block program to the graduates.
3. The length of time that should be devoted to shorthand skill development.

4. How well the graduates were able to obtain jobs.
5. The amount and value of post-high school shorthand training.
6. The level of shorthand skill now demonstrated by the graduates.
7. The feasibility of the office practice course in developing additional shorthand skill.

### Conclusions

The following conclusions relate to the one-year vocational shorthand program about which graduates were asked to respond. These conclusions in themselves may provide insight into the weaknesses of the program and give depth in understanding the graduates' responses concerning the program and the skill they developed while participating.

1. Little effort has been put forth to inform students about the shorthand course and how they can benefit from participating in the program. Many students who could really use the skill both for personal-use and vocational-use activities are probably missing this opportunity because of the lack of information provided them when they select their educational programs. Forty-one of the eighty-nine responding graduates indicated the course to be better for someone other than themselves. One possible reason for this response is prospective participants have had little or no opportunity to discuss the course before enrolling and little opportunity to receive information concerning course requirements and expectations.
2. Students do not seem to be aware of the vocational requirements of the course and the goals they will be expected to achieve. When students understand what is expected of them and are given a direction in which to go, goals to achieve, and are provided

with assistance and encouraged personal discipline, they succeed at doing activities which seem difficult to them. Since over half the graduates (57 per cent) indicated that the one-year shorthand program had little or no vocational value for them, this evidence may provide insight into one of the weaknesses of the program as it is now functioning.

3. After graduating from the vocational shorthand program, students are finding jobs which require little or no shorthand skill. One possibility could be that jobs requiring shorthand skill are not available to graduates. Perhaps students could make use of a placement bureau maintained by the counselors and business educators in the school. With 29 out of 76 graduates finding employment in which they can use their shorthand skill, a great deal of information and sources need to be made available to students concerning shorthand opportunities.

4. Thirty of the graduates made an effort to refresh their abilities through post high school refresher programs or adult education programs. Sixty-two (72 per cent) of the responding graduates indicated a lower ability level in shorthand than they had attained in high school. Students may not be aware of the educational opportunities that are available in the community so that student skills can be upgraded.

5. In the first hour of the two-hour block, students do not seem to be developing high rates of transcription speeds because of the limited time available in which the skill is taught, learned, and developed.

6. The second hour of the two-hour block is not used to provide practice in dictation and transcription. Sixty per cent of the graduates



were allowed to skip this valuable part of the course in which reinforcement of shorthand skills can be accomplished. Evidently, students would rather take other courses in the school curriculum than continue with the advised shorthand program.

7. Dictation and transcription skills are evidently taught and learned as separate activities instead of as a fusion of both. The low proficiency students demonstrate in transcription activities (18 to 25 words a minute) may be indicative of the need for a fused program where transcribing and dictation activities are combined early in the course work.

#### Recommendations

The following recommendations are made with the belief that the adoption of any or all of them will contribute to the improvement of the business education curriculum of the Cedar City High School.

1. Follow-up studies of graduates should be made to find out how and why they are, or are not, using their shorthand training. Also, information can be received from the graduates concerning improvements and changes that might be made in the existing program. To give the studies more depth, information from graduates concerning employment opportunities and employment problems may give students insight into possible situations with which they might be confronted.

2. The business life of the community and of those communities to which graduates of the school go should be studied and analyzed in an attempt to determine the needs of the pupils in terms of the future business knowledges and skills for which they will have use.

3. A careful consideration, and, if necessary, a revision

of the aims and objectives of the shorthand curriculum in the school should be made.

4. Methods, techniques, and procedures for maintaining successful one-year shorthand programs should be continually reviewed and up-dated by sharing ideas with other business educators through business education periodicals, business educator conventions, and through personal study of available information of the subject.

5. The business teachers should acquaint themselves with national norms relating to the level of achievement students should reach at the end of one year of shorthand training. This comparison of the achievement of the Cedar City High School graduates with achievement standards on the available national level will give direction to more effective preparation and presentation of shorthand instruction.

6. Graduates may obtain more value from the one-year program if the course is only taught in the 12th grade. This terminal position in the curriculum should provide for greater graduate use of the skill for vocational purposes if the knowledge of the skill and his proficiency are at a high level.

7. Careful consideration should be given to the problem of admission requirements for shorthand, especially Shorthand I; and more adequate guidance procedures in relation to shorthand matriculation should be developed and followed.

8. The office practice course should be made mandatory for every student enrolled in the shorthand course. The first semester of the office practice course could be used to teach the basic secretarial skills needed in order to operate efficiently in fulfilling secretarial responsibilities. The second semester could be made the stenographic

office practice section in which transcription and dictation activities were emphasized while using the basic skills learned in the first semester. This stenographic practice is needed to provide the reinforcement students need in developing higher levels of proficiency in transcribing.

9. Dictation and transcription should be taught as a fusion of both activities from the beginning of the course. Transcribing skills should become an essential part of the dictation process. If those skills are developed as the student becomes more knowledgeable and able to take dictation at higher rates, his transcription rate might increase at a higher rate than might be possible if transcription were postponed until the end of the school year to be taught as a separate skill.

APPENDIX I

456 West 200 North  
Cedar City, Utah

Of what value has your high school shorthand training been to you? This question is one only you can answer. We at Cedar City High School are examining the shorthand program in an effort to improve the educational offerings of the school.

Enclosed is a questionnaire containing important information about how you have been able to use your shorthand skills (or vice versa). Your response will be considered highly personal; therefore, your name will not be used in any way. The total of the responses will indicate to us the value of the present shorthand program.

Please take a moment to answer those questions that apply to you and mail the questionnaire in the self-addressed envelope provided.

Thank you for your cooperation.

Yours very truly,

Richard M. Webster

## CHECK THE ANSWER THAT BEST APPLIES TO YOUR SITUATION

1. Based upon your experiences with the one-year shorthand course, would you recommend the course for: \_\_\_\_\_ Yourself? \_\_\_\_\_ Other students? \_\_\_\_\_ Not recommend?
2. Please rate the one-year shorthand course completed by you at Cedar City High School as it has served you:

Vocational purposes	Personal-use purposes
_____ Very valuable	_____ Very valuable
_____ Valuable	_____ Valuable
_____ Little or no value	_____ Little or no value
_____ Other (please explain)	_____ Other (please explain)

---

3. In your opinion, what length of time should be devoted to the shorthand program in order to best serve you:

Vocational purposes	Personal-use purposes
_____ One semester ( $\frac{1}{2}$ year)	_____ One semester ( $\frac{1}{2}$ year)
_____ Two semesters (1 year)	_____ Two semesters (1 year)
_____ Three semesters ( $1\frac{1}{2}$ yrs)	_____ Three semesters ( $1\frac{1}{2}$ years)
_____ Four semesters (2 years)	_____ Four semesters (2 years)
_____ Other (please specify)	_____ Other (please specify)

---

4. How soon after finishing high school did you obtain your first job?

_____ Immediately	_____ Within one year
_____ Within one month	_____ Beyond one year
_____ Within six months	_____ Never employed

5. Beginning with your first job, indicate the type of employment you have had. Please rate the value of your shorthand training for each: 1 (very valuable), 2 (valuable), 3 (little or no value), 4 (other--please explain on other side).

Nature of work	Period of employment	Full-time	Part-time	Value
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____

6. Have you completed other classes in shorthand training at a post-high school educational institution (junior college \_\_\_\_\_? university \_\_\_\_\_? business college \_\_\_\_\_? other \_\_\_\_\_? (please indicate type on back.)  
 \_\_\_\_\_ Yes. \_\_\_\_\_ No. Please indicate your reason for taking more shorthand:

\_\_\_\_\_ To supplement the lack of skill derived from the one-year course  
 \_\_\_\_\_ To fill requirements for graduation

7. In your opinion, is your level of shorthand skill:

Higher than when you graduated from high school  
 Same as when you graduated from high school  
 Less than what it was in high school  
 Completely lost  
 Other (please explain) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

8. Did you take the office practice course that was offered in conjunction with shorthand?  Yes.  No. If your answer was "NO," place the questionnaire in the accompanying envelope and mail it as soon as possible.

9. How valuable to you was the office practice course in developing shorthand skill?

Very valuable  Little or no value  
 Valuable  Other (please explain) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

10. In your opinion, should the office practice course be offered:

As an elective for students who take shorthand  
 Required of every student who takes shorthand  
 Other (Please explain) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

PLEASE MAIL THE QUESTIONNAIRE AS SOON AS POSSIBLE

APPENDIX II



## CHI-SQUARE ANALYSES OF DATA

- A. Based upon your experiences with the one-year shorthand course, would you recommend the course for:      Yourself?  
     Other students?      Not recommend?

Hypothesis: Probability of occurrence of the responses in the three categories is the same. In the absence of any information about how the responses would be distributed in the population, the hypothesis may be tested that the probability of occurrence of the response in the three categories is the same.<sup>57</sup> If this hypothesis is true, then the population ratio is 1 : 1 : 1, and an equal number of observations should be expected in each category.

1. Four categories of response:

Themselves:	15
Others:	33
Both:	30
<u>Not recommend:</u>	<u>08</u>
Total	86

2. Degrees of freedom: K-1, where K equals the number of categories--thus two degrees of freedom are had.

3. Chi-square =  $\frac{(\text{Observed frequency} - \text{expected frequency})^2}{\text{expected frequency}}$
4. Chi-square =  $(45 - 38.67)^2 + (8 - 38.67)^2$
5. Chi-square = 1.04 + 15.31 + 24.33
6. Chi-square = 40.68 @ 2df P < .01

The null hypothesis is rejected because the conclusion must be made that the population ratio must be other than 1 : 1 : 1, and that the observed differences in relative frequencies are significantly different (chi-square = 40.68, 2df, P < .01).

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<sup>57</sup>Allen L. Edwards, Statistical Methods for the Behavioral Sciences. New York: Rinehart and Company, Inc., 1954, p. 372.

- B. Please rate the one-year shorthand course completed by you at Cedar City High School as it has served you:

Vocational purposes  
 \_\_\_\_\_ Very valuable  
 \_\_\_\_\_ Valuable  
 \_\_\_\_\_ Little or no value  
 \_\_\_\_\_ Other (please explain)

Hypothesis: Probability of occurrence of the responses in the three categories is the same. In the absence of any information about how the responses would be distributed in the population, the hypothesis may be tested that the probability of occurrence of the responses in the three categories is the same. If this hypothesis is true, then the population ratio is 1 : 1 : 1, and an equal number of observations should be expected in each category.

1. Three categories of responses:

Very Valuable:	19
Valuable:	18
<u>Little or no value:</u>	<u>49</u>
Total	86

2. Degrees of Freedom:  $3 - 1 =$  two degrees of freedom.

$$3. \text{ Chi-square} = \frac{(19 - 28.67)^2}{28.67} + \frac{(18 - 28.67)^2}{28.67} + \frac{(49 - 28.67)^2}{28.67}$$

$$4. \text{ Chi-square} = 3.26 + 3.97 + 14.42$$

$$5. \text{ Chi-square} = 21.65 @ 2df P < .01$$

The null hypothesis is rejected because the conclusion must be made that the population ratio must be other than 1 : 1 : 1, and that the observed differences in relative frequencies are significantly different (chi-square = 21.65, 2df, P < .01).

- C. Please rate the one-year shorthand course completed by you at Cedar City High School as it has served you:

Personal-use purposes  
 \_\_\_\_\_ Very Valuable  
 \_\_\_\_\_ Valuable  
 \_\_\_\_\_ Little or no value  
 \_\_\_\_\_ Other (please explain)

Hypothesis: Probability of occurrence of the responses in the three categories is the same.

1. Three categories of response:

Very Valuable:	9
Valuable:	28
<u>Little or no value:</u>	<u>49</u>
Total	86

2. Degrees of Freedom:  $3 - 1 =$  Two degrees of freedom.
3. Chi-square =  $\frac{(9 - 28.67)^2}{28.67} + \frac{(28 - 28.67)^2}{28.67} + \frac{(49 - 28.67)^2}{28.67}$
4. Chi-square =  $1.35 + 0.02 + 15.38$
5. Chi-square =  $16.75 @ 2df P < .01$

The null hypothesis is rejected at the 1 per cent level ( $P < .01$ ) because the observed differences in the relative frequencies are significantly different (chi-square = 16.75, 2df,  $P < .01$ ).

- D. In your opinion, what length of time should be devoted to the shorthand program in order to best serve you:

Vocational purposes

- One semester ( $\frac{1}{2}$  year)  
 Two semesters (1 year)  
 Three semesters ( $1\frac{1}{2}$  years)  
 Four semesters (2 years)  
 Other (please specify)

Hypothesis: Probability of occurrence of the responses in the five categories is the same.

1. Five categories of response:

1 semester:	0
2 semesters:	7
3 semesters:	12
4 semesters:	63
Other:	4

Total 86

2. Degrees of Freedom:  $5 - 1 =$  Four degrees of freedom.

$$3. \text{ Chi-square} = \frac{(0 - 17.2)^2}{17.2} + \frac{(7 - 17.2)^2}{17.2} + \frac{(12 - 17.2)^2}{17.2} + \frac{(63 - 17.2)^2}{17.2} + \frac{(4 - 17.2)^2}{17.2}$$

$$4. \text{ Chi-square} = 17.20 + 6.05 + 121.92 + 10.13$$

$$5. \text{ Chi-square} = 156.87 @ 4df P < .01$$

The null hypothesis must be rejected because the observed differences are significant (chi-square = 156.87, 4df,  $P < .01$ ).

- E. In your opinion, what length of time should be devoted to the shorthand program in order to best serve you:

Personal-use purposes  
 \_\_\_\_\_ One semester ( $\frac{1}{2}$  year)  
 \_\_\_\_\_ Two semesters (1 year)  
 \_\_\_\_\_ Three semesters ( $1\frac{1}{2}$  years)  
 \_\_\_\_\_ Four semesters (2 years)  
 \_\_\_\_\_ Other (please specify)

Hypothesis: Probability of occurrence of the responses in the five categories is the same.

1. Five categories of response:

1 semester:	1
2 semesters:	62
3 semesters:	3
4 semesters:	17
<u>Other:</u>	<u>3</u>

Total 86

2. Degrees of Freedom:  $5 - 1 =$  Four degrees of freedom.

$$3. \text{ Chi-square} = \frac{(1 - 17.2)^2}{17.2} + \frac{(62 - 17.2)^2}{17.2} + \frac{(3 - 17.2)^2}{17.2} + \frac{(17 - 17.2)^2}{17.2} + \frac{(3 - 17.2)^2}{17.2}$$

4. Chi-square =  $15.26 + 116.69 + 11.72 + 0.00 + 11.72$

5. Chi-square =  $155.39 @ 4df P < .01$

The null hypothesis must be rejected because the observed differences in the relative frequencies are significant (chi-square = 155.39, 4df,  $P < .01$ ).

F. In your opinion, is your level of shorthand skill:

- Higher than when you graduated from high school  
 Same as when you graduated from high school  
 Less than what it was in high school  
 Completely lost  
 Other (please explain) \_\_\_\_\_

Hypothesis: Probability of occurrence of the responses in the four categories is the same:

1. Four categories of response:

Higher:	14
Same as:	10
Lower:	40
Lost:	22

Total	86
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2. Degrees of Freedom:  $4 - 1 =$  Three degrees of freedom.

$$3. \text{ Chi-square} = \frac{(14 - 21.5)^2}{21.5} + \frac{(10 - 21.5)^2}{21.5} + \frac{(40 - 21.5)^2}{21.5}$$

$$\frac{(22 - 21.5)^2}{21.5}$$

$$4. \text{ Chi-square} = 2.62 + 6.15 + 15.92 + 0.01$$

$$5. \text{ Chi-square} = 24.70 @ 3df P < .01$$

The null hypothesis is rejected at the 1 per cent level because the observed differences of the relative frequencies are significant (chi-square = 24.70, 3df,  $P < .01$ ).

- G. How valuable to you was the office practice course in developing shorthand skill?

_____ Very valuable	_____ Little or no value
_____ Valuable	_____ Other (please explain)

Hypothesis: Probability of occurrence of the responses in the two categories is the same.

1. Two categories of response:

Valuable:	3
Not valuable:	31
Total	34

2. Degree of Freedom:  $2 - 1 =$  One degree of freedom.

3. Chi-square =  $\frac{(3 - 17)^2}{17} + \frac{(31 - 17)^2}{17}$

4. Chi-square =  $11.53 + 11.53$

5. Chi-square =  $23.06$  @  $1df$   $P < .01$

The null hypothesis must be rejected at the 1 per cent level because the observed differences in relative frequencies are significant (chi-square =  $23.06$ ,  $1df$ ,  $P < .01$ ).

- H. In your opinion, should the office practice course be offered:

As an elective for students who take shorthand  
 Required of every student who takes shorthand  
 Other (please explain) \_\_\_\_\_

Hypothesis: Probability of occurrence of the responses in the three categories is the same.

1. Three categories of response:

Elective:	14
Required:	18
<u>Other:</u>	<u>2</u>
Total	34

2. Degrees of Freedom:  $3 - 1 =$  Two degrees of freedom.
3. Chi-square =  $\frac{(4 - 11.3)^2}{11.3} + \frac{(18 - 11.3)^2}{11.3} + \frac{(2 - 11.3)^2}{11.3}$
4. Chi-square =  $0.64 + 3.97 + 7.65$
5. Chi-square =  $12.26 @ 2df P < .01$

The null hypothesis must be rejected at the 1 per cent level because the observed differences in relative frequencies are significant (chi-square = 12.26, 2df,  $P < .01$ ).



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