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COMPARISON OF FUNCTIONAL AND NON-FUNCTIONAL METHODS
OF TEACHING SHORTEHAND IN NORTHEAST EXPERIMENTAL
JUNIOR COLLEGE OF KANSAS CITY, MISSOURI

A Thesis Submitted to the Graduate Division in
Partial Fulfillment of the Requirements for the Degree
of Master of Science

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By

Carl C. Carder

KANSAS STATE TEACHERS COLLEGE

Pittsburg, Kansas

July, 1936

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THESIS ABSTRACT

Problem to be Solved

The purpose of this study is to test the comparative success of the Functional Method of teaching shorthand in developing transcription ability, accuracy of writing shorthand vocabulary, shorthand penmanship, and shorthand reading ability. The problem is limited to the results of the experiment as conducted in the Northeast Experimental Junior College of Kansas City, Missouri.

Method of Attack

The test of the success of the Functional Method was made by securing two classes of beginning shorthand students in which all elements which might vary the results were eliminated as nearly as was possible. Results of intelligence tests and of stenographic prognostic tests were secured for all students of both classes before beginning the teaching of shorthand. These tests were used to make a double matching of pairs of students from the two classes--twenty intelligence-matched pairs and twelve stenographic prognostic-matched pairs being secured. One class was taught by the Functional Method and the other class was taught by a Non-Functional method.

Shorthand achievement tests were given to the two classes during and at the end of the course, and the results compared separately for the two matchings of students.

Findings

The results of the comparison showed that the Functional Method greatly exceeded the Non-Functional method in developing transcription ability and shorthand reading ability--the most significant measures of successful achievement from a practical-use standpoint. The difference in reading ability of the two classes was very great. The two methods proved approximately equal in developing accuracy in writing shorthand except that the Functional Method students proved more accurate while taking dictation at 60 words per minute, the faster of two dictation speeds used. The upper third of the Non-Functional students were more accurate than the upper third of the Functional students while taking dictation at 40 words per minute, the slower of the two dictation speeds used. The two classes were approximately equal in shorthand penmanship.

The two methods of matching pairs showed very little difference in the results--there being a little greater difference between the Functional students and the Non-Functional students in the prognostic-matched pairs than there was in the intelligence-matched pairs.

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CHAPTER I

INTRODUCTION

Statement of the Problem

The purpose of this comparison is to test the Functional Method of teaching shorthand.

Recently, this method has attracted wide attention among commercial teachers. Although it has gained rapidly in favor, many criticisms have been made concerning its success in producing accuracy of shorthand characters and good shorthand penmanship. Both of these achievements are necessary to the successful writing of rapid shorthand and to the accurate transcription of the shorthand written.

By the Functional Method, the attention is primarily directed to the development of reading shorthand and to the production of an accurate transcript, with no formal teaching of accuracy of writing shorthand characters nor of good shorthand penmanship. The theory of the method is that, by the reading and copying of much good printed shorthand in connected matter, accuracy of shorthand characters and good shorthand penmanship will naturally result without any formal teaching of them. This method recognizes shorthand as a skill learning, distinct from a knowledge learning. Every expert shorthand writer needs only to be skilled in the application of the art of shorthand writing, and will progress more

rapidly without a knowledge of the science or rules which govern the writing of shorthand characters. A definition of the Functional Method is that method of teaching shorthand whereby the pupil functions as a shorthand writer and reader during every minute of the class hour and of the home-work preparation.

In order to test the Functional Method, this study is concerned with the success of that method in developing (1) transcription ability, (2) accuracy of shorthand vocabulary, (3) good shorthand penmanship, and (4) reading ability.

Connection with Northeast Experimental Junior College

In September, 1930, the administration of the Kansas City, Missouri, school system undertook an experiment which had as one of its basic objectives the elimination of much useless repetition and duplication of subject matter and courses in the upper high school years and the junior college years. This experiment undertook a reorganization of Northeast High School in Kansas City, Missouri, and was conducted under the approval of the North Central Association which appointed a committee to investigate, criticize, and report upon the progress of the experiment. In setting forth the reasons for this reorganization, particularly that of eliminating useless repetition and duplication of subject matter

and courses, it was pointed out that,

In his studies on the Junior College, Dr. L. V. Koos discusses quite fully duplications and overlappings and concludes with the following statement: "This (repetition) amounts to something like one-fifth of the full high school curricula or four-fifths of a high school year. Moreover, there is no notable tendency in the direction of recognition in anything like a systematic way in the college of high school work previously covered."¹

The Northeast Experiment is a reorganization whereby the last two years of high school work are combined with the first two years of college in a new three-year course which is commonly referred to as the New Plan. The years are known as the New Plan I, the New Plan II, and the New Plan III years, and the students in each year correspond in age to the high school junior, the high school senior, and the college freshman. The aim of the Experiment was to prepare the students either for the senior college or for life as adequately as students are prepared at the end of the second year of the regular college, and yet do this in one year less time. This made it necessary to improve techniques of teaching so that courses might be as efficiently taught as formerly, yet in a shorter period of time.

It was necessary to consider in the reorganization of these courses both "the student who plans to continue work in college as a Liberal Arts student or as a professional student, and the student who plans to terminate his educational work at

¹George Melcher, Report of the Superintendent of Schools for The Years 1930-34, (Kansas City, Missouri: School District), p. 39.

the end of this course."² One of the important terminal courses organized was a business course in which special attention and emphasis was given to secretarial work. This course began on the New Plan II year level and continued through the New Plan III year, making a two-year course in which less time was allowed for the traditional subjects of shorthand and typewriting in order to make room for more modern courses, such as Introduction to Business, Accounting, Economics and Law, Office Practice, Office Machines (Burroughs and Monroe calculators, Ediphone and Dictaphone voice-writing, Mimeograph, Mimeoscope, Gelatin, Sundstrand, and Burroughs Bookkeeping), Salesmanship, Business Mathematics, Accounting and Bookkeeping Machines, Dictation and Typewriting (a unified course for the finishing student), Composition, and Psychology. The New Plan I year did not include any business subjects, but was devoted to the completion of the high school material necessary to prepare for college work.

Only students of an average grade or above have been permitted to enter the New Plan work.

In harmony with this reorganization, the principles and mastery of shorthand were completed in three semesters instead of the regular four semesters. The principles of the shorthand manual which had formerly been completed in about thirty to thirty-five weeks were completed in approximately twenty-five weeks in a very efficient manner.

²Ibid., p. 41.

To further reduce the time and to increase the efficiency of the shorthand course, it was decided to inaugurate a new method of presenting shorthand and to compare its results with the method already in use. This new method, now known widely as the Functional Method, was presented in 1935 by its author in a paper entitled, "A New Approach in the Teaching of Shorthand," to the Eastern Commercial Teachers' Association.³

The problem of this thesis and the purpose of this comparison have been to test the Functional Method, with a view toward its adoption in order to decrease the time devoted to the learning and mastery of shorthand and to increase the efficiency of the secretarial students of the Northeast New Plan.

Historical Development

The Functional Method of teaching shorthand embodies the climax of a number of trends in educational philosophy concerning the presentation of a skill subject such as shorthand. Primarily, these trends are deeply rooted in the experience of many shorthand artists and teachers of the past half century.

Many of the principles which distinguish this new method have been promoted by Dr. John R. Gregg since he first originated the system of Gregg shorthand in 1888.

³Louis A. Leslie, Problems of the Business Teacher. Eighth Yearbook. (Philadelphia: Eastern Commercial Teachers' Association, 1935), pp.198-206.

In the Preface to the first edition of the Gregg Speed Studies published in 1917, Dr. Gregg said,

The visual impression of the outline secured through reading enables him (the student) to write it readily when the matter is dictated to him. This inspires confidence, which is an important factor in the development of skill. The student trained in this way finds shorthand a real medium of communication and learns the application of the word-building principles through almost effortless absorption. In any art, imitation plays an important part. It is fully utilized by this plan.⁴

The Functional Method is largely based on just the points stressed by Dr. Gregg in 1917, but the extreme application of those and related basic concepts has been the work of the author, Mr. Leslie, who is an extremist as shown by the points of distinction of the Functional Method which are discussed later.

The method is the culmination of the trends toward simplicity of presentation and ease of learning which have characterized all the editions of the Gregg books. As was stated by Dr. Gregg in the Preface to the Anniversary Edition of Gregg Shorthand published in 1929,

Each revision has placed increasing emphasis upon the desirability of teaching shorthand as a skill subject . . . This method (Anniversary method) enables the teacher to direct the maximum of effort toward the training of the student in actual facility in writing and⁵ the minimum of effort to the expositions of rules . . .

⁴Louis A. Leslie, "Doctor Gregg Said in 1917 . . ." Gregg News Letter, June, 1936, No. 129, p. 547.

⁵John R. Gregg, Gregg Shorthand, Anniversary Edition, (New York: The Gregg Publishing Company, 1929), p. iii.

It is said that habit or skill means little more than the establishment of bonds between the response and stimulus so firmly that one automatically follows the other. This being so, and shorthand being recognized as a skill subject, the concepts of the Functional Method may not seem so extreme.

Many others in the fields of commercial and of general education have contributed to the modern pedagogy of the new method, but particular recognition must be given to the work of Henry C. Morrison, from whom the following quotations are taken: (Speaking of the learning of a language.)

(There are) three kinds of learning products: First, there is the use product, appearing as the ability to read or perhaps to speak . . . an acquired ability . . . without focal consciousness of the discourse which he is using . . . Second, there are various related skills . . . Third, it is often desirable to establish comprehension of the language structure entirely apart from the use of the language. Confusion between these learning-product objectives is very likely to result in failure to attain any of them as a real product.

Learning (in the pure-practice subjects) arises through sheer repetition with little or no thought involved.

A certain swimming teacher gave this succinct and comprehensive piece of instruction, "Jump in and kick, kick, kick." In so doing he exhibited perfect comprehension of the learning principle at work and avoided completely the introduction at the outset of the pure-practice inhibition. His auditors were no doubt conscious of what the art of swimming is, for they had watched others. Now if he had begun by giving his class a lecture on the movements required in swimming, what you must do first and what next, and had succeeded in making such instructions register so that the learner on entering the water had undertaken to learn as a conscious process in which the question, "What is the first stroke and what next" was always focal, the inhibition would have been set up, and no learning at all would have taken place. In due season most of the learners would have

ignored the instruction and began practice under the stimulus of contact with the water.⁶

The tendency of schools is to reduce all learning to a crude science type process. . . . the effect upon subjects which belong to the language-arts type is systematically to set up actual inhibitions of a peculiar and characteristic type.⁷

Teaching Technique of Functional Method

The teaching technique of this method is varied slightly to meet the problems confronted in different assignments in the book, but fundamentally there is but one basic technique.

A new letter or character is presented with the simple statement that "b is written like this." That shorthand character is then written on the blackboard, followed by lists of words illustrating it. As the words are written by the teacher, they are spelled out and read by the teacher, and then by the students for the first day or two. After that, the words are not spelled out but merely read by the teacher after they are written, and then read by the class. The whole list of words is reviewed frequently, the teacher pointing rapidly to the words to be read. After the list has been reviewed once or twice in the order written, the teacher then points at random to words in the list, the class reading aloud, and the teacher pointing more frequently to words upon which the class hesitates.

⁶Henry C. Morrison, The Practice of Teaching in the Secondary Schools, 1926 Ed., (Chicago: University of Chicago Press), p. 27

⁷Ibid, p. 442.

Next, reading is done by individual students, the teacher again pointing at random. Mr. Leslie recommends calling on some poor students as a test of the success of the presentation.

Such presentation of the word lists requires a surprisingly short time when handled efficiently and vigorously by the teacher, as is pointed out by Mr. Leslie and demonstrated by the timing of his class procedure.

When Chapter IV has been completed and writing has then been introduced, some writing drill may immediately follow the oral presentation of the word list, the teacher dictating the words for a few minutes. This is followed by some individual reading from the previous day's assignment of connected matter--just enough to let the student know that the teacher is able to tell if the assignment has been prepared. Some writing of the previous assignment is also done after writing has been introduced into the work.

Just before the close of the class period, a few minutes more oral reading of the new list of words presented at the beginning of the hour is done to make a final impression before the home work is attempted. Although a key or printed transcription of all the assignments is furnished the student and encouragement given to use it to save time, it will be found that its use is very little needed after the new words have been so effectively presented.

It is to be noted that although the list of words presented illustrate a principle, no mention is made of the principle involved, and if generalizations are to be made, they are made by the student inductively. Such generalizations are, however, to be discouraged because the student does not need to know why a group of words are written in a certain manner but merely that they are written that way, and that it is the most natural and easy way to do it. The teacher should know the rule involved, for that is part of the science of the subject indicating the ground to be covered, but the teacher should be careful to restrict the student's activity to the "art of shorthand writing."

In brief, the student's home work is to review the words in the manual by covering up the printed words and reading the shorthand characters. If any hesitation occurs on a word, the student is encouraged to look at the print immediately to save time. After reviewing the words, the connected reading matter of the assignment is read several times with the aid of the key until it can be read through without referring to the key. After writing has been introduced, the connected matter is also written at least once. The student reads and copies about 750 words in this manner each day. The material covered is the Gregg Manual, Anniversary Edition, The Speed studies, the Graded Readings, and the Fundamental Drills in corresponding units; or if the new Gregg Shorthand Functional Method Manual is used, this matter is all correlated in the proper place so that the one book is all that is needed.

CHAPTER II

BASIC CONCEPTS OF FUNCTIONAL METHOD

As a part of the method used in this experiment, the basic distinctions in the philosophy and pedagogy of the Functional and the Non-Functional methods are presented before the procedure of the experiment, for they were guides for the experiment.

The Functional Method

The author of this method, Mr. Louis A. Leslie, has climaxed all the trends toward simplicity of presentation and ease of learning shorthand by carrying them to their extreme limits. He says,

The key to the success of the Functional Method of teaching Gregg Shorthand lies in the distinction made by a German writer on shorthand who called attention to the difference between "the science of shorthand and the art of shorthand writing."¹

No Teaching of Rules. In carrying out this distinction, possibly the most extreme phase of the Functional Method and the most contested one is the elimination of any teaching of rules or general principles whatsoever. Since it is contended that shorthand is almost entirely a pure-practice subject, it has been pointed out that the full class period should be devoted to reading and writing shorthand, and that any time spent in any other manner is a total waste. Therefore, according to this method, any teaching or explanation of the rules by which

¹Louis A. Leslie, The Teaching of Gregg Shorthand by the Functional Method, (New York: Gregg Publishing Co., 1935), p.12.

shorthand is written is not merely time lost but is a definite hindrance to the learner of the art of shorthand writing.

This is because rapid execution in writing is delayed when a learner hesitates in order to apply rules. Mr. Leslie says,

It is our belief that the teaching of such rules before the acquisition of skill in using them definitely delays the pupil's progress, not only by the amount of time spent teaching the rule (and that time may amount to many weeks in the shorthand course) but even more by the inhibitions and confusions created in the student's mind by the attempt to memorize, interpret, and apply a large number of difficult, complicated, and abstract generalizations.²

The reader is referred by Mr. Leslie to pedagogical and philosophical bases for this theory.³

No Formal Penmanship Drills. Probably the second most contested point of the new method is that no formal penmanship drills are taught. This, too, is a waste of time the author contends because it is the natural process for the learner to acquire good shorthand penmanship when the Functional Method is closely and completely followed. With sufficient reading of good printed shorthand followed by the writing of it and with definite mental impressions of new words as presented on the blackboard, the natural result is good shorthand penmanship.

No Writing at Beginning of Course. The slogan, "Write It Right the First Time," has arisen from this third point of distinction of the Functional Method--no writing at the beginning

²Louis A. Leslie, The Teaching of Gregg Shorthand by the Functional Method, p. 11.

³Henry C. Morrison, The Practice of Teaching in the Secondary School, 1931 Edition, cited by Leslie in The Teaching of Gregg Shorthand by the Functional Method, p. 11.

of the course. It is recommended that no writing be done until after the completion of the first four chapters, which are covered in the first twenty-three assignments.

Mr. Leslie contends first, that by allowing the student to concentrate on one thing--reading--we have greatly simplified the learning process, and made it "more pleasurable"; and second, that "the student's time can not be spent economically and profitably on writing until, by reading, he has stocked his mind with material for writing practice."⁴

By following this plan, the student has a mental picture of all the basic strokes and of a large number of words before he ever attempts to write. Then when the writing is taken up the student will "Write It Right the First Time." The aim is that the student should not be required to write any shorthand outline until he is thoroughly prepared to write it correctly --that he should not be given an opportunity to make a mistake. The easier the learning is made, the less opportunity there will be to make an error.

No Repetition Practice of Word Lists. The fourth characteristic of the new method is that there is no word-writing repetition--no repetition practice of lists of words. Writing is of connected or sentence matter only, except the brief forms which are written through twice when first taken up. The connected matter consists of new and interesting material. This provides for the repetition of all the shorthand characters many times but in an easier and more desirable manner.

⁴Helen Frankland, "A Critique of the Functional Method," National Business Education Outlook, Second Yearbook, (Detroit: National Commercial Teachers Federation), p. 204.

Repetition practice of word lists readily causes a student to lose interest in shorthand--to feel that it is drudgery. Such weakening of the student's interest and the resulting loss of aim eliminates the proper attitude necessary to the successful learning of the subject, without which any method of procedure will produce very little or no result. Mr. Lomax of New York University gives these elements of interest and aim as two of the three requisites of the successful learning process or principles involved--"a worthy purpose to learn shorthand, a lively interest in what you learn, and a willingness to work hard at what you learn."⁵

By the Functional Method the assignment is to read some interesting connected matter through once and to copy it through at least once. The repetition of the new words as well as the review of familiar words is provided for in the connected matter assigned, but such repetition is indirectly and unconsciously secured--it does not serve in any way to inhibit the learning process. The student is always interested in reading and writing the new connected matter through at least once, and so the repetition is secured and the interest maintained.

The manner in which repetition of new material as well as of review material is handled in the new Functional Method manual is shown by Mr. Leslie in the May 1936 Gregg News

⁵Paul S. Lomax, Commercial Teaching Problems, (New York: Prentice-Hall, Inc., 1928), p. 133.

Letter by a very careful analysis of Assignment 22 of the new Functional Method manual. Speaking of that assignment, he says,

The new material we have just taught consists of the four diphthongs. In the 560 running words of practice material in shorthand (in Assignment 22) the diphthong "oi" occurs 33 times in 15 different words. The diphthong "i" occurs 51 times in 31 different words. The diphthong "u" occurs 16 times in 9 different words. The diphthong "ow" occurs 14 times in 8 different words. This gives a total of 114 occurrences of the diphthongs in 63 different words in the 560-word home-work assignment. Thus you have a total of more than 20% of the running words containing examples of the diphthongs just learned.

(As to repetition of review material) This assignment provides an automatic review of almost all the stenographic material with which the pupil has come in contact in the first four chapters.⁶

No Formal Reviews. The fifth point which distinguishes the Functional Method is that there is no formal review. This has been treated very fully in the discussion of the preceding point--repetition of new and review material. Any formal review is unnecessary; in fact, it is undesirable because it is a type of tiresome review which causes a loss of the student's interest and enthusiasm. The Functional Method is organized to take advantage, to the fullest extent, of the automatic review inherent in the study of a subject such as shorthand.

No Theory Questions From Pupils. The sixth point characteristic of this new method is a minimum of questions from the pupils. This is in harmony with the first distinguishing characteristic--no rules taught or explained. At the first

⁶Louis A. Leslie, "What's in Volume I of the new Functional Method Manual?" Gregg News Letter, No. 128, May 1936, p. 429.

class period, the student must be made to understand that he is taking up the study of an art that has been used by millions of people; that every possible question has been anticipated and will settle itself naturally as the course progresses; that it is unnecessary and undesirable to waste the time of the class discussing reasons; but that if any sincere questions trouble the student, they will be discussed with him after school. If questions are occasionally asked, the best answer and the one that has the most meaning for the student is, "Because that is the easiest way to write it--the natural way for the hand to move."

It must be emphasized that questions are not dismissed in order to save the teacher the trouble of answering them. "quite the opposite--most teachers delight in answering questions of this kind."¹⁰ Questions are dismissed from the work of the classroom because the habit of thinking about the science of shorthand has a harmful effect on the student's skill in the art of shorthand writing. Moreover, for those who may become teachers of shorthand, after the art of writing shorthand has been finished, the science of shorthand is easily and quickly learned.

A Printed Key For Every Pupil. A seventh point distinguishing the new method is that every student is to have a printed key or translation to all of his shorthand reading material. This is consistent with the trend toward ease of

¹⁰Louis A. Leslie, The Teaching of Gregg Shorthand by the Functional Method, p. 24.

learning, and it enables the student to simplify the problem of getting home-work assignments easily, promptly, and properly. The use of the key enables the student to cover far more ground in a given time than would be possible in any other way, and prevents him from making errors and thereby learning incorrect outlines--the slogan again, "Write It Right the First Time."

In this connection, it is of importance to note that modern language teachers in increasingly large numbers have been using keys in the form of translations.

No Tests On Accuracy Of Shorthand Writing. The eighth and last point which needs emphasis here as a distinguishing characteristic of the Functional Method is that a minimum of tests are given, and those given are to be transcribing tests of only a few minutes which are graded on the basis of the percentage of accuracy of the transcript and the number of words a minute transcribed.⁸ No theory tests or word tests for accuracy of shorthand characters are to be given at all. Moreover, the student should know when the transcription tests are given that his shorthand notes are not to be graded. This relieves his tension and nervousness; it does not give him a chance to make errors, to write outlines incorrectly; and it maintains his interest and determination to accomplish his purpose.

No worry need be entertained as to the incorrectness of his shorthand characters. They will gradually and automatically

⁸Ibid, p. 28.

improve as progress through the assignments is made. The accuracy is thereby learned indirectly and incidentally; and that is the correct, the easy, and the natural way. For, is not the main objective of the learning process in shorthand to develop ability in producing accurate transcripts? If so, then all subsidiary objectives are secondary, and most desirably learned indirectly through the process of automatic review. Mr. Leslie points out that,

When you are teaching shorthand, you are very much in the position of the engineer pouring cement. Cement requires from twenty-four hours to a month to "set," depending on the type of work and the type of cement. . . . He (the engineer) provides himself with the required number of forms, pours mould after mould day after day, and by the time he has completed a convenient unit of work the first forms have "set" and he is able to put the finishing touches on them.

When you teach a new principle, particularly by the Functional Method, from a week to a month is required before that principle has "set" in the student's mind so that he can use it independently, without the crutches.

This . . . is one of the reasons why the old type test (of word accuracy) is not only undesirable but of no value, even as a testing medium.

The Non-Functional Method

In the preceding section, the principal concepts underlying the Functional Method are presented through the discussion of eight distinguishing characteristics of that method. Although other points could have been mentioned, those given are the

⁹Ibid, p. 27.

important ones, all of which follow the fundamental trend toward simplicity of presentation and ease of learning.

The Non-Functional Method is so named here merely to distinguish it from and compare it with the Functional Method. The Non-Functional Method used in this experiment is intended to be one of the common and ordinary methods in use before the coming of the Functional Method.

The Non-Functional Method used included always a very brief explanation of the principle involved when new words were presented. Care was taken, however, to confine the statement of the principle to a concise thought in language most understandable to the student. Questions were not encouraged and in fact were not asked much more by the Non-Functional students than by the Functional students.

The Non-Functional class was given introductory penmanship drills early in the course. These were only a few minutes in length, and emphasis was given to the proper curvature and slant of the basic strokes, the proper size and joinings of the circles and hooks, etc. The drills from the Gregg Writer magazine were used. Proper position was also insisted upon.

In the Non-Functional class, writing was begun at the beginning of the course. After presentation of the words illustrating the principle under consideration, the assignment was to write through the words, writing each one at least three times, then repeating in that manner at least once more. The reading exercises were assigned to be read and the reading

timed; then the exercise copied either two or three times, depending upon its length. In the long exercises of the Fundamental Drills and the last half of the Speed Studies, the writing was to be done at least once. This method, of course, required greater time to cover the material than did the Functional Method, but even then the class was able to complete all of the Gregg Manual, all of the Speed Studies, and all but ten of the exercises in the Fundamental Drills. The Functional class, by not writing lists of words at all and by writing the reading exercises just once, covered much more material, and was able to complete all of the Gregg Manual, all of the Speed Studies, all of the Fundamental Drills, all of the Creeds of the Lives of Great Business Men, and some work from the Gregg Writer magazines. Both classes finished their material several weeks before the end of the year, and during those remaining weeks many of the Hoke and the Rollinson tests were given to measure the achievement of the two classes.

Formal word tests for accuracy of the shorthand notes were given regularly to the Non-Functional class. These consisted largely of those tests given in the Progressive Exercises and of the Tests on the Anniversary Manual by F. N. Haroun, appearing in the American Shorthand Teacher of December 1929 and January 1930.¹⁰

¹⁰F. N. Haroun, "Tests on the Anniversary Edition of the Gregg Manual." The American Shorthand Teacher, December 1929, p. 99 and January 1930, p. 173.

No keys were furnished to the members of the Non-Functional class. The material for all assignments was, however, always covered in class before the home work on the assignment. This was often done by sight reading of the new assignment by those members of the class who volunteered, while at other times the best students were called upon to read the entire assignment. Much time was saved by having the best students read the new material. All of the new words had been presented on the blackboard before the reading of the new material.

CHAPTER III

CONDUCTING THE EXPERIMENT

Preliminary Preparation

The preliminary preparation for the experiment consisted in securing two classes in beginning shorthand. It was known the preceding year that two such New Plan II classes would be had; and that these classes were to be held during the first two hours of the day, were to be held in the same room, and were to be taught by the same teacher.

Data concerning the ability of the students of both of the classes before studying shorthand were secured from the results of the following tests:

- (a) Terman Group Test of Mental Ability
- (b) Otis Self-Administering Test of Mental Ability
- (c) Nelson-Denny Reading Test
- (d) Ohio State University Psychological Test, Form 18
- (e) Hoke Prognostic Test of Stenographic Ability

It was impossible to attempt to match the classes on any basis before the experiment was conducted. However, matching of pairs of students from the two classes was later done (1) on the basis of percentile ranks on the intelligence tests, and (2) on the basis of scores on the Hoke Prognostic Test of Stenographic Ability. The final results are shown by comparing the accomplishment of the Functional and the Non-Functional students in each of these two matchings--the intelligence-matched pairs and the prognostic-matched pairs.

The first-hour class was taught by the Functional Method of teaching shorthand, and Mr. Leslie's teacher's manual, "The Teaching of Gregg Shorthand by the Functional Method,"¹ was followed in the presentation of the course as accurately as is possible in the first attempt at the method. This class is referred to as the Functional class.

The second-hour class was taught in a manner similar to that previously used by the teacher, which was intended to be the method probably used by the average shorthand teacher before the advent of the Functional Method. This control group is referred to as the Non-Functional class. The method used has been described in detail in the preceding chapter.

The Teaching of Transcription

Since both longhand and typewritten transcriptions are a part of the Functional Method, it was not necessary to differentiate between the two classes in the teaching of transcription. During the first five weeks, only longhand transcription tests of short duration and of familiar printed shorthand were given. Beginning with the sixth week, typewriting transcription was made a part of the work. This transcription was introduced in a gradual manner so that the learning would be made easy. Simple printed material which had been read by the students was used at first, and a slight

¹Louis A. Leslie, The Teaching of Gregg Shorthand by the Functional Method, (New York: Gregg Publishing Co., 1935).

change was made each five-week period until the end of the first semester, when the students were able to transcribe from their own shorthand notes of new-matter dictation.

Typewriting Transcription. A very desirable situation existed in that all of the students of both the Functional and the Non-Functional classes were enrolled in beginning typewriting at the same hour--the fourth hour of the day--under another teacher, Miss Winifred Weatherman, whose enthusiasm and cooperation in the experiment contributed much to its success. The enrollment of both of the shorthand classes for the same hour for typewriting was possible because of the large typewriting room containing seventy typewriters. This situation made it possible to get a more accurate comparison of the two shorthand groups when the typewritten transcripts of their shorthand notes were compared, because their typewriting opportunities and instruction were exactly alike. The entrance of the typewriting factor into the experiment as a possible variable was, therefore, reduced to the minimum.

Incidentally, it might be mentioned that all students were taught by the dictaphone method of teaching typewriting, the entire room being equipped with eleven dictaphone units, each of which served from four to eight typewriters.

The accuracy of the comparison was also increased by this typewriting situation in that results are shown of the dictation given in the typewriting room to all students of both shorthand classes at the same time. This eliminated the

possibility of any variation in the speed of dictation, which was a factor when the dictation was given to the two classes separately for the longhand transcription tests.

Another factor introduced into this typewriting situation to enhance the dependability of the comparison was the use of different persons to read the dictation on different days. The persons taking part in this were Mr. Arthur T. Chapin, principal of the school, Miss Winifred Weatherman, teacher of the typewriting class, Miss Aldine Basham and Mr. Fred Green, other New Plan commercial teachers, and the teacher of the two shorthand classes. This part of the experiment was carried on during the last five weeks of the year, after both classes had finished the mastery of shorthand, the typewriting transcription being given on Tuesdays and Thursdays as a regular part of the typewriting class. The length of time devoted to this each transcription day was very gradually increased from approximately five minutes to twenty minutes as the work progressed through the first semester.

Although the typewriting transcription tests which were used in comparing the results of the two classes were those given during the last five weeks of the year, the rate of dictation was only sixty words per minute. This slow speed was used because the dictation was taken in the large typewriting room containing seventy typewriters, the students wrote on the small typewriting desks with their machine moved

to one side, the persons reading the dictation were different each time and were not all accustomed to reading dictation nor were the students accustomed to hearing their voices, and it was the speed at which all could best succeed.

As already mentioned, the procedure by which the process of typewriting transcription was introduced into the work was gradual--from the simple to the more difficult phases. The first five-week period there was no typewriting transcription; the second five-week period the typewriting transcription was from printed shorthand which had been read previously by the classes; the third, from student's own shorthand notes taken at dictation from material which had been read previously by the classes; and the fourth, from the student's own shorthand notes taken at dictation from new matter which was read back by individual students and the punctuation discussed before transcribing. Until this time all dictation, whether of familiar or of new material, was read back and the punctuation discussed while the students had their own shorthand notes. They were encouraged to fill in at any place that they may have lost out on the dictation and to put in the punctuation wherever it might cause hesitation while transcribing in the typewriting room. This is in harmony with the Functional concept of making the learning process easy and interesting. Moreover, the slow student was able to succeed by having notes from which he could transcribe successfully.

By the end of the fourth five-week period--the end of the first semester--the students had sufficiently mastered and correlated their work to be able to undertake dictation and transcription in the practical manner of the business office without reading the dictation back nor discussing the punctuation.

Longhand Transcription. In addition to the typewriting transcription, the longhand transcription tests were continued weekly throughout the entire year. These were very short --from two to five minutes time being used in dictating, and time being allowed for all to finish their transcription. The purpose in continuing these tests was to have a measure for comparison in which the typewriting factor did not enter in at all. Some students who are successful in learning shorthand have difficulty with their typewriting, and the converse is equally true. Therefore, these longhand tests of transcription ability were probably a more accurate measure of the success of the two methods of teaching shorthand.

The longhand transcription tests which are used in this comparison are those given during the second semester, both classes having sufficiently mastered shorthand by that time to be able to take new-matter dictation of average difficulty. These tests were given at 50 words per minute dictation for the twenty-first, the twenty-second, and the twenty-third weeks; at 60 words per minute for the twenty-fourth, the

twenty-fifth, the twenty-sixth, and the twenty-seventh weeks; and at 80 words per minute for the twenty-eighth, the twenty-ninth, and the thirtieth weeks.

During the last ten weeks of the year, the dictation speed for these longhand transcription tests each week was varied to take care of individual differences in the rate of speed at which students could take dictation. During this period three speeds were dictated for each weekly test--60, 80, and 100 words per minute respectively--and the students chose the speed which they could take most completely. They then transcribed the two letters for that one speed only.

In all of the longhand transcription tests, two letters of 120 words each were dictated and transcribed as one test. The material dictated was from "Fifty Letters Selected from the High School Examinations in Shorthand II conducted by the State of New York (Regents Letters)."² This material is probably more difficult than the average business letter.

Measuring Achievement of the Two Classes

As mentioned in Chapter I of this study, it was desirable to know whether the Functional Method sacrificed achievement in any of the important components of shorthand learning and mastery: (1) transcription ability, (2) accuracy of shorthand vocabulary, (3) good shorthand penmanship, and (4) reading ability--word meaning, comprehension, and rate. Therefore, in addition to the transcription tests, four Hoke Tests in

²Sadie Krupp Newman, Modern Graded Dictation, (Boston: Ginn and Company, 1934), p. 167.

Gregg Shorthand Achievement, Vocabulary Tests C-7, C-8, C-9, and C-10, and six Rollinson Diagnostic Shorthand Tests, Chapters IV, V, VI, VII, VIII, and IX, were given to the students of both classes during the last three weeks of the year. By giving these tests which were partly "theory" tests at the end of the year, the Functional Method concept of "no theory tests" was not interfered with in any way.

Summarizing the measures of achievement used for the comparison of the two classes, they were as follows:

- (a) Longhand transcription tests from the New York Regents Examination Letters.³
- (b) Typewriting transcription tests from the Gregg Transcription Tests published monthly by the Gregg Publishing Company.⁴
- (c) Hoke Tests in Gregg Shorthand Achievement, by Elmer Hoke of Lebanon Valley College, Annville, Pa., published by the Gregg Publishing Company.⁵
- (d) Rollinson Diagnostic Shorthand Tests, by Ethel A. Rollinson of Columbia University.⁶ These are tests on each chapter of the shorthand manual, testing the vocabulary, the penmanship, the writing speed, the accuracy of vocabulary while taking dictation, and reading ability as to word meaning, comprehension, and rate.

The longhand and the typewritten transcription tests were scored for the percentage of accuracy, the punctuation and the spelling being included. The Hoke and the Rollinson tests

³Ibid, p. 167.

⁴Louis A. Leslie, Editor, Gregg News Letter and Transcription Tests, published monthly, (New York: The Gregg News Letter).

⁵Elmer Hoke, The Measurement of Achievement in Shorthand, p. 88. (Baltimore: The Johns Hopkins Press, 1922).

⁶Ethel A. Rollinson, Diagnostic Testing and Remedial Teaching of Gregg Shorthand, (New York: The Gregg Publishing Co., 1931).

were scored by the directions accompanying the tests, which in both tests was the number right. These last two tests serve as different measures of achievement in accuracy of vocabulary because the Hoke test is untimed (the time actually taken ranging from about ten to twenty-five minutes for different students), while the Rollinson vocabulary test is limited to three minutes for all students. The other parts of the Rollinson test are also timed, the complete test being given in about twenty to twenty-five minutes. One of each of the Hoke and the Rollinson tests may be found in the Appendix at the end of this study.

CHAPTER IV

RESULTS OF EXPERIMENT

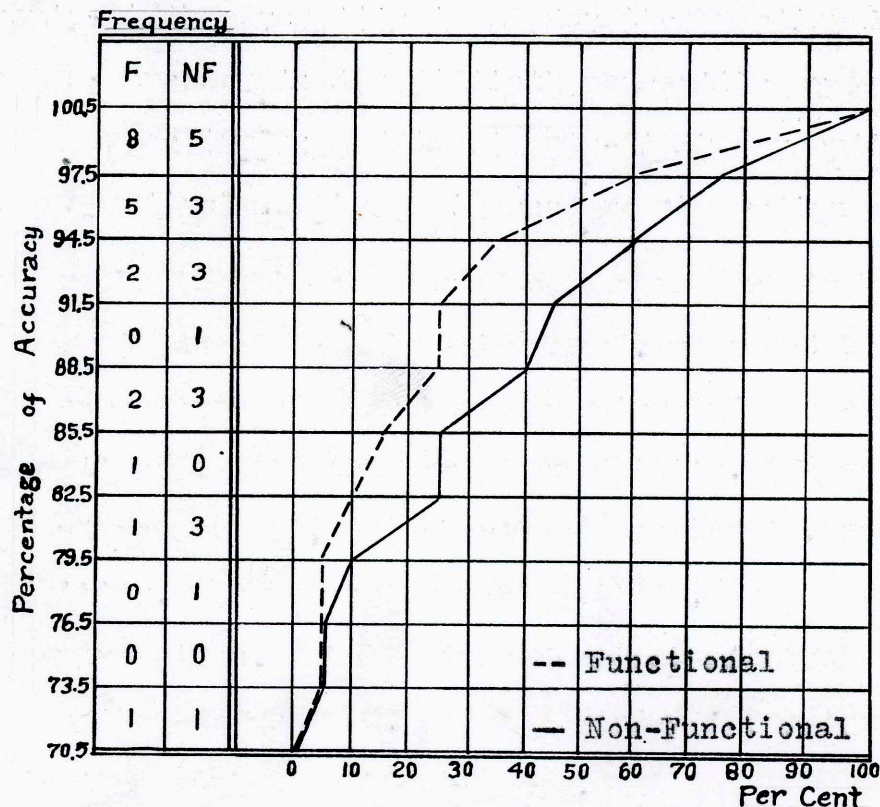
The findings of this study are based primarily upon (1) the achievement of a group of twenty pairs of students from the two classes who were matched by the sums of their percentile ranks on the Terman Group Test of Mental Ability, the Otis Self-Administering Test of Mental Ability, the Nelson-Denny Reading Test, and the Ohio State University Psychological Test, Form 18, and (2) the achievement of a group of twelve pairs of students from the two classes who were matched by their scores on the Hoke Prognostic Test of Stenographic Ability. The results are shown separately for these two matchings--the intelligence-matched pairs and the stenographic prognostic-matched pairs.

The graphs in this chapter show the comparative success of the two methods of teaching shorthand, measured by the important components of shorthand learning and mastery previously mentioned: (1) transcription ability, (2) accuracy of shorthand vocabulary, (3) shorthand penmanship, and (4) reading ability. In measuring each ability, from four to ten tests were given. The median of all the tests for each ability was then determined, and the student's median score is used in the graphs in this chapter. That is, each graph represents the student's median score of several tests on the ability which is measured and graphed.

Transcription Ability

The transcription ability of the two classes is tested in two ways--by longhand written transcripts and by type-written transcripts. This was done in order to eliminate the typewriting factor completely from one group of tests of transcription ability.

Longhand Transcription. In Figure 1, the twenty pairs were matched by intelligence percentiles. The Functional class exceeded the Non-Functional from the fifth percentile to the hundredth percentile, and the difference is large.



F Functional; NF Non-Functional

Fig. 1. Showing Percentage of Accuracy of Twenty Intelligence-Matched Pairs on the Longhand Transcripts During Weeks 21 to 30

The seventy-fifth percentile is 99 for the Functional and 98 for the Non-Functional; the fiftieth percentile or median is 96 and 93 respectively; and the twenty-fifth percentile is 89 and 83, respectively. These figures are the median of ten transcription tests scored for the percentage of accuracy of the transcript. Therefore, this difference of 4 per cent greater accuracy of the Functional class at the median is an important and reliable difference. In the upper portion of the cases, 8 of the 20 Functional students, or 40 per cent, made a median score of 98 or more percentage of accuracy on the ten tests.

In considering what a percentage of accuracy of 98 on a transcript means, it is necessary to analyze the material dictated as to the number of words it contains and the speed at which it was dictated. Each of these ten tests consisted of two letters taken from the New York Regents Examination Letters,¹ each letter of 120 words. Therefore, 240 words were dictated for each test and 1 per cent was deducted for each 2.4 errors. A percentage of accuracy of 98 allowed the student to make not more than six errors out of the 240 words. This allowed for an average of three errors for each of the two letters written. Such a standard is probably not too high when judged from the practical-use standpoint, for any more than three errors on a letter requires too much of the stenographer's time in making corrections to be of usable value in business.

For the purposes of this study, it was necessary to accept all

¹Sadie Krupp Newman, Modern Graded Dictation, p. 167.

transcripts and to score their percentage of accuracy based on the number of words in the material dictated.

Figure 1 shows that 15 per cent more of the Functional than of the Non-Functional students produced acceptable transcripts on the longhand transcription tests during the twenty-first to the thirtieth weeks.

Figure 2 continues the comparison of the longhand transcription through the last ten weeks of the year. This was the period when the dictation each week was given at three speeds--60, 80, and 100 words per minute--two letters for each speed being dictated. This procedure was followed in

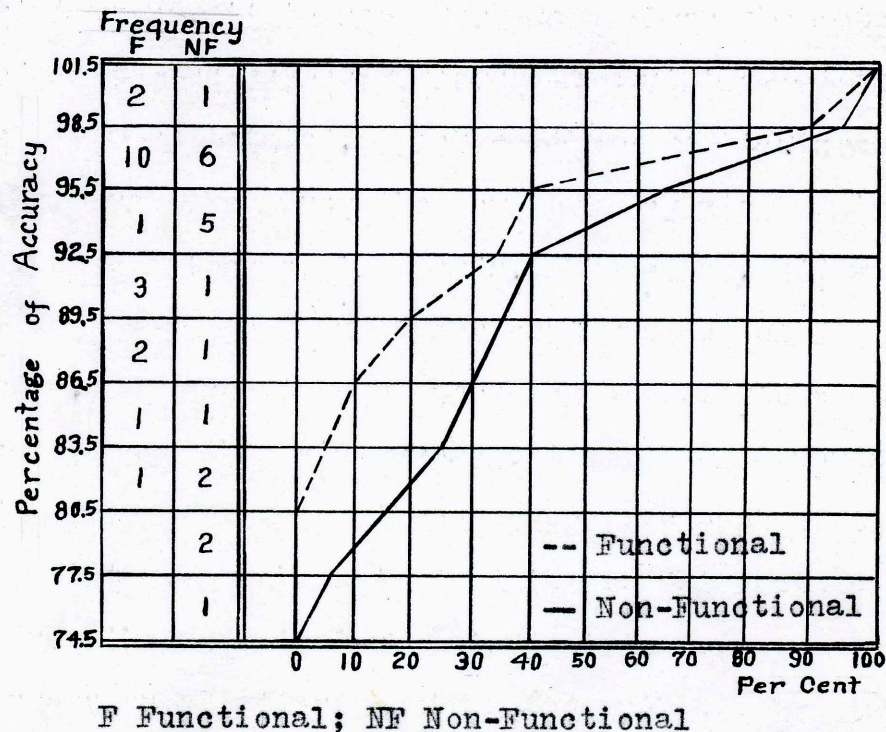


Fig. 2. Showing Percentage of Accuracy of Twenty Intelligence-Matched Pairs on the Longhand Transcripts During Weeks 31 to 40

order to provide for the differences in ability of the students in speed of taking dictation. In Figure 2, the median percentage of accuracy of five tests is shown and no distinction is made as to the speed the student chose to transcribe. Without regard to the dictation speed chosen, 12 of the 20 Functional students, or 60 per cent, transcribed in longhand during the thirty-first to the fortieth weeks with a percentage of accuracy of 96 or above; while only 7 of the 20 Non-Functional students, or 35 per cent of them, attained that accuracy. Consequently, 25 per cent more of the Functional than of the Non-Functional students were able to transcribe with a percentage of accuracy of 96 or above the longhand transcription tests during the thirty-first to the fortieth weeks.

Table I shows that many more of the Functional than of the Non-Functional students chose to transcribe the faster

TABLE I

Showing the Per Cent of Each Class Choosing Each Speed During the Last Ten Weeks When Three Optional Speeds Were Dictated, and the Median Percentage of Accuracy Made by Each Group

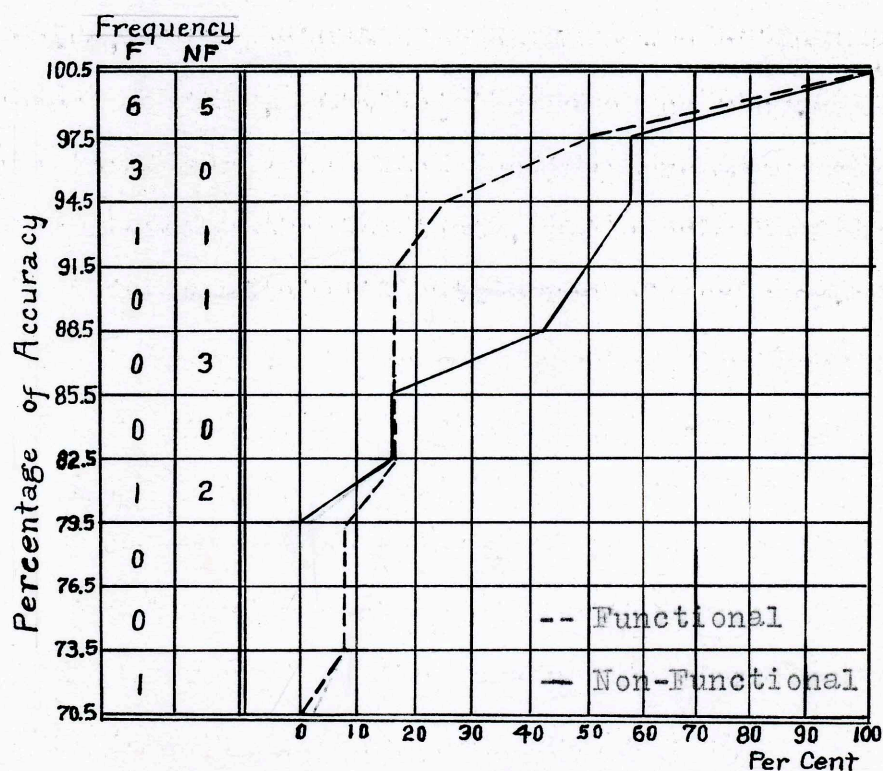
	<u>Words Per Minute</u>		
	<u>60</u>	<u>80</u>	<u>100</u>
<u>Functional Class</u>			
Per cent of class choosing each speed	40	21	34
Median percentage of Accuracy of each group	93	99	96
<u>Non-Functional Class</u>			
Per cent of class choosing each speed	52	29	13
Median percentage of Accuracy of each group	93	95	95

dictation speeds, and yet did so with higher percentages of accuracy. It is necessary to emphasize the fact that the choice of the speed for transcribing was entirely optional with the student. Probably there was a tendency toward conservatism by writing a speed which was slower than the student's best speed of taking dictation. Especially is this apparent among the poorer students, for just before the beginning of this optional three-speed period, all the dictation had been at one speed for all students--80 words per minute--and only a very few of the students of both classes were not able to succeed at that speed. The Functional class median for that 80-word dictation was 97 percentage of accuracy and the Non-Functional class median was 94.

Table I shows that 34 per cent of the Functional students chose the 100-word speed during the last ten weeks of the year, while only 13 per cent of the Non-Functional students chose that speed. Therefore, 21 per cent more of the Functional than of the Non-Functional students chose the 100-word speed, yet they transcribed with 1 per cent higher accuracy. By combining the two faster speeds, it is seen that 55 per cent of the Functional students chose either the 80 or the 100 speed; while 42 per cent of the Non-Functional students chose those speeds. The standard of speed set for these classes was 80 words per minute, and when given the option of three speeds (one below the standard set), a large per cent of both classes chose the two upper speeds.

The results of the comparison of the intelligence-matched pairs shown in Figures 1 and 2 are confirmed and strengthened in favor of the Functional class by the results of the comparison of the prognostic-matched pairs shown in Figure 3.

Figure 3 shows that in the longhand transcription tests during the twenty-first to the thirtieth weeks the Functional class exceeded the Non-Functional class from the fifteenth to the hundredth percentile. At the twenty-fifth percentile, there was a difference of eight points and at the median, six points. Nine of the 12 Functional students, or 75 per cent



F Functional; NF Non-Functional

Fig. 3. Showing Percentage of Accuracy on Long-hand Transcripts of Twelve Hoke Prognostic-Matched Pairs During Weeks 21 to 30

of them, transcribed with a percentage of accuracy of 95 or above, while only 5 of the 12 Non-Functional students, or 42 per cent of them, attained the same accuracy. Also, 6 of the Functional students made a median percentage of accuracy of 99 or above on the ten tests, while only 5 of the Non-Functional students attained that degree of accuracy.

The results of this comparison of the prognostic-matched pairs shows that 33 per cent more of the Functional than the Non-Functional students attained a median accuracy of 95 or above, and that 8 per cent more of the Functional than of the Non-Functional students attained a median accuracy of 98 per cent or above.

Figure 4 shows the superiority of the entire Functional

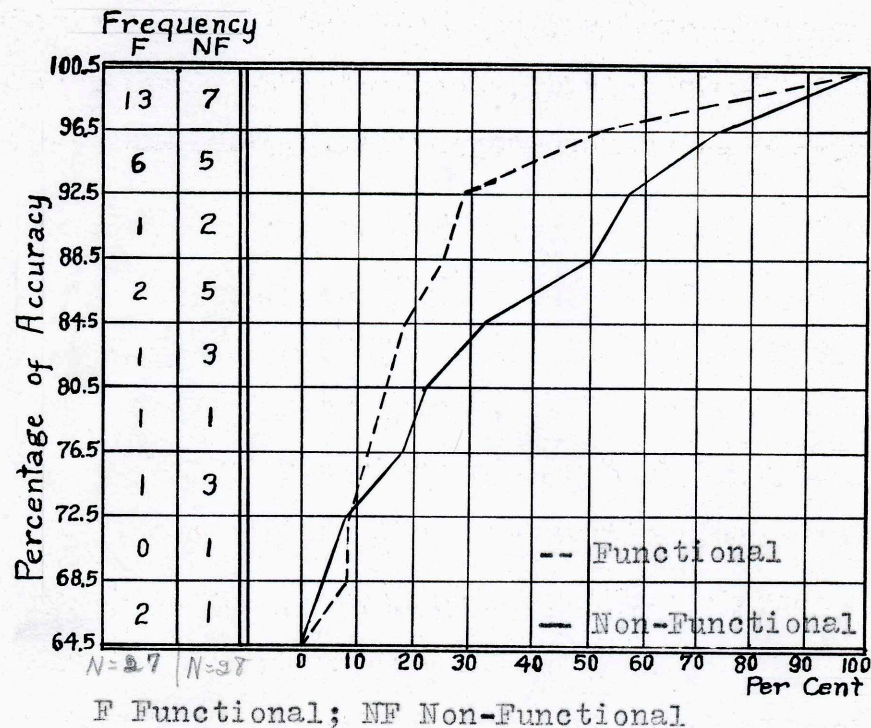


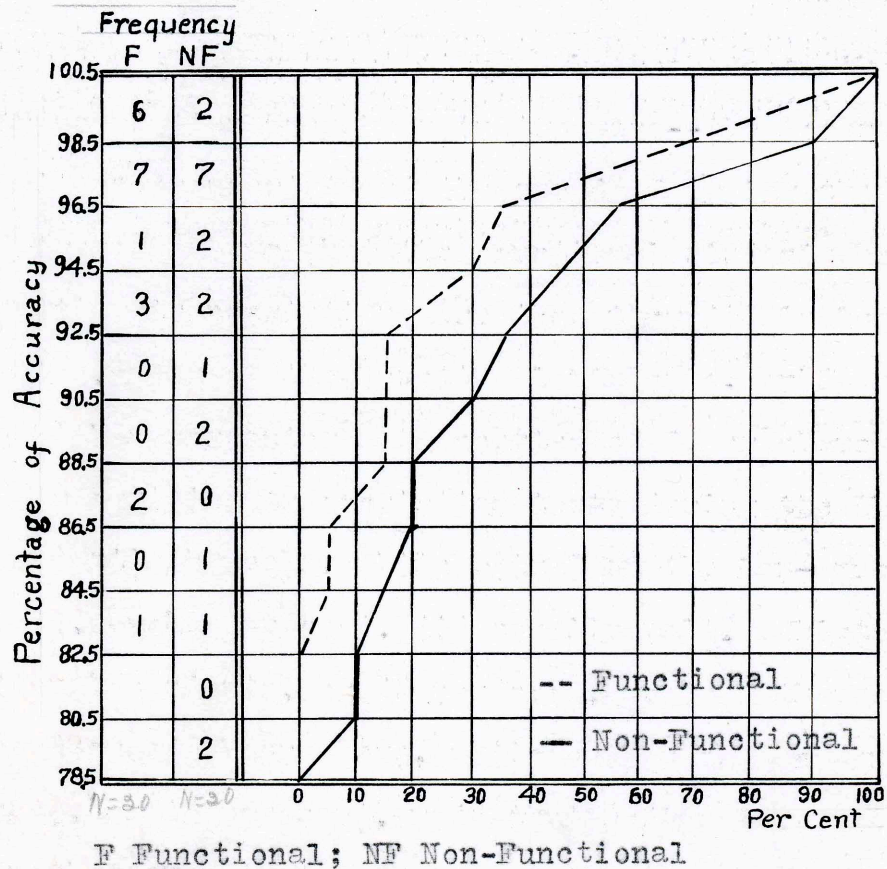
Fig. 4. Showing Percentage of Accuracy of All Members of Both Classes Without any Matching of Students on the Longhand Transcripts During the Weeks 21 to 30

class of 27 students over the entire Non-Functional class of 28 students--the unmatched classes. The results support the findings of the two matchings already discussed as to their achievement in longhand transcription during the twenty-first to the thirtieth weeks. The result of the comparison of the unmatched groups is that 48 per cent of the Functional class made a median percentage of accuracy on the ten tests of 97 or above, while only 25 per cent of the Non-Functional class attained an equal accuracy.

Typewriting Transcription. The results of the typewriting transcription are shown in two ways--the accuracy of the typewritten transcript and the speed of typing the transcript.

Figure 5 shows that the Functional students exceeded in typewriting transcription more than they did in longhand transcription. Six of the Functional students, or 30 per cent, wrote with a percentage of accuracy of 99 or above on the seven typewriting transcription tests during the thirty-sixth to the fortieth weeks, while only 2 of the Non-Functional students, or 10 per cent, did equally well. Thirteen of the Functional students, or 65 per cent, wrote with a percentage of accuracy of 97 or above, while only 9 of the Non-Functional students, or 45 per cent, made that median percentage of accuracy on the seven tests. Consequently, 20 per cent more of the Functional than of the Non-Functional students produced transcripts of a high degree of accuracy.

Figure 6 shows very unusual transcribing speed on the part of the Functional class. This figure shows the comparison of the intelligence-matched pairs. The fact that they so far exceeded the Non-Functional class is very likely attributable to their marked superiority in shorthand reading ability, the results of which are shown in the last part of this chapter. This superiority resulted in better coordination of the processes of reading shorthand notes and



F Functional; NF Non-Functional

Fig. 5. Showing Percentage of Accuracy of Twenty Intelligence-Matched Pairs on the Typewritten Transcripts During Weeks 36 to 40

typewriting. The greater the shorthand reading ability, the more the student is able to concentrate on his typewriting and the perfection of his transcript. Figure 6 shows that 2 of the Functional students transcribed at 33 words per minute; none of the Non-Functional students equalled that speed. Ten of the Functional students, or 50 per cent transcribed at a speed of 25 words per minute or more, but only 3 of the Non-Functional students, or 16 per cent transcribed at that speed. The result is that 34 per cent more of the Functional than of the Non-Functional students were able to transcribe at 25 or more words per minute. For students who are finishing their first year of typewriting and of shorthand, that is a very creditable transcription speed.

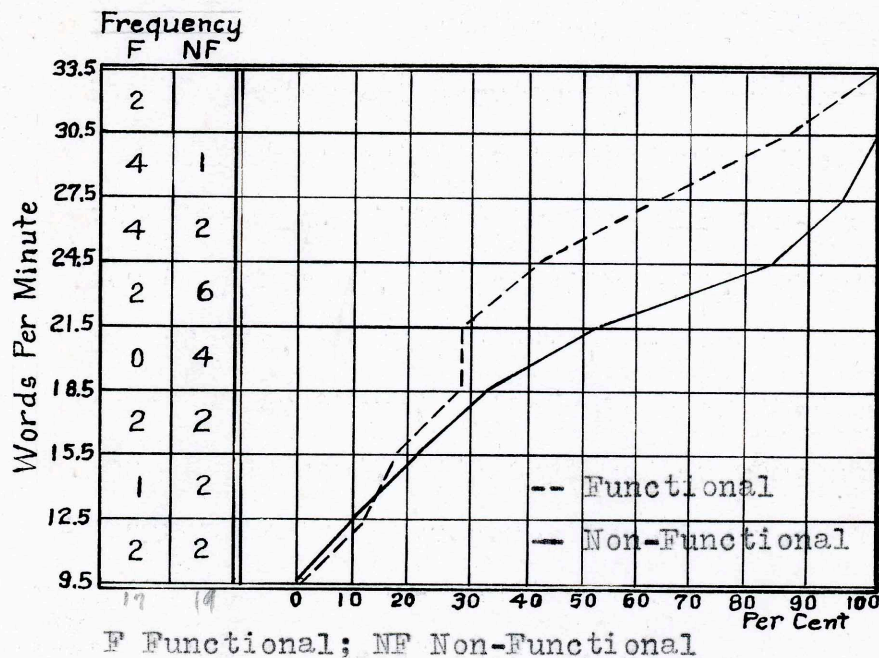
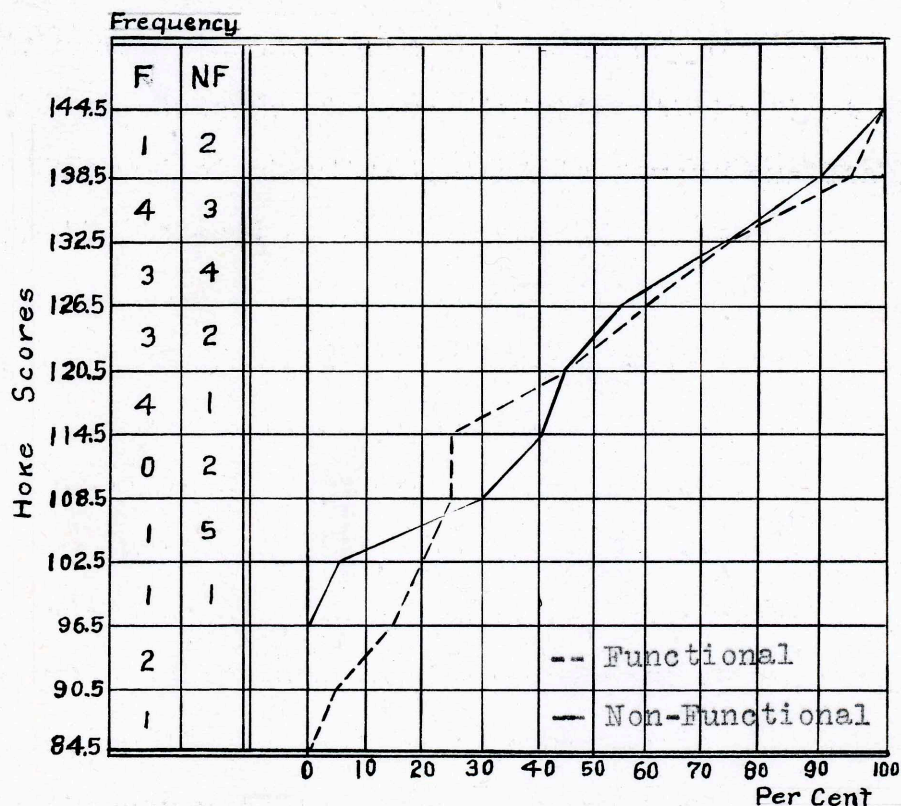


Fig. 6. Showing Typewriting Transcription Speed of Twenty Intelligence-Matched Pairs on Gregg Transcription Test Dictated at 60 Words per Minute During the Thirty-eighth Week

Accuracy of Shorthand Vocabulary

The accuracy of writing shorthand was tested in three ways: (1) by writing lists of words and phrases while timed--the Rollinson vocabulary tests, (2) by writing lists of words and phrases while not timed--the Hoke vocabulary tests, and (3) by taking dictation of connected matter at 40 and at 60 words per minute--the Rollinson taking-dictation tests.

By Figures 7 and 8, it is shown that the twenty intelligence-matched pairs were practically equal in accuracy of



F Functional; NF Non-Functional

Fig. 7. Showing Accuracy of Writing Shorthand of Twenty Intelligence-Matched Pairs on Hoke Vocabulary Tests During Weeks 38 to 40

vocabulary. The prognostic-matched pairs showed a similar equality in shorthand vocabulary achievement. There is apparently no difference in the accuracy of writing the Rollinson words and phrases which are timed and the Hoke words and phrases which are not timed.

The third method of testing the accuracy of the shorthand vocabulary--by testing the accuracy of the shorthand written at dictation speeds of 40 and 60 words per minute--is a very significant measure of this ability. From the practical-use standpoint, this is probably the most valuable measure of shorthand accuracy.

Figure 9 shows equal achievement of the Functional and the Non-Functional students in the intelligence-matched pairs as to their accuracy of writing shorthand while taking

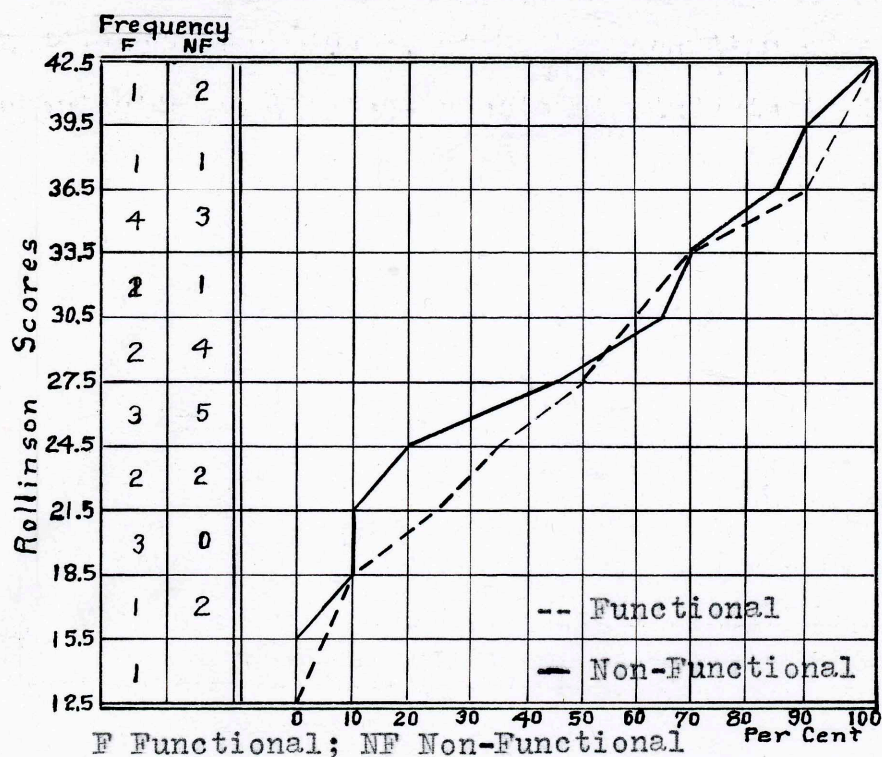


Fig. 8. Showing Accuracy of Writing Shorthand of Twenty Intelligence-Matched Pairs on Rollinson Vocabulary Tests During Weeks 35 to 40

dictation at 40 words per minute, with the exception of a noticeable superiority of the Non-Functional students in the upper limits of the percentile curve. This might indicate that the best students of the Non-Functional class write more accurately at slow dictation than do the best students of the Functional class. The comparison of the prognostic-matched pairs showed similar results.

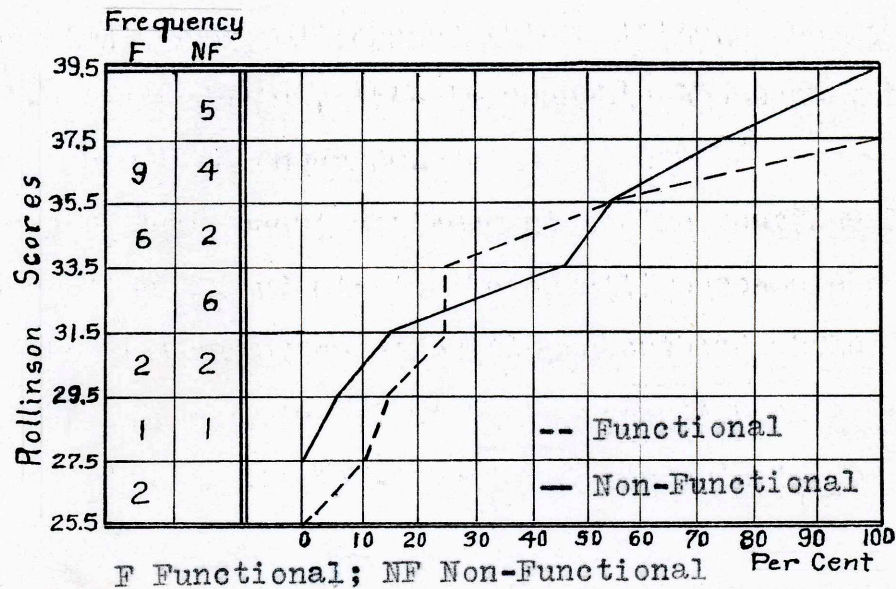
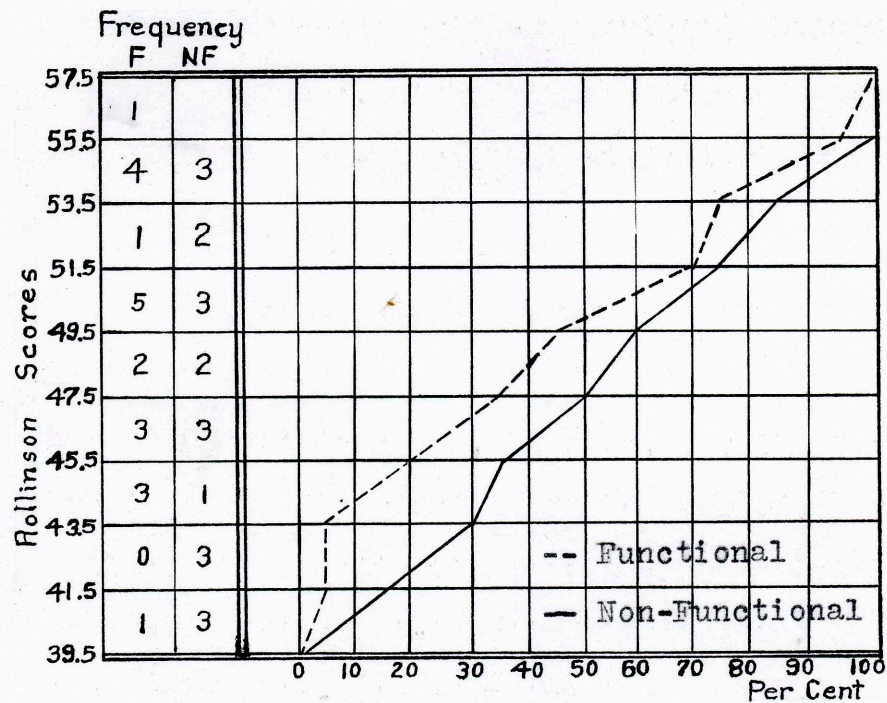


Fig. 9. Showing Accuracy of Writing Shorthand While Taking Dictation at 40 Words per Minute on Rollinson Taking-Dictation Tests by Twenty Intelligence-Matched Pairs During Weeks 35 to 40

The contrary result is shown, however, for the faster speed. Figure 10 shows the results of the 60 words per minute dictation. All of the Functional students in the intelligence-matched pairs exceeded the Non-Functional students. The comparison of the prognostic-matched pairs showed the same result.

Figure 10 shows that five Functional students and three Non-Functional students made a score of 54 or more out of the possible 60 on the two 60-word dictation tests. Therefore, at the 60-word dictation speed 10 per cent more of the Functional than of the Non-Functional students in the intelligence-matched pairs were able to write with a percentage of accuracy of 90 or above. This figure also shows that 15 per cent more of the Functional than of the Non-Functional students wrote at the faster dictation speed with an accuracy percentage of 84 or above.

The result of the comparison of the accuracy of shorthand vocabulary of the two classes is (1) that in writing lists of



F Functional; NF Non-Functional

Fig. 10. Showing Accuracy of Writing Shorthand While Taking Dictation at 60 Words per Minute on the Rollinson Taking-Dictation Tests by the Twenty Intelligence-Matched Pairs During Weeks 35 to 40

words and phrases, the two classes are about equal; (2) that in the taking of slow dictation, the two classes are about equal except that the best students of the Non-Functional class exceeded the best students of the Functional class; and (3) that in the taking of the faster dictation speed, approximately 15 per cent more of the Functional than of the Non-Functional students wrote with an acceptable degree of accuracy.

The degree of accuracy in these Rollinson taking-dictation tests shown in Figures 9 and 10 is apparently low, but may be accounted for by two factors: (1) writing is not as accurate in taking dictation as in writing lists of words, and (2) the method of grading was strict in that any shorthand characters not joined together in phrases exactly like the Rollinson printed answer sheet were counted wrong. The differences in the phrasing of the less simple and common words is usually not a material error.

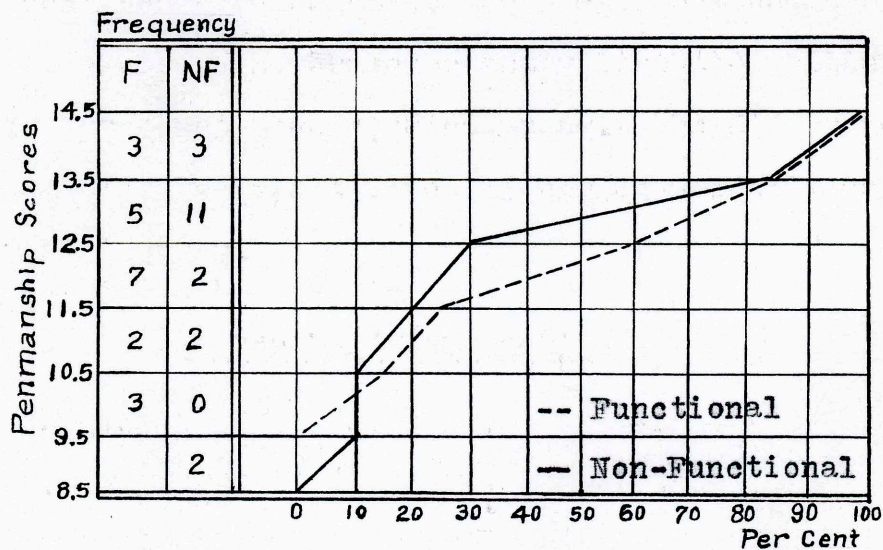
Shorthand Penmanship

The shorthand penmanship of the two classes was measured by the Rollinson penmanship tests. The six tests from Chapters IV to IX, inclusive, were used, and the median of the scores on the six tests is used in this comparison.

There were fourteen possible points in each of the tests, consisting of fourteen questions about the shorthand penmanship.

There seems to be one basic factor affecting the validity of these Rollinson penmanship tests. They test the student's ability to copy and not his ability to write good shorthand penmanship. That is, they test the student's ability to copy well the shorthand which is printed on the line immediately above the line on which the student writes. They do not test the student's ability to write good shorthand while taking dictation nor while writing his own style. In the case of individual students, a poor penman at taking dictation was found to become a fairly good penman at copying immediately below good printed shorthand.

Figures 11 and 12 show practical equality between the

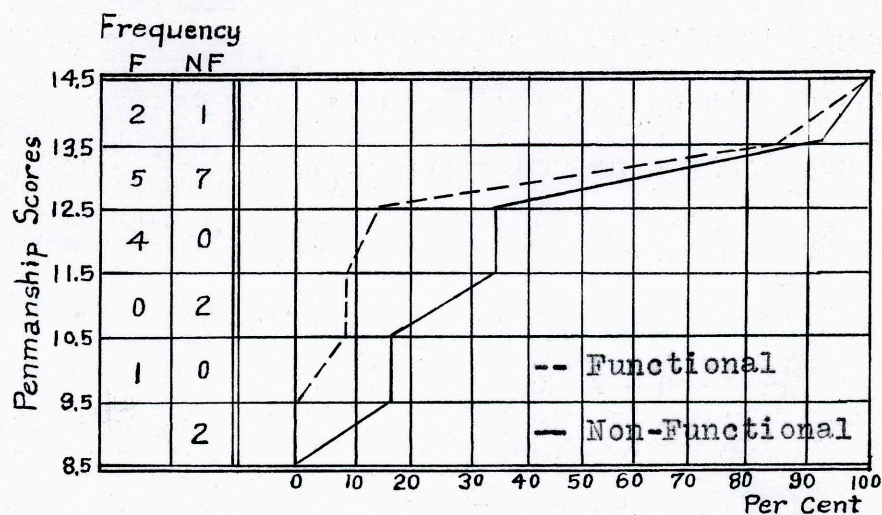


F Functional; NF Non-Functional

Fig. 11. Showing Penmanship Scores for Twenty Intelligence-Matched Pairs on Rollinson Tests During Weeks 35 to 40

two classes in shorthand penmanship when measured by the Rollinson penmanship tests. It is to be noted that the step interval in these two figures is just one point-- that is, one question concerning the shorthand penmanship. In Figure 11, showing the intelligence-matched pairs, the percentile curves are very close together, crossing at one point and meeting at another. In Figure 12, showing the prognostic-matched pairs, the Functional class slightly exceeded the Non-Functional class throughout the entire percentile rankings.

A comparison of the speed at which the copying on the penmanship tests was done by the intelligence-matched pairs



F Functional; NF Non-Functional

Fig. 12. Showing Penmanship Scores for Twelve Prognostic-Matched Pairs on Rollinson Tests During Weeks 35 to 40

showed that the Functional students were able to copy shorthand at an average of about two to three words per minute faster than the Non-Functional students, and yet do so with the same or a slightly better quality of shorthand penmanship.

Reading Ability

The results of the reading tests show the greatest difference in the achievement of the two classes. The reading ability was tested in three ways, using the three Rollinson tests of (a) word meaning, (b) comprehension, and (c) rate. Six of each of these three tests were given. The median of the six tests is the figure used in this comparison.

In the word-meaning test, the words offered for choice to complete the sentences, "are such as might be presented if written in shorthand--one outline representing two words, an outline so indistinct in size as to offer several possibilities, etc.--thus anticipating actual reading difficulties."² Figure 13 shows the Functional class exceeded by four points, or about 17 per cent, consistently through the percentiles from the twenty-fifth to the hundredth.

In the reading comprehension tests, the student is tested as to his ability to comprehend the whole of what he reads by crossing out frequently inserted words that do not make sense.³

²Ethel A. Rollinson, Diagnostic Testing and Remedial Teaching in Gregg Shorthand. (New York: The Gregg Publishing Company, 1931), p. 17.

³Ibid, p. 17.

Figure 14 shows the median scores of the six reading comprehension tests. The Functional students exceeded by an average of two points through all of the intelligence-matched pairs.

The reading rate test showed the greatest difference between the two classes of all the tests given. Figure 15 shows that 7 of the Functional students in the intelligence-matched pairs attained a median on the six tests of 158 or more words read per minute, while none of the Non-Functional students attained that median score on the six tests. That is, 35 per cent of the Functional students were able to read

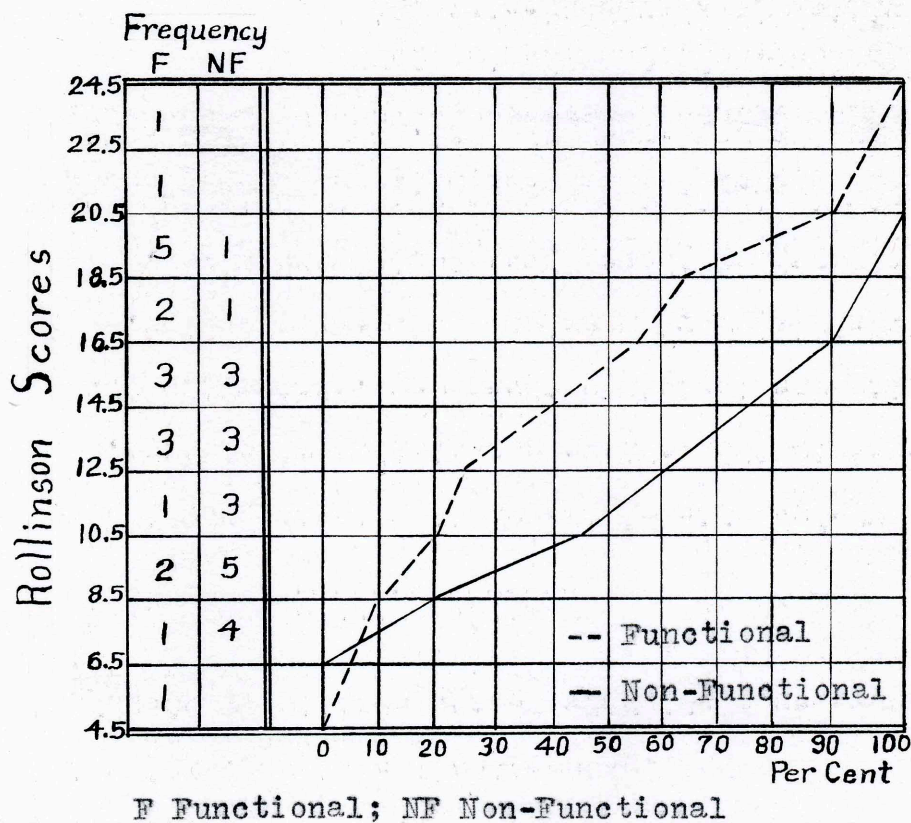


Fig. 13. Showing Scores for Twenty Intelligence-Matched Pairs on Rollinson Word-Meaning Reading Tests During Weeks 35 to 40

at a consistent reading rate above 158 words a minute, while none of the Non-Functional students were able to do so. Also, 95 per cent of the Functional students but only 45 per cent of the Non-Functional students were able to read consistently at 108 or more words per minute. Therefore, 50 per cent more of the Functional than of the Non-Functional students attained a consistent reading speed of 108 or more words per minute while reading shorthand which they had not read previously.

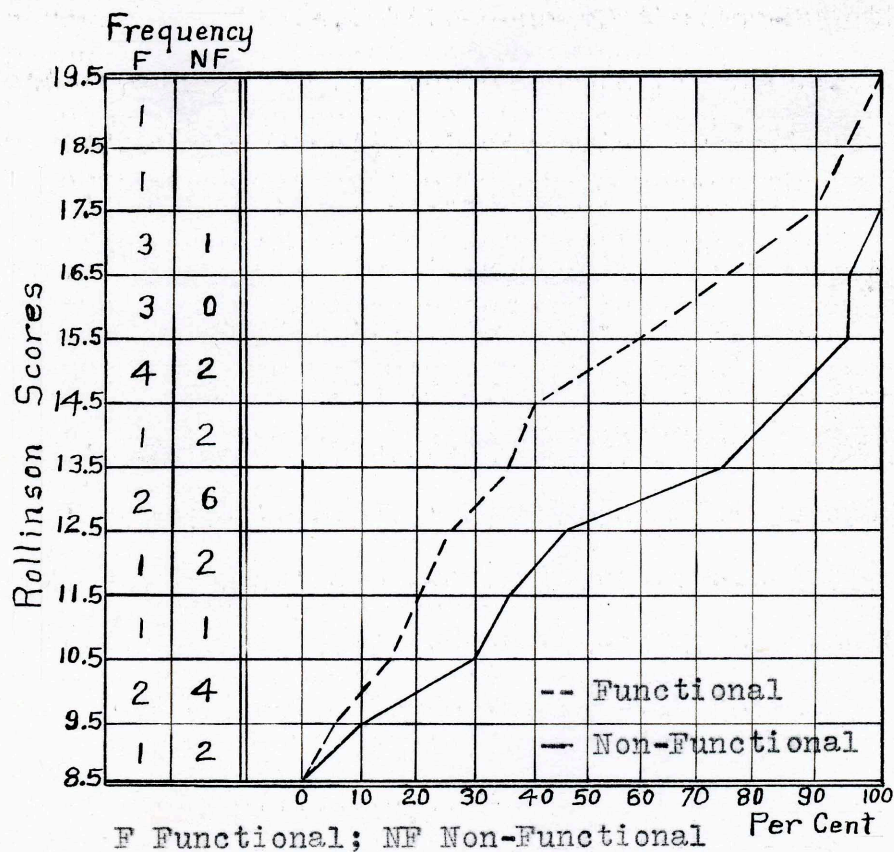


Fig. 14. Showing Reading Comprehension for Twenty Intelligence-Matched Pairs on Rollinson Tests During Weeks 35 to 40

Figure 15 further shows that only 5 per cent of the Functional but 55 per cent of the Non-Functional students read printed shorthand which they had not seen previously at a reading rate consistently below 108 words per minute. The entire Functional group of intelligence-matched pairs consistently exceeded the Non-Functional group by more than 35 words per minute in reading rate. The comparison of the prognostic-matched pairs showed slightly greater differences in favor of the Functional class in reading ability than was shown by the intelligence-matched pairs.

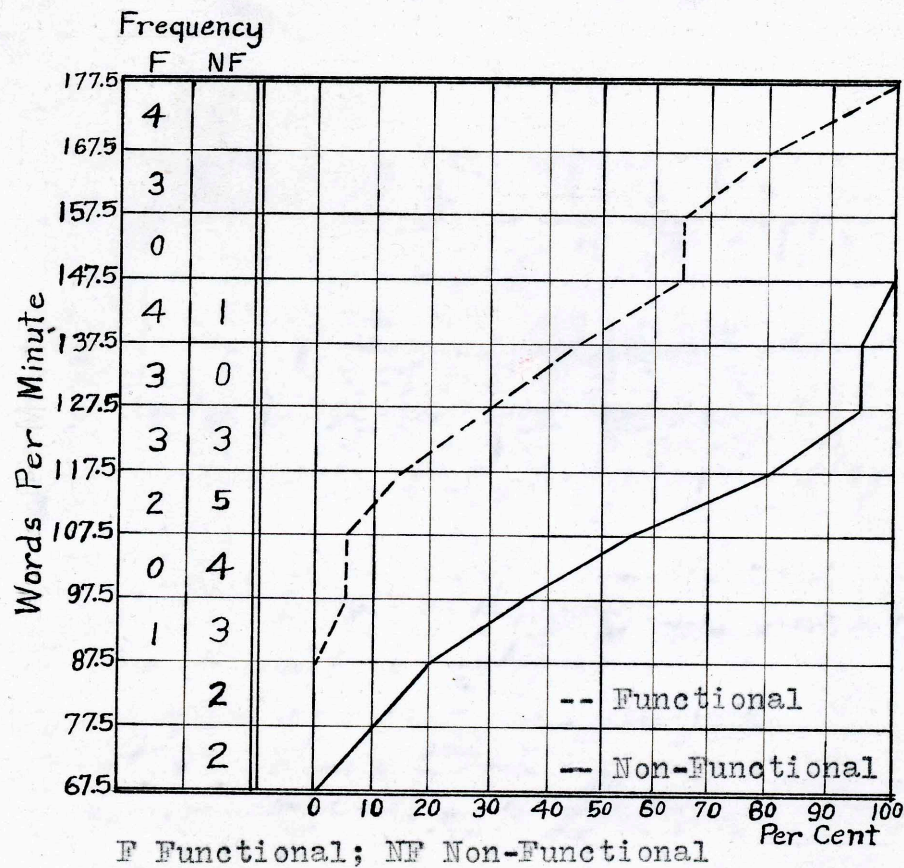


Fig. 15. Showing Reading Rate for Twenty Intelligence-Matched Pairs on Rollinson Tests During Weeks 35 to 40

CHAPTER V

S U M M A R Y

Findings

In developing the percentages in this study to a point where the comparison would be as definite as possible, a point was chosen which was considered acceptable achievement for practical use of shorthand, and a comparison of the Functional and Non-Functional students who attained that standard of achievement was made. The following results were arrived at in that manner:

Transcription ability

1. Approximately 20 per cent more of the Functional than of the Non-Functional students were able to produce acceptable transcripts when measured by the percentage of accuracy.
2. Approximately 20 per cent more of the Functional than of the Non-Functional students were able to take dictation at the rate of 100 words per minute. Those in the Functional class who took this speed produced more accurate transcripts than did those in the Non-Functional class who took the same speed.
3. Approximately 13 per cent more of the Functional than of the Non-Functional students attained the standard for dictation speed set for the two classes--30 words per minute or above.
4. Approximately 10 per cent more of the Functional than of the Non-Functional students attained the standard for transcription speed set for the end of the first year--20 words per minute or above.
5. Approximately 34 per cent more of the Functional than of the Non-Functional students attained a transcribing speed of 25 or more words per minute.

Accuracy of Writing Shorthand

6. The two classes were approximately equal in the accuracy of shorthand written while writing lists of words and phrases.
7. While taking the Rollinson dictation test of 40 words per minute, the upper third of the Non-Functional students showed a slight superiority over the upper third of the Functional students in the accuracy of shorthand written.
8. While taking the Rollinson dictation test of 60 words per minute, approximately 15 per cent more of the Functional than of the Non-Functional students wrote with a shorthand vocabulary accuracy of 90 per cent or above. Also, approximately 15 per cent more of the Functional than of the Non-Functional students wrote with a shorthand vocabulary accuracy of 85 per cent or above while taking the Rollinson dictation test of 60 words per minute.

Shorthand Penmanship

9. In shorthand penmanship, the two classes showed approximate equality. The Functional students in the pairs matched by the shorthand prognostic tests showed a very slight superiority over the Non-Functional students in shorthand penmanship.

Shorthand Reading Ability

10. The Functional class exceeded the Non-Functional class by about 15 per cent in reading for word meaning, and by about 10 per cent in reading comprehension.
11. Approximately 40 per cent more of the Functional than of the Non-Functional students attained a consistent shorthand reading speed above 160 words per minute on material not read previously. Approximately 60 per cent more of the Functional than of the Non-Functional students attained a consistent shorthand reading speed above 110 words per minute on material not read previously.
12. The entire Functional class consistently exceeded the Non-Functional class by 35 to 50 words per minute in reading rate.

Conclusions and Suggestions

The results of this study show that the Functional Method of teaching shorthand is superior to the Non-Functional method. The Functional students greatly exceeded in transcription ability and in reading ability--the most significant measures of successful achievement from a practical-use standpoint. The difference between the two classes in reading ability is astonishing, and indicates that superiority in reading shorthand is a medium through which superiority is attained in other phases of shorthand--especially transcription accuracy and speed.

The Functional Method equalled, and possibly exceeded slightly, the Non-Functional method in the development of accuracy in writing shorthand and in developing good shorthand penmanship. There is no apparent difference in the accuracy of writing the timed lists of Rollinson words and phrases, and the untimed lists of Hoke words and phrases. The results of the Rollinson taking-dictation tests indicate that the Functional students were more accurate in writing shorthand at the faster dictation speeds than the Non-Functional students. However, the difference in the accomplishment of the two classes in these two phases of shorthand--vocabulary accuracy and shorthand penmanship--were not large enough to warrant any definite conclusion that the Functional Method exceeded the Non-Functional method.

Additional comparisons should be made of the shorthand penmanship produced by the two methods. As pointed out in a previous chapter of this study, it is doubtful whether the Rollinson penmanship test has much validity in measuring a student's shorthand penmanship. The test measures the ability to copy well the printed shorthand which appears just above the line upon which the student writes. One who writes a poor quality of shorthand penmanship while taking dictation was found to write a fairly good quality of penmanship when copying immediately below the good printed shorthand. A test should be devised and used to measure the student's shorthand penmanship on writing which was not copied from printed shorthand.

This study of the Functional Method of teaching shorthand indicates that, especially in a skill subject, the more simple the presentation and the greater the ease of learning, the more successful the accomplishment of students of every grade of intelligence. The Functional Method produced superior achievement with every type of student--the superior, the average, and the inferior student.

The superiority in achievement by the Functional Method justifies the giving of less time to the learning period in teaching shorthand, and the giving of more time to other desirable modern business training.

The different methods of matching students in the two classes showed very little difference in the results. In

all of the four abilities--transcription, vocabulary, penmanship, and reading--which were compared in this study, the students matched by the shorthand prognostic tests showed slightly greater differences in favor of the Functional students than did the students matched by the intelligence tests. However, in order to give the Non-Functional class the benefit of the smaller differences, the results used in the comparison are primarily based upon the intelligence-matched pairs. note

The practical result of this experiment has been the adoption of the new Gregg Shorthand Functional Method manual for use in the beginning shorthand classes of the Northeast Experimental Junior College, and the laying of plans to try out the Functional Method in several of the high schools of the city, including Northeast Senior High School. The study has, therefore, contributed to research in shorthand teaching methods throughout the city of Kansas City, Missouri.

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APPENDIX

TEST SCORES USED FOR MATCHING PAIRS

FUNCTIONAL CLASS

Pupil	Terman		Otis		Nelson		Ohio		Hoke
	Test		Test		-Denny		F-18		Prognostic
	Sc	%	Sc	%	Sc	%	Sc	%	Score
1	119	56	50	75	49	38	59	49	436
2	108	42	35	28	82	83	55	55	394
3	131	69	51	77	84	85	76	68	519
4	133	71	44	57	64	64	60	43	322
5	135	74	47	67	69	71	83	76	409
6	97	32	37	33	55	50	45	18	
7	153	87	55	86	94	91	79	72	427
8	147	83	56	88	89	90	81	74	463
9	151	87	51	77	91	91	87	80	
10	133	71	53	82	81	82	57	38	
11	141	79							
12	106	41	48	70	63	63	76	68	457
13	102	36	46	63	69	71	59	41	456
14	140	78	46	63	68	70	70	60	363
15	121	59	50	75	82	83	60	43	491
16	95	30	51	77	46	33	46	20	384
17	85	29					51	28	407
18	156	90	64	97	72	74	74	65	495
19	131	69	52	80	41	23	42	14	389
20	126	83	55	86	106	95	69	58	
21	102	36	40	43	46	33	43	15	468
22	145	83	50	75	78	79	70	60	
23	129	66	45	60	81	82	73	64	488
24	120	57	40	43	74	76	59	41	410
25	112	47	51	77	48	37	52	30	398
26	141	79	56	88	86	87	80	73	452
27	147	83	53	82	94	91			

TEST SCORES USED FOR MATCHING PAIRS

NON-FUNCTIONAL CLASS

Pupil	Ferman		Otis		Nelson		Ohio		Hoke	
	Test		Test		-Denny		I-18		Prognostic	
	Sc	Nil	Sc	Nil	Sc	Nil	Sc	Nil	Score	
1	121	56	36	50	80	81	58	40	401	
2	125	40	45	60	55	50	57	38		
3	130	86					70	63		
4	92	27	46	64	51	42	63	48		
5	119	56	38	37	39	20	54	34	363	
6	106	41	42	50	54	43	69	58	414	
7	119	55	49	72	64	64	65	52	420	
8	110	45	52	80	69	71	82	75	372	
9	112	48	47	67	80	81	91	84	430	
10	146	82	57	89	96	92	69	53	408	
11	124	61	43	53	54	48	59	41		
12	105	43	11	01	54	48	67	55	426	
13	91	27	38	36	43	37	54	35		
14	87	24	37	33	59	57	46	20	369	
15	81	18	41	46	40	22	48	23	423	
16	171	97	53	82	90	90	77	69	457	
17	147	83	57	90	70	72	39	10	439	
18	90	26	40	42	46	33	52	30	372	
19	111	46	46	64	44	30	44	16	412	
20	86	23	47	66	40	22	61	45		
21	100	34	50	75	62	61	70	60	455	
22	108	42	49	72	54	48	44	16		
23	96	31	42	50	58	55	41	12	341	
24	139	77	46	64	69	71	68	57		
25	109	44	43	52	56	52	40	11	355	
26	126	64	45	60	49	47	55	35	449	
27	124	61	45	60	69	71	80	73	462	
28	101	35	59	93	49	38				

LONGHAND TRANSCRIPTION TEST SCORES

Showing Median Percentage of Accuracy on Ten Tests

Functional Class

Weeks 21 to 30

Pupil	Week Taken										Median For			Md of Mds
	21	22	23	24	25	26	27	28	29	30	Each Speed			
	Dictating Speed										Md 50	Md 60	Md 80	
	50	60	50	60	60	60	60	80	80	30				
1			96		94	92	89	96	92	97	96	94	96	96
2	64	77	81	84	64	32	91		89	93	77	83	94	83
3	81	99	96	99	93	98	93	99	98	100	96	98	99	98
4	79		94	88	80	80	91	93	86	91	87	84	91	87
5	96	100	99	100	99	93	99	98	96	99	99	99	93	99
6		70	86	93	71	91	92	91	76	87	78	92	87	87
7	100	100	98	100	97	100	100	99	96	99	100	100	99	100
8	77	93	99	92	93			96	96	96	93	96	96	96
9	97	100	99	92	97	97	99	98	99	93	99	97	98	98
10	99	99	98	99	99	100	100	100	99	93	99	100	99	99
11	74	80	90	82	92	90	93	93	83	92	80	91	92	91
12	94	98	99	97	96	99	99	99	91	100	98	93	99	93
13	97	99	96	85	85	87	80	96	90	93	97	85	93	93
14	73	82	70		66	87	69	85	75	83	73	69	83	73
15	85	97	91	93		93	96	98	91	97	91	93	97	97
16	39	91	95	89	96	94	30	95	84	96	91	92	95	92
17	96	97	93	97	93	99	94	100	95	96	97	93	96	97
18	100	88	99	99	93	98	100	99	95	100	99	99	99	99
19	87	90	96	95	92	88	91	96	94	96	96	92	96	96
20		98	96	83	97	84	97	94	93	92	97	91	94	94
21	86	94	93	96	91	99	97	93	93	93	94	97	93	97
22	77	73	72	66	69	64	54	67	55	67	73	65	67	67
23	100	97	100	99	100	99	93	98	98	100	100	99	93	99
24	93	97	98	93	97	99	96		98	93	93	93	93	93
25	75	84	86	81	79	81	72	72	64	77	84	80	72	80
26	99	93	93	99	100	99	99	100	99	99	93	99	99	99
27	33	67		59	64	67	66	82	83	86	50	65	83	65

LONGHAND TRANSCRIPTION TEST SCORES

Showing Median Percentage of Accuracy on Ten Tests

Non-Functional Class

Weeks 21 to 30

Pupil	Week Taken										Median For Each Speed			Md of Kds
	21	22	23	24	25	26	27	28	29	30				
	Dictating Speed										Md 50	Md 60	Md 80	
1		93	96	90	92	91	91	97	93	98	94	91	97	94
2	82	97	96	97	96	90		94	92	97	96	96	94	96
3	94	97	99	99	99	96	80	99	95	93	97	98	95	97
4	85	95	94	98	91	67	65	94	73	87	94	79	87	87
5	75	73	81	66		73	66	71	58	80	75	66	71	71
6		94	89		88	100	75	83	86	99	92	75	86	86
7	76	94	95	99	96	100	93	87	86	99	94	98	87	94
8	100	99	99	98	99	98	92	99	92	95	99	98	95	98
9	97		96	100	99	97	96	96	99	99	97	98	99	98
10	96	94	92	98	90	90	87	93	91	91	94	90	91	91
11	69	88	84	85	68	72	57	76	89		84	70	83	83
12	98	85	98	91	99	95	97	97	88	100	93	96	97	97
13	97	77	79	63	69	67	40	67	58	59	79	65	59	65
14	75	82	85	72	82	83	77	82	72	82	82	80	82	82
15	68	78	79	89	92	87	69	80	77	86	78	88	80	80
16	81	87	90	82	87	98	87	90	81	91	87	87	90	87
17	79	92	81	88	69	79	77	88	77	87	81	78	87	81
18	90	86	94	94	86	84	77	86	77	91	90	85	86	86
19	90	95	91	89	98	90	85	95	88	92	91	90	92	91
20	67	71	74	76	77	68	69	37	65	76	71	73	65	71
21	96	95	99	99	97	97	97		92	99	96	97	96	96
22	88	88	67	90	86	96	75	87	80	96	88	88	87	88
23	76	88	77	81	76	78	73	87	69	85	77	77	85	77
24	93	97	99	95	97	94	99	91	87	98	93	96	91	93
25	69	72	81	77	77	68	79	85	55	73	72	77	73	73
26	95	99	99	98	100	100	97	100	99	99	99	99	99	99
27	98	98	99	97	97	97	97	100	99	98	98	97	99	98
28	98	100	100	99	100	97	97	99	99	100	100	98	99	98

LONGHAND TRANSCRIPTION TEST SCORES

Showing Median Percentage of Accuracy of Five Tests

Functional Class

Weeks 31 to 40

Pu- Pil	Week Taken															Median For			Md of Mds
	31	32	33	34	40	31	32	33	34	40	31	32	33	34	40	Each Speed			
	Dictating Speed															Md	Md	Md	
	60 W. P. M.					80 W. P. M.					100 W. P. M.					60	80	100	
1	91					84	94									91	89		90
2	91	87	96	99	98											96			96
3	99										92	97	94			99		94	97
4	81			97	94	58	79									94	69		82
5						97			98			88	97		98		98	97	98
6	92	89	91	93	96											92			92
7								98			90	92	94		98		98	93	96
8	98	99	97	99	98											98			98
9	96			99			100		99		84					99	100	84	99
10						97	96					95	97				97	96	97
11	83	95		97			88							99	95	86	89		89
12	100	99					99	97						99	100	98	99		89
13	100			98	98		96				76				98	96	76		96
14	81	88	72	89	93										88				88
15	98						93	96			89			94	98	90	91		91
16	90	80		88			72							91	88	72	91		88
17	96						95				96			92	96	95	94		95
18	89					95		92	93			85			99	95	85		95
19	98	93		98			97							83	98	97	83		97
20	96	92		96	93		92								96	92			94
21	97	98					95		99					77		98	97	77	97
22	82		67	75	75										75				75
23						99					90	95	99	99		99	99		99
24						97					98	96	42	93		97	95		96
25	86	71	65	85	84										84				84
26											98	96	99	98	100			98	98
27	81	78		88	82		79									82	79		81

LONGHAND TRANSCRIPTION TEST SCORES

Showing Median Percentage of Accuracy of Five Tests

Non-Functional Class

Weeks 31 to 40

Pu-	Week Taken															Median For			Md of Mds
	31	32	33	34	40	31	32	33	34	40	31	32	33	34	40	Each Speed			
	Dictating Speed															Md	Md	Md	
	60 W. P. M.					80 W. P. M.					100 W. P. M.					60	80	100	
1	93							89	97			85		97		93	93	91	93
2		98	93	98	95	97										97	97		97
3		97		93		87		94						95		98	91	95	95
4	94		90	81	93		86									92	86		89
5	98	44	68		78											73			73
6	93	93	98	98	100											95			95
7				93	95			87								94	87		91
8	98			98				97		98		95				98	98	95	98
9	99		94	97						93						97	98		98
10	94	94			98					96	91					94	94		94
11	76	77		84												77			77
12		96	88		99	98			82							96			93
13	70	69	43		80											70			70
14	73	81	79	32						85						80	85		83
15	80	91		88	85											87			87
16		93				76								79		88	76	79	79
17	82	84	86	84	93											84			84
18	94			83				67				75				89	67	75	75
19		86		94	91	75		90								91	83		87
20	82	80	80	76	34											80			80
21			97			91			92	96		96				97	92	96	96
22	95	85	85	94	95											95			95
23		86		79	94	77		72								86	75		81
24	99			97				95				92		95		98	95	94	95
25	72	84	83	74												79			79
26								99	94	96	94	97					96	96	96
27	96	96						100	94	98						96	98		97
28						99		98	99			99		100			99	100	100

TYPEWRITING TRANSCRIPTION TEST SCORES

NON-FUNCTIONAL CLASS

Showing Median Percentage of Accuracy

Pupil	Weeks Taken							Speed	Final Grade
	35	35	36	36	37	37	38	Wk 38	
Persons Dictating									
	Ca ^a	Ba	Gr	Ch	Ca	We	Ca	Ca	
1	92	94	95	85	97	95		95	M ^{ab}
2	100	88	96	72	95	55	93	93	17
3	99	99	99	99	100	98		99	
4	95		93	97	92	61	94	94	11
5	98	97	98	100	98	99	99	98	33
6	96	94	98	93	88	95	93	94	22
7	99	99	99	99	98	99	99	99	30
8	93	98	93	98		98	97	98	30
9	99	99	100	99	99	99	100	99	30
10	99	98	99	99	99	99		99	
11	98	92	98	82	93	95	98	98	24
12	99	98	99	99	99	98	99	99	27
13	98	97	97	97	97	98	99	97	23
14	94	81	83	81	93		90	87	12
15	98		98		96	99	97	98	30
16	93	71	90	75	98	88	88	88	15
17	96	97	98	94	96	99	99	97	25
18	97	98	99	99		98	99	99	19
19	98	96	99	96	98	97	98	98	30
20	96	83	88	66	92		92	90	20
21	98	99	97	98	99	98	100	98	27
22	64	73	67	59	82	68	79	68	13
23	93	99	99	100	100	100	99	99	33
24	99	97	96	98	98	97	99	98	27
25		82	86	79	87	76	91	84	17
26	99	98	99	100	99	99	100	99	30
27	92				83			88	

^aCa Carder
Ba Basham

Gr Green
Ch Chapin

We Weatherman

ab

Excellent Superior Medium Inferior Failure

TYPEWRITING TRANSCRIPTION TEST SCORES

NON-FUNCTIONAL CLASS

Showing Median Percentage of Accuracy

Pupil	Weeks Taken						Md	Speed WPM Wk 38	Final Grade	
	35	35	36	36	37	37				
Persons Dictating										
	Ca ^a	Ba	Gr	Ch	Ca	We	Ca	Ca		
1	93	90	96	94	99	95	92	94	19	S ^b
2	96	93	98	95	99	97	98	97	29	M
3	98	97	97	96	97	96	98	97	23	S
4	73	68	77	73	80	50	89	73	13	I
5	98		75	96		64		86		F
6	94	97	97	85	98	98	99	97	17	M
7	95	96	96		98	95	99	96	14	M
8	98	98		99	99	100	99	99	25	E
9	98	98	98	99	98	99	98	98	23	E
10	92	91	96	88	92	98	96	92	19	M
11	89	82	89			47		86		I
12	99		99	98		98	96	98	18	S
13					59	56				F
14	73	82	80	68	79	65	81	79	12	I
15	97	95	94	84	94	91	81	94	16	I
16		84	93	83	87	87	82	86	25	M
17	93	88	96		90	87	86	89	14	I
18	93	90	86		90	83		90		M
19		74	89		79	57	83	79	13	I
20	87	84	81	80	70	68	76	80	10	I
21	98	94	95	90	96	93	99	95	23	S
22	96	81	92	95	96	95	99	95	21	M
23	82	89	86	83	89	79	82	83	22	I
24	98	96	96	97	96	96	97	97	19	S
25	83	95	78	52	76	69		77		I
26	98	99	99	98	97	94	99	98	23	E
27	98	97	99	97	98	98	99	98	25	E
28	98	98	100	99	99	100	97	99	22	E

^aCa Carder Gr Green We Weatherman
Ba Basham Ch Chapin

^bExcellent Superior Medium Inferior Failure

ROLLINSON DIAGNOSTIC TEST SCORES

Showing Median of Scores on Chapters IV to IX

Given During Weeks 35 to 40

Functional Class

Pu- pil	Shrd Vocab	Penm Ship	Shrd Wr Speed	Tak- ing 40	Tak- ing 60	Reading Word Mean	Com- pre	Rate
1	27	13	91	35	45	17	13	125
2	20	12	74	30	45	10	8	88
3	25	12	76	36	51	16	13	147
4	20	11	96	29	47	14	15	144
5	34	10	95	35	50	17	24	164
6	20	10	84	26	44	11	10	121
7	38	14	75	37	54	13	19	132
8	28	12	77	32	50	15	12	146
9	34	13	83	37	55	14	14	194
10	31	11	80	36	54	15	12	156
11	22	14	75	32	47	15	14	111
12	35	12	84	37	53	18	21	169
13	29	13	59	35	49	15	19	125
14	24	13	62	35	46	9	16	141
15	24	12	88	36	48	17	15	158
16	12	10	77	27	40	13	10	127
17	26	13	74	34	51	15	14	172
18	33	13	76	35	51	15	14	109
19	30	12	63	34	51	15	14	171
20	15	9	81	31	42	13	9	152
21	33	14	63	36	56	16	20	169
22	13	13	72	24	36	12	10	81
23	40	14	74	37	55	19	18	144
24	36	12	74	36	51	12	19	165
25	18	12	64	30	47	10	6	108
26	36	13	64	37	54	16	19	114
27	12	13	62	29	46	11	11	106

Column Headings

No. 2, Shorthand Vocabulary; 4, Shorthand Writing Speed; 5, Taking Dictation, 40 Words per Minute; 6, Taking Dictation, 60 Words per Minute; 3, Penmanship; 7, Reading Word-Meaning; 8, Reading Comprehension; 9, Reading Rate.

ROLLINSON DIAGNOSTIC TEST SCORES

Showing Median of Scorer on Chapters IV to IX

Given During Weeks 35 to 40

Non-Functional Class

Pu- bil	Shtd Vocab	Penm	Shtd W. Speed	Tak- ing 40	Tak- ing 60	Word Mean	Head- ing Com- pre	Rate
1	27	9	76	33	40	10	10	116
2	27	12	72	32	47	14	12	94
3	33	13	86	36	53	13	12	120
4	25	12	61	22	44	9	11	69
5	13	12	51	25	38	7	8	75
6	35	13	75	38	51	14	19	121
7	26	13	73	31	55	10	9	101
8	36	14	71	39	51	13	13	88
9	36	13	90	38	50	12	11	87
10	28	11	51	37	49	10	10	102
11	27	13	70	33	44	11	8	82
12	34	14	70	36	43	15	15	105
13	24	13	72	20	30	11	9	90
14	22	13	54	28	41	9	8	75
15	22	11	73	34	46	9	8	139
16	18	9	73	31	41	13	13	97
17	29	13	57	33	42	10	7	69
18	25	13	80	32	46	13	14	108
19	29	12	56	36	45	13	16	110
20	29	14	77	33	43	11	7	82
21	19	10	67	29	46	11	9	119
22	27	12	64	37	48	13	18	102
23	17	13	67	32	45	12	9	123
24	16	12	48	28	42	10	5	107
25	42	13	62	37	53	13	15	104
26	41	13	73	39	55	15	10	112
27	39	14	69	38	55	17	15	114
28	29	13	85	34	43	15	15	110

Column Headings

No. 2 Shorthand Vocabulary; 3, Shorthand Pen-
manship; 4, Shorthand Writing Speed; 5, Taking
Dictation, 40 W.P.M.; 6, Taking Dictation, 60
W.P.M.; 7, Reading Word-Meaning; 8, Reading
Comprehension; 9, Reading Rate.

HOKE VOCABULARY TESTS

Median of Scores
on Four Tests

Functional		Non-Functional	
Pu- pil	Score	Pu- pil	Score
1	118	1	118
2	106	2	107
3	116	3	136
4	101	4	119
5	129	5	81
6	84	6	135
7	142	7	113
8	110	8	130
9	136	9	131
10	130	10	124
11	109	11	93
12	134	12	119
13	125	13	114
14	126	14	99
15	115	15	103
16	96	16	107
17	116	17	114
18	138	18	105
19	125	19	112
20	80	20	132
21	132	21	110
22	111	22	127
23	137	23	106
24	134	24	70
25	95	25	138
26	138	26	141
27	93	27	144
28		28	121

STUDENT MATCHINGS

Students Matched by Intelli-
gence and by Prognostic Tests

Intelligence- Matched Pairs		Prognostic- Matched Pairs	
F	NF	F	NF
7	16	25	1
26	10	24	19
3	3	5	10
5	9	7	15
10	8	14	8
14	23	23	9
23	36	12	16
15	17	1	17
12	7	26	25
4	28	8	26
1	27	13	28
24	25	17	6
13	1		
25	6		
19	2		
2	22		
16	20		
6	14		
21	18		
17	15		

Note: F Functional
NF Non-Functional

Pupil's Score

Total 150

Wrong

Right

A SERIES OF TESTS IN GREGG SHORTHAND

Arranged By Elmer Hoke, A. M.

TEST C-10 *Vocabulary.*

Published by

THE GREGG PUBLISHING COMPANY

Name..... Age.....
Years Months

Race..... Sex..... Grade.....

City..... State..... Date.....

School..... Teacher.....

How long have you studied Gregg Shorthand?..... Months

Directions for Giving Test

1. Distribute papers face up on the desks. Ask pupils not to open papers until the signal is given.
2. Have pupils fill in blanks on the cover page.
3. Then say: "On the inside of this folder are 100 common words and 50 common phrases, with a space opposite each. You are to write in these spaces the shorthand outlines for the accompanying words and phrases. Accuracy is as important as speed. Work as fast as you can do it correctly. When I say, 'Ready, Start,' you may begin work. You will be given enough time to finish the work."
4. Give the signal to begin work and collect the papers as they are finished.

1. she	
2. ten	
3. last	
4. of	
5. him	
6. are	
7. ring	
8. hot	
9. box	
10. five	
11. long	
12. has	
13. men	
14. miss	
15. block	
16. page	
17. each	
18. letter	
19. thank	
20. add	
21. deep	
22. game	
23. age	
24. saw	
25. still	

26. word	
27. from	
28. same	
29. eye	
30. city	
31. afternoon	
32. lady	
33. care	
34. clear	
35. sir	
36. coming	
37. clothing	
38. buy	
39. express	
40. right	
41. because	
42. church	
43. flower	
44. alone	
45. dress	
46. fix	
47. paid	
48. steamer	
49. event	
50. build	

51. those	
52. picture	
53. bridge	
54. learn	
55. something	
56. plan	
57. subject	
58. nor	
59. question	
60. reason	
61. shed	
62. population	
63. throw	
64. intend	
65. fact	
66. police	
67. struck	
68. vacation	
69. loss	
70. guest	
71. election	
72. length	
73. several	
74. addition	
75. debate	

76. president	
77. include	
78. appoint	
79. gentleman	
80. whose	
81. avenue	
82. success	
83. prefer	
84. purpose	
85. injure	
86. popular	
87. mention	
88. local	
89. possible	
90. argument	
91. impossible	
92. business	
93. meant	
94. foreign	
95. issue	
96. elaborate	
97. experience	
98. athletic	
99. receipt	
100. allege	

101. we are	
102. of you	
103. you will	
104. is the	
105. as the	
106. you have	
107. that is	
108. there are	
109. more than	
110. he is	
111. he will	
112. United States	
113. five thousand dollars	
114. on our	
115. we should	
116. as you	
117. I had	
118. respectfully yours	
119. in its	
120. five hundred	
121. than the	
122. thank you	
123. that's	
124. to it	
125. from this	

126. shall be	
127. New York City	
128. to look	
129. send you	
130. has not	
131. we find	
132. it may be	
133. and they	
134. we feel	
135. from our	
136. who was	
137. of such	
138. in this case	
139. I do	
140. under separate cover	
141. to believe	
142. if you do not	
143. you did	
144. for these	
145. very glad	
146. better than	
147. to furnish	
148. as follows	
149. it must be	
150. to all	

Do Not Open This Test Until Given the Signal

ROLLINSON DIAGNOSTIC SHORTHAND TESTS

By

ETHEL A. ROLLINSON, M.A.

Instructor, Columbia University

Test Based on

Chapter VII

(Units 19, 20, and 21)

of

The Gregg Shorthand Manual

(Anniversary Edition)

Name of Student

Name of Teacher

Class and Section Date

SUMMARY OF SCORES	
<i>Test</i>	<i>Scores</i>
A. Vocabulary
B. Penmanship
Speed
C. Taking Dictation
D. Reading:	
(a) Word Meaning
(b) Comprehension
(c) Rate
Total Score

THE GREGG PUBLISHING COMPANY

New York - Chicago - San Francisco - Boston - Toronto - London - Sydney

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Printed in the United States of America

Time: 3 min.

Score:

TEST A

Vocabulary

Directions: Read the longhand carefully. Write the shorthand on the line beside the longhand. Accuracy of outlines and quantity completed will be considered in the score.

a. Application of Theory

- | | | |
|-----------------------|----------------------|-----------------------------------|
| 1. charter | 19. neither | 37. percentage |
| 2. murdered | 20. amateur | 38. fortunately |
| 3. concerned | 21. thoughtful | 39. furlough |
| 4. certainly | 22. verify | |
| 5. noteworthy | 23. itself | 40. few minutes |
| 6. hither | 24. message | 41. few days ago |
| 7. feature | 25. formerly | 42. early reply |
| 8. hopeful | 26. forearm | 43. I want |
| 9. notify | 27. varnish | 44. we told him |
| 10. myself | 28. guaranteed | 45. at an early date |
| 11. damage | 29. inserted | 46. day or two ago |
| 12. furnace | 30. argument | 47. as near as possible |
| 13. forehead | 31. Kenilworth | 48. we are sorry to learn |
| 14. burden | 32. whither | 49. I hope to hear from you |
| 15. curtailed | 33. creature | 50. I want to be sure |
| 16. thermometer | 34. eventful | |
| 17. ordinance | 35. classified | |
| 18. Leavenworth | 36. themselves | |

b. Recall

Time: 1 min.

TEST B

Penmanship Score:

Penmanship

Speed Score:

Directions: Read the longhand. Look carefully at the shorthand. Write the shorthand on the first blank line below the sample. If you complete the whole test before the time is up, start again at the beginning, writing on the second blank line. Accuracy of penmanship and speed of writing will be considered in the score.

Name

Penmanship Score

Reading—Word Meaning Score

Speed Score

Reading—Comprehension Score

Dictation Score

Reading—Rate Score

STUDENT'S CHECKING SHEET FOR ROLLINSON DIAGNOSTIC SHORTHAND TESTS

Chapter VII

TEST B

TEST C

TEST D

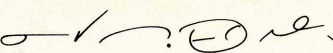

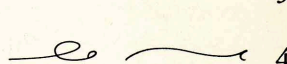
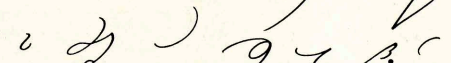
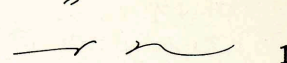

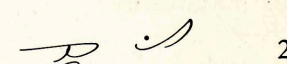
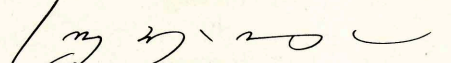



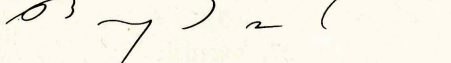
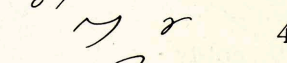
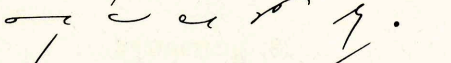

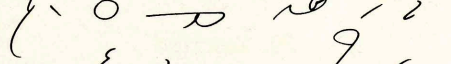
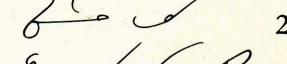
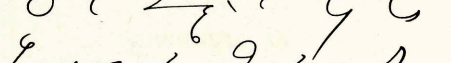
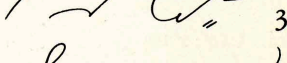


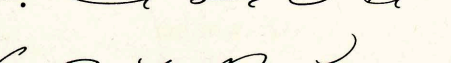
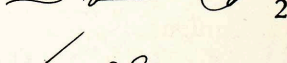


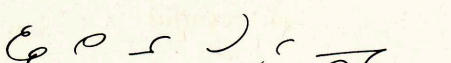
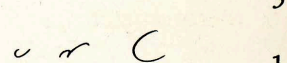
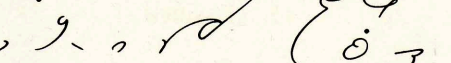
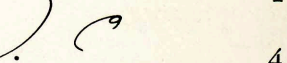
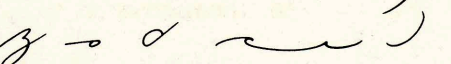
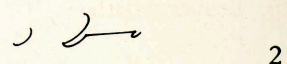


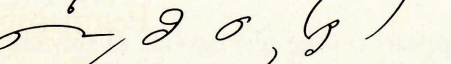
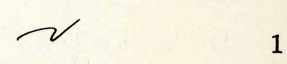
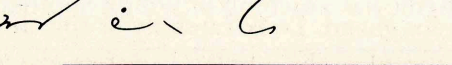

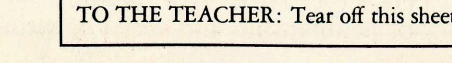
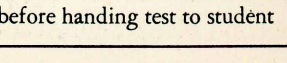
Directions: Read the questions. Compare your penmanship with the key. Answer each question. Place a check in the proper column to indicate your answers.

ANALYSIS OF PENMANSHIP

1. Are the outlines excessively large or excessively small? Yes No
2. Are the relative differences in sizes distinct? Yes No
3. Are the strokes, circles, hooks and loops that should be the same size uniform in size? Yes No
4. Are the outlines approximately the slant of the copy? Yes No
5. Are the outlines approximately of the same quality of lightness as the copy? Yes No
6. Is the "get-away" from outlines fluent, as indicated by light endings? Yes No
7. Are the outlines spaced approximately like the copy? Yes No
8. Are the straight strokes straight from beginning to end? Yes No
9. Are the curved strokes formed with the deepest curves at the proper end? Yes No
10. Are the circles joined properly to strokes? Yes No
11. Are the reverse curves joined so the sizes are legible? Yes No
12. Are the strokes joined with facility, yet legibly? Yes No
13. Are the disjoined characters written properly with respect to the rest of the outline? Yes No
14. Are the hooks joined properly to the rest of the outline? Yes No
- Total Yes No

Directions: Place this sheet beside the test notes. Compare the two very carefully. Wherever the test outlines differ from this key, encircle the error on the test sheet. Wherever there is an omission, place a check for every outline omitted, in the space where it should have been written.

Illustration:

	(b)	(a)	3
			4
			1
			2
			1
			3
			4
			4
			2
			3
			1
			2
			4
			3
			1
			4
			2
			3
			1
			3

TO THE TEACHER: Tear off this sheet before handing test to student

Name.....

Vocabulary Score.....

STUDENT'S CHECKING SHEET FOR ROLLINSON DIAGNOSTIC SHORTHAND TESTS

Chapter VII

TEST A

Directions: Place this key over Test A so the outlines will line up to the right of the test outlines. Indicate the accuracy of the test outlines. Wherever the outline is like the key, place a dot (.) to the right of the outline on the test sheet. Wherever the outline is not like the key, place a check (✓) to the right of the outline on the test sheet. Make no mark beside the omissions. When the first column is checked, fold this sheet back so that the next column will line up with the test. Do the same after the second column is checked.

1.	19.	37.	ANALYSIS OF ERRORS <i>a. Application of Theory</i> <table border="0"> <thead> <tr> <th></th> <th>Totals</th> </tr> </thead> <tbody> <tr> <td>Cycle:</td> <td></td> </tr> <tr> <td>Reversing:</td> <td></td> </tr> <tr> <td>Between downward and forward straight strokes.....</td> <td>1 14 27*</td> </tr> <tr> <td>Between horizontal and upward strokes.....</td> <td>2 15 28</td> </tr> <tr> <td>s and th.....</td> <td>3 16 29</td> </tr> <tr> <td>Omission of r.....</td> <td>4 17 30</td> </tr> <tr> <td>Suffixes:</td> <td></td> </tr> <tr> <td>worth, worthy.....</td> <td>5 18 31</td> </tr> <tr> <td>there.....</td> <td>6 19 32</td> </tr> <tr> <td>ture.....</td> <td>7 20 33</td> </tr> <tr> <td>ful.....</td> <td>8 21 34</td> </tr> <tr> <td>ify.....</td> <td>9 22 35</td> </tr> <tr> <td>self, selves.....</td> <td>10 23 36</td> </tr> <tr> <td>age.....</td> <td>11 24 37</td> </tr> <tr> <td>Prefixes:</td> <td></td> </tr> <tr> <td>for, fore, fur.....</td> <td>12 25 38</td> </tr> <tr> <td>Unusual representation of for, fore, fur.....</td> <td>13 26 39</td> </tr> <tr> <td>Blends:</td> <td></td> </tr> <tr> <td>ten, dem.....</td> <td>4 11 14 17 38</td> </tr> <tr> <td>Other blends†.....</td> <td></td> </tr> <tr> <td>Circles:</td> <td></td> </tr> <tr> <td>Placings:†</td> <td></td> </tr> <tr> <td>Inside curves.....</td> <td></td> </tr> <tr> <td>Outside angles.....</td> <td></td> </tr> <tr> <td>Right motion on straight strokes.....</td> <td></td> </tr> <tr> <td>On back of first reverse curve.....</td> <td></td> </tr> <tr> <td>Reversed (not included above).....</td> <td></td> </tr> <tr> <td>Omissions†.....</td> <td></td> </tr> <tr> <td>Additions†.....</td> <td></td> </tr> <tr> <td>Substitutions†.....</td> <td></td> </tr> <tr> <td>Hooks:</td> <td></td> </tr> <tr> <td>Joinings:†</td> <td></td> </tr> <tr> <td>o-hook:</td> <td></td> </tr> <tr> <td>Natural.....</td> <td></td> </tr> <tr> <td>On side.....</td> <td></td> </tr> <tr> <td>oo-hook:</td> <td></td> </tr> <tr> <td>Natural.....</td> <td></td> </tr> <tr> <td>On side.....</td> <td></td> </tr> <tr> <td>Omissions†.....</td> <td></td> </tr> <tr> <td>Additions†.....</td> <td></td> </tr> <tr> <td>Substitutions†.....</td> <td></td> </tr> <tr> <td>Diphthongs†.....</td> <td></td> </tr> <tr> <td>Prefixes (not listed above)†.....</td> <td></td> </tr> <tr> <td>Suffixes (not listed above)†.....</td> <td></td> </tr> <tr> <td>Permissible omissions:</td> <td></td> </tr> <tr> <td>Vowels:†</td> <td></td> </tr> <tr> <td>Short u.....</td> <td></td> </tr> <tr> <td>ow.....</td> <td></td> </tr> <tr> <td>Minor.....</td> <td></td> </tr> <tr> <td>Miscellaneous†.....</td> <td></td> </tr> <tr> <td colspan="2"><i>b. Recall</i></td> </tr> <tr> <td>Words†.....</td> <td></td> </tr> <tr> <td>Phrases†.....</td> <td></td> </tr> <tr> <td>Total errors—<i>a</i> and <i>b</i>.....</td> <td></td> </tr> </tbody> </table>		Totals	Cycle:		Reversing:		Between downward and forward straight strokes.....	1 14 27*	Between horizontal and upward strokes.....	2 15 28	s and th.....	3 16 29	Omission of r.....	4 17 30	Suffixes:		worth, worthy.....	5 18 31	there.....	6 19 32	ture.....	7 20 33	ful.....	8 21 34	ify.....	9 22 35	self, selves.....	10 23 36	age.....	11 24 37	Prefixes:		for, fore, fur.....	12 25 38	Unusual representation of for, fore, fur.....	13 26 39	Blends:		ten, dem.....	4 11 14 17 38	Other blends†.....		Circles:		Placings:†		Inside curves.....		Outside angles.....		Right motion on straight strokes.....		On back of first reverse curve.....		Reversed (not included above).....		Omissions†.....		Additions†.....		Substitutions†.....		Hooks:		Joinings:†		o-hook:		Natural.....		On side.....		oo-hook:		Natural.....		On side.....		Omissions†.....		Additions†.....		Substitutions†.....		Diphthongs†.....		Prefixes (not listed above)†.....		Suffixes (not listed above)†.....		Permissible omissions:		Vowels:†		Short u.....		ow.....		Minor.....		Miscellaneous†.....		<i>b. Recall</i>		Words†.....		Phrases†.....		Total errors— <i>a</i> and <i>b</i>	
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TEST C

The key for Test C appears on the reverse side of this checking sheet, instead of here, as indicated in the text, "Diagnostic Testing and Remedial Teaching of Gregg Shorthand."

TO THE TEACHER: Tear off this sheet before handing test to student

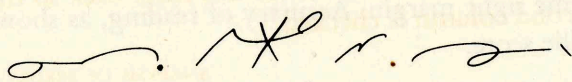
Time: 3 min.

Score:

TEST D (b)

Reading—Comprehension

Directions: Read all the shorthand carefully. An occasional outline makes no reading sense in the place used. When you find such an outline, cross it out. Your accuracy in locating all the unnecessary outlines will be considered in the score.

Illustration: 

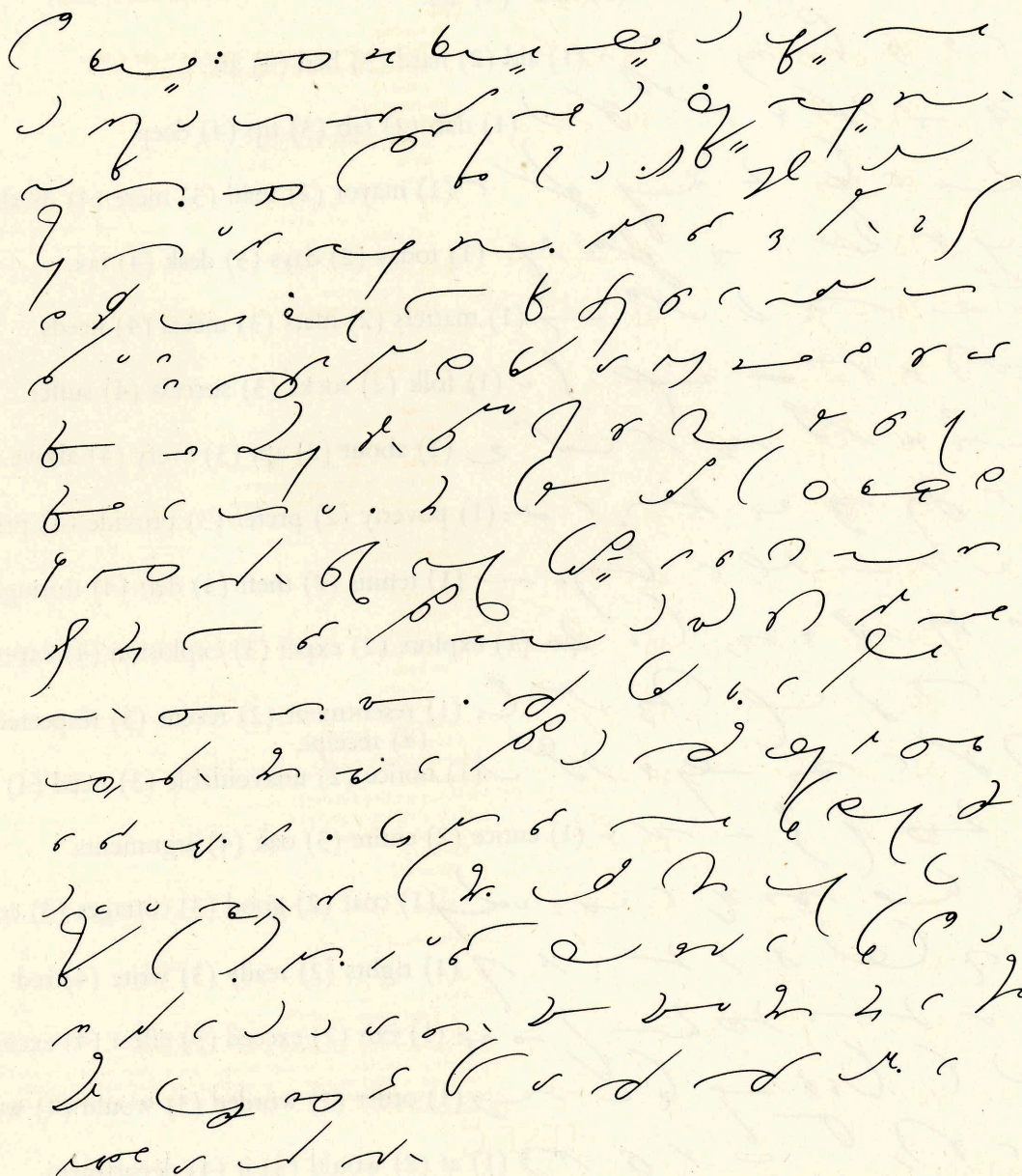


Illustration: Eddie can go.

Time: 3 min.

Score:

Eddie can go.

TEST C

Taking Dictation

We hope to hear from you about the furniture ordered a few months ago.

We hope to hear from you about the furniture ordered a few months ago.

Directions: Listen carefully to the dictation that will be given. Write just what you hear. If you fall behind in the dictation, leave a space in your notes and pick up the dictation again. Accuracy in writing all the words dictated will be considered in the score.

We cannot see why there should have been any breakage, for it was

We cannot see why there should have been any breakage, for it was

packed carefully — our shipping men themselves vouch

packed carefully — our shipping men themselves vouch

for that. Our manager himself wrote you a

for that. Our manager himself wrote you a

day or two ago notifying you to return it at an early date. In

day or two ago notifying you to return it at an early date. In

an early reply please state the date of return as near as possible.

(69)

an early reply please state the date of return as near as possible.

Time: 3 min.

Score:

TEST D (a)

Reading—Word Meaning

Directions: Read all the shorthand. The last word of each sentence is left to your choice—you may choose one of the four words set in type. Only one will complete the sense. Indicate the one you select by placing the number appearing before that word on the line at the extreme right margin. Accuracy of reading, as shown by your choices, and the quantity completed will be considered in the score.

Illustration: — (1) ready (2) lamb (3) raid (4) lad.

1. (1) aid (2) hard (3) had (4) ate.
2. (1) dab (2) tab (3) tip (4) deep.
3. (1) mayor (2) mail (3) mere (4) meal.
4. (1) today (2) days (3) desk (4) tax.
5. (1) matters (2) mats (3) meets (4) needs.
6. (1) folk (2) socks (3) success (4) suffer.
7. (1) about (2) apt (3) every (4) above.
8. (1) poverty (2) prefer (3) provide (4) privilege.
9. (1) tennis (2) theft (3) deft (4) through.
10. (1) explore (2) expel (3) explosion (4) express.
11. (1) resentment (2) recent (3) respected
(4) receipt.
12. (1) notice (2) unavoidable (3) need (4) neatly.
13. (1) entice (2) entire (3) oak (4) arguments.
14. (1) coat (2) good (3) cottages (4) cordage.
15. (1) rights (2) ready (3) write (4) red.
16. (1) exit (2) exceed (3) effect (4) excitement.
17. (1) order (2) worded (3) would (4) wooded.
18. (1) at (2) would (3) it (4) department.
19. (1) valor (2) value (3) vague (4) village.
20. (1) improve (2) envelope
(3) employment (4) imperfect.

