7-1943

A STUDY TO DETERMINE THE EFFECT OF SPEED-BUILDING EXERCISES OF ONE, TWO, AND THREE MINUTES UPON ACHIEVEMENT IN FIRST-YEAR TYPEWRITING

Elner Beatrice Hicks
Kansas State Teachers College of Pittsburg

A STUDY TO DETERMINE THE EFFECT OF SPEED-BUILDING
EXERCISES OF ONE, TWO, AND THREE MINUTES UPON
ACHIEVEMENT IN FIRST-YEAR TYPEWRITING

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

By

Elner Beatrice Hicks

KANSAS STATE TEACHERS COLLEGE

Pittsburg, Kansas

July, 1943

ACKNOWLEDGEMENT

Acknowledgement is hereby made to Dr. W. S. Lyerla, Thesis Adviser, for his suggestions and criticisms, and to Mr. W. E. Anderson for his encouragement and assistance during the study.

ABSTRACT

The purpose of this study is to determine whether students who practice daily for one, two and three minutes on speed building drills at the beginning of each typewriting period will improve their typewriting achievement in speed on straight-copy tests of ten minutes duration over those students who do not practice on the same type of work.

A number of typewriting textbooks do not provide a definite speed-building program or drills. The 1942 edition of one of the most outstanding typewriting textbooks has included materials for calling-the-throw drills, selected-goal typing, and timed writing. This brings about the problem of whether the use of these drills are of sufficient value to warrant their use.

Two first-year typewriting classes participated in this experiment. The first class, called the experimental group, practiced daily at the beginning of each class period on speed-building exercises of one, two, and three minutes. The second class, the control group, followed the regular typewriting classroom procedure. A series of three ten-minute speed tests were administered to all students participating in this experiment.

The experimental group practiced for one minute on drills for calling-the-throw, selected-goal typing, and timed writings. A goal four or five words above the speed level attained at the beginning of the experiment was selected. It

was found that a higher speed level could be reached for one minute than could be reached on longer tests since the greatest extent of effort is from one to three minutes. After the selected goal had been reached for one minute, a higher goal was selected for the same length of time. The interval of time was eventually increased to two and three minutes. At the end of each week a ten-minute test was given to determine the progress on sustained writings.

Conclusions

The writer concludes that the speed-building program based upon the use of materials for calling-the-throw drills, selected-goal typing, and timed writings has definite value for increasing typewriting speed. Practice periods of one, two, and three minutes stimulated students to do their best work. This type of practice resulted in greater typewriting efficiency than was achieved by students who practiced for a longer time and had no relaxation between periods.

LIST OF TABLES

CHAPTER I

INTRODUCTION

Investigations in Typewriting Prognosis

Several years ago typewriting belonged to the business schools. Today typewriting is one of the most recently introduced subjects of the high school curriculum and teachers and administrators have had, in previous years, to justify its utility. The subject of typewriting has undergone tremendous growth in the last ten or fifteen years.

This situation brings about a problem as to the best possible means of providing typewriting instruction. No certain teaching procedure has been set up in this field which has resulted in many disputes and arguments. Many studies have been made and much has been written during the last ten or fifteen years on the subject of methods and techniques of classroom procedure.

Research studies in recent years relating to prognosis have given various results. Some of those have investigated the relation of mental ability to learn to typewrite. The results of most of the studies show that there is little, if any, correlation between the two abilities. Bradford[1] made

---

[1] Lilah C. Bradford, "Does Typing Ability Depend on Mentality or Dexterity." The Journal of Business Education, V, No. 4, (December, 1930), 23.

such a study. The investigation involved 279 typewriting students of Fresno, California high school. The tendency to make errors in typewriting when correlated with scores on <u>Terman</u> <u>Group</u> <u>Test</u> <u>of</u> <u>Mental</u> <u>Ability</u> showed results of -.01 ≠.03. Bradford concluded that it was not justifiable to say that we cannot produce efficient typists because students rate low in mental ability.

In Thorndike's[1] adult learning investigations it was found that ability to learn to typewrite increases quite rapidly up to age seventeen, rises slightly to a point between twenty and twenty-five, and declines gradually. In a similar investigation White[2] found that there was a rapid increase in speed up to age twenty-one, and an increase in accuracy up to age twenty-seven.

White[3] believes that probably no one factor alone is responsible for typewriting ability, but that it is a complicated characteristic made up of several independent factors. According to White there are four general lines along which efforts have been made to predict typewriting ability. These lines are: (1) "Mental traits or native capacities,

---

[1] E. L. Thorndike, <u>Adult</u> <u>Learning</u>, (New York, 1928), Chapter VII.

[2] Bruce White, "Prediction of Typewriting Success." <u>The</u> <u>Journal</u> <u>of</u> <u>Business</u> Education, X (April, 1935), 15-16.

[3] <u>Ibid</u>., p. 15-16.

such as general intelligence; (2) mental skills, such as reading, code learning and substitution; (3) motor abilities, such as tapping speed, eye-hand coordination, and reaction time; and (4) personal factors, such as age, school grade placement, vocational interest, and purpose in learning to typewrite.

Learning to typewrite is a habit formation process. Fatigue is a factor which influences the fixing of these habits. Related to this factor is that of the distribution of the proper practice. Book[1] says, "To obtain the best results for permanently fixing any set of habits the most economical periods of work and rest must be determined and used." A definite amount of practice and the intervals of time that should be allowed between the practice have not been determined for learning to typewrite.

Lundquest, in his research on finger gymnastics, found that:

> From the results obtained on tests measuring achievement in typewriting in terms of the number of gross words written, it is evident that the gymnastic students were writing at a higher speed than the non-gymnastic students in all groups in which comparisons were made. The consistency of this superiority, although the margin of difference may be small, indicates that the finger gymnastic

---

[1] W. F. Book, _Learning to Typewrite_, (New York, 1929), 218.

exercises contribute to the development
of speed in typewriting.[1]
Crews[2] found similar results.

A sustaining process is not new. Research literature
shows that in order to acquire speed, repetition is essen-
tial. Harold Smith, one of the best known speed writers of
today has said that he got more out of repetition than from
the psychologies, pedagogies, and other literature supposed
to guide typists.[3]

In Blackstone and Smith's book, Improvement of Instruc-
tion in Typewriting, one chapter is devoted to a considera-
tion of speed, and in this chapter two principles are em-
phasized: "both speed and accuracy should be developed from
the beginning" and "repetition is essential."

Blackstone and Smith have found that the extent of the
period of effort of most people is estimated at about three
minutes. Thus if a new level of typewriting speed is sug-
gested for a one or two minute period, the attention span

---

[1]C. H. Lundquest, "A Study to Determine the Effect of
Finger Gymnastics upon Attainment in Typewriting" (un-
published masters thesis, Kansas State Teachers College,
Pittsburg, 1939), p. 38.

[2]H. R. Crews, "An Experiment With Finger Gymnastics
in Teacher Typewriting," Monographs in Education, First
Series, No. 9, Research Studies in Commercial Education,
III (University of Iowa, 1928), 126-144.

[3]Harold H. Smith, "A Typing Secret", The Gregg Writer,
VII (September, 1939), 25.

will not be taxed. The results achieved on one of these writings does not mean that a student should be expected to maintain this same level of typewriting speed at a longer period of writing. After one has successfully passed several writings at the new typewriting speed, the new speed should become a part of one's achievement on longer writings.

According to Book recent experimental studies of learning have shown:

> That one of the most potent factors which affects the character and rate of improvement is the learner's attitude towards his own success. A learner's rate of improvement is affected directly, markedly, and consistently by a knowledge of his score, by his rate of gain, and by the degree of interest which he manifests in his own advancement.
>
> Such an interest in his own improvement enables a learner to put more force into his work, to search more diligently for new sources of improvement, to vary his responses until such new methods of work are originated, to be more pleased with his successful responses when originated and identified and more keenly annoyed by every response that does not succeed, to eliminate more promptly the wrong tendencies of mind and hand when they occur, and to select and use the more efficient methods of work as fast as they can be originated and successfully used.[1]

Some typewriting students do not continue to improve their speed in typewriting. This may be due to the fact

---

[1] W. F. Book, op. cit., pp. 304-305.

that they need more specific help and direction than is given in the ordinary classroom. Students are sometimes unable to put forth sufficient effort to carry on work of an experimental nature in order to attain a higher rate of speed.

These studies indicate that where some definite plan is made to increase typewriting speed, those students become superior to others.

There is need for a speed-building program to help students rise above certain troublesome plateaus in developing typewriting speed. Since there is no definite research pertaining to the technique of presenting a speed-building program of one, two, and three minute exercises, it was considered profitable to continue the research.

CHAPTER II

THE PROBLEM AND ORGANIZATION OF THE INVESTIGATION

Statement of the Problem

The problem of this study is to determine whether students who practice daily for one, two, and three minutes on speed-building drills at the beginning of each typewriting period improve their typewriting achievements in speed and accuracy on straight-copy tests of ten minutes duration over those students who do not practice on such work.

A number of typewriting textbooks do not provide a definite speed-building program or drills. The 1942 revised edition of one of the outstanding typewriting text-books[1] has included materials for calling-the-throw drills, selected-goal typing, and timed writing. This brings about a problem as to whether these drills are of sufficient value to warrant their use.

The author has not found any reported scientific studies on this problem. If speed-building exercises of one, two, and three minutes are helpful to students of type-writing, more emphasis should be placed upon them. If the achievements attained from such drills are not sufficient

---

[1] D. D. Lessenberry and E. A. Jevon, 20th Century Typewriting, 4th ed., (Cincinnati, 1942).

to warrant their use, instructors should be aware of the
fact.

General Plan of the Experiment

Two regularly scheduled first-year typewriting classes,
each comprising twenty-seven students, participated in the
experiment. The first class, designated as the experimental
group, practiced on the one, two, and three minutes speed-
building drills for approximately fifteen minutes at the be-
ginning of each class period. In the second class, the con-
trol group, no daily speed-building drills were given. The
control group proceeded with the regular typewriting class-
room procedure. The number of cases involved in this ex-
periment was reduced to fifty-four because of drop-outs due
to illness and transfers to other schools.

Of the fifty-four students used, twenty-seven were mem-
bers of the experimental group which participated in the one,
two, and three minutes speed-building drills, and twenty-
seven were members of the control group which did not use
the one, two, and three minutes speed-building exercises.

The classes met daily for sixty minutes. The same in-
structor taught both classes using the same materials. The
textbook used was 20th Century Typewriting by Lessenberry
and Jevon. The types of typewriting machines used in this
experiment were six Royals, sixteen Underwoods, and five

Remingtons. This experiment was conducted over a period of six weeks beginning February 1 and ending March 12, 1943.

The Experimental Procedure

A period of six weeks was set aside during the second semester of first-year typewriting for a definite program of speed development.

A series of three ten-minute speed tests were administered over a week's time to all students who participated in this experiment. The tests used in this series were tests prepared by the National Council for Business Education. The three ten-minute tests were given to determine the average speed level each student had attained during the first semester of typewriting. After each students' present writing speed had been determined by the three ten-minute tests, the experimental group followed a speed building program which consisted of speed building exercises based on words, phrases, sentences, and timed paragraph writings.

Words. The words used in this part of the program were selected from the 10,000 most commonly used words[1] compiled by Horn. These words were presented in different

---

[1] Ernest Horn, A Basic Writing Vocabulary, 10,000 Words Most Commonly Used in Writing, Monographs in Education, First Series, No. 4, University of Iowa, 1926.

ways to avoid monotony. Various methods of presentation
may be found in the Appendix.

Phrases. Practice on frequent phrases and word groups
helped one to grasp and execute easy combinations quickly.
The responses were mainly automatic. Emphasis was stressed
on striking the correct letters in their proper sequence,
and on spacing evenly. Practice on this type of work helped
prevent many misstruck letters and irregular spacing.

Sentences. Speed, concentration, and alphabetic sen-
tences were the types of sentences used in this experimen-
tal program. The concentration sentences were written as
rapidly as possible without any errors. The alphabetic
sentences were used for warm-up exercises at the beginning
of the speed building program each day. The speed sentences
were developed on the calling-the-throw device.[1]

The "Calling-the-throw" is a device used to guide one
in typing sentences at a specific rate. The first speed sen-
tence was typed three times in one minute, throwing the car-
riage when "throw" was called at twenty seconds, forty seconds,
and on the minute. When "throw" was called, the carriage was
returned even though the sentence was not finished. If the
sentence was completed before the throw was called, the stu-
dents were directed to wait until instructed to throw the

---

[1]Fred M. Tidwell, Advanced Speed Typing, (Cincinnati,
1943), 52.

carriage and type somewhat slower on the next line.

Selected-Goal Typing. A goal, a few words higher than the average rate of speed, was selected. Paragraphs used were typed at one, two, and three minutes. The number of words per minute were indicated by the superior figures over the lines in the paragraph. Each five spaces were counted as one word. Each student tried to achieve his goal on each writing of the paragraph. When a desired goal had been reached on several paragraph writings, a higher goal was established.

Timed Writings. At the end of each week a ten-minute speed test was given. This test was given to determine whether or not the speed building drills of one, two, and three minutes had become a part of the achievement in typewriting speed on tests of longer duration.

Equivalence of Groups

It was decided to make a random selection of students, except that, if possible, pairings would be made on the basis of chronological age. According to Thorndike[1] and White[2] ability to learn to typewrite increases with age up to about twenty-one.

---

[1] E. L. Thorndike, op. cit.

[2] Bruce White, op. cit., p. 16.

At the beginning of the second semester of the school year 1942-1943 twenty-seven beginning students of the Dunbar High School, Okmulgee, Oklahoma, were assigned to the speed-building program for six weeks. The actual time given to class periods in this school was sixty minutes. In selecting the students for this group, which will be designated as the experimental group, the classification of the student, his mental ability, his record as a student, his age, or aptitude for learning to typewrite were given ample consideration.

Twenty-seven students were chosen for the control group. The selection of the members of this group was based upon chronological age and mental ability. That is, they were paired with members of the experimental group according to age and mental ability. Other factors were not influential in making the selection.

Except for the age factor the groups may be said to have been selected at random. There may be good reasons, however, for considering mental ability as a factor. Some reliable studies indicate that there is no correlation between mental ability and aptitude for learning to typewrite. Lessenberry[1], after making a survey of studies that have been

---

[1] D. D. Lessenberry, "Predicting Ability to Learn Typewriting." The Balance Sheet, XX, (March, 1939), 398-399.

made during the last fifteen years relative to ability to learn to typewrite, concluded that mental ability is not a criterion by which to make a prediction. He makes it clear that "intelligence may not be a necessary factor in learning to typewrite, but it is a necessary factor in using the developed typing skill."

Two other elements that may be regarded as factors in grouping the students, are sex and classification in school. In the experimental group there were eight boys and nineteen girls. Seven boys and twenty girls made up the control group. In the experimental group there were nineteen twelfth year students, eight eleventh year students. The control group had twenty twelfth year students, six eleventh year students and one ninth year student. It should be noted that if sex and advancement in school are factors of achievement in typewriting, the two are negligible since the groups were relatively equal. Table I shows the age-ability pairings of pupils in the experimental and control groups.

Measurement of Achievement

The typewriting achievement was measured by the regular Student's Typing Tests sponsored by the National Council for Business Education. A ten-minute test on straight-copy material was given at the end of each week to measure achievement attained during the week as a result of the one, two, and three minute exercises administered earlier in the week.

TABLE I

AGE-ABILITY-SEX PAIRINGS OF PUPILS OF EXPERIMENTAL AND CONTROL GROUPS

	EXPERIMENTAL GROUP				CONTROL GROUP		
Pupil	I. Q.	Age	Sex		Pupil	I. Q.	Age	Sex
1.	105	17	M	1.	105	17	M
2.	103	16	F	2.	105	17	F
3.	102	17	F	3.	102	18	F
4.	113	16	M	4.	110	17	M
5.	105	17	M	5.	105	19	M
6.	90	19	M	6.	89	19	M
7.	105	17	F	7.	105	18	F
8.	104	19	F	8.	103	18	F
9.	113	16	M	9.	123	14	M
10.	110	16	F	10.	110	18	F
11.	85	17	F	11.	85	19	F
12.	105	17	M	12.	105	17	M
13.	88	17	M	13.	89	19	M
14.	103	16	F	14.	101	17	F
15.	102	16	F	15.	100	16	F
16.	90	17	M	16.	91	19	M
17.	105	17	F	17.	107	18	F
18.	110	17	M	18.	112	17	F
19.	98	20	F	19.	95	17	M
20.	85	17	F	20.	85	17	F
21.	84	17	M	21.	90	17	M

TABLE I (Continued)

EXPERIMENTAL GROUP				CONTROL GROUP			
Pupil	I. Q.	Age	Sex	Pupil	I. Q.	Age	Sex
22.	84	17	F	22.	90	17	M
23.	85	17	F	23.	91	17	F
24.	90	17	F	24.	90	17	F
25.	98	17	F	25.	98	19	F
26.	97	16	F	26.	99	17	F
27.	98	16	F	27.	99	17	F

Experimental Group:

N = 17

Control Group:

N = 17

CHAPTER III

RESULTS OF THE EXPERIMENT

A six week's period was set aside at the beginning of the second semester of first-year typewriting to emphasize speed development.

A series of three ten-minute speed tests were administered to all students participating in the experiment prior to the beginning of the experimental period in order to determine the speed level each student had reached before the experiment started. A mean average speed level of twenty-five words per minute was reached by the experimental and control groups.

The class designated as the experimental group practiced daily on one, two, and three minute speed-building drills for fifteen minutes before proceeding with the regular classroom activities. The experimental group set their goal at five words per minute above the speed level they had attained on the series of three ten-minute tests. Every student tried to increase his speed level by writing from marked copy for a period of one minute. After the goal had been successfully reached for one minute on several writings, a higher goal was set. This was continued for several writings after which time the interval of time was increased to two minutes, and finally to three minutes.

Table II shows that for the experimental group pupils

TABLE II

ACHIEVEMENTS IN SPEED OF THE EXPERIMENTAL AND
CONTROL GROUPS ON TYPEWRITING TEST I

| | EXPERIMENTAL GROUP | | | | CONTROL GROUP | | |
| | Number of Words Per Minute | | | | Number of Words Per Minute | | |
Pupil	Beginning Test	Test I	Difference	Pupil	Beginning Test	Test I	Difference
1.	20	21	1	1.	15	15	0
2.	20	22	2	2.	20	19	-1
3.	25	34	9	3.	25	31	6
4.	20	26	6	4.	20	22	2
5.	30	35	5	5.	25	32	7
6.	25	32	7	6.	25	28	3
7.	25	34	9	7.	25	31	6
8.	20	28	8	8.	22	27	5
9.	30	36	6	9.	32	32	0
10.	25	34	9	10.	25	31	6
11.	20	26	6	11.	22	24	2
12.	30	36	6	12.	33	33	0
13.	25	32	7	13.	25	28	3
14.	30	35	5	14.	25	32	7
15.	25	34	9	15.	25	31	6
16.	30	35	5	16.	25	32	7
17.	30	36	6	17.	32	32	0
18.	25	32	7	18.	25	28	3
19.	25	32	7	19.	25	28	3
20.	20	26	6	20.	22	24	2

TABLE II (Continued)

EXPERIMENTAL GROUP
Number of Words Per Minute

Pupil	Beginning Test	Test I	Difference
21.	20	27	7
22.	20	27	7
23.	20	27	7
24.	20	28	8
25.	20	28	8
26.	20	28	12
27.	20	32	12

CONTROL GROUP
Number of Words Per Minute

Pupil	Beginning Test	Test I	Difference
21.	22	25	3
22.	22	27	5
23.	22	27	5
24.	22	27	5
25.	22	27	5
26.	22	27	5
27.	25	28	3

Experimental Group:

N = 32

Control Group:

N = 28

fall in three principal divisions of twenty, twenty-five,
and thirty words per minute. The mean average gain for the
twenty-word group was 7.5, for the twenty-five word group
8, and the thirty word group 5.5.

In the control group those writing the lowest and highest
number of words, respectively, were those who showed either a
loss or no gain on Test I. The group writing from twenty-
seven to thirty-two words gained from five to seven words per
minute. This gain was approximately three words above the
mean gain for the entire control group. The experimental
group, however, shows a mean average gain of from seven to
eight words per minute for those writing up to twenty-five
words at the beginning of the experiment; and those writing
thirty words a mean average gain of 5.5 words per minute.
By way of contrast, while the experimental group was showing
an increase in every case of from one to twelve words per
minute, the control group was showing a loss of speed in some
cases and having as its range a -1 to 7 words per minute.

Pupil eleven of the experimental group who had a low
intelligence quotient score showed more progress in achieve-
ment of speed than student one who had a higher intelligence
score. This fact may be attributed to several reasons. Both
pupils are not of the same sex which means that sex probably
plays an important role in the development of typewriting
speed. For that reason typewriting achievement for boys was

not compared with typewriting achievement for girls. This was not, however, true in all cases. Students nine and seventeen who had relatively high intelligence quotient scores wrote the highest number of words per minute on Test I. The greatest amount of progress was made by those students with a medium I. Q. It might be noted that these students did not score highly on the beginning test, thus indicating that they had not reached their maximum ability. Those students who had nearly reached their maximum ability on the beginning test showed the least amount of progress of the group.

In the control group the greatest amount of progress was made by students numbered five, fourteen, and sixteen. These were students of higher mental ability of the group. In other cases students with high intelligence quotients showed no indication of progress. In some cases this was due to lack of effort on the part of the students and the influence of extra-curricular activities. This serves as an indication of a lack of the right kind of speed development program.

Table III shows the achievements of the experimental and control groups on Test II. The scores on this test ranged from -3 to 12 words per minute. The mean increase in speed on Test II was 7. There were only two students in the first quartile who wrote below the mean increase of

TABLE III

ACHIEVEMENTS IN SPEED OF THE EXPERIMENTAL AND CONTROL GROUPS ON TYPEWRITING TEST II

	EXPERIMENTAL GROUP — Number of Words Per Minute				CONTROL GROUP — Number of Words Per Minute		
Pupil	Beginning Test	Test II	Difference	Pupil	Beginning Test	Test II	Difference
1.	20	17	-3	1.	15	14	-1
2.	20	25	5	2.	20	22	2
3.	25	33	8	3.	25	29	4
4.	20	28	8	4.	20	23	3
5.	30	34	4	5.	25	30	5
6.	25	32	7	6.	25	28	3
7.	25	33	8	7.	25	29	4
8.	20	30	10	8.	22	27	5
9.	30	35	5	9.	32	30	-2
10.	25	33	8	10.	25	29	4
11.	20	30	10	11.	22	23	1
12.	30	37	7	12.	33	31	-2
13.	25	32	7	13.	25	28	3
14.	30	34	4	14.	25	30	5
15.	25	33	8	15.	25	29	4
16.	30	34	4	16.	25	30	5
17.	30	35	5	17.	32	30	-2
18.	25	32	7	18.	25	28	3
19.	25	32	7	19.	25	28	3
20.	20	30	10	20.	22	23	1

TABLE III (Continued)

EXPERIMENTAL GROUP Number of Words Per Minute				CONTROL GROUP Number of Words Per Minute			
Pupil	Beginning Test	Test II	Difference	Pupil	Beginning Test	Test II	Difference
21.	20	30	10	21.	22	25	3
22.	20	28	8	22.	22	25	3
23.	20	30	10	23.	22	25	3
24.	20	30	10	24.	22	27	5
25.	20	30	10	25.	22	27	5
26.	20	28	8	26.	22	27	5
27.	20	32	12	27.	25	28	3

Experimental Group:

M = 32

Control Group:

M = 27

speed of the entire group. The same analysis was true of
the students in the upper quartiles. The mean increase in
speed made by the experimental group on Test II exceeded
the mean on Test I by one point.

The experimental group showed progress in every instance
but one. The little amount of progress made by this student
who has an I. Q. above the average student may be due to the
fact that there was much indifference on the part of the stu-
dent in taking typewriting. This fact is reflected in his
progress throughout the experiment.

Student eight of the experimental group when compared
with the corresponding student of the control group was show-
ing twice the amount of progress. Students showing the least
amount of progress in the experimental group were almost
reaching the maximum of progress made by the control group.

The greatest amount of progress was again made by a
student of average intelligence. The greatest gains in
speed were made by students with average mental ability.
The experimental group showed approximately twice the in-
crease in speed when compared with students of the same
ranking in the control group. Although the control group
showed an increase in most scores, the mean increase of this
group of three words per minute was exceeded by the experi-
mental group who had a mean of seven words per minute.

The experimental group continued to practice on speed

building exercises for fifteen minutes at the beginning of each class period. At the end of the third week of the experiment, as shown in Table IV, the experimental group continued to increase their words per minute on every score except one. However, this score did not fall below the speed level the student had attained at the beginning of the experiment. The increase in speed ranged from zero to twelve words per minute. The mean increase for this group was 7.2. Although every student increased his score, six did not write up to the mean score of the group. The scores for these six students, however, were above the mean score of the control group.

Similar conditions were true with the control group. All students showed an increase in speed except one who did not show any decrease in speed on words per minute as compared with the beginning score. The increase of scores ranged from zero to four words per minute. The mean increase of speed with this group was 3.1. Again the mean of the experimental group exceeded the control group by four words per minute. The progress of the students was in favor of those students who used the speed building exercises at the beginning of each class period.

Although the control group showed an increase in all scores except four, the mean increase was in favor of the experimental group. The students in the first quartile of the experimental group increased the scores in some instances

TABLE IV

ACHIEVEMENTS IN SPEED OF THE EXPERIMENTAL AND CONTROL GROUPS ON TYPEWRITING TEST III

	EXPERIMENTAL GROUP Number of Words Per Minute				CONTROL GROUP Number of Words Per Minute		
Pupil	Beginning Test	Test III	Difference	Pupil	Beginning Test	Test III	Difference
1.	20	20	0	1.	15	15	0
2.	20	24	4	2.	20	23	3
3.	25	33	8	3.	25	28	3
4.	20	24	4	4.	20	24	4
5.	30	35	5	5.	25	29	4
6.	25	32	7	6.	25	28	3
7.	25	33	8	7.	25	28	3
8.	20	31	11	8.	22	26	4
9.	30	37	7	9.	32	29	-3
10.	25	33	8	10.	25	28	3
11.	20	27	7	11.	22	24	2
12.	30	38	8	12.	32	32	0
13.	25	32	7	13.	25	28	3
14.	30	35	5	14.	25	29	4
15.	25	33	8	15.	25	28	3
16.	30	35	5	16.	25	29	4
17.	30	37	7	17.	32	29	-3
18.	25	32	7	18.	25	28	3
19.	25	32	7	19.	25	28	3
20.	20	27	7	20.	22	24	2

TABLE IV (Continued)

EXPERIMENTAL GROUP
Number of Words Per Minute

Pupil	Beginning Test	Test III	Difference
21.	20	31	11
22.	20	31	11
23.	20	30	10
24.	20	32	12
25.	20	31	11
26.	20	31	11
27.	20	32	12

CONTROL GROUP
Number of Words Per Minute

Pupil	Beginning Test	Test III	Difference
21.	22	25	3
22.	22	25	3
23.	22	24	2
24.	22	26	4
25.	22	26	4
26.	22	25	3
27.	25	28	3

Experimental Group:

M = 52

Control Group:

M = 27

twice the number of words per minute as did the students of corresponding rank in the control group. This indicates that those students who centered their attention on increasing their speed for short intervals of time increased their speed on tests of longer duration. Four students in the control group did not reach the mean increase made on the test by the group. Although the majority increased their scores and reached the mean of the group, the mean was not to be compared with the mean of the experimental group.

The median increase in speed on Test IV, as shown in Table V, was 9.1 for the experimental group as compared with a mean decrease of -.5 for the control group. All scores were increased with the experimental group. There were six scores that did not reach the mean increase in speed. Those who did not reach the mean increase of speed were either in the lower quartile or they were in the upper quartile of achievement. Because those in the upper quartile had a high beginning test score, it was somewhat difficult for them to exceed the mean of the group. The mean of the control group was lower than some of the scores made by the students in the lower quartile of the experimental group.

It may be noticed that in the control group five students did not maintain their scores made on the test at the beginning of the experiment. This was found to be true of students having low, average, and high intelligence quotients. The

TABLE V

ACHIEVEMENTS IN SPEED OF THE EXPERIMENTAL AND
CONTROL GROUPS ON TYPEWRITING TEST IV

	EXPERIMENTAL GROUP Number of Words Per Minute				CONTROL GROUP Number of Words Per Minute		
Pupil	Beginning Test	Test IV	Difference	Pupil	Beginning Test	Test IV	Difference
1.	20	22	2	1.	15	16	1
2.	20	25	5	2.	20	17	-3
3.	25	35	10	3.	25	26	1
4.	20	28	8	4.	20	20	0
5.	30	37	7	5.	25	26	1
6.	25	35	10	6.	25	25	0
7.	25	35	10	7.	25	26	1
8.	20	31	11	8.	22	23	1
9.	30	40	10	9.	32	30	-2
10.	25	35	10	10.	25	26	1
11.	20	29	9	11.	22	20	-2
12.	30	40	10	12.	33	33	0
13.	25	35	10	13.	25	25	0
14.	30	37	7	14.	25	27	2
15.	25	35	10	15.	25	26	1
16.	30	37	7	16.	25	27	2
17.	30	40	10	17.	32	30	-2
18.	25	35	10	18.	25	25	0
19.	25	34	9	19.	25	25	0
20.	20	29	9	20.	22	20	-2

TABLE V (Continued)

| | EXPERIMENTAL GROUP | | | | CONTROL GROUP | | |
| | Number of Words Per Minute | | | | Number of Words Per Minute | | |
Pupil	Beginning Test	Test IV	Difference	Pupil	Beginning Test	Test IV	Difference
21.	20	31	11	21.	22	23	1
22.	20	30	10	22.	22	24	2
23.	20	31	11	23.	22	23	1
24.	20	29	9	24.	22	24	2
25.	20	31	11	25.	22	23	1
26.	20	30	10	26.	22	24	2
27.	20	35	15	27.	25	25	0

Experimental Group:

N = 32

Control Group:

N = 25

greatest increase in speed made by the control group on the test was equaled by the lowest score made by the experimental group.

The students in the lower quartile of the control group only increased their speed by one or two words per minute. The average rate of increase was definitely in favor of the experimental group. The results of this test clearly revealed that those students who exerted their ability for one, two, and three minutes in an effort to reach a desired goal wrote more words per minute on ten-minute tests. The control group did not have a definite goal set from day to day and consequently did not show as much progress as the experimental group.

By the end of the fifth week of the experiment the experimental group had an increase in speed from three to fourteen words per minute with a mean increase of ten words per minute. The control group had an increase in speed from two to nine words per minute with a mean increase of 6.0 words per minute.

At this point of the experiment, as indicated in Table VI, every student in both the experimental and control groups was showing progress. The progress made by the experimental group was superior to that made by the control group. There was only one instance in the control group where a student wrote more words per minute as compared

TABLE VI

ACHIEVEMENTS IN SPEED OF THE EXPERIMENTAL AND CONTROL GROUPS ON TYPEWRITING TEST V

| | EXPERIMENTAL GROUP | | | | CONTROL GROUP | | |
| | Number of Words Per Minute | | | | Number of Words Per Minute | | |
Pupil	Beginning Test	Test V	Difference	Pupil	Beginning Test	Test V	Difference
1.	20	23	3	1.	15	24	9
2.	20	28	8	2.	20	24	4
3.	25	39	14	3.	25	32	7
4.	20	30	10	4.	20	27	7
5.	30	39	9	5.	25	33	8
6.	25	34	9	6.	25	31	6
7.	25	39	14	7.	25	32	7
8.	20	33	13	8.	22	28	6
9.	30	39	9	9.	32	34	2
10.	25	39	14	10.	25	32	7
11.	20	30	10	11.	20	27	7
12.	30	44	14	12.	32	36	4
13.	25	34	9	13.	25	31	6
14.	30	39	9	14.	25	33	8
15.	25	39	14	15.	25	32	7
16.	30	39	9	16.	25	33	8
17.	30	39	9	17.	32	34	2
18.	25	34	9	18.	25	31	6
19.	25	33	8	19.	25	30	5
20.	20	30	10	20.	22	27	5

TABLE VI (Continued)

	EXPERIMENTAL GROUP Number of Words Per Minute				CONTROL GROUP Number of Words Per Minute		
Pupil	Beginning Test	Test V	Difference	Pupil	Beginning Test	Test V	Difference
21.	20	29	9	21.	22	26	4
22.	20	31	11	22.	22	28	6
23.	20	30	10	23.	22	27	5
24.	20	33	13	24.	22	28	6
25.	20	32	12	25.	22	27	5
26.	20	33	13	26.	22	28	6
27.	20	34	14	27.	25	31	6

Experimental Group:

N = 35

Control Group:

N = 28

with the student of corresponding age and ability of the experimental group.

The greatest increase in speed was made by the experimental group. The number of cases falling below the median increase of the group was eleven with the experimental group and nine with the control group, the highest increase in speed was nine words per minute with the control group and fourteen words per minute with the experimental group. The median increase in words per minute was in favor of the experimental group.

The greatest increase in speed was made by the experimental group. The number of cases falling below the median increase of the group was eleven with the experimental group and nine with the control group, the highest increase in speed was nine words per minute with the control group and fourteen words per minute with the experimental group. The median increase in words per minute was in favor of the experimental group.

The greatest increase in speed was made by the experimental group. The number of cases falling below the median increase of the group was eleven with the experimental group and nine with the control group, the highest increase in speed was nine words per minute with the control group and fourteen words per minute with the experimental group. The median increase in words per minute was in favor of the

experimental group who practiced daily on the one, two, and three minute exercises.

Because the control group showed progress on every score gives indication that the reason for their not scoring as highly as the students of the experimental group is not brought about because of a lack of mental ability but for the need of a specific goal or aim in typewriting achievement. This goal or aim may easily be brought about by the proper use of calling-the-throw drills, selected-goal typing, and timed writing. These exercises were a part of the typewriting classroom procedure of the experimental group. The results of this group, when compared with the control group, clearly shows the value of one, two, and three minute exercises upon achievement in typewriting speed.

The results of the final test in the experiment are shown in Table VII. The experimental group reached its highest achievement on this test. The scores ranged from four to sixteen words per minute with this group. The mean increase was fifteen words per minute, representing the highest mean increase reached by the experimental group during the experiment. This mean was never reached by the control group.

The highest increase in speed made by the control group was one point lower than the increase in speed in the experimental group. There was a mean increase of fourteen words in the experimental group as compared with a mean average increase

TABLE VII

ACHIEVEMENTS IN SPEED OF THE EXPERIMENTAL AND
CONTROL GROUPS ON TYPEWRITING TEST VI

| | EXPERIMENTAL GROUP | | | | CONTROL GROUP | | |
| | Number of Words Per Minute | | | | Number of Words Per Minute | | |
Pupil	Beginning Test	Test VI	Difference	Pupil	Beginning Test	Test VI	Difference
1.	20	34	14	1.	15	20	5
2.	20	30	10	2.	20	25	5
3.	25	41	16	3.	25	31	6
4.	20	34	14	4.	20	25	5
5.	30	42	12	5.	25	33	8
6.	25	36	11	6.	25	31	6
7.	25	41	16	7.	22	29	7
8.	20	35	15	8.	22	31	9
9.	30	42	12	9.	32	33	1
10.	25	41	16	10.	25	31	6
11.	20	34	14	11.	22	26	4
12.	30	44	14	12.	32	38	6
13.	25	36	11	13.	25	31	6
14.	30	42	12	14.	25	33	8
15.	25	41	16	15.	25	31	6
16.	30	42	12	16.	25	33	8
17.	30	42	12	17.	32	33	1
18.	25	36	11	18.	25	31	6
19.	25	36	11	19.	25	31	6
20.	20	34	14	20.	22	26	4

TABLE VII (Continued)

| | EXPERIMENTAL GROUP | | | | CONTROL GROUP | | |
| | Number of Words Per Minute | | | | Number of Words Per Minute | | |
Pupil	Beginning Test	Test VI	Difference	Pupil	Beginning Test	Test VI	Difference
21.	20	34	14	21.	22	29	7
22.	20	35	15	22.	22	28	6
23.	20	34	14	23.	22	29	7
24.	20	35	15	24.	22	31	9
25.	20	35	15	25.	22	31	9
26.	20	34	14	26.	22	30	8
27.	20	36	16	27.	25	31	9

Experimental Group:

M = 39

Control Group:

M = 31

of six words in the control group. The students in the ex-
perimental group in the upper quartile had gained from twelve
to sixteen words, whereas students in the upper quartile in
the control group gained from four to eight words per minute.

In the first quartile students in the experimental group
had gained from ten to fourteen words while students in the
control group had gained from four to seven words.

The mean of the experimental group on all six tests ad-
ministered during the experiment was from four to eight
points above the mean of the control group. This increase
in speed indicates that throughout the experiment the greatest
amount of progress was made by the experimental group.

The greatest individual achievement made on this test
was made by a pupil of the experimental group who had an
average intelligence quotient. This does not mean, however,
that this student made the highest score on the test. The
highest score made during the experiment was also made by a
student in the experimental group, but was made by a student
with an above average intelligence score.

Pupil one of the experimental group who apparently showed
little interest in typewriting achievement at the beginning
of the experiment was showing much improvement by the end of
the experiment. This student was more or less motivated to
do a superior type of work by trying to achieve a definite
goal each day.

It is now clear that in every instance that the experimental group of pupils insistently and persistently conscious of speed building made definite and notable gains in their number of words per minute as shown above in the mean increase of fourteen words. When compared with the mean average increase of six words per minute of the control group, this likewise, indicates that the lack of speed building exercises resulted in only the normal expected gains of typewriting pupils of that age-ability level of a six weeks period.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Two first-year typewriting classes participated in this experiment. The first class, called the experimental group, practiced daily at the beginning of each class period on speed building exercises of one, two, and three minutes. The second class, the control group, followed the regular typewriting classroom procedure. A series of three ten-minute speed tests were administered to all students participating in this experiment.

The experimental group practiced for one minute on drills for calling-the-throw, selected-goal typing, and timed writings. A goal four or five words above the speed level attained at the beginning of the experiment was selected. It was found that a higher speed level could be reached for one minute than could be reached on longer tests since the greatest extent of effort is from one to three minutes. After the selected goal had been reached and maintained on several writings for one minute, a higher goal was selected for the same length of time. The interval of time was eventually increased to two and three minutes. At the end of each week a ten-minute test was given to determine the progress on sustained writings.

39

The experimental group showed an increase in speed of from four to five words per minute on every test given during the experiment. In some instances the students in the first quartile of the experimental group increased their test score twice the number of words per minute as did the students of corresponding rank in the control group.

On tests where both groups showed an increase in speed the experimental group showed an increase of twice the number of words per minute over the control group. The lowest score made by the experimental group at the end of the experiment was one point below the highest score made by the control group at the same time. There were more cases in the control group where there was no progress made on tests over the beginning rate of speed than in the experimental group. During the experiment the highest individual score in words per minute was made by the experimental group.

Conclusions

The author has reached the conclusion that the speed building program based upon the use of materials for calling-the-throw drills, selected-goal typing, and timed writings has definite value to increasing typewriting speed. Practice periods of one, two, and three minutes stimulated students to do their best work. This type of practice resulted in greater typewriting ability than was achieved by

the students who practiced for longer periods and had no
relaxation between periods.

The experimental students throughout the experiment
were in advance of the control students. Because the con-
trol group made progress, but because this progress did
not compare with that of the experimental group gave evidence
of a need for a definite speed building program.

Recommendations

Upon the basis of the findings of this experiment the
following recommendations are justifiable:

1. A period of from six to eight weeks should be set
aside during the year for a definite program of speed develop-
ment.

2. In a skill development exercise, students should be
stimulated to write at his extreme effort for only one to
three minutes since that effort cannot be maintained for a
longer time.

3. There should be a period of relaxation between ex-
ercises during which time students may put new sheets into
the typewriter, check errors, or merely rest while listening
to instructions or taking part in discussion.

4. Copy marked to show where to begin and where to stop
in typing for one, two, and three minutes at a given rate of
speed should be used in a speed building program.

5. A ten or fifteen-minute test should be given every week as a means of checking progress made during the week.

6. Students should be made conscious of the fact that the present speed level of writing should be held consistently and should strive to master a higher level of speed.

ANNOTATED BIBLIOGRAPHY

ANNOTATED BIBLIOGRAPHY

Books

Blackstone, E. G., and S. L. Smith, <u>Improvement of Instruc-
tion in Typewriting</u>, New York: Prentice-Hall, Inc.,
1937.

The extent of effort is approximately three minutes.
Instruction should provide for a relaxation period.
Typewriting practice based upon this principle should
bring about greater typing ability than can be main-
tained on longer periods of work.

Book, W. F., <u>Learning to Typewrite</u>, Chicago: The Gregg Pub-
lishing Company, 1925.

The book written by a psychologist treats of the
psychology of skill, more especially that pertain-
ing to typewriting. It presents the results of a
scientific analysis of learning to typewrite.

Hakes, Adelaide B., <u>Typewriting Speed Studies</u>, 3rd ed.,
New York: The Gregg Publishing Company, 1942.

Special emphasis is given to speed building exercises
based upon the 10,000 most commonly used words.

Lessenberry, D. D., and E. A. Jevon, <u>20th Century Type-
writing</u>, 4th ed., Cincinnati: South-Western Publishing
Company, 1942.

<u>20th Century Typewriting</u> presents materials for a
special speed development program. These materials
are based upon calling-the-throw drills, selected-
goal typing, and timed writings.

Thorndike, E. L., <u>Adult Learning</u>, New York: The Macmillan
Company, 1928.

Chapter VII in the book gives the results of a study on
learning to typewrite.

Tidwell, M. Fred, <u>Advanced Speed Typing</u>, Cincinnati: South-
Western Publishing Company, 1943.

<u>Advanced Speed Typing</u> presents speed developing exercises
of calling-the-throw drills, selected-goal typing, and

timed writings. These exercises are designed to be used after the basic skills in typewriting have been developed.

Periodical Articles

Bradford, Lilah C., "Does Typing Ability Depend on Mentality or Dexterity." The Journal of Business Education, V (December, 1930), 23.

A study of 297 typewriting students in Fresno, California high school relative to effect of mental ability, as shown by a Terman Group Test, on learning to typewrite is the basis of this work.

Lessenberry, D. D., "Predicting Ability to Learn Typewriting." The Balance Sheet, XX (March, 1939), 398-399.

One's ability to learn to typewrite cannot be predicted by the intelligence quotient. Intelligence may be an important factor in learning to typewrite, but the ability to learn to typewrite cannot be solely attributed to it.

Smith, Harold H., "A Typing Secret," The Gregg Writer, VII (September, 1939), 25.

Repetition is believed to be an important factor in helping to develop typewriting speed. More reading of literature does not tend to aid the development of speed.

White, Bruce, "Prediction of Typewriting Success," The Journal of Business Education, X (April, 1935), 15-16.

The author believes that there is a greater correlation between general intelligence and serial response motor ability in typewriting speed. It is also stated that a valid measurement of interest, and a determination of the inter-relationships of other factors closely related to typewriting ability should be considered.

Lundquest, C. H., A Study to Determine the Effect of Finger Gymnastics upon Attainment in Typewriting. (Unpublished

master's thesis, Kansas State Teachers College,
Pittsburg, 1939.)

In a comparison made of finger gymnastic and non-
gymnastic students it was found that the gymnastic
students were consistently superior to the non-
gymnastic students. The degree of superiority was
rather small, but the fact remains that the finger
gymnastic exercises were advantageous.

Monographs

Crews, H. R., _An Experiment With Finger Gymnastics in
Teaching Typewriting_, Monographs in Education, First
Series, No. 9, Research Studies in Commercial Educa-
tion, Vol. III, Iowa: University of Iowa, 1928.

Students who made use of finger gymnastic exercises
as a part of their typewriting class procedure were
found to be superior to those students who did not
use finger gymnastic exercises.

Horn, Ernest, _A Basic Writing Vocabulary, 10,000 Words
Most Commonly Used in Writing_," Monographs in Edu-
cation, First Series, No. 4, Iowa: University of
Iowa, 1926.

The 10,000 most commonly used words were compiled
and placed in alphabetical order. Specific rules
were made to select these words. This list does
not include names of persons and places.

APPENDIX

SPEED DRILL WORK[1]

Finger Dexterity and Word Recognition Drill

Directions: 1. Type three lines of the words in each column. Type each word three times before typing the following word. Double-space after typing the words in each column.

2. Type each word three times, but type across the page and continue until the entire drill has been repeated twice. Double-space between the two typings of the drill.

cut	head	sorry	family	remain
end	soon	three	Monday	pupils
ask	able	lists	charge	drawer
you	life	dance	office	quoted
has	true	write	stress	number
use	walk	value	longer	Sunday
try	copy	heavy	pencil	person
let	upon	large	golden	avenue
for	does	light	gloves	nearly
and	look	small	heater	moving

Fluency Practice on Commonly Used Words

Directions: The following words are selected from the 500 most frequently used words. Type those words with speed and precision in order to lay a substantial foundation for speed.

a upon year along step because around several reach plant heavy general east company about wait also stop as shall dark eat great help made paper above walk please always ready point call part make hope day face had across wall ship away reason poor came pass dead man fair keep hair

talk among sleep pay many land half fall dear can back an than small remain power bad people mark large hand family again warm and ball carry deep far happy last matter person road speak thank was gain another bank case draw fast may picture pretty said spring that watch air answer bear

---

[1] Fred M. Tidwell, <u>Advanced Speed Typing</u>, (Cincinnati, 1943), 1-66.

Fluency Practice on Frequent Phrases

Directions: Practice the following phrases and word
groups as an aid in developing smooth, accurate typing.
Read down the columns, but type the phrases across the
page, one after another.

odd lot	looks well	list swelled
too few	below cost	two or three
sold out	long hours	some of whom
good will	best known	must be sold
lost less	loose ends	little or no
next week	well liked	just six left
more room	too crowded	where were you
only once	slight loss	next to nothing
until now	best wishes	on with the now
where else	exert effort	off with the old

Concentration and Alphabetic Sentences

1. Predictive combinations yield multiple coefficients for
   descriptive geometry, mechanical ability, eurythmics,
   and statistics.

2. Aspirin is a white crystalline compound, the acetyl or
   acetate of salicylic acid, used as a antipyretic and
   analgesic.

3. My six grey-brown jackals zestfully played over the hot
   quicksand.

4. The ex-spy quickly worked the five jig-saw puzzles by
   Monday.

5. His truck zigzagged wildly, jumped over the curb, and
   effected a quick exit.

6. Very excited, quizzical, and gawky boys jumped forth.

7. The dazzling sun shone brightly from the clear sky on
   the quiet, beautiful Vaux River, which journeyed across
   the vast prairie.

8. Marvin affixed a keen eye on a quaint replica of a prized
   bluish-white jager.

Calling-The-Throw Drills

Directions: Type the first sentence three times in one minute, throwing the carriage when "throw" is called at the end of 20 seconds, 40 seconds, and the minute. You are to throw the carriage when "throw" is called even though you may not have finished the sentence. If you complete the sentence before the throw is called, wait until instructed to throw the carriage and type a little slower in the following line.

Strokes		Words 20" Throw	Words 15" Throw	Words 12" Throw
40	I know that my family will be here soon.	24	32	40
	I shall do everything as well as he can.	24	32	40
45	They paid him cash for the work he completed.	27	36	45
	Seven ships sailed at dawn for foreign ports.	27	36	45
48	We should make good use of all the time we have.	29	38	48
	She packed her trunk and was ready for the trip.	29	38	48
	The box was too heavy for the two boys to carry.	29	38	48
50	They could not lease their house for just a month.	30	40	50
	A report of the meeting of the committee is ready.	30	40	50
	The doctor selected a neat but young nurse.	30	40	50
	The book reviewed today is a very interesting one.	30	40	50

Selected-Goal Typing

Directions: Select a goal that is three to five words
a minute faster than the rate at which you have been typing
in five or ten minute timed writings. Indicate the goal
for the half minute and the minute by placing a small check
mark at the proper place.

One-Minute Writing

There is a quaint old building in Santa Fe called the
Palace of the Governors. A long porch extends across the
front of it, and on the bare floor brown squaws sit and sell
their wares--vases, blankets, scarfs, paintings, and dolls.
Tourists come and go, taking pictures and buying the goods.
In the house are the old relics saved from the years when the
town was governed by Spain or by Mexico. Maps, graphs, and
charts of the land as it was of old are to be seen there.

Two-Minute Writing

The filing clerk must not forget the importance of cross
references, because they are a great aid in finding items in
the files. A cross-reference sheet may save a lot of time.

This may seem funny to you, but when I was quite young
and I am afraid, quite unskilled in filing practices, I was
the secretary to the manager of a large firm that sold
hundreds of items of property. One day my employer called
me into the office and said that he wanted the records for
the "reamers." I had always found what he wanted before,
and I was sure that I could find this. But I was wrong. I

looked under the R's [120] and then under the "rea's" [125] and then under the [130] "ree's." Could he have meant [135] "readers"? Could [140] "reamers" have some connection with [145] "ream" [148]?

Three-Minute Writing

When the clerk brings [5] the released mail to the filing [10] room, another clerk looks [15] over the letters to [20] see if they are all released. [25] Then she or another clerk [30] underlines the caption [35] under which they are [40] to be filed. In most cases [45] this underlining is [50] done with a colored pencil. [55] This line indicates for [60] all time the caption under [65] which that letter, and others [70] from the same source, [75] will be filed. [80] Unless the clerk is experienced [85] and well trained, all [90] the letters must be read [95] to find the correct caption. [100] When a letter comes in- [105] to the filing room, it is [110] stamped with the date [115] on which it is filed.

Then numbers, letters, [120] or signs are placed [125] in the corner [130] of the letter to indicate [135] the file number or folder [140] number in which the letter [145] must be placed. [150] This is called coding.

Now the stack of letters [155] is ready for sorting. [160] This [165] means that the correspondence [170] is arranged in a rough [175] alphabetic manner. [180] This may be done by placing [185] all the A's together, [190] all the B's together, [195] all the C's together, and so forth. [200] After- ward the clerk [205] must go through these letters [210] and arrange them [215] within the broad alphabetic classifications. [220] The clerk may [225]

have a set of sorter guides with cardboard sheets, each of which is marked with a letter of the alphabet. She may have a sorter tray with alphabetic guides, or a compartment file with shelves for each letter of the alphabet. After the letters are arranged more exactly, they are ready for the files themselves.

STUDENT'S TYPEWRITING TEST

Vol. VIII, No. 1   *Copying Test with Erasures and Corrections*   October 1941

Examiner: This test is to be given during the week beginning October 6, 1941. Read the instructions in the Manual of Directions before giving it.

Test 1

Few things worth doing are easy to do at first. 49
If this were not so, how easy it would be to learn 100
how to do the things that you have to do while 147
you are in school. Even the things you will be 195
paid to do when you go to work would take very 242
little time to master. Just a few hours of study 292
and practice would make you ready to do some of 340
the world's work. There would be no long hours 388
of study or even longer periods of practice. Just 439
listen for a few days to what the teacher says in 489
class, read a few pages of text in a book, and prac- 540
tice doing what you wish to do and you are ready 589
for a position. That would be fun. Or would it? 640

Think it over. Would you like never to exert 686
yourself? Never to test your powers? Never to 734
try to master something that does not come easy 782
for you? Never to find that just a little more effort 837
is needed, and that you have what it takes to 883
make good? No, I fear that would be a dull piece 933
of business. 947

Test 2

Would you like it if everything were so easy 45
that everyone could do it? You could never excel. 97
All would get the same marks in school. You 142
could not take pride in your work because every 190
other person can do it just as well as you can. 239

Every normal person likes to excel in some- 281
thing. Almost everyone can. It is just a matter 331
of finding out what one can do best and likes to 380
do most. But if everything were easy to do, how 429
would you ever find out what your real talent is? 480
You never would find out. You would just drift 528
along easily without being given a task that calls 579
for your utmost effort. Thus unused powers 623
would remain hidden and much of the joy of work 671
and success would be denied you. 705

Of course things that are hard to do at first do 754
not always remain difficult. With practice they 803
should become easy. If they do not, you may be 851
doing something for which you have no talent. 898
In that case you may want to try something else. 948

But do not give up too soon. And by all means, 996
make sure that you have used all your powers and 1045
tried as hard as you can before you decide that 1093
what you are doing is not the right work for you. 1144
This is most important at the outset in learning 1193
to do some new thing. Expect difficulties and slow 1245
progress at first. Soon the thing will become 1292
easier and you will go along faster. 1330

Test 3

It has been said that hard work never hurt any- 46
one. But what is more important, it has helped 94
many to taste the joy of success. Be glad that 142
there are hard things to do, and never wish that 191
all work could be made easy. 221

As with things worth doing, things worth know- 266
ing are not always easy to learn. It usually takes 318
hard work to acquire knowledge. You should be 365
glad of this too, since mental effort rightly applied 419
results in mental growth, and finally in the ability 472
to deal with the more difficult problems with 518
which you will be faced from time to time. So, 565
instead of wishing that lessons could be easier, or 617
that they would take less time, you should be 663
glad for a chance to use your mind and thus in- 709
sure mental growth to the limit of your capacity. 766

It is easy to study a lesson that happens to be 808
interesting. Anyone can do that. But to study 856
something that is uninteresting requires a quality 907
that not all people possess. Nor is it easy to 955
acquire this quality. This need not be discourag- 1004
ing for several reasons. To know those reasons 1052
may help you overcome any dislike you may have 1099
for certain lessons or a certain subject. 1142

In the first place it should be admitted that it 1191
is easier to spend time on a lesson in which you 1240
are interested. This being so, one should try to 1290
become interested in more things—to widen his 1337
range of interests from day to day. This can be 1386
done in various ways. When you like to study a 1434
certain lesson or subject there is a reason. The 1484
reason is not always clear, but there is one. Try 1535

to find out why certain things are interesting to 1585
you. When you have listed the reasons for your 1633
interest, you may have the key that will unlock 1681
the door to new interests. 1709

You may like to study out ways of setting up a 1756
typing job. The reason may be that you know 1801
that in your first position you will have such jobs 1853
to do, and that knowing how to do them will 1897
help you achieve the success you desire. Thus you 1948
find that the interest which makes it easy for you 1999
to work hard on typewriting lessons grows out of 2048
your desire to make good when you start work 2093
in an office. 2108

Now you begin to look at other subjects or 2151
lessons from the viewpoint of one who is getting 2200
ready for a job, and who wants to succeed in the 2249
first one obtained after graduation. How about 2297
that lesson in economics on capital and labor, the 2348
share of business profits that each should get? 2397
Surely that cannot have anything to do with 2441
you and your job. Why not? You will be a 2484
laborer and your employer will be a capitalist 2531
in a sense. You may be asked to join a labor 2577
union. You should know something about the 2621
labor movement. You will want to know whether 2668
or not your wages are just in relation to your 2715
employer's profit. You may have a chance to 2760
serve on a workers' committee to consider mat- 2805
ters of importance to yourself, your associates, 2854
your employer, his customers, and the public. 2901
There's an interest peg on which you can hang 2947
more things than you ever dreamed you could. 2993

Test 4

Some day you may think you are ready to pass 45
on to a position of greater trust, or even to start a 99
business of your own. In either case, the more you 151
know about the economic principles in accordance 200
with which successful businesses are carried on, 249
the better you will know what you should do. 295
Thus it seems that economics will help you win 342
larger success in the business world, even as will 393
the mastery of the art of typewriting. And what- 441
ever will help you in that direction should arouse 492
your interest. So economics is added to the list 542
of subjects in which you are interested because 590
it will help you make good in the field of service 641
for which you are preparing. Now check over all 690
of your subjects to see how many of them can 735
become more interesting for the same reason. 781

Your life will be a happier and more useful one 829
if your interests are broad. This is so because all 882
through life you will be meeting new people, join- 931
ing new groups of people, working with new 974
people, dealing with new people, serving new 1019
people, and being served by them. There will be 1068
church people, doctors, merchants, teachers, 1113
army officers, club officers, committee members, 1162
lawyers, housewives, laborers, mechanics, and 1208
countless others with whom you will associate 1254
in various ways. To them all you must be able 1301
to adjust your life in some degree. Your peace of 1352
mind and real happiness will be in proportion 1398
to your ability to live, work, and associate with 1448
these people without friction and with mutual 1494
satisfaction. 1509

Nothing will help you attain this goal more 1553
surely than will a wide range of interests. People 1605
who are interested in the same things get on well 1655
together. So the more things that interest you, 1704
the more people you will find companionable. 1750
Here is an interest peg on which to hang things 1798
that have seemed of little use to you—the desire 1848
to make mutually satisfactory adjustments with 1895
the greatest possible number of people with whom 1944
you must associate throughout your life. 1986

How does one become interested in new things? 2033
There is but one way to begin, to learn something 2083
about them. One cannot be interested in some- 2128
thing about which he knows nothing. Oh yes, 2173
one may be *curious* about entirely new things 2225
without knowing anything about them. But to 2270
become *interested* in a new thing or idea one must 2330
learn something about it. Of course, it is not 2378
certain that learning a little about something will 2430
interest you in learning more about it. But it is 2481
certain that until you have learned at least a 2528
little about a new thing you cannot claim a real 2577
interest in it. 2594

Therefore do not pass by new things lightly. 2640
Dip into them far enough to see if they do not 2687
hold something of interest to you. Read books, 2735
study new subjects, talk with people, be alert 2782
to see what is going on around you. Thus you will 2833
get a little knowledge about hundreds of new 2878
things and may become interested in at least a 2925
few scores of them. You will become a person of 2974
broad interests whose chance of winning success 3022
in life by whatever standard true success is 3067
measured will become infinitely greater. 3107