

**A COMPARATIVE INVESTIGATION TO DETERMINE
HOW EXTERNAL DISTURBANCES AFFECT
ACCEPTABLE TIMED WRITING PERFORMANCES**

BY


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A COMPARATIVE INVESTIGATION TO DETERMINE HOW EXTERNAL DISTURBANCES AFFECT
ACCEPTABLE TIMED WRITING PERFORMANCES
OF JUNIOR-HIGH STUDENTS AND SENIOR-HIGH STUDENTS AT
MONTGOMERY CENTRAL HIGH SCHOOL IN CUNNINGHAM, TENNESSEE,
DURING THE PERIOD OF
FEBRUARY 28 THROUGH APRIL 10, 1967

A Research Paper
Presented to
the Graduate Council at
Austin Peay State University

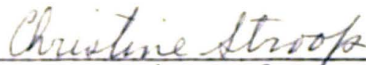
In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in Education

by
Peggy York Byard
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To the Graduate Council:

I am submitting herewith a Research Paper written by Peggy York Byard entitled "A Comparative Investigation to Determine How External Disturbances Affect Acceptable Timed Writing Performances of Junior-High Students and Senior-High Students at Montgomery Central High School in Cunningham, Tennessee, during the Period of February 28 through April 10, 1967." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts in Education, with a major in Business.


Major Professor

Accepted for the Council:

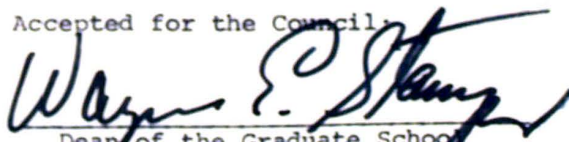

Dean of the Graduate School

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Chapter I

INTRODUCTION

This research paper deals with one exciting way to provide today's youngster with a foundation for greater educational success. This exciting way is to teach the youngster to TYPE! Teach the youngster to type at the junior-high level so he will be able to use the skill in his efforts to cope with his ever changing environment.

A publication by the Gregg Division of McGraw-Hill Book Company entitled, You Learn To Type!, summarizes the youth of today's situation thus:

As today's youngster grows up, he finds his world shrinking . . . growing smaller and smaller. What was once eighty days around the world is now ninety minutes by spacecraft.

Today's youngster is growing up in the midst of a spectacular knowledge explosion. Every day new frontiers in science are conquered, profound economic and social changes take place, and exciting discoveries of our past are unearthed.

Names that didn't exist a few short years ago are now an integral part of his educational vocabulary. Gemini. Tanzania. Laser Beams. Massada.

It's no wonder that educational leaders everywhere are seeking effective ways in which to help him develop the skills the pupil needs to understand and intelligently cope with this knowledge explosion.¹

Thus, the sooner he develops the skill of typewriting, the sooner he can express his thoughts in today's medium--typewritten pages. Not

¹You Learn To Type!, Gregg Division, McGraw-Hill Book Company, Manchester, Missouri 63011, p. 1.

only will he be able to write more rapidly and more legibly, but others can read his work more rapidly than if it were handwritten. At least one authority claims that a person's penmanship improves after learning to type, because a person then tries to imitate the characteristics of the typed word by his handwritten scrawl.²

This study hopes to help teachers of personal typewriting for junior-high students do a better job of developing this needed skill by showing whether or not external disturbances affect acceptable timed writing performances of junior-high students more than they do those of senior-high students. With this knowledge, the teacher of junior-high students should be able to plan timed writings when they will do the most good. It should also help in the analysis of these timed writings.

HISTORICAL BACKGROUND

Although Montgomery Central High School has offered typewriting for eleventh- and twelfth-graders since 1944³, personal typewriting for eighth graders was not offered until the fall of 1966. The decision to offer eighth grade typewriting was based on the interest shown by twenty-five eighth graders who signed up for this particular elective course in the Guidance Office during the previous spring registration.

Although the 1966-67 eighth grade personal typewriting class was a success, it was not repeated in 1967-68. Due to the growing interest in the senior-high school typewriting courses from the 1967-68 school year to the present, the one typing room for the school has been used every period.

²Ibid., p. 5.

³Approximate date expressed by Mrs. Anne Doris Pedigo, Head of Business Education Department, Clarksville High School, Clarksville, Tennessee, July 23, 1969.

Also, both business teachers' schedules were filled.

In the fall of 1969, Montgomery Central will start classes in a brand new building equipped for junior-high and senior-high students. Two typing rooms will be available. Another teacher has been employed for the business education department. Because of the new building, the extra typing room, and the extra teacher, there has been a renewed interest in typewriting for junior-high school students. About one hundred eighth graders and about eighty seventh graders have registered for personal typewriting. Of course, the eighth graders would be given first preference.

Due to this interest, the administration has approved of personal typewriting for junior-high students for 1969-70. It is this researcher's understanding that these students will be taught personal typewriting on a one-semester or one-half year basis instead of on a two-semester or a whole-year basis. They will not receive credit for this course. They will be passed to the ninth grade (if other grades are satisfactory) whether or not they pass the personal typewriting course; this was also true of the 1966-67 course.

When personal typewriting for the eighth graders was introduced into the business education curriculum at Montgomery Central, it seemed desirable to evaluate how the typewriting skill developed by junior-high school students compared with that of similarly taught senior-high school students. Also, it was thought that the eighth graders would be harder to teach because of their shorter attention spans. In other words, these eighth graders would be more susceptible to external disturbances than would the eleventh and twelfth graders. The timed writing area seemed to be the most logical area to attempt a study of the external disturbances in the typewriting class. In view of the thoughts just expressed, this

researcher decided upon the problem which is stated next.

STATEMENT OF PROBLEM

The problem was to compare the effects of external disturbances during timed writing periods of junior-high students and senior-high students at Montgomery Central High School.

The major purpose of this study was to enrich and improve the business education program at Montgomery Central High School. To aid in doing this, the researcher made a comparative investigation to determine how external disturbances affect acceptable timed writing performances of junior-high students and senior-high students at Montgomery Central High School in Cunningham, Tennessee, during the period of February 28 through April 10, 1967. Specific answers were sought for the following questions:

1. On disturbed days, how do the three classes compare as to the percentage of acceptable timed writings?
2. On undisturbed days, how do the three classes compare as to the percentage of acceptable timed writings?
3. What is the difference between the percentage of acceptable timed writings of the three classes (or junior-high students and senior-high students) on the disturbed and undisturbed days?
4. Without regard to disturbed or undisturbed days, how do the three classes compare as to the percentage of acceptable timed writings?

LIMITATIONS OF STUDY

The following limitations should be kept in mind by the reader of this research paper:

1. Only conditions at Montgomery Central High School were considered, because of the researcher's placement there by the Clarksville-Montgomery Education System as a business teacher.

2. Only sixty-seven students in three classes were involved. One class consisted of twenty-five eighth graders taking typing for the first time for personal use. The other two classes consisted of forty-two eleventh and twelfth grade students taking typing for the first time for vocational use. The eighth grade class met fourth period (11:30 A.M.-12:30 P.M.). Twenty of the eleventh and twelfth graders met class first period (8:00-9:00 A.M.). The other twenty-two met sixth period (2:00-3:00 P.M.).

3. Only records for the period of February 28 through April 10, 1967, were considered. This period was the second six-weeks' grading period of the second semester.

4. Only disturbances which occurred naturally were considered.

5. Only acceptable timed writings produced by the students described in limitation 2 during the period of February 28 through April 10, 1967, were analyzed.

6. Only straight copy material from the two textbooks was used for the timed writings. The books were:

- (a) Lessenberry, D. D., 20th Century Typewriting, South-Western Publishing Company, Cincinnati, 1962.

The reading level and syllable intensity of this textbook is best suited for grades tenth through twelfth.

- (b) Wanous, S. J., Personal Typewriting for Junior High Schools, South-Western Publishing Company, Cincinnati, 1965.

The reading level and syllable intensity of this textbook is best suited for grades seventh through ninth.

Both textbooks are published by the same company and contain the same information.

7. Only one teacher taught all classes, conducted all timed writings, kept all records, and made all analyses.

DEFINITIONS OF TERMS

Terms used with special meanings in this study are:

Junior-high student means eighth-grader enrolled in typing at Montgomery Central High School.

Senior-high student means eleventh- or twelfth-grade student enrolled in typing at Montgomery Central High School.

Acceptable timed writing means a timed writing containing three or fewer errors regardless of the gross or net words per minute. Only the net grade is recorded in the grade book.

Timed writing means typing from straight copy material for five minutes.

Disturbances means "a mental confusion; agitation; disorder; interruptions; or interference" as defined by Webster.⁴

NWAM means "net words a minute" typed during a timed writing. To figure, one point is deducted from the GWAM.⁵

GWAM means "gross words a minute" typed during a timed writing. A word is any five strokes.⁶

Grading scale means the standards set up by the Report Card Committee of the Clarksville-Montgomery County School System. The

⁴Webster's Students Dictionary, American Book Company, Springfield, Massachusetts, 1954, p. 245.

⁵D. D. Lessenberry, T. James Crawford, and Lawrence W. Erickson, 20th Century Typewriting, South-Western Publishing Company, Cincinnati, 1967, p. 238.

⁶Ibid.

following grading scale appears on the junior- and senior-high school report cards:

A	Superior	95-100
B	Good	88-94
C	Average	75-87
D	Below Average	65-74
F	Failure	64 and below

Five-minute timed writing grade scale means the expected standards set up by the teachers of the Montgomery Central High School Business Education Department for the acceptable timed writings typed by the students. The five-minute timed writing grade scale for the period of February 28 through April 10, 1967, was:

A	50+ NWAM
B	45-49 "
C	40-44 "
D	35-39 "
F	34 " and below

IMPORTANCE OF STUDY

As a classroom teacher, this researcher wishes to contribute at least a drop to the mass of informal classroom research which is continually being conducted. Even though she realizes that this one study will not provide dependable knowledge for anyone else and that unless continued observation, collection, comparisons, and analyses of studies are made each year, this study may be of little value.

Nevertheless, if the teacher is thinking more, reading more, doing something different, perhaps the excitement of the teacher will become contagious and the pupils will react favorably to a different or special treatment as they seek to learn to type. Frank W. Lanham and J. M. Trytten in their Review and Synthesis of Research in Business and Office Occupations Education claim that "the level of classroom productivity will increase

as practitioners become addicts of innovation and experimentation."

Furthermore, they venture to say, "Even a first in utilizing research methodology in the classroom and the resulting excitement of 'trying something new' could lead to a second, third, and fourth step in moving toward including controls desired by the serious research."⁷

Timed writings make up a large part of any student's typewriting grade. As a person's speed increases on straight copy typing, a carry-over is expected in his problem production work. Emphasis is placed on acceptable timed writings in this paper, because the combination of speed and accuracy is a must in typewriting success. If a student types 50 to 60 words per minute and has 10 or more errors, he would be spending most of his time correcting his errors.

The timed writing grade scale for evaluating typing in this research paper was formulated by the two teachers of the Montgomery Central High School Business Education Department after they had evaluated past students' performances with the typing manual's expected performances. The five-minute timed writing grade scale for the period of February 28 through April 10, 1967, was:

A	50+ NWAM (Net Words a Minute)
B	45-49 "
C	40-44 "
D	35-39 "
F	34 " and below

When speaking of NWAM (Net Words a Minute), this researcher means the GWAM (Gross Words a Minute) minus the number of errors (only three allowed for an acceptable timed writing.) To place on the above timed

⁷Frank W. Lanham and J. M. Trytten, Review and Synthesis of Research in Business and Office Occupations Education, The Ohio University, Columbus, Ohio, August, 1966. p. 60.

writing grade scale, a student had to have three or fewer errors on a timed writing to be able to have his timed writing recorded in the grade book for a timed writing grade. Only the net score was recorded in the grade book and converted into a letter and numerical grade later when six weeks' grades were averaged. The student had a copy of the above five-minute timed writing scale so his goal was before him in order for him to be able to progress as he was able. The net score was converted into a letter and numerical grade by the following scale:

A	Superior	95-100
B	Good	88-94
C	Average	75-87
D	Below Average	65-74
F	Failure	64 and below

For this study, however, the researcher is interested only in the percentage of acceptable timed writings typed daily by the junior-high students and by the senior-high students in each class.

ASSUMPTIONS

After studying the situation at hand, the researcher derived the following assumptions:

1. The five-minute straight copy timed writings selected by the teacher from the two different typewriting textbooks were comparable.
2. The timing devices (clock, stopwatch, alarm) were accurate and ran the same length of time during each timed writing.
3. All typewriters used during the timed writings were in comparable working condition.
4. Only the new elements determined by the teacher were disturbances while other elements were normal proceedings of the day.
5. The teacher was aware of all the disturbing factors.

6. All proofreading errors in the timed writings were caught by the teacher.

7. The teacher was able to make intelligent judgements from the daily diary.

PREVIEW OF REMAINING STUDY

The remainder of the study is organized as follows:

CHAPTER II. METHODS AND PROCEDURES. This chapter includes the methods and procedures used during this research paper.

CHAPTER III. RELATED STUDIES. This chapter presents a summary of the wide range of literature relating to this study.

CHAPTER IV. PRESENTATION AND DISCUSSION OF FINDINGS. This chapter includes a comparative investigation to determine how external disturbances affect acceptable timed writing performances of junior-high students and senior-high students at Montgomery Central High School in Cunningham, Tennessee, during the period of February 28 through April 10, 1967, using as statistical comparisons the median of the percentage and the ratio of the number of acceptable timed writings to the number of pupils present. The answers to these questions are presented and discussed:

1. On disturbed days, how do the three classes compare as to the percentage of acceptable timed writings?
2. On undisturbed days, how do the three classes compare as to the percentage of acceptable timed writings?
3. What is the difference between the percentage of acceptable timed writings of the three classes (or junior-high students and senior-high students) on the disturbed and undisturbed days?
4. Without regard to disturbed or undisturbed days, how do the three classes compare as to the percentage of acceptable timed writings?

CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS. This chapter presents a summary, the conclusions, and the recommendations drawn by the researcher from the information gathered.

BIBLIOGRAPHY. The Bibliography lists the sources used plus the sources consulted but not used during this study. Also, a few sources relating to this study but not available at Austin Peay State University are listed.

APPENDIX. The Appendix contains the Master Table, a sample page of the Record Book, and a sample page of the Daily Diary.

Chapter II

METHODS AND PROCEDURES

All acceptable timed writings for the period of February 28 through April 10, 1967, were recorded in the teacher's grade book and then filed for future use. A sample page of the record book appears in the Appendix. In addition, the teacher kept a daily diary for the same period. It contains: the dates of the timed writings, types of interruptions, absences of teacher and students, reactions, number of acceptable timed writings, percentage of students typing acceptable timed writings, and indications of any special events such as snow, ball games the night before, etc. A sample page of the daily diary may be seen in the Appendix.

From the information in the daily diary, the researcher produced the Master Table (as shown in the Appendix). The Master Table presents the dates timed writings were given, the number of pupils present each day, and the percentage of the students typing acceptable timed writings per day for each of the three classes. For example, on March 9, Class I had five students out of twenty present to type acceptable timed writings; therefore, 25 per cent of the students typed acceptable timed writings.

By analyzing the daily diary, the three most drastically disturbed days were picked out as disturbed days. The three disturbed days for the three classes were picked by the teacher. A description of the disturbances follow:

Class II (Junior-High Students)

- 3/9/67 Mrs. Abernathy, Guidance Counselor, was giving test results to two students at a time during this period. One boy came back in the room during a timed writing and said, "Send somebody else!" He kept talking during the same timed writing.
- 3/22/67 This was the last day before the Easter holidays. Several students were absent due to Mrs. Wyatt's homeroom taking a trip. A person was in here typing during the timed writings. Another person came in and left during a timed writing.
- 4/5/67 I gave a talk on attitudes, since a couple of boys had chips on their shoulders because they did not enjoy the course. During the next six weeks, we will try to develop a business-like attitude. I had to leave the room and return during a timed writing.

Class I (Senior-High Students)

- 3/15/67 Larry P. was typing from studyhall on his term paper. He was constantly bothering the ones close to him. A few did not like the timed writing, because they had to turn the page.
- 3/29/67 One boy was talking and mumbling throughout the timed writings.
- 4/7/67 Kay knocked on the door during a timed writing. A door banged. The students complained when I changed the next timed writing to Page 189. An announcement came over the loudspeaker.

Class III (Senior-High Students)

- 3/10/67 The class started off well. Some girls were working on the bulletin boards. They may have disturbed the class during the last few minutes. The period was short, because pine tree re-orders were being given out in homeroom.
- 3/29/67 Norma came in to talk to Pam. Pam was typing for a teacher during our timed writings. One boy yelled, "I can't hear my bell!" during the same timed writing. Another girl came in to get some typing paper.
- 4/7/67 Geraldine had planned to make up a shorthand theory test the first part of the period. She came in to put it off since the Civil Service Intelligence Test was set for tomorrow. A few Typing II students needed some timed writings so their proficiency certificates could be filled out. So, they took timed writings with my students. Shirley came in to type for Mrs. Tidwell during a timed writing.

All other days were left as undisturbed or regular days. The disturbed days were marked on an overlay similar to the Master Table. When the Master Table Overlay was placed over the Master Table, the disturbed days were then marked in red over the appropriate figures. As a result, three disturbed days and six undisturbed days for each of the three classes were easily identified on the Master Table.

The necessary information was taken from the Master Table to make summary tables so as to answer these four specific questions:

1. On disturbed days, how do the three classes compare as to the percentage of acceptable timed writings?
2. On undisturbed days, how do the three classes compare as to the percentage of acceptable timed writings?
3. What is the difference between the percentage of acceptable timed writings of the three classes (or junior-high students and senior-high students) on the disturbed and undisturbed days?
4. Without regard to disturbed or undisturbed days, how do the three classes compare as to the percentage of acceptable timed writings?

To aid in answering the specific answers, the researcher pulled the disturbed and undisturbed days' information from the Master Table to make summary tables, TABLE I and TABLE III, as shown on Pages 22 and 25. From TABLES I and III, the necessary computations were made to find the median of the percentages and the ratio of the number of acceptable timed writings to the number of pupils present for disturbed days, undisturbed days, and all of the days, so comparisons could be made. This information was also put in further summary tables.

Chapter III

RELATED STUDIES

The area of senior-high school typing was not researched, since no question regarding the efficiency of senior-high school typing was raised. However, a wide range of bibliographical references relating to junior-high and even kindergarten and elementary typewriting was found through the use of: The Education Index (under the topic of "Typewriting" from volumes of 1954 till 1965), Business Periodicals Index (under the topic of "Typewriting" from volumes of 1950 through 1965), Encyclopedia of Educational Research (under the topics of "Business Education" and "Typewriting" in 1969), and Typewriting Research Index (under the topics of "Elementary School Typewriting" and "Junior High School Typewriting" in 1963). These indices are in the Austin Peay State University Library.

The card catalog search did not prove too fruitful, but the University's Curriculum Lab produced one helpful book which was Review and Synthesis of Research in Business and Office Occupations Education by Frank W. Lanham and J. M. Trytten dated in 1966.

The following business education journals, which for the purpose of this study ranged from 1950 to 1965, were consulted:

Journal of Business Education
The Balance Sheet
Business Education Forum
Business Education World
Business Teacher

Helpful articles, dating from 1954 to 1965, were found in these

general education magazines:

The Clearing House
Education Digest
Parents' Magazine
Elementary English
Scholastic
Changing Times
NEA Journal

In addition to reading magazines and journals, this researcher read a thesis dated 1963 by Doris Adele Freepons entitled An Investigation of the Comparative Typing Performances of Junior High School and Senior High School Students in the Seattle Public Schools, which was ordered through intra-library loan. Statistical, style, and research books plus business education pamphlets from previous college courses rounded out the related literature used in this research.

Besides the information from reading, conversations with Mrs. Anne Doris Pedigo, Head of Business Education Department at Clarksville High School, and Dr. Christine Stroop, Professor of Business Education at Austin Peay State University, supplied pertinent information.

The following paragraphs represent a summary of what appears to be happening in the field of literature concerning typewriting for students other than senior-high school students.

Doris A. Freepons, in her M.A. thesis, says that typing, like many other school subjects, has received a great deal of attention in recent years in educational literature. Parents, education editors, researchers, typewriter manufacturers, and general education teachers have joined the ranks of business education experts, professors, and administrators in praising the values of teaching typing at various grade levels. Through the medium of magazines, pamphlets, journals, and books, these people have issued conflicting and confusing

recommendations. A few state that beginning typing should be taught in the primary grades; others feel that junior high school is the only proper placement for the beginning typing classes; whereas, a third group insists that beginning typing should be reserved for high school instruction.⁸

An even further journalistic recommendation is noted in an article published in the Journal of Business Education by Gratz entitled, "An Eight Year Old Learns to Type." Gratz recommends that eight year old children can be taught to type successfully at home.⁹

Enthusiastic teachers have written that typing not only improves school work habits, but also that work is neater and better organized once the student learns to type. Many articles consider typing as an aid to language arts. For instance, Erickson, speaking of fifth grade typing students, says the typewriter can be used effectively in improving work habits, developing skill in the mechanics of English, improving composition skills, improving the speed and quality of handwriting, and decreasing the time needed for writing reports in various subject matter areas or in increasing the quality of written work produced in these areas.¹⁰

Merrill, speaking of teaching typing in the fifth grade, suggests that since typing is an important tool which can be used to increase efficiency of learning in basic areas, it should be taught in the

⁸Doris Adele Freepons, An Investigation of the Comparative Typing Performance of Junior High School and Senior High School Students in the Seattle Public Schools, Unpublished Master's Thesis, The University of Washington, 1963, p. 1.

⁹Jerre E. Gratz, "Eight Year Old Learns to Type," Journal of Business Education, 35:266, March, 1960.

¹⁰Lawrence W. Erickson, "The Typewriter--A Tool of Learning in the Elementary Grades," The Balance Sheet, 42:52-59, October, 1960.

elementary school.¹¹ Yven, who worked with fourth grade students, agrees with Merrill.¹²

In the junior high research, Hetrick, who worked with ninth graders, questions the feasibility of teaching typing in the ninth grade;¹³ whereas, Schimmelpfennig, who worked with seventh, eighth, and ninth grade students believes that junior high school typing has definite merit.¹⁴

Adding to the conflict, Wooschlager is emphatically against the teaching of typewriting in the elementary schools;¹⁵ while, Erickson, praises the inclusion of this course in the elementary grades.¹⁶

The tone of the articles on teaching of typing suggests that student enthusiasm remains high even though the method, length of time, objectives, and teacher qualifications vary. Because of this student interest, teachers at all levels find their jobs exciting. Ceterski speaks of her students as being eager learners and self-motivated.¹⁷

¹¹Frances E. Merrill, "What Elementary School Typing Means to the High School Teacher," Business Education World, 42:16, February, 1962.

¹²Jack Yven, "The Electric Portable Typewriter as an Instructional Tool in Fourth Grade Language Arts," Elementary English, 39:101, February, 1962.

¹³Grace M. Hetrick, "A Look at 9th Graders in Beginning Typewriting," Business Education Forum, 13:19-20, November, 1958.

¹⁴Herbert R. Schimmelpfennig, "Two Summer Typing Courses," Business Education World, 40:11-14, June, 1960

¹⁵Ruth B. Wooschlager, "Typewriting in Elementary School?", NEA Journal, 51:55, October, 1962.

¹⁶Lawrence W. Erickson, "Typewriting in Elementary School?", NEA Journal, 51:55, October, 1962.

¹⁷Ester Ceterski, "An Elementary School Teacher Takes a Look at Typing.," Business Education Forum, 14:13-15, November, 1957.

Roman mentions the enthusiasm and sustained interest in typing,¹⁸ and Howard reports the zeal of his eighth grade students.¹⁹

Needles to say, some parents are anxious for their children to learn typing before they reach high school. Parents are aware that typing is an invaluable tool for use in post-high school academic work plus the difficulty in including it in the schedule of many college-bound students.

Educators are searching for the correct grade level at which students perform best. Yet, two points of view are apparent. Some administrators desire that typing be introduced in the junior high schools. They believe that typing is quickly learned and that the entire school program will be upgraded with improved work habits, with better organization, and with increased language skills if typing were placed early in the school curriculum.²⁰

On the other hand, some administrators and business teachers question the validity of the first point of view. They fear that the immaturity of junior-high students may require twice as much instruction to attain a degree of proficiency equal to that of high school-trained students. They want facts before they invest in costly typing equipment for junior high schools. They want to know the degree of typing skill that junior high school students will develop in comparison with similarly taught senior high school students before they decide whether or not

¹⁸John C. Roman, "Typewriting--Clerical Practice for Junior High School Students," Business Education Forum, 13:24, December, 1958.

¹⁹Alvin W. Howard and Louis T. Lallas, "Typing with the Personal Touch," The Clearing House, 36:93-95, October, 1961.

²⁰Freepons, op. cit., p. 4.

typing should be taught in junior high school.²¹

Although the studies just cited are related to this study as far as the comparison of junior- and senior-high school students, this research paper has proven to be original in that this researcher was unable to find a study which attempted to compare how external disturbances affect timed writing performances of junior-high students and senior-high students by the use of acceptable timed writings.

However, this study to determine how external disturbances affect acceptable timed writing performances of junior-high students and senior-high students at Montgomery Central High School in Cunningham, Tennessee, during the period of February 28 through April 10, 1967, should help us at Montgomery Central decide whether or not our junior-high students can learn typing as efficiently as do the more mature senior-high students.

²¹Ibid., p. 5.

Chapter IV

PRESENTATION AND DISCUSSION OF FINDINGS

The data gathered by the researcher was compared by the median of percentages and the ratio of the number of acceptable timed writings to the number of pupils present to determine how external disturbances affect acceptable timed writing performances of junior-high students and senior-high students at Montgomery Central High School in Cunningham, Tennessee, during the period of February 28 through April 10, 1967.

This chapter presents a presentation and discussion of the researcher's findings when the three typewriting classes were compared. The findings indicate that both the junior-high students and the senior-high students typed more acceptable timed writings on the disturbed days than they did on undisturbed days. Also, the junior-high students exceeded the senior-high students by a noticeable difference.

ON DISTURBED DAYS, HOW DO THE THREE CLASSES COMPARE AS TO THE PERCENTAGE OF ACCEPTABLE TIMED WRITINGS?

The following two tables and discussion answer the preceding question.

As for an explanation of how the disturbed days were selected, the researcher picked the three days (so all three classes would have the same number of disturbed days) she considered the most drastically disturbed. The disturbances are listed on Page 13 in Chapter II of this paper. This researcher realizes that if more than three out of the nine days over a longer period of time had been used, this paper would probably be

TABLE I

THE NUMBER AND PERCENT* OF ACCEPTABLE TIMED WRITINGS ON DISTURBED DAYS OF THE JUNIOR-HIGH STUDENTS AND SENIOR-HIGH STUDENTS AT MONTGOMERY CENTRAL HIGH SCHOOL IN CUNNINGHAM, TENNESSEE, DURING THE PERIOD OF FEBRUARY 28 THROUGH APRIL 10, 1967

Dates	Class II (Junior High)			Class I (Senior High)			Class III (Senior High)		
	Number of Acceptable Timed Writings	Number of Pupils Present	Percentage of Students Typing Acceptable Timed Writings	Number of Acceptable Timed Writings	Number of Pupils Present	Percentage of Students Typing Acceptable Timed Writings	Number of Acceptable Timed Writings	Number of Pupils Present	Percentage of Students Typing Acceptable Timed Writings
3/9	6	25	24.0						
3/10							0	20	0.0
3/15				1	18	5.6			
3/22	5	18	27.8						
3/29				3	20	15.0	3	22	13.6
3/31									
4/4									
4/5	2	20	10.0						
4/7				6	20	30.0	7	22	31.8
Total	13	63	20.6**	10	58	17.2**	10	64	15.6**

*Percent means the percentage of the students typing acceptable timed writings.

**Ratio of the number of acceptable timed writings to the number of pupils present.

Source: Master Table in Appendix.

more effective in its comparisons.

TABLE I on Page 22, which was pulled from the Master Table (as shown in the Appendix), shows that Class I (twenty senior-high students) had 5.6, 15.0, and 30.0 percentages of acceptable timed writings on disturbed days, and Class III (the other twenty-two senior-high students) had 0.0, 13.6, and 31.8 percentages while Class II (twenty-five junior-high students) consisted of 24.0, 27.8, and 10.0 percentages.

The medians of the percentages and the ratio of the number of acceptable timed writings to the number of pupils present of the above mentioned figures can be seen in TABLE II below.

TABLE II

COMPARISON OF THE MEDIAN OF THE PERCENTAGES AND THE RATIO OF THE NUMBER OF ACCEPTABLE TIMED WRITINGS TO THE NUMBER OF PUPILS PRESENT ON THE DISTURBED DAYS OF THE JUNIOR-HIGH STUDENTS AND SENIOR-HIGH STUDENTS AT MONTGOMERY CENTRAL HIGH SCHOOL IN CUNNINGHAM, TENNESSEE, DURING THE PERIOD OF FEBRUARY 28 THROUGH APRIL 10, 1967

Measure of Comparison	Junior-High Students Class II	Senior-High Students Class I	Senior-High Students Class III
Median	24.0	15.0	13.6
Ratio of number of acceptable timed writings to number of pupils present	20.6	17.2	15.6

Source: TABLE I on Page 22.

By the median comparison, Class II (junior-high students) ranks 9.0 percentage points (24.0-15.0) over Class I and 10.4 percentage points (24.0-13.6) over Class III. Compared by the ratio of the number of acceptable timed writings to the number of pupils present, Class II

(junior-high students) again exceeds Classes I and III (senior-high students) by 3.4 percentage points (20.6-17.2) and 5.0 percentage points (20.6-15.6) respectively.

Therefore, on the disturbed days a comparison of the median percentages of the three typewriting classes shows that Class II (junior-high students) attained a higher median percentage than did Classes I and III (senior-high students). Also, the comparison of the ratio of the number of acceptable timed writings to the number of pupils present of the three typewriting classes shows that Class II (junior-high students) has a higher ratio over Classes I and III (senior-high students).

ON UNDISTURBED DAYS, HOW DO THE THREE CLASSES COMPARE AS TO THE PERCENTAGE OF ACCEPTABLE TIMED WRITINGS?

This discussion and the next two tables answer the preceding question.

TABLE III on Page 25, which was pulled from the Master Table shown in the Appendix, shows Class II (junior-high students) with percentages of students typing acceptable timed writings ranging from 0.0 to 26.1, while Class I (senior-high students) has a range of 10.0 to 27.8 percentages and Class III's (senior-high students) range is from 4.5 to 31.8.

The medians of the percentages and the ratio of the number of acceptable timed writings to the number of pupils present of the above mentioned figures can be seen in TABLE IV on Page 26.

By the median comparison, Class II (junior-high students) lags 9.1 percentage points (19.3-19.2) behind Class I and edges ahead by a .4 percentage point (10.2-9.8) over Class III. Even if one median percentage

TABLE III

THE NUMBER AND PERCENT* OF ACCEPTABLE TIMED WRITINGS ON UNDISTURBED DAYS OF THE JUNIOR-HIGH STUDENTS AND SENIOR-HIGH STUDENTS AT MONTGOMERY CENTRAL HIGH SCHOOL IN CUNNINGHAM, TENNESSEE, DURING THE PERIOD OF FEBRUARY 28 THROUGH APRIL 10, 1967

Dates	Class II (Junior High)			Class I (Senior High)			Class III (Senior High)		
	Number of Acceptable Timed Writings	Number of Pupils Present	Percentage of Students Typing Acceptable Timed Writings	Number of Acceptable Timed Writings	Number of Pupils Present	Percentage of Students Typing Acceptable Timed Writings	Number of Acceptable Timed Writings	Number of Pupils Present	Percentage of Students Typing Acceptable Timed Writings
3/9				5	20	25.0	7	22	31.8
3/10	6	23	26.1	2	19	10.5			
3/15	1	23	4.3				1	22	4.5
3/22				3	20	15.0	1	22	4.5
3/29	1	25	4.0						
3/31	4	25	16.0	4	17	23.5	5	17	29.4
4/4	0	21	0.0	2	20	10.0	2	21	9.5
4/5				5	18	27.8	2	20	10.0
4/7	6	24	25.0						
Total	18	141	12.8**	21	114	18.4**	18	124	14.5**

*Percent means the percentage of the students typing acceptable timed writings.

**Ratio of the number of acceptable timed writings to the number of pupils present.

Source: Master Table in Appendix.

was found for the two senior-high classes combined, which would be 12.8, the senior-high classes would still exceed Class II (junior-high students) in this comparison by 2.6 percentage points (12.8-10.2).

TABLE IV

COMPARISON OF THE MEDIAN OF THE PERCENTAGES AND THE RATIO OF THE NUMBER OF ACCEPTABLE TIMED WRITINGS TO THE NUMBER OF PUPILS PRESENT ON THE UNDISTURBED DAYS OF THE JUNIOR-HIGH STUDENTS AND SENIOR-HIGH STUDENTS AT MONTGOMERY CENTRAL HIGH SCHOOL IN CUNNINGHAM, TENNESSEE, DURING THE PERIOD OF FEBRUARY 28 THROUGH APRIL 10, 1967

Measure of Comparison	Junior-High Students Class II	Senior-High Students Class I	Senior-High Students Class III
Median	10.2	19.3	9.8
Ratio of number of acceptable timed writings to number of pupils present	12.8	18.4	14.5

Source: TABLE III on Page 25.

Compared by the ratio of the number of acceptable timed writings to the number of pupils present, Class II (junior-high students) again lags behind Classes I and III (senior-high students) by 5.6 percentage points (18.4-12.8) and 1.7 percentage points (14.5-12.8) respectively.

Therefore, on the undisturbed days a comparison of the median percentages of the three typewriting classes shows that Classes I and III (senior-high students) attained a higher median percentage than did Class II (junior-high students). Also, the comparison of the ratio of the number of acceptable timed writings to the number of pupils present on the undisturbed days of the three typewriting classes shows that Classes I and III (senior-high students) have the higher ratios over

Class II (junior-high students).

WHAT IS THE DIFFERENCE BETWEEN THE PERCENTAGE OF ACCEPTABLE TIMED WRITINGS OF THE THREE CLASSES (OR JUNIOR-HIGH STUDENTS AND SENIOR-HIGH STUDENTS) ON THE DISTURBED AND UNDISTURBED DAYS?

These presented findings are in answer to the above question.

TABLE V below, taken from TABLES II and IV on Pages 23 and 26, shows the difference between the medians of the percentages for the junior-high students on the disturbed and undisturbed days to be 13.8 percentage points (24.0-10.2) more on disturbed days. It shows Classes I and III (combined) as having 1.5 percentage points (14.3-12.8) more on disturbed days. However, on the disturbed days Class II (junior-high students) typed 12.3 percentage points (13.8-1.5) more than did Classes I and III.

TABLE V

COMPARISON OF DIFFERENCES BETWEEN THE MEDIAN OF THE PERCENTAGES OF THE DISTURBED AND UNDISTURBED DAYS OF THE JUNIOR-HIGH STUDENTS AND THE SENIOR-HIGH STUDENTS AT MONTGOMERY CENTRAL HIGH SCHOOL IN CUNNINGHAM, TENNESSEE, DURING THE PERIOD OF FEBRUARY 28 THROUGH APRIL 10, 1967

Measure and Days of Comparison	Junior-High Students Class II	Senior-High Students Classes I and III Combined
Median on Disturbed Days	24.0	14.3
Median on Undisturbed Days	10.2	12.8
Difference	13.8	1.5

Source: TABLES II and IV on Pages 23 and 26.

Hence, all three typewriting classes appear to have typed more acceptable timed writings on disturbed days than they did on undisturbed days when the differences between the medians of the percentages are

compared. Yet, Class II's (junior-high students) median percentage still exceeds that of Classes I and III.

TABLE VI below, taken from TABLES II and IV on Pages 23 and 26, presents the difference between the ratios of the number of acceptable timed writings to the number of pupils present on the disturbed and undisturbed days to be 7.8 percentage points (20.6-12.8) more on disturbed for Class II (junior-high students). It shows Classes I and III (combined) as having .1 percentage point (16.4-16.3) more on disturbed days. However, Class II (junior-high students) typed 7.7 percentage points (7.8-.1) more than did Classes I and III on the disturbed days.

TABLE VI

COMPARISON OF DIFFERENCES BETWEEN THE RATIOS OF THE NUMBER OF ACCEPTABLE TIMED WRITINGS TO THE NUMBER OF PUPILS PRESENT OF THE DISTURBED AND UNDISTURBED DAYS OF THE JUNIOR-HIGH STUDENTS AND THE SENIOR-HIGH STUDENTS AT MONTGOMERY CENTRAL HIGH SCHOOL IN CUNNINGHAM, TENNESSEE, DURING THE PERIOD OF FEBRUARY 28 THROUGH APRIL 10, 1967

Measure and Days of Comparison	Junior-High Students Class II	Senior-High Students Classes I and III Combined
Ratio of number of acceptable timed writings to number of pupils present on disturbed days	20.6	16.4
Ratio of number of acceptable timed writings to number of pupils present on undisturbed days	12.8	16.3
Difference	7.8	.1

Source: TABLES II and IV on Pages 23 and 26.

Hence, all three typewriting classes again appear to have typed more acceptable timed writings on disturbed days when the differences between the ratios of the number of acceptable timed writings to the number of pupils present are compared. Also, Class II (junior-high students) still exceeds Classes I and III in this comparison.

WITHOUT REGARD TO DISTURBED OR UNDISTURBED DAYS, HOW DO
THE THREE CLASSES COMPARE AS TO THE PERCENTAGE OF
ACCEPTABLE TIMED WRITINGS?

The final discussion presented in this chapter is in answer to the preceding question.

The Master Table placed in the Appendix shows Class II (junior-high students) with percentages of students typing acceptable timed writings ranging from 0.0 to 27.8, while Class I (senior-high students) has a range of 5.6 to 30.0 percentages and Class III's (senior-high students) range is from 0.0 to 31.8 percentages.

The medians of the percentages and the ratio of the number of acceptable timed writings to the number of the pupils present of the above mentioned figures can be seen in TABLE VII on Page 30.

By comparing the medians, Class II (junior-high students) ranks 1.0 percentage point (16.0-15.0) over Class I and 6.0 percentage points (16.0-10.0) over Class III. Compared by the ratio of the number of acceptable timed writings to the number of pupils present, Class II (junior-high students) lags behind Class I by 2.8 percentage points (18.0-15.2) and edges ahead by a .3 percentage point (15.2-14.9) over Class III (senior-high students). Even if a combined ratio of the number of acceptable timed writings to the number of pupils present was found for the two senior-high classes, which would be $\frac{31+28=59}{172+188=360}$

or 16.4, the senior-high classes would still exceed Class II (junior-high students) by 1.2 percentage points (16.4-15.2).

Therefore, over all the timed writing days without regard to disturbed or undisturbed days, a comparison of the median percentages of the three classes shows that Class II (junior-high students) attained a higher median percentage than did Classes I and III (senior-high students). Yet, over all the timed writing days, the comparison of the ratio of the number of acceptable timed writings to the number of pupils present shows that Classes I and III combined have the higher ratio over Class II (junior-high students).

TABLE VII

COMPARISON OF THE MEDIAN OF THE PERCENTAGES AND THE RATIO OF THE NUMBER OF ACCEPTABLE TIMED WRITINGS TO THE NUMBER OF PUPILS PRESENT WITHOUT REGARD TO DISTURBED OR UNDISTURBED DAYS OF THE JUNIOR-HIGH STUDENTS AND SENIOR-HIGH STUDENTS AT MONTGOMERY CENTRAL HIGH SCHOOL IN CUNNINGHAM, TENNESSEE, DURING THE PERIOD OF FEBRUARY 28 THROUGH APRIL 10, 1967

Measure of Comparison	Junior-High Students Class II	Senior-High Students Class I	Senior-High Students Class III
Median	16.0	15.0	10.0
Ratio of number of acceptable timed writings to number of pupils present	15.2	18.0	14.9

Source: Master Table in the Appendix.

SUMMARY OF FINDINGS

The summary of the comparisons of the median of the percentages and the ratio of the number of acceptable timed writings to the number of pupils present according to the four specific questions follow:

On the disturbed days, a comparison of the median percentages of the three typewriting classes shows that Class II (junior-high students) attained a higher median percentage than did Classes I and III (senior-high students). Also, the comparison of the ratio of the number of acceptable timed writings to the number of pupils present in the three typewriting classes shows that Class II (junior-high students) had a higher ratio over Classes I and III (senior-high students).

On undisturbed days, a comparison of the median percentages of the three typewriting classes shows that Classes I and III (senior-high students) attained a higher median percentage than did Class II (junior-high students). Also, the comparison of the ratio of the number of acceptable timed writings to the number of pupils present on the undisturbed days of the three typewriting classes shows that Classes I and III (senior-high students) had the higher ratios over Class II (junior-high students).

All three typewriting classes appear to have typed more acceptable timed writings on disturbed days than they did on undisturbed days when the differences between the medians of the percentages are compared. Yet, Class II's (junior-high students) median percentage still exceeds that of Classes I and III. In addition, all three typewriting classes again appear to have typed more acceptable timed writings on disturbed days when the differences between the ratios of the number of acceptable

timed writings to the number of pupils present are compared. Also, Class II (junior-high students) still exceeds Classes I and III in this comparison.

Over all the timed writing days without regard to disturbed or undisturbed days, a comparison of the medium percentages of the three classes shows Class II (junior-high students) attained a higher median percentage than did Classes I and III (senior-high students). Yet, over all the timed writing days, the comparison of the ratio of the number of acceptable timed writings to the number of pupils present shows that Classes I and III combined have the higher ratio over Class II (junior-high students).

The difference between the percentages of the junior-high students and the senior-high students typing acceptable timed writings on the disturbed and undisturbed days proved to be the most useful finding. With an obvious difference in favor of the junior-high students, one could not say that personal typewriting does not have a place in the junior-high school curriculum.

Chapter V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a summary, the conclusions, and the recommendations drawn by the researcher from the information gathered which was used to compare the effects of external disturbances during timed writing periods of junior-high students and senior-high students of Montgomery Central High School

SUMMARY

The major purpose of this study was to enrich and improve the business education program at Montgomery Central High School. To aid in doing this, the researcher made a comparative investigation to determine how external disturbances affect acceptable timed writing performances of junior-high students and senior-high students at Montgomery Central High School in Cunningham, Tennessee, during the period of February 28 through April 10, 1967.

The necessary information concerning the acceptable timed writings of the three typewriting classes was taken from the teacher's daily diary for a master table and summary tables in order to answer these four specific questions:

1. On disturbed days, how do the three classes compare as to the percentage of acceptable timed writings?
2. On undisturbed days, how do the three classes compare as to the percentage of acceptable timed writings?

3. What is the difference between the percentages of acceptable timed writings of the three classes (or junior-high students and senior-high students) on the disturbed and undisturbed days?
4. Without regard to disturbed or undisturbed days, how do the three classes compare as to the percentage of acceptable timed writings?

Computations were made from the tables to find the median of the percentages and the ratio of the number of acceptable timed writings to the number of pupils present for each typewriting class so comparisons could be made for the just mentioned questions.

A brief summary of the findings is thus:

1. On the disturbed days, the junior-high school students typed more acceptable timed writings than did the senior-high students.
2. On the undisturbed days, the senior-high school students typed more acceptable timed writings than did the junior-high students.
3. All three typewriting classes typed more acceptable timed writings on disturbed days than they did on undisturbed days. Yet, the junior-high students led by an obvious difference on the disturbed days.
4. The junior-high students typed more acceptable timed writings by the median percentage comparison, while the senior-high students typed more acceptable timed writings by the ratio of the number of acceptable timed writings to the number of pupils present. Therefore, over all the timed writing days (without regard to disturbed or undisturbed days), both the junior-high students and the senior-high students typed about the same percentages of acceptable timed writings.

CONCLUSIONS

Based on a comparative investigation to determine how external disturbances affect acceptable timed writing performances of junior-high students and senior-high students at Montgomery Central High School in Cunningham, Tennessee, during the period of February 28 through April 10, 1967, the conclusion may be drawn that both the junior-high students and the senior-high students typed more acceptable timed writings on the disturbed days than they did on the undisturbed days. In addition, the junior-high students exceeded the senior-high students by an obvious difference. Based on this finding, the researcher did not prove her thought that junior-high students are more susceptible to external disturbances than are senior-high students. If nothing else, the disturbances seemed to make them more alert. Nevertheless, the inclusion of the personal typewriting for eighth graders appears to have added enrichment and improvement to the business education program at Montgomery Central High School.

RECOMMENDATIONS

Based upon the conclusions of this research paper, the researcher recommends that:

1. Classroom teachers should not worry about unusual or normal class disturbances in typewriting. After all, any typical office job has its every day external disturbances, too. Even a business place tries to get the most work possible out of its employees under the circumstances in which they work.

2. Teachers should make use of everyday records in order to test actual occurrences against theory or methods in their classrooms. After all, enrichment and improvement are a must to teaching.

3. A future researcher should use this study as a related study and accomplish more effective research, so that a more reliable study than this pioneer effort will be produced.

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APPENDIX

Drilling Section

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recorded in the Tined Writing

SAMPLE PAGE
OF THE
RECORD BOOK

Subject Eighth Grade Typing Period Ending April 10, 1967

<u>Names</u>	<u>Timed Writing Section*</u>
Adkins, Eddie	34 27 31
Baggett, Barbara	36
Bearden, Dwight	30 29 34
Black, Janie	48
Black, Ruth	42
Coleman, Darrell	41
Cook, Linda	35
Edwards, Ann	36
Ellis, Harold	---
Grant, Cynthia	33 34 33
Greene, Brenda	32 39 37
Hill, Shannon	39
Hunter, Martha	28
Keeler, Kathy	29
McCurdy, Darlene	---
Morrow, Richard	15 18 13
Moseley, Peggy	34 36 38 39 38 39 34
Neblett, Karen	---
Nicks, Betty Jo	27 29 33
Russell, Ronnie	---
Rye, Robert	9 18 20 21 18
Underwood, Gail	29 31 27 23
Ussery, Janice	31 29
Weatherford, Mark	---
Wright, Dorothy	38

*Only NWAM (Net Words a Minute) are recorded in the Timed Writing Section.

SAMPLE PAGE
OF THE
DAILY DIARY

Typing I (6th)

Dates of Timed Writings	Number of Acceptable Timed Writings	Absences of Teacher and Students	Percentage of Students Typing Acceptable Timed Writings	Comments
3/9/67	7	All Present	35.0	Worked well. Exception: One boy wanted to watch timed writing chart on wall. Had to call ? down.
3/10/67 X	0	Two Absent	0.0	Started off well. Some girls were working on the bulletin board. This may have disturbed them, especially during the last few minutes of the timed writings. Short period, because homeroom met to give out pine tree re-orders.
3/15/67	1	All Present Teacher Absent	5.0	Started off well. Worked well in class. I had missed two days because of wisdom teeth extractions.
3/29/67 X	3	All Present	15.0	Norma came in to talk to Pam. Pam was typing during timed writings. One boy yelled, "I can't hear my bell." during the same timed writing. Another girl came into the room to get some typing paper.

X The red X'd days are the disturbed days picked by the teacher.
Source: Original Daily Diary.

MASTER TABLE

THE NUMBER AND PERCENT* OF ACCEPTABLE TIMED WRITINGS OF THE JUNIOR-HIGH STUDENTS AND SENIOR-HIGH STUDENTS AT MONTGOMERY CENTRAL HIGH SCHOOL IN CUNNINGHAM, TENNESSEE, DURING THE PERIOD OF FEBRUARY 28 THROUGH APRIL 10, 1967 WITH DISTURBED DAYS IDENTIFIED IN RED

Dates	Class II (Junior High)			Class I (Senior High)			Class III (Senior High)		
	Number of Acceptable Timed Writings	Number of Pupils Present	Percentage of Students Typing Acceptable Timed Writings	Number of Acceptable Timed Writings	Number of Pupils Present	Percentage of Students Typing Acceptable Timed Writings	Number of Acceptable Timed Writings	Number of Pupils Present	Percentage of Students Typing Acceptable Timed Writings
3/9	6	25	24.0	5	20	25.0	7	22	31.8
3/10	6	23	26.1	2	19	10.5	0	20	0.0
3/15	1	23	4.3	1	18	5.6	1	22	4.5
3/22	5	18	27.8	3	20	15.0	1	22	4.5
3/29	1	25	4.0	3	20	15.0	3	22	13.6
3/31	4	25	16.0	4	17	23.5	5	17	29.4
4/4	0	21	0.0	2	20	10.0	2	21	9.5
4/5	2	20	10.0	5	18	27.8	2	20	10.0
4/7	6	24	25.0	6	20	30.0	7	22	31.8
Total	31	204	15.2**	31	172	18.0**	28	188	14.9**

*Percent means the percentage of the students typing acceptable timed writings.

**Ratio of the number of acceptable timed writings to the number of pupils present.

Source: Original Daily Diary.