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Conflicting Opinions Concerning Electric Versus Nonelectric Typewriters for Beginning Typewriting

Moine R. Gates

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**CONFLICTING OPINIONS CONCERNING ELECTRIC
VERSUS NONELECTRIC TYPEWRITERS
FOR BEGINNING TYPEWRITING**

by
Moine R. Gates

Bachelor of Science, University of North Dakota 1967

An Independent Research Study

Submitted to the Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Science

Grand Forks, North Dakota

**February
1970**

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This Independent Research Study submitted by Moine R. Gates in partial fulfillment of the requirements for the Degree of Master of Science from the University of North Dakota is hereby approved by the Faculty Advisor under whom the work has been done.

(Chairman)

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ABSTRACT

Would the beginning typewriting course be more efficiently taught with electric typewriters, nonelectric typewriters, or a combination of the two? It was the writer's attempt in this study to gather the opinions of typewriting teachers in North Dakota concerning this topic.

A questionnaire-opinionnaire was used to gather the data for this study. This survey instrument was sent to selected typewriting teachers in North Dakota.

Information concerning typewriting teachers, their departments, and their opinions was gathered concerning the following topics: (1) experience, (2) schools offering beginning typewriting, (3) maximum lengths of beginning typewriting courses, (4) number of electric and nonelectric typewriters, (5) rotation of students, (6) choice of typewriters, (7) superior achievement, (8) amount of time available for skill building, (9) ease of teaching various parts of the typewriter, (10) ease of transfer, (11) speed and accuracy, and (12) ease of operation.

Typewriting teachers in North Dakota are not in agreement concerning electric versus nonelectric typewriters for beginning typewriting.

CHAPTER I
INTRODUCTION

The use of the electric typewriter in business and classrooms has increased rapidly since it was first marketed in the United States in about 1925.

Most business educators, today, believe that all typewriting students should have some instruction in using the electric typewriter. The controversy seems to be in how much instruction is necessary and at what level of experience the instruction should begin.

This study was an attempt to reveal some of the opinions concerning the use of the electric typewriter in beginning typewriting classrooms.

Statement of the Problem

Would better typists be the result if beginning typewriting instruction was given on only electric typewriters? Do superior typewriting students result from instruction initiated on electric typewriters or on nonelectric typewriters? These questions might be answered by the following statements:

1. Superior typists result from instruction given on electric typewriters.
2. Superior typists result from instruction given on nonelectric typewriters.
3. It is better to give initial instruction on the electric typewriter and later transfer to the nonelectric typewriter.
4. It is better to give initial instruction on the nonelectric typewriter and later transfer to the electric typewriter.

Every typewriting teacher wants to give the best possible instruction to his beginning typewriting students. It is only natural that there will be some disagreement as to how this instruction should be given.

This study was an attempt to bring together some of the opinions that typewriting teachers have concerning instruction in beginning typewriting on electric and/or nonelectric typewriters.

Need for the Study

Every topic imaginable will bring forth differing opinions just as does this topic concerning electric versus nonelectric typewriters for instruction in beginning typewriting. To better himself, the business educator needs to keep abreast of the facts, opinions, and knowledge available in his particular field.

The author, through this study, has attempted to bring forth some of the opinions and facts of typewriting teachers concerning instruction on electric and nonelectric typewriters in beginning typewriting.

Purpose of the Study

The purpose of this study was to:

1. Assess current opinions concerning instruction on electric and nonelectric typewriters in beginning typewriting.
2. Assess current practices concerning the use of electric and nonelectric typewriters in beginning typewriting.

Limitations

The limitations of this study are as follows:

1. This study surveyed selected typewriting teachers.
2. The data for this study was limited to the information received from a questionnaire-opinionnaire survey.

Delimitations

The delimitations of this study are as follows:

1. No attempt was made to determine which method of instruction is best for beginning typewriting.
2. No attempt was made to survey business education teachers outside of North Dakota.

Definition of Terms

The following term is defined as it pertains to this study:

Beginning Typewriting: The initial instruction given in typewriting, regardless of the length of time apportioned to the instruction.

CHAPTER II

RELATED LITERATURE

The electric typewriter was introduced into business long before the schools started giving instruction on it. Formal instruction on the electric typewriter did not begin until 1950 when Rowe¹ conducted an experimental class in electric typewriting. After the completion of this study many schools started to introduce electric typewriters into their classrooms.

Today, most business educators are in general agreement that typewriting students need some instruction on the electric typewriter. These same business educators, however, disagree on when this instruction should be started and on how much instruction there should be.

After perusing the literature, it was decided to organize this chapter into the following areas: surveys made to determine the use of electric and nonelectric typewriters, experiments made to compare achievement on electric and nonelectric typewriters, and opinions of business educators concerning instruction on electric and nonelectric typewriters.

Surveys Completed

Freeman² conducted a survey in Massachusetts in 1956 to determine the use of electric and nonelectric typewriters in the public high schools.

¹John L. Rowe, "Methods of Teaching Electric Typing: Changing From Electrics to Manuals," Business Education World, XXXI (December, 1950), pp. 179-181.

²Claire L. Freeman, "A Survey of the Use of Electric and Manual Typewriters in the Public High Schools of Massachusetts," National Business Education Quarterly, XXVI (October, 1957), pp. 27-28.

This survey included 243 high schools. It was determined that 95.7 per cent of the typewriters in use were nonelectric machines. It was further determined that, of the high schools having electric typewriters, the majority mainly limited their use to advanced typewriting courses.

In 1962, a survey was completed by Sharp¹ to determine the use of electric and nonelectric typewriters in public high schools and business firms in Minnesota. Nonelectric typewriters comprised 87 per cent of the total number of typewriters used in 200 high schools. Another result of this study was that 72 per cent of the teachers answering the survey believed that initial instruction should begin on the nonelectric typewriter.

A more recent survey was completed in 1965 by Landwehr² to determine the use of electric and nonelectric typewriters in colleges and universities. Returns were received from 399 colleges and universities. Of this total, it was found that 332 offered typewriting. The majority of the colleges indicated that instruction on both electric and nonelectric typewriters was included in all typewriting courses, including beginning typewriting. It was determined, however, that the number of schools using both types of machines increased beyond the first semester. This study also brought out the fact that only 15 per cent of the colleges surveyed used nothing but electric typewriters.

¹James R. Sharp, "A Study to Determine the Use of Electric and Nonelectric Typewriters in Public Schools and Business Firms in Minnesota" (unpublished Master's thesis, University of North Dakota, 1962).

²Bernard J. Landwehr, "Typewriting Instruction in Colleges," Journal of Business Education, XLII (May, 1967), pp. 318-319.

Experiments Completed

Missling¹ completed a study at Nicolet High School, Milwaukee, Wisconsin, during the 1955-1956 school year. There were twenty-four beginning typewriting students included in the study. All students typed on electric typewriters until April 11, 1956. They then transferred to nonelectric typewriters for exactly one month. They transferred back to electric typewriters for the remainder of the school year. It was concluded from this study that when initial instruction was given on electric typewriters, transfer to nonelectric typewriters was made with relative ease. It was further concluded that the one month of instruction on the nonelectric typewriters did not retard the students when they returned to the electric machines.

The straight-copy skill scores of students who began their initial training on electric typewriters were compared with those of students who started on nonelectric typewriters in a study conducted by Parker². The experiment involved 121 students in four classes. One group of two classes typed for one semester on electric typewriters. The other group of two classes typed on nonelectric typewriters. The two groups changed machines for the second semester. The students who started their instruction on the electric typewriter had higher scores at the end of one semester, but they were not significantly higher. It was concluded that after one year of instruction there was no significant difference in straight-copy skill scores of the two groups.

¹Lorraine Missling, "Electric vs. Manual Typewriters," Balance Sheet, XXXVIII (March, 1957), pp. 300-303.

²George O. Parker, "A Comparison of the Straight-Copy Skill Scores of Students Who Began Their Training On Electric Typewriters With Students Who Began Training On Non-Electric Typewriters" (unpublished Master's thesis, University of North Dakota, 1966).

Schmale¹ completed a study in 1956 to compare the achievement of students using electric and nonelectric typewriters. This study used the timed-writing records of fifteen beginning typewriting classes. There were three classrooms available--two with nonelectric typewriters and one with electric typewriters. The classes were rotated so that each class had twelve consecutive weeks on electric typewriters at some period during the year. It was concluded that at the end of twelve weeks speed and accuracy achievement was slightly higher on electric typewriters. It was further concluded that it is easier and better for students to transfer from the nonelectric to the electric typewriter.

The Bartholomew² study was completed at Bowling Green State University, Bowling Green, Ohio, during the 1961-1962 school year. The experiment included thirty-five beginning typewriting students that were divided into two groups. One group typed on IBM Selectric typewriters and the second group typed on nonelectric typewriters. The data from this study led to the conclusion that the result of initial instruction on IBM Selectrics led to more accurate typewriting students. It was also concluded that when a student had no previous typewriting experience, his speed seemed to increase at a more rapid pace when instruction was given on the IBM Selectric typewriter.

Droege and Hill³ conducted a study in 1961 to compare the achievement of experienced typists on electric and nonelectric typewriters. Each of the

¹Verne E. Schmale, "A Comparison of Achievement of Students Using Electric and Manual Typewriters," Business Education Forum, XII (December, 1957), pp. 18-19.

²Joan Marcille Bartholomew, "Selectrics for Beginners?" Balance Sheet, XLIV (October, 1962), pp. 59-60, 95.

³Robert C. Droege and Beatrice M. Hill, "Comparison of Performance on Manual and Electric Typewriters," Journal of Applied Psychology, XLV (August, 1961), pp. 268-270.

575 individuals that were tested had at least six months experience on electric typewriters. They were tested first on the electric typewriter and then on the nonelectric typewriter. The individuals in this experiment, on the average, had greater speed and were more accurate when typing on the electric typewriter.

A study was completed by Adams¹ in 1955 to compare the effectiveness of the electric and nonelectric typewriter in gaining typewriting skill. This study was completed at the United States Navy Radioman School at San Diego, California. The experiment involved two classes and lasted for four weeks, which was the length of the course. One group spent the four weeks on nonelectric typewriters and the other group spent the first three weeks on electric typewriters and the final week on nonelectric typewriters. Each group was given tests composed of cipher groups. Neither the electric nor the nonelectric typewriter proved to be superior, but the nonelectric was preferred.

DiLoreto² completed a study in 1956 to compare the effectiveness of the electric and nonelectric typewriter. There were three high schools and 109 first-year vocational typewriting students involved in the experiment. Each school had an experimental and control group. In each school, the groups were taught from the same textbooks and by the same teacher. It was concluded from this study that there was no significant difference between the classes which typed on electric typewriters and those which typed on nonelectric typewriters.

¹Henry L. Adams, "The Comparative Effectiveness of Electric and Manual Typewriters in the Acquisition of Typing Skill in a Navy Radioman School," Journal of Applied Psychology, XLI (August, 1957), pp. 227-230.

²Antonette Eleanor DiLoreto, "An Experimental Study to Determine the Effectiveness of Using the Electric Typewriter as Compared With the Manual Typewriter . . ." Journal of Business Education, XXXIII (October, 1957), p. 39.

Peterson¹ conducted a study at West Chicago High School, West Chicago, Illinois, to compare the performance of beginning typewriting students taught on electric and nonelectric typewriters. The experiment was conducted two times--each a semester in length. Two classes were used each semester--one on electric typewriters and one on nonelectric typewriters. The students using electric typewriters proved to be more accurate during the first weeks of instruction, but by the end of the semester there was no apparent difference in accuracy or speed.

Opinions of Business Educators

The thoughts of business educators are varied concerning the use of electric versus nonelectric typewriters in beginning typewriting. Some of these thoughts are as follows: Beginning instruction should be taught on both the electric and nonelectric typewriters, beginning instruction should be taught on electric typewriters, nonelectric typewriters should be used for personal-use typewriting, and electric typewriters should be used for personal-use typewriting.

It is believed by some business educators that beginning typewriting should include instruction on both the electric and nonelectric typewriter.

It is the belief of Russon and Wanous² that since electric typewriters are becoming more prevalent in business, the schools should be

¹Patricia K. Peterson, "A Comparison of the Performance of Students on the Use of the Manual Typewriter and on the Use of the Electric Typewriter in Teaching the Beginning Typewriting Course at West Chicago High School--West Chicago, Illinois," National Business Education Quarterly, XXXVI (October, 1967), p. 59.

²Allien R. Russon and S. J. Wanous, Philosophy and Psychology of Teaching Typewriting (Cincinnati: South-Western Publishing Company, 1960), p. 91.

giving their students some training on the electric typewriter. They do believe, however, that the decision should not be made to switch to all electric typewriters at one time.

"The ideal situation,"¹ as stated by Wood, is to have two rooms available for beginning typewriting--an electric typewriting room and a nonelectric typewriting room. In this plan, the students could be rotated between the two rooms. "There is still question, however, whether it is wise to develop initial learning on the electric typewriter."²

Other business educators believe beginning typewriting should be taught exclusively on electric typewriters. Some of the reasons for this belief, as stated by Selden,³ are: Less teaching time is required, the electric typewriter is an easier machine to operate, more students can be taught on fewer machines, and motivation is greater when students use electric machines.

Other reasons for the superiority of the electric typewriter as stated by DeFea⁴ are: students do not tire as quickly; there are fewer problems in teaching correct stroking, carriage-return, and control mechanisms; and fewer carriage return drills are needed due to the fact that the left hand remains on the keys.

¹Marion Wood, "Electric Typing," Business Education World, XXXIX (September, 1958), p. 37.

²Herbert A. Tonne, Principles of Business Education (Third Edition, New York: McGraw-Hill Book Company, Inc., 1962), p. 23.

³William Selden, "Why Use Electrics? Motives and Methods," Business Education World, XXXIX (September, 1958), pp. 30-33.

⁴Francis W. DeFea, "Conflicting Opinions in the Teaching of Electric Typewriting as Revealed in the Literature" (unpublished Master's thesis, University of North Dakota, 1959).

According to Wiper,¹ more teaching time is available at the beginning of typewriting instruction when students start on electric typewriters. This extra time is due to the fact that the students have improved techniques. There are fewer problems connected with stroking, carriage return, and space-bar manipulation.

Another thought brought out in this area is that once skill is attained on the electric typewriter, it is easily transferred to the non-electric typewriter. According to Fidler,² this follows the educational principle of moving from the simple to the complex.

The thoughts of business educators who believe the electric typewriter is superior to the nonelectric typewriter may be summed up in the following statement: "Teachers of typewriting can no longer hesitate about whether or not to purchase electric typewriters; the only question today is what make and how many."³

It is the belief of Douglas, Blanford, and Anderson⁴ that nonelectric typewriters should be used for personal-use typewriting. They feel that very few of the students taking typewriting for personal-use will buy electric typewriters for their own use. However, Rowe stated:

The electric typewriter has sometimes been referred to as the vocational typewriter, This connotation, however, is gradually disappearing

¹Robert E. Wiper, "Electric Typewriters Can Be Justified," Balance Sheet, XLIV (November, 1962), pp. 108-111, 140.

²Gordon L. Fidler, "All Our Students Type on Electrics All Year," Business Education World, XLII (June, 1962), pp. 20-21.

³Lois J. Campbell and Evelyn F. Kronenwetter, "Typewriting Curriculum and Methodology in the Senior High School," Methods of Teaching Typewriting, Eastern Business Teachers Association Yearbook (Somerville, New Jersey: Somerset Press, 1965), p. 140.

⁴Lloyd V. Douglas, James T. Blanford, and Ruth I. Anderson, Teaching Business Subjects (Second Edition, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965), p. 113.

because of the growing popularity of portable electrics, compact electrics and other kinds of special-purpose electric typewriters for use in the home as well as in the office.¹

Summary

There have been experiments that prove the electric typewriter is a superior teaching machine. Other experiments have proved there is no significant difference between students taught on the electric and those taught on the nonelectric typewriter.

It is the belief of Liguori² that we need more and better information before we can decide which typewriter--electric or nonelectric--is the superior teaching instrument. Liguori further states:

If learning on electrics is easier and faster and if skills are higher, as reported by some experimenters, be certain that the time saved and skills gained are put to effective use in order that what may be a temporary advantage of electrics becomes a permanent advantage that shows up at the end of the semester, at the end of the year, and on the job.³

¹John L. Rowe, "How to Meet Changing Needs in Typewriting--The Teaching of Electric Typing," Business Education World, XLIV (January, 1964), p. 27.

²Frank E. Liguori, "To Electrify or Not to Electrify," Balance Sheet, XLV (January, 1964), pp. 196-202.

³Ibid., p. 202.

CHAPTER III

PROCEDURES

The procedures and methods used in conducting this research study will be discussed under the following headings:

1. Evolution of the Topic
2. Review of Literature
3. Survey Instruments
4. Mailing List
5. Compilation of Data

Evolution of the Topic

The topic for this study evolved from an assignment in Business Education 535, Introduction to Research in Business Education, at the University of North Dakota. A perusal of the literature was completed to determine if a study of this nature, concerning beginning typewriting, had been completed previously. Approval was given by the author's advisor to complete the independent research study.

Review of Literature

The literature was perused to gather facts and opinions concerning electric and nonelectric typewriters in general.

The review of literature also helped the author determine certain information that should be included in the survey instrument.

Survey Instruments

Formulation of a questionnaire-opinionnaire and letter of transmittal were the next steps.

Possible questions were drafted and organized into a questionnaire-opinionnaire. The first draft was then reviewed by one of the business education faculty at the University of North Dakota during the summer session of 1969. A second draft was constructed and presented to the author's advisor. Changes were made and the final draft along with a letter of transmittal were approved by the author's advisor.

The questionnaire-opinionnaire and letter of transmittal were printed on 8½ x 11 inch paper at the University of North Dakota Press. See Exhibit A, Pages 16-17 and Exhibit B, Page 18.

Mailing List

The author's advisor suggested that a list of typewriting teachers in North Dakota be obtained from the North Dakota Supervisor of Office Education.

The only list of typewriting teachers available at the time was for the school year 1968-1969.

It was decided that by selecting every other name from the list of typewriting teachers in North Dakota, sufficient representation would be made.

On October 31, 1969, 174 questionnaire-opinionnaires were mailed.

Compilation of Data

Within two weeks, 121 questionnaire-opinionnaires or 70 per cent had been returned. By November 26, 129 or 74.1 per cent had been received. It was determined that 127 of these returns were usable.

EXHIBIT A

CONFLICTING OPINIONS CONCERNING ELECTRIC VERSUS NONELECTRIC
TYPEWRITERS FOR BEGINNING TYPEWRITING

Directions: Please check (✓) or fill in the appropriate answer following each question or statement.

1. How many years of teaching experience do you have? _____
2. Does your school offer beginning typewriting? Yes _____ No _____
3. Do you teach a beginning typewriting course? Yes _____ No _____
4. What is the maximum length of your beginning typewriting course?
 One semester _____
 One year _____
 Other _____
5. Does your department have a typewriting room used exclusively for beginning typewriting?
 Yes _____ No _____
6. What is the approximate number of electric and nonelectric typewriters in your beginning typewriting classroom?
 Electric _____
 Nonelectric _____
7. Do you rotate students in beginning typewriting between electric and nonelectric typewriters?
 Yes _____ No _____
 If yes, approximately how often?
 Four weeks _____
 Six weeks _____
 Nine weeks _____
 One semester _____
 Other _____
8. If you had your choice for beginning typewriting, which of the following would you choose?
 All electrics _____
 All nonelectrics _____
 Electrics and nonelectrics _____
9. Superior typewriting achievements would result if the beginning typewriting course was taught with:
 All electrics _____
 All nonelectrics _____
 Electrics and nonelectrics _____
 No difference _____
 No opinion _____

10. More time is available for skill building when instruction is given on:
- Electric typewriters _____
 Nonelectric typewriters _____
 No difference _____
 No opinion _____
11. Teaching proper stroking technique is easier when instruction is given on the:
- Electric typewriters _____
 Nonelectric typewriters _____
 No difference _____
 No opinion _____
12. It is easier to transfer from the:
- Electric to nonelectric typewriter _____
 Nonelectric to electric typewriter _____
 No difference _____
 No opinion _____
13. Higher speed can be obtained on the:
- Electric typewriter _____
 Nonelectric typewriter _____
 No difference _____
 No opinion _____
14. Greater accuracy can be obtained on the:
- Electric typewriter _____
 Nonelectric typewriter _____
 No difference _____
 No opinion _____
15. Ease of operation is greater on the:
- Electric typewriter _____
 Nonelectric typewriter _____
 No difference _____
 No opinion _____
16. Space bar manipulation is easier to teach on the:
- Electric typewriter _____
 Nonelectric typewriter _____
 No difference _____
 No opinion _____
17. Teaching the return of the carriage (or ball unit) is easier on the:
- Electric typewriter _____
 Nonelectric typewriter _____
 No difference _____
 No opinion _____

Please return this questionnaire to: Mr. Moine R. Gates
 Valley Junior High School
 2100 5th Avenue North
 Grand Forks, North Dakota 58201

EXHIBIT B

Valley Junior High School
2100 5th Avenue North
Grand Forks, North Dakota 58201

I am in the process of conducting a research study which requires your help. This study is being completed to bring together in one place the opinions of selected typewriting teachers concerning the use of electric versus nonelectric typewriters in beginning typewriting classes.

It would be appreciated very much if you would take a few minutes of your time and complete the enclosed questionnaire-opinionnaire.

A self-addressed, stamped envelope is enclosed for the return of the questionnaire-opinionnaire. Your prompt reply will be appreciated.

Sincerely yours,

Moine R. Gates

2 Enclosures

The data from the returns was compiled and is presented in

Chapter IV.

CHAPTER IV

FINDINGS

It was the attempt of the writer of this study to sample some of the opinions of selected typewriting teachers in North Dakota concerning the use of electric and nonelectric typewriters in beginning typewriting.

The decision was made to first gather some information concerning the teachers and the schools in which they are teaching.

It was thought by the writer that the teaching experience of the teachers surveyed might possibly have some bearing on the results. The range of experience was from 0-40 years. It was determined that 79.5 per cent of the teachers had 10 or less years of experience. The findings are presented in Table 1, Page 21.

It was also determined that 117 of the respondents are teaching beginning typewriting in the current school year.

Three questions were asked concerning the present status of beginning typewriting within the respondents' schools. These questions are as follows:

1. Does your school offer beginning typewriting?
2. What is the maximum length of your typewriting course?
3. Does your department have a typewriting room used exclusively for beginning typewriting?

The results of these questions are presented in Table 2, Page 21.

TABLE 1
TEACHING EXPERIENCE OF RESPONDENTS

Years	Number	Per Cent*
0-5	64	50
6-10	37	30
11-15	12	9
16-20	3	2
21-25	4	3
26-30	3	2
31-35	2	2
36-40	2	2

*In this table and others to follow, per cents are rounded to the nearest whole number, therefore, the total may or may not equal 100 per cent.

TABLE 2
PRESENT STATUS OF BEGINNING TYPEWRITING IN THE
SCHOOLS OF THE TEACHERS SURVEYED

Classifications	Number	Per Cent
Schools offering beginning typewriting	127	100
Schools having typewriting rooms used exclusively for beginning typewriting	61	48
Schools having beginning typewriting for one year	123	97
Schools having beginning typewriting for one semester	4	3

Question Number 6 asked the teacher to give the approximate number of electric and nonelectric typewriters in his beginning typewriting

classroom. The main purpose of asking this question was to ascertain how the opinions of typewriting teachers compared to the existing situation in their classrooms.

The number of schools having all nonelectric typewriters was 19 and the number with all electric was 3. There were 11 schools which had an equal number of electric and nonelectrics. It was found that 8 schools had more electric typewriters and 83 schools had more nonelectric typewriters. The findings are presented in Table 3.

TABLE 3

NUMBER OF ELECTRIC AND NONELECTRIC TYPEWRITERS IN BEGINNING
TYPEWRITING CLASSROOMS OF THE RESPONDENTS' SCHOOLS*

Number of Electric	Number of Nonelectric							
	0-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40
0-5	-	8	15	12	8	3	2	4
6-10	1	3	16	16	3	1	-	-
11-15	1	2	9	7	2	-	-	-
16-20	-	1	-	6	-	-	-	-
21-25	-	1	1	-	-	-	-	-
26-30	-	-	-	-	-	-	-	-
31-35	1	-	-	-	-	-	-	-
36-40	-	-	-	-	-	-	-	-
41-50	-	1	-	-	-	-	-	-

*Three schools did not respond to this question.

It was determined by the writer through reading and discussions with other teachers that there are various ideas about the rotation of

students between electric and nonelectric typewriters. Question 7 was included to determine if teachers presently rotate students and if so, what type of a rotation plan they follow. It was determined that 95 of the respondents rotate students and 32 do not. When considering the number of teachers that said they did not rotate students, it should be noted that 22 of these teachers had only one type of machine in their beginning typewriting classroom. This, of course, would not allow a rotation plan. The various rotation plans are presented in Table 4.

TABLE 4
ROTATION PLANS OF RESPONDING TEACHERS

Length of Rotation Period	Number
Four Weeks	18
Six Weeks	31
Nine Weeks	23
One Semester	8
Nine Weeks, Second Semester	1
Twelve Weeks	3
Four or Six Weeks	1
Two Weeks	2
Eight Weeks	1
Three Weeks	1
Two Weeks, First Part of Year	2
Every Week	1
Elective Basis	1
Other (not described)	2

At this point in the questionnaire, the teachers were asked to give their opinions. Question 8 asked what particular kind of typewriters, electric or nonelectric, teachers would prefer if they had their choice. The findings were tabulated and are presented in Table 5.

TABLE 5

TYPEWRITERS PREFERRED BY TYPEWRITING TEACHERS FOR BEGINNING TYPEWRITING

Responses	Number	Per Cent
All Electrics	34	27
All Nonelectrics	20	15
Electrics and Nonelectrics	73	57

Would superior achievements in typewriting be the result if the beginning typewriting course were taught with one type of machine or a combination of machines? The findings, which are presented in Table 6, Page 25, show that teachers did not agree on this particular point in beginning typewriting.

It was found through discussion with other business teachers and readings that some teachers believe the electric typewriter allows more time for skill building. The majority of respondents to this particular question, however, believe that the type of machine used has no bearing on the amount of time available for skill building. One respondent made the comment that as long as you have only one type of machine, electric or nonelectric, there would be no difference. The results of Question 10 are presented in Table 7, Page 25.

One of the more important aspects of the beginning typewriting course is the teaching of proper stroking. This is true, regardless, of

TABLE 6

TYPEWRITERS PREFERRED BY TYPEWRITING TEACHERS FOR SUPERIOR
ACHIEVEMENT IN BEGINNING TYPEWRITING

Responses	Number	Per Cent
All Electrics	48	38
All Nonelectrics	10	8
Electrics and Nonelectrics	35	28
All of One Kind (Electric or Nonelectric)	2	2
No Difference	18	14
No Opinion	11	9
No Answer	3	2

TABLE 7

OPINIONS OF TYPEWRITING TEACHERS CONCERNING WHETHER THE ELECTRIC OR
NONELECTRIC TYPEWRITER ALLOWS MORE TIME FOR SKILL BUILDING

Responses	Number	Per Cent
Electric Typewriters	35	28
Nonelectric Typewriters	4	3
No Difference	68	54
No Opinion	18	14
No Answer	2	2

whether the machines being used are electric or nonelectrics. Is it easier to teach proper stroking technique on electric or nonelectric typewriters? The electric typewriter received the most support from the respondents. However, one respondent, who believes the electric

typewriter is easier to teach proper stroking on, commented that students on nonelectric typewriters keep good stroking while those on electric typewriters tend to get sloppy on their stroking. The findings are presented in Table 8.

TABLE 8

OPINIONS OF TYPEWRITING TEACHERS CONCERNING WHETHER PROPER STROKING IS EASIER TO TEACH WITH ELECTRIC OR NONELECTRIC TYPEWRITERS

Responses	Number	Per Cent
Electric Typewriters	58	46
Nonelectric Typewriters	38	30
No Difference	18	14
No Opinion	10	8
No Answer	3	2

The majority of typewriting classrooms have both electric and nonelectric typewriters. The teacher, in this particular situation, will usually have some type of rotation or transfer between the two types of typewriters. Question 12 was concerned with transfer from one type of machine to the other--electric to nonelectric or nonelectric to electric. A vast majority of the respondents hold the opinion that it is easier to transfer from the nonelectric typewriter to the electric typewriter. The complete results are included in Table 9, Page 27.

Is it possible to get students in beginning typewriting to obtain higher speed on the electric or nonelectric typewriter? This point was considered in Question 13. An overwhelming majority of the respondents

TABLE 9

OPINIONS OF TYPEWRITING TEACHERS CONCERNING THE EASE OF
TRANSFER FROM ONE TYPEWRITER TO ANOTHER

Responses	Number	Per Cent
Electric to Nonelectric is Easier	15	12
Nonelectric to Electric is Easier	100	79
No Difference	7	6
No Opinion	4	3
No Answer	1	1

believe that higher speed can be obtained on the electric typewriter. The complete results are included in Table 10.

TABLE 10

OPINIONS OF TYPEWRITING TEACHERS CONCERNING WHICH
TYPEWRITER WILL GIVE HIGHER SPEED

Responses	Number	Per Cent
Electric Typewriter	115	91
Nonelectric Typewriter	0	0
No Difference	7	6
No Opinion	3	2
No Answer	2	2

The next area following speed would necessarily be accuracy. A quite different response was received concerning which typewriter, electric or nonelectric, allows greater accuracy. The teachers are fairly

evenly divided concerning their opinions in this particular area. The findings are presented in Table 11.

TABLE 11
OPINIONS OF TYPEWRITING TEACHERS CONCERNING WHICH
TYPEWRITER WILL GIVE GREATER ACCURACY

Responses	Number	Per Cent
Electric Typewriter	35	28
Nonelectric Typewriter	34	27
No Difference	46	36
No Opinion	8	6
No Answer	4	3

When typing is completed on the nonelectric typewriter, the typist produces the energy. On the electric typewriter, the electricity does most of the work. Certain key arrangements are a little different on the two types of machines, also. It is possible that these factors might make one machine easier to operate. Question 15 was concerned with this point. The results were compiled and are presented in Table 12, Page 29.

The correct use of the space bar is a very important part of typewriting. The space bar is probably used more often than any other key or mechanism on the typewriter, so it must be used efficiently.

Is there a difference when comparing the ease of teaching the use of the space bar on electric and nonelectric typewriters? The largest number of the respondents believe there is no difference, however, there were a large number that believe space bar manipulation is easier to teach on the electric typewriter. Table 13, Page 29 gives the entire results.

TABLE 12

OPINIONS OF TYPEWRITING TEACHERS CONCERNING WHETHER OR NOT ONE
TYPEWRITER IS EASIER TO OPERATE THAN THE OTHER

Responses	Number	Per Cent
Electric Typewriter	114	90
Nonelectric Typewriter	3	2
No Difference	7	6
No Opinion	2	2
No Answer	1	1

TABLE 13

OPINIONS CONCERNING WHETHER OR NOT SPACE BAR MANIPULATION IS EASIER
TO TEACH ON THE ELECTRIC OR NONELECTRIC TYPEWRITER

Responses	Number	Per Cent
Electric Typewriter	44	35
Nonelectric Typewriter	15	12
No Difference	60	47
No Opinion	6	5
No Answer	2	2

Returning the carriage (or ball unit) is another important factor of typewriting. On the nonelectric typewriter there might be a tendency to push the carriage back or to look at the keys when the left hand is being returned to the typing position. The student on the electric typewriter does not encounter these two items. The final question was concerned with teaching carriage return and which machine, electric or

nonelectric, presents more problems for the teacher. The results are presented in Table 14.

TABLE 14

OPINIONS OF TYPEWRITING TEACHERS CONCERNING WHETHER OR NOT THE CARRIAGE RETURN IS EASIER TO TEACH ON THE ELECTRIC OR NONELECTRIC TYPEWRITER

Responses	Number	Per Cent
Electric Typewriter	95	75
Nonelectric Typewriter	8	6
No Difference	15	12
No Opinion	7	6
No Answer	2	2

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study was designed to determine the opinions of typewriting teachers in North Dakota concerning the use of electric and nonelectric typewriters in beginning typewriting. The number of returns was 129 or 74.1 per cent. It was determined that 127 of the returns were usable.

Summary of Findings

It was determined by the writer that certain information was needed concerning the teacher and the school in which they were teaching.

Approximately 80 per cent of the teachers responding had 10 or less years of teaching experience. It was determined that 117 of the respondents were presently teaching beginning typewriting.

Every school, in which the respondents were teaching, offered a beginning typewriting course. The majority, 123, of beginning typewriting courses were one year in length. Typewriters used for beginning typewriting include mainly nonelectric typewriters. The majority of teachers use some type of rotation plan when both electric and nonelectric typewriters are available. The lengths of the rotation plans ranged from one week to one semester. The majority had either a four, six, or nine week plan.

A majority of the respondents, 57 per cent, would prefer a beginning typewriting room with both electric and nonelectric typewriters.

It was the opinion of 38 per cent of the respondents that achievement would be superior if the beginning course in typewriting would be taught with electric typewriters. Another 28 per cent believe that both electric and nonelectric typewriters should be used.

It was found that 54 per cent of the respondents believe that the amount of time available for skill building is not affected by the type of machine being used. Another 28 per cent believe that electric typewriters allow more time.

The majority, 75 per cent, of the respondents believe that it is easier to teach the carriage return on the electric typewriter. Proper stroking is easier to teach on the electric typewriter, according to 46 per cent of the respondents. However, 47 per cent believe that when they are teaching the space bar there is no difference between the electric and nonelectric typewriter.

It was found that 79 per cent of the respondents believe that transfer from the nonelectric to the electric is easier.

When asked about speed and accuracy, 91 per cent of the sampling believe that higher speed can be obtained on the electric typewriter. On the other hand, 36 per cent believe there is no difference between electric and nonelectric typewriters insofar as accuracy is concerned. Another 55 per cent were divided evenly between the electric and nonelectric typewriters concerning accuracy.

Ease of operation is greater on the electric typewriter, according to 90 per cent of the teachers surveyed.

Conclusions

The conclusions in this section have been drawn as a result of the findings which were presented in Chapter IV.

The writer found it interesting to note that 50 per cent of the teachers surveyed in this study have five or less years of teaching experience. Another 30 per cent have from six to ten years experience. If the sampling for this study is representative of North Dakota typewriting teachers, then a great majority of these typewriting teachers are fairly young.

It was thought that the number of years of teaching experience might have some bearing on the opinions of typewriting teachers concerning electric and nonelectric typewriters in beginning typewriting. It is the writer's belief, however, that the age or teaching experience made no difference in the results of this study. Both the electric and nonelectric typewriters had strong support in one area or another.

It is evident to the writer that typewriting is an important subject in North Dakota. This point was proved by the fact that 100 per cent of the respondents' schools offered beginning typewriting. Also in favor of typewriting was the fact that 97 per cent of these schools offer beginning typewriting as a one year course.

It might be noted here that 48 per cent of the sampling reported their schools had a typewriting room used exclusively for beginning typewriting. It is a known fact that a large majority of the cities of North Dakota are relatively small. It is the writer's opinion that the majority of the schools stating they had a room used exclusively for beginning typewriting offer only this one course in typewriting.

It was interesting to note that 57 per cent of the sampling would prefer to have both electric and nonelectric typewriters for beginning typewriting. It seems that having one type of machine for beginning

typewriting would eliminate some of the wasted time used to explain the different aspects of different typewriters.

Another fact brought out by this study was that 67.9 per cent of the typewriters in beginning classes, in the responding schools, are nonelectric. This more than likely is an administrative budget factor, as electric typewriters have a higher initial cost. It would seem to the writer that if teachers prefer both electric and nonelectric typewriters for beginning typewriting, they would at the same time prefer one half to be electric and one half to be nonelectric.

As stated previously, 57 per cent of the teachers in the sampling would prefer to have both electric and nonelectric typewriters for beginning typewriting. However, when asked which situation would yield superior typewriting achievement, only 28 per cent stated a room with both electric and nonelectric typewriters. It is the writer's belief that if one type of classroom produces better results, then that is the classroom in which typewriting should be taught.

It might also be brought out here that the individual teacher and the individual student would probably make more difference than the typewriter being used.

The majority of the teachers in the sampling, 54 per cent, believe there is no difference in time available for skill building when instruction is being given on electric or nonelectric typewriters. This finding was a contrast to the writer's belief that the electric typewriter allows more time for skill building. Two items of effective typewriting which seem to cause students, especially at the junior high school level, problems on nonelectric typewriters are correct carriage return and correct stroking. Students on electric typewriters do not seem to have this problem.

According to the findings of this study, most typewriting teachers believe that it is necessary to have some type of rotation plan when both electric and nonelectric typewriters are used. The type of rotation plan to use seems to vary with the individual. Most of the teachers surveyed, however, used one of the following: (1) four weeks, (2) six weeks, or (3) nine weeks.

Teachers seem to be at a point of indecision concerning the ease of teaching proper stroking on the electric and nonelectric typewriters. The largest percentage of the respondents, 46 per cent, believe that stroking is easier to teach on electric typewriters. Another 44 per cent believe that the nonelectric is easier or that there is no difference. The only conclusion the writer is able to draw from the findings is that there is some disagreement.

This study confirmed the writer's belief concerning the ease of teaching the carriage return. It is easier to teach the carriage return on electric typewriters, according to the majority of the respondents.

The carriage return on electric and nonelectric typewriters requires two completely different sets of motions. It was interesting to note that 18 per cent of the teachers surveyed believe there is no difference or the nonelectric typewriter is better concerning the ease of teaching the carriage return.

It has been the writer's experience that there is no difference in teaching the space bar on an electric or nonelectric typewriter. This particular point also brought out a conflict in opinions among typewriting teachers. Although 47 per cent of the sampling believe there is no difference in this area, another 47 per cent either selected the electric or nonelectric typewriter for ease of teaching the space bar. It would have

been interesting to have had some comments on this particular area to determine what some of the differences might be.

A large majority of the teachers surveyed believe that it is easier to transfer from the nonelectric to the electric typewriter. It would have been interesting to learn some of the reasons for this particular belief, as it does not coincide with the writer's belief. It might be that stroking would be one of the reasons given most often. It is the writer's belief that any effects of transfer from one machine to another should be negligible after approximately four to five days of practice on the new machine. Stroking would be the major problem in transferring from the electric to the nonelectric typewriter, but it would also be the major task in transferring from the nonelectric to the electric typewriter. The problems encountered in stroking on the nonelectric typewriter would be the opposite of those encountered on the electric machine.

It was interesting to learn that an overwhelming majority of the teachers surveyed believe that higher speed can be obtained on the electric typewriter. However, a conflict in opinions occurred when these same teachers were asked if greater accuracy could be obtained on one typewriter or the other. One comment was made concerning these two particular points and that was that the particular student would make the difference concerning speed and accuracy.

It was no surprise to the writer to find that most of the teachers believe that the electric typewriter is easier to operate overall. This should be only natural as electricity is doing most of the work on the electric typewriter, whereas the student provides most of the energy on the nonelectric typewriter.

Summary of Conclusions

In summary, the writer gives the following statements as facts concerning beginning typewriting as a result of this study:

1. The majority of beginning typewriting teachers in North Dakota are relatively inexperienced.
2. Beginning typewriting is considered to be an important subject in the schools of North Dakota.
3. Nonelectric typewriters are in the majority, whether by choice or budget.
4. A variety of rotation plans are used where both electric and nonelectric typewriters are used for beginning typewriting.
5. The rotation periods most often used are four, six, and nine weeks.
6. It is the choice of most beginning typewriting teachers to have both electric and nonelectric typewriters in the beginning typewriting classroom.
7. Neither the electric nor nonelectric typewriter is favored for attaining superior typewriting achievement in beginning typewriting.
8. There is no difference in the time available for skill building when instruction is given on the electric or the nonelectric typewriter.
9. Most teachers believe that it is easier to teach proper stroking on the electric typewriter.
10. It is easier to transfer from the nonelectric typewriter to the electric typewriter.
11. Higher speed can be obtained on the electric typewriter.
12. Opinions differ concerning the accuracy obtainable on the electric and nonelectric typewriters.
13. The electric typewriter is easier to operate.
14. There is no difference in the ease of teaching space-bar manipulation on the electric and nonelectric typewriters.
15. Teaching the carriage return (or ball unit) is easier on the electric typewriter.

Recommendations

The following recommendations are given as a result of the conclusions drawn from the findings of this study:

1. Some type of effort must be made in North Dakota to retain experienced business teachers within the state and within the teaching profession.
2. Beginning typewriting should be offered in all secondary schools.
3. Instruction in beginning typewriting should include both electric and nonelectric typewriters.
4. A specific rotation plan for transferring from the electric to nonelectric typewriter or vice versa should be set up for beginning typewriting.
5. If possible, experiments should be conducted to determine the results of each of the following situations:
 - A. A beginning typewriting class using all electric typewriters.
 - B. A beginning typewriting class using all nonelectric typewriters.
 - C. A beginning typewriting class starting with electric typewriters and transferring to nonelectric typewriters.
 - D. A beginning typewriting class starting with nonelectric typewriters and transferring to electric typewriters.
6. Experimentation should be conducted to test various rotation plans for transferring from one typewriter to another. Its purpose would be to determine if one or more plans would provide more efficient results.
7. Experiments could be conducted to determine, if possible, whether the individual student is the key factor in typewriting and not the typewriter.
8. Typewriting teachers should conduct more informal research in their classrooms and see that their findings are transmitted to other business teachers.

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