

SCHOOL DISTRICT POLICIES AND PRACTICES RELATIVE TO
TYPEWRITER REPLACEMENT AND MAINTENANCE IN
FOUR CALIFORNIA COUNTIES

BY

DALE E. MOORE

Submitted in partial fulfillment of the requirements
for the Master of Education degree
in the School of Education
Montana State College
August, 1962

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
Problem	2
Procedures	2
Limitations	3
Definition of Terms	3
II. RECOMMENDATIONS FROM LITERATURE FOR MAINTENANCE, USE OF SPECIAL FEATURES, REPAIR, AND REPLACEMENT OF TYPEWRITERS	5
Typewriter Maintenance	6
Use of Special Features	9
Typewriter Repair	12
Typewriter Replacement	17
Summary	19
III. RECOMMENDATIONS FROM BUSINESS ORGANIZATIONS RELATIVE TO STANDARDS OF TYPEWRITER MAINTENANCE AND REPLACEMENT	21
Summary	22
IV. SCHOOL PRACTICES IN POLICY FORMATION FOR MAINTENANCE AND REPLACEMENT OF CLASSROOM TYPEWRITERS	23
Six Districts with Typewriter Replacement Policies	24
Ten Districts without Typewriter Replacement Policies	26
Determining Which Typewriters to Replace	29
Typewriter Maintenance Practices	31
Summary	32
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	35
Summary	35
Conclusions	37
Recommendations	37
BIBLIOGRAPHY	39
APPENDIX	42
Appendix A: Questionnaire	43
Appendix B: Letter Sent with Questionnaire	46
Appendix C: Letter Sent to Business Organizations	47

TABLE LIST

Table	Page
1. Typewriter Replacement Policies in Six High School Districts	24

CHAPTER I

INTRODUCTION

Two things which are basic to the success of a high school program of typewriting are reliable typewriters and a dependable maintenance service. This implies that the typewriters are not too old and that there is an arrangement with an agency to provide prompt and efficient repair service whenever a typewriter breaks down. The typewriter is a complicated machine, but it seldom "wears out." It can, however, become so maladjusted that satisfactory work cannot be produced.¹ The typewriting teacher can often correct lesser malfunctions, but a reliable service arrangement should provide maintenance and repairs when needed. Also, because new model typewriters with added and changed features are coming into the market each year, it is wise to provide for replacing older machines with new ones at regular intervals to keep abreast of the times.

Lloyd² has written that the students who are learning to type in our high schools need and merit the finest equipment available if they are to develop the operating habits that will give them the skill they must have. He has emphasized the fact that old machines are not the "finest," and that high schools should establish a policy of regular replacement of old typewriters. Lloyd has observed that from an economic point of view the best trade-in ratio can be obtained when machines are turned in every three years, and that the last chance for a reasonably good trade-in ratio is at the end of the fifth year.

¹Fehrenbacher, A. W., and Thompson, J. M., "Teachers Can Make Minor Typewriter Repairs," Balance Sheet, January, 1953, pp. 211-212.

²Lloyd, Alan C., "How Old Are Your Typewriters?" Business Education World, September, 1954, p. 30.

Since there is a feeling among authorities that it is important for high school students to work with equipment that is up to date and maintained to meet standards that insure dependable service, the question arises: Are these conditions being met? It was the desire to discover what standards of typewriter maintenance and replacement were being recommended to high schools and what policies and practices were being followed that led to the selection of the problem for this investigation.

Problem

To provide guide lines for formulating a classroom typewriter maintenance and replacement policy in the Folsom, California, Unified School District, the writer desired to learn (1) what policies were being recommended by authorities relative to classroom typewriter maintenance and replacement and (2) what policies had been established or what practices had been followed in the business departments of high school districts in four neighboring California counties.

Procedures

To discover what policies relative to classroom typewriter replacement and maintenance were recommended and what policies had been established or followed three procedures were used:

1. Reviewed literature dealing with the subject of classroom typewriter replacement and maintenance.
2. Surveyed the leading manufacturers of typewriters, the National Office Management Association, and Delta Pi Epsilon, national honorary fraternity of business educators, for recommendations relative to classroom typewriter replacement standards.

3. By means of a questionnaire surveyed the business department chairmen of 26 public high schools located in 17 school districts in El Dorado, Placer, Sacramento and Yolo Counties in California. The questionnaire was designed to secure information relative to each district's policy or practice for replacing and maintaining the typewriters used in its high school typewriting classes.

Limitations

This investigation was limited to the policies and practices of replacing and maintaining typewriters in the business department classrooms of 26 public high schools. Because of the limited amount of time, and because it was felt that the policies and practices of replacement and maintenance of classroom typewriters that were followed in this sampling of public high schools would be indicative of the policies and practices of replacement and maintenance of typewriters followed in high schools generally, the study was limited to the public school districts in four counties of California.

Definition of Terms

To clarify the meaning of terms which were used frequently in dealing with this investigation of policies and practices of maintaining and replacing typewriters in the public high school business department classrooms, the following definitions are given:

Policy has been defined as an officially authorized procedure for typewriter replacement and maintenance that has been adopted by a Board of Education.

Practice is defined as any procedure to provide typewriter replacement and maintenance when no official policy has been authorized by a Board of Education.

Replacement is defined as the regularly scheduled replacement of used typewriters with new models.

Maintenance has been defined as the cleaning and adjusting of used typewriters and the replacement of worn or broken parts.

The first procedure of this investigation was to review literature dealing with the subject of classroom typewriter maintenance and replacement. The report of this review is given in Chapter 2.

CHAPTER II

RECOMMENDATIONS FROM LITERATURE FOR MAINTENANCE, USE OF SPECIAL FEATURES, REPAIR, AND REPLACEMENT OF TYPEWRITERS

Authorities agree that typewriters which are placed in business department classrooms to be used by many individuals are subjected to wear and tear beyond that which would be considered normal in an average business office. Recommendations from literature support the feeling that attention must be given to maintenance, instruction in the use of special features, and repair of typewriters if classroom machines are to be kept in a first-class working condition. A policy of replacement whereby old machines are replaced with newer models after a reasonable number of years of service is also recommended. In the first place, a systematic policy of replacement is a matter of sound finance; the longer a machine is kept, the more becomes the cost to maintain and service it, and the less becomes its trade-in value.¹ The San Diego, California, city school district which has its own maintenance service shop and crew has found that older machines require more attention which results in a considerable raise in maintenance costs.² In the second place, from a pedagogical point of view, the possibilities for more efficient classroom instruction and learning are enhanced when the typewriters which are used are up to date and mechanically sound.³

¹Lloyd, Alan C., "How Old Are Your Typewriters?" Business Education World, September, 1954, p. 30.

²Getsinger, J. Wilson, and Patrick, Charles W., "Is It Time for Typewriter Replacement?" The School Executive, October, 1953, p. 67.

³Lloyd, op. cit., p. 30.

A review of the recommendations made by authorities for the maintenance, use of special features, and repair of classroom typewriters is presented in the sections that follow.

Typewriter Maintenance

Lloyd points out that the typewriter is a complicated instrument that "takes a tremendous beating in classroom use."⁴ Because of this fact, a typewriter in a high school classroom must be kept under close surveillance if it is to be maintained in a serviceable condition. The major responsibility for keeping the classroom typewriters in a serviceable state rests with the teacher. From the very beginning of any typewriting class the teacher should instruct his students in the proper care of the typewriter. Also the teacher should emphasize and whenever possible demonstrate the desirable traits and habits that students should acquire relative to keeping their typewriters in the best possible operating condition.

One of the most elementary yet foremost items to be considered in a teacher's program of instruction in proper typewriter maintenance is that of keeping the typewriter free from dust, dirt, and grime. As a first step in fulfilling this objective, the student should be taught to cover his typewriter whenever it is not in use. As a second step, the student should be taught how to clean his typewriter properly when it becomes dirty from use, and he should be provided with the tools and supplies needed to carry out this task.

⁴Lloyd, op. cit., p. 31.

Students should be instructed to dust their typewriters each day with a soft cloth, and to use long-handled, soft-bristled brushes to "sweep" the dust and accumulated grime from the frames, outer surfaces, and inner recesses of their machines as needed. Students should be instructed to move their machine carriages to the extreme right and left positions (using the marginal release mechanism) and to brush the rails free from grime, and occasionally to apply an oiled cloth to the carriage rails to lubricate them. Students must be warned to use caution when applying oil. Authorities agree that too much oil can be as damaging as too little oil. Erasure grit and paper lint combine with surplus oil to produce a sludge that impedes the smooth operation of the typewriter. Oil also has a damaging effect if it gets on the machine's rubber paper-feed rolls, pressure rollers, and platen. Since a single classroom typewriter is used by several students each day, it becomes necessary to plan a schedule for oiling the machines. Each student throughout the day should dust and brush the dirt from his machine, but applications of oil should be applied at intervals of two or three weeks, with the members of different classes taking turns in assuming this responsibility.

A stiff-bristled, short-handled brush should be provided to clean the type faces. Brushing should be in the direction which will keep the loosened dirt and grime from being swept into the key segment of the typewriter. This is a precaution to be practiced with all brushing---brush the dirt away from the type basket. The use of liquid type-cleaner is not recommended by most authorities. As with oil, a liquid agent can combine with grime and result in a sluggish typewriter. The use of a plastic type-cleaner is recommended, especially for cleaning the type after cutting wax

stencils without a film cover sheet. In cleaning the type, special attention should be given to the letters which are prone to collect dirt, such as a, e, and o. Students should be cautioned about using sharp pointed steel, such as a pin or knife blade, to remove deposits of dirt from these letters. It is possible to pit the type, thus defacing the letter. The writer has found that a sharp soft-lead pencil serves as a good tool for "rearing" dirt from hard-to-clean letters.

A student should be instructed how to remove the platen from his typewriter if this is a feature of his machine. Removing the platen enables the student to brush away all the erasure crumbs and paper lint, and to clean the platen, paper-feed and pressure rollers. A liquid cleaner is recommended for wiping the surfaces of the platen and rollers so as to remove grime and also to reduce the sheen which causes paper to slip and feed unevenly when inserted into the typewriter. Denatured alcohol or carbon tetrachloride applied with a soft cloth are suitable for this purpose. Any application of liquid cleaner should be under the close supervision of the teacher. Skimin⁵ suggests that after typing stencils without the use of a film cover sheet, a piece of blotting paper, letterhead size, should be fed through the typewriter five or six times to remove stencil wax.

There is a feeling among those who have written regarding the maintenance of classroom typewriters that students should be trained to assume the responsibility for keeping classroom typewriters free from dust, dirt, and grime. The necessary cleaning equipment and supplies should be pro-

⁵Skimin, Eleanor, "Keep Your Typewriter in Tune!" Business Education World, February, 1946, p. 228.

vided and the teacher should instruct the students to use them properly. There is also agreement that the teacher is responsible for training the students how to use certain special features found on their typewriters.

Use of Special Features

In addition to the instruction that is given relative to keeping a typewriter serviceable through proper cleaning techniques, the teacher is responsible for teaching a student to understand the workings of some of the less complicated special features of his typewriter. Ignorance on the part of the student as to how some part of his machine operates may lead to carelessness in the use of a typewriter. According to one authority,⁶ in addition to dust and dirt, carelessness is a third enemy of a typewriter. It behooves the typing teacher to point out early in a student's instruction in typewriting a number of features that the typewriter operator should know how to use correctly if he is to get the most efficient service possible from his machine.

The working of the ribbon mechanism is one feature of a typewriter that the teacher should explain early in a beginning course in typewriting, and a feature that should be reviewed from time to time. A student should know how a ribbon threads from the spools through the brackets that raise and lower the ribbon in accordance with a selected setting of the ribbon positioning lever, and how the automatic ribbon reverse is activated. A student should be instructed in the use of the ribbon-reverse control mechanism and the ribbon-positioning control lever. In addition to the normal, or "black" ribbon setting, a student, under the

⁶Ibid., p. 227.

direction of his teacher, should experiment with setting the ribbon in the neutral, or "white," position used for typing stencils, and the "red" position that is used when one types on the lower half of the ribbon. A student should be alerted to listen for the metallic clicking sound that accompanies the typing when a ribbon is set on the "red" position, and be warned of possible ribbon malfunctions that may result. When the ribbon control is set on "red," the keys are striking the lower half of the ribbon, and the action is heavier since the ribbon must be lifted higher. The greater up-and-down motion of the ribbon tends to loosen it on the spool and eventually the ribbon becomes so loose that the spool will not turn; or the upper edge of the ribbon turns down a small fold, and then, when the ribbon lever is returned to its natural position, the tops of the letters do not print.

As a measure toward keeping typewriters in a serviceable condition, a student must be taught to install a new ribbon on his machine; eventually he should be taught to place a new ribbon on old spools and also to remove a used ribbon from its spool and turn it so that the top and bottom are reversed, thus permitting additional use from the unused upper half.

A student should be instructed to use a backing sheet when typing a one-sheet copy as a means of saving his ribbon. This is especially true when the platen is very hard. One final precaution regarding the ribbon may save a call for a serviceman. One should make certain that ribbon-spool caps or other covers have not been bent out of line so that they bind the free turning of a ribbon spool.

The tabulator mechanism of the typewriter is another feature that a student of typewriting needs to have explained and demonstrated to him early in his instruction. A student should be cautioned to set a tabulator stop only when the carriage on his typewriter is standing still. If the tab-set key is struck while the carriage is moving, the individual tab-stop setter may go between the stops on the tabulator rack rather than pushing directly against the proper one, and, if the carriage is moving, the tab-stop setter may be bent slightly out of line. The tab-stop setter will not operate properly thereafter until it has been bent back to its original position.

Beginning students of typewriting will often find their keys clashing with two or more type bars catching or piling near the printing point. A few minutes of instruction and demonstration in how to handle this problem will show the students how to untangle the type bars without bending them, thus eliminating a call for typewriter service. Some typewriters are equipped with a special key which can be struck to release the clashing keys. With other typewriters, a quick tap or two on the shift key often will drop the "hung-up" keys back into position in the type basket. As a last resort it is always correct to separate gently the jammed type bars by hand. Students who attempt to loosen the jammed bars by lifting the depressed keys on the keyboard should be warned of the danger of bending the type bars and thus temporarily putting their machines out of order.

Students should be taught to leave the paper release levers on their typewriters in the "off" position when their machines are not in use. This practice will relieve the constant pressure of the paper-feed

rolls against the platen, which may flatten it at the point of contact. The condition of the platen is most important to the satisfactory operation of a typewriter. One authority summarizes the importance of the platen in this way: "A hard platen is noisy, will not feed paper well, will damage type faces, and will use up three or four times as many ribbons as will a platen of new live rubber."⁷ As a general precaution for keeping the platen, rollers, and ribbons in a serviceable condition, Skimin⁸ suggests keeping machines away from heat or direct sunlight. She also recommends using a typewriter only when room temperature is sixty degrees or above.

In order to forestall the careless use of classroom typewriters, there is a feeling that students should be instructed in the workings of the less complicated special features of their machines. An understanding of how the ribbon and tabulating mechanisms work, for example, should lessen the chance of these features being misused in such a way that a malfunction of the typewriter results. Students who have been taught how the special features on their typewriters work should be more able to handle any malfunction that might occur. There are, however, a few minor repairs that should not be entrusted to the students but which could be handled by the teacher.

Typewriter Repair

It is the teacher's responsibility to have the typewriters in good repair at all times for classroom work. Students should be instructed to

⁷Traves, Dorothy L., "Don't Call the Repair Man--Unless . . .!" Business Education Forum, November, 1952, p. 14.

⁸Skimin, op. cit., p. 229.

report malfunctions of their typewriters to the teacher as soon as the mis-performance is noticed. Students are willing to do this because they want to keep in service the machine to which they have become accustomed.⁹

By learning to make minor repairs, one authority¹⁰ feels that the teacher can handle 90 per cent of the problems for which a repairman is normally called. Without too great an effort, the teacher can learn to:

- (1) adjust carriage tension to overcome spreading or piling of letters
- (2) replace the drawband
- (3) make adjustment to correct an uneven left-hand margin
- (4) straighten bent keys by "pinging the keys" (Hold the key in a half-depressed position and with the index finger pull the key in the opposite direction to that in which it is bent.)¹¹

Even though many of the service calls that result from typewriter malfunctions can be eliminated by taking proper precautions and by performing minor repairs in the classroom, Brady¹² has contended that there are times when the help of a competent service organization is going to be needed. She has also noted that a service company which becomes interested in a classroom will provide the teacher with many helpful ideas and services. After suggesting a number of minor service jobs that can be handled by the teacher, Traves has concluded that "although these are suggestions

⁹Traves, op. cit., p. 13.

¹⁰Fehrenbacher, Albert W., and Thompson, James H., "Teachers Can Make Minor Typewriter Repairs," Balance Sheet, January, 1953, p. 211.

¹¹Ibid., p. 211.

¹²Brady, Mary Margaret, "Teach Cleaning the Typewriter," The Journal of Business Education, October, 1952, p. 25.

that may help to keep the repair man away, he is a mighty good friend to have, and his service will frequently be needed--unless the teacher is a born mechanic.¹³

In providing for typewriter maintenance service in addition to that performed by the classroom teacher, one or more of four policies are generally followed by a school district. Those four policies are:

- (1) have a service contract with the typewriter manufacturer
- (2) have a service contract with an independent service man
- (3) use own district service man
- (4) use independent service man without a contract¹⁴

When new typewriters are purchased for classroom use, it is the policy of the manufacturer to guarantee satisfactory performance of his equipment for a specified period of time. It seems reasonable to assume that schools take advantage of this guaranteed service. Whether or not a continuation of this service is contracted for once it has expired depends upon a number of things. The manufacturer may not be interested in contracting for an extension of the service. The school may find that it is to its advantage cost wise, or because of convenience, to use an independent service man, with or without a contract. A service arrangement without a contract might be characteristic of a district having a one-teacher business department. Such a situation is likely what Brady had in mind when she wrote, "Early in the year the teacher should make contact with a representative of a reputable typewriter service company

¹³Traves, op. cit., p. 15.

¹⁴NMA Quarterly Survey, "Value of Maintenance Contracts," Office Executive, September, 1958, p. 9.

in his community and plan a system for keeping the classroom typewriters in repair."¹⁵

As was noted in a previous paragraph, districts sometimes employ their own service personnel to maintain the typewriters used in the typing classrooms of the district. In 1958 the Detroit Public Schools used a central typewriter repair service, operated from the Board of Education. They found that such a city-wide repair service was too unwieldy to provide efficient maintenance. As a result, typewriter servicemen were often unable to get to different parts of the city more frequently than once every two or three weeks.¹⁶ To remedy this unfavorable situation, the city school districts were divided into three zones; contractual agreements were made with three reputable typewriter repair service agencies, each to handle approximately one-third of the city schools requiring such service. These steps resulted in great improvements in the typewriter repair services. Each company was able to become better acquainted with the kind of service required, school locations, and typewriters to be repaired in its area. Complaints were reduced to a minimum, and everyone concerned was pleased with the new arrangement.

Selecting a qualified typewriter maintenance agency for a high school district presents a problem. According to Eargen, the maintenance and repair service offered by agencies is so indefinite that a comparison of price quotations is meaningless, as is pointed out in the following statement:

¹⁵Brady, op. cit., p. 26.

¹⁶Whale, Leslie J., "How Detroit Schools Handle Typewriter Repairs," Business Education World, March, 1961, p. 14.

Under the best conditions it is difficult to compare quotations on typewriter repairs because the typing teacher or the school superintendent does not know what is being quoted, and usually cannot verify quotations to see whether he got what he expected to get and what he paid for. The serviceman may have blown a little dust out of the typewriter, wiped out a little dirt, and made a few minor adjustments. He may have checked a few points--and he may not have! When two different servicemen quote \$7.50 to overhaul a machine, there may still be a vast difference in the thoroughness with which they expect to do their work.¹⁷

Bergen suggests that one way to eliminate such difficulties is to prepare a "Machine-Repair Inspection Sheet" to be presented to the servicing agency. Such an inspection sheet should list all the items which the district wants checked on each machine being serviced. The serviceman who contracts to do the maintenance knows he will be checked out on these points even before he accepts the contract. The district can ask him, "What will you charge to adjust every item called for on the enclosed sheet?" This is fair to the serviceman and fair to the school. Not all schools demand the same service. The teacher who is very particular and who wishes to do a superior job of teaching must not be hampered by inferior servicing on the typewriters in his classroom.¹⁸

Through the combined efforts of the typing teacher and a reputable repair service agency, classroom typewriters will continue to give satisfactory service year after year. There is a feeling among authorities, however, that it is poor economy both in terms of cost of equipment and

¹⁷Bergen, Bernard, "Your Typewriter Repair Dollar," Business Education World, September, 1946, p. 19.

¹⁸Ibid., p. 18.

efficiency of teaching not to plan to replace classroom typewriters at regular intervals.

Typewriter Replacement

In surveying the policies followed by school districts in replacing used typewriters, writers often refer to a study made in 1954 by the San Diego, California, City Schools.¹⁹ The purpose of this study was to determine what is sound policy, both instructionally and financially, in regard to the replacement of classroom typewriters. Sixty-eight large city school systems throughout the United States took part in the study. A summary of the replies indicated that five of the 68 city school systems had a policy of replacing their classroom typewriters every three years. The average replacement was about six years; however, the majority favored replacement every five years. None of the replies recommended keeping typewriters longer than ten years. It is interesting to note that these city schools agreed that they had little concrete data on which to base their policies, but relied mostly on their experience and judgment.

In a 1958 survey conducted by the San Francisco, California, Unified School District, the majority of 45 school districts agreed that replacement of used typewriters after five years would be desirable.²⁰ Factors considered in reaching this conclusion were (1) increased maintenance costs (given by 80 per cent of the districts) and (2) late model typewriters with new features (given by eight per cent).²¹

¹⁹Getsinger and Patrick, op. cit., p. 67

²⁰Lahl, Edgar, "How Often Should You Replace Class Typewriters?" Educational Business, August, 1958.

²¹Ibid., p. 38

Taking into account the trade-in values and increasing costs of maintenance and overhauls on older machines,²² the total cost of buying, repairing, or replacing typewriters for classroom use in the San Diego City Schools resulted in these figures: \$20 on a three-year basis; \$16.50 on a five-year basis; \$15 on a 10-year basis; and \$15 on a 20-year basis.²³

Of equal or greater importance than the financial efficiency of a sound typewriter replacement policy, however, is the matter of educational efficiency. This is not easily put into concrete figures. The San Diego study reported that "increased time out of use with the resulting loss of teacher effort and pupil practice; learning of skill which, on obsolete machines, became out of date; and student rejection of older machines begin to be significant after about five years."²⁴ The report concluded with a recommendation for replacement that would prove both economical and practical.

Thus from both instructional and economic points of view, the best time to replace typewriters appears to be after five to seven years of use. Machines can be operated for six years without major overhaul, with a good trade-in value, at low repair cost and with little loss of instructional time. We therefore believe that about one-sixth of our instructional machines should be replaced each year.²⁵

²²It has been roughly established that major repairs, or an overhaul, are needed on the average of every three years after the fourth year.

²³Getsinger, J. Wilson, and Patrick, Charles W., op. cit., p. 67.

²⁴Getsinger, J. Wilson, and Ashworth, Philip B., "Typewriter Replacement Policies of Large United States Cities," Balance Sheet, November, 1954, p. 117.

²⁵Ibid., p. 117.

In general the high school classroom typewriter replacement policies that are being practiced throughout the country have been based on the judgment and experience of the individual schools. There seems to be a feeling that from the standpoint of cost it is less economical to keep old typewriters in service than to set up a trade-in policy of replacement. It is also agreed that new model machines provide for more efficient learning of typewriting skill.

Summary

The literature reviewed on the subject of maintenance, use of special features, repair, and replacement of classroom typewriters emphasized the fact that it is the people in the typewriting classrooms of the high schools across the country who are most affected by their district's typewriter maintenance and replacement policies. There is a feeling that if teachers are to succeed in teaching students the skill of typewriting and if students are to progress in the development of typing skill, dependable equipment must be provided in the classroom to assure attainment of these goals.

The classroom teacher is in a commanding position. He can plan his strategy to keep his classroom typewriters in a serviceable condition. He can forestall machine breakdown by instructing his students in preventive maintenance, and he can make minor adjustments to correct a number of malfunctions that ordinarily would require the services of a repair man. In addition to this, the instructor can serve his district as a responsible authority in recommending a policy for service and maintenance; and the instructor is in a position to know the performance

record of the typewriters in his classroom, and to recommend a replacement policy.

School districts across the nation use various arrangements in providing maintenance and repair service for their classroom typewriters. In some cases bids for doing the work are solicited from interested agencies; in other cases, the service is contracted without formality.

To date no standard for classroom typewriter replacement has been recognized on a nation-wide basis. Judging from the limited studies that have been reported, a five to seven year replacement plan seems to be the most efficient from both a financial and instructional standpoint.

The second procedure of this investigation was to survey certain organizations relative to their recommended standards for classroom typewriter maintenance and replacement. The report of this survey is given in Chapter 3.

CHAPTER III

RECOMMENDATIONS FROM BUSINESS ORGANIZATIONS RELATIVE TO
STANDARDS OF TYPEWRITER MAINTENANCE AND REPLACEMENT

As a part of this investigation a survey was made of the leading manufacturers of typewriters, the National Office Management Association, and Delta Pi Epsilon, national honorary fraternity of business educators, to discover if these organizations had established any policies of typewriter maintenance and replacement that they would recommend as standards to high schools.

The following four expressions relative to recommended standards of typewriter maintenance and replacement in high school classrooms are a result of the survey:

We regret that we have no such standards available that might help you in this problem.¹

There are so many factors involved which make it impossible to arrive at any one policy or practice that public schools follow. It is our opinion you could take any number of school districts and their purchasing and service practices would be different.²

Delta Pi Epsilon does not have a standards committee which has prepared any reports relative to classroom typewriter maintenance and replacement.³

We're sorry to advise you that we do not have specific data on this subject in our reference file.⁴

The organizations that were surveyed relative to recommended standards for maintenance and replacement of typewriters in the high school

¹Grey, V. G., American Standards Association, personal letter, 1961.

²Kimball, N. C., Underwood Corporation, personal letter, 1961.

³Anderson, Ruth I., North Texas State College, personal letter, 1961.

⁴Graff, Doris M., NOMA, Willow Grove, Penna., personal letter, 1961.

classroom offered no recommendations that might serve as a guide in establishing a maintenance and replacement policy. There seemed to be a feeling that since schools differed considerably in equipment needs and usage it would be difficult to establish any standard of maintenance and replacement that would be of value to high schools generally.

Summary

The survey of business organizations that was made in connection with this study provided no standards that could be used for establishing a policy for typewriter maintenance and replacement in the high school classroom.

The third procedure of this investigation was to survey the business department chairmen of 26 public high schools located in 17 school districts in the Sacramento area of California relative to each district's policy or practice in replacing and maintaining the typewriters used in its high school typewriting classes. A questionnaire was the instrument used in this survey. The report of the survey is given in Chapter 4.

CHAPTER IV

SCHOOL PRACTICES IN POLICY FORMATION FOR MAINTENANCE AND
REPLACEMENT OF CLASSROOM TYPEWRITERS

A questionnaire was used to gain information on formulating a policy for the maintenance and replacement of classroom typewriters in the Folsom, California, Unified School District. Questions were devised concerning the policies and practices of replacing old typewriters with new typewriters and the maintenance of typewriters used in the high school classrooms. The questionnaire was sent to the business department chairmen of seven three-year high schools and 19 four-year high schools located in four counties in California.

The number of schools responding to the questionnaire was most satisfactory. Replies were received from five of the seven three-year high schools (71 per cent) and from 18 of the 19 four-year high schools (95 per cent)--an overall response of 88 per cent. The 26 high schools included in the survey were located in 17 different districts; schools from 16 of these districts, or 94 per cent, responded to the questionnaire.

Certain sections of the questionnaire¹ were constructed to allow for a "yes," "no," or "does not apply" response and for remarks. Other items were devised to permit a checkmark to indicate a reply with an opportunity for remarks. One item requested the districts which had established replacement policies to return copies of their policies with the questionnaire. Although the survey showed six districts had established policies, no copies of policies were returned with the questionnaire.

¹See Appendix A

One section of the questionnaire was concerned with policies of classroom typewriter replacement that had been established by school districts. How long these policies had been in effect, what recent changes had been made in policies, and the number of years typewriters were used before being replaced were points of information requested. Of the 16 districts surveyed, six replied that they had established typewriter replacement policies. These policies are reported in the following section.

Six Districts with Typewriter Replacement Policies

The respondents for six high school districts indicated that their districts had established policies for replacing the typewriters used in the classrooms of their business departments. A summary of these policies is shown in Table 1.

TABLE 1. TYPEWRITER REPLACEMENT POLICIES IN SIX HIGH SCHOOL DISTRICTS

Dis- trict No.	Type of high school		Enrollment				No. of years policy in force		No. of years machines used before replacement			
	3 yr.	4 yr.	Less than 500	500 to 999	1000 to 1499	Over 1500	Less than 5 yrs.	More than 5 yrs.	3	4	5	6
1	x					x		x			x	
2	x			x				x				x
3		x			x			x			x	
4		x			x		x					x
5		x	x				x		x			
6		x	x					x			x	

It is significant to note in Table 1 that there appeared to be no relationship between the type of high school organization and the establishing of a typewriter replacement policy. The same held true in relation to the enrollments of the schools surveyed. Two of the smallest of the 23 high schools responding to the questionnaire had established replacement policies as had one of the largest schools. There was no apparent relationship between the size of the high school and the number of years the school's typewriter replacement policy had been in effect. Both the large and small high schools of this group indicated having policies which had been in effect for more than five years. The size of the school seemed to have no relationship to the number of years classroom typewriters were used before being replaced. The average years of service before replacement for the six schools was five years.

The replacement policy of the high school designated as No. 4 in Table 1 was initiated three years ago as a result of a change in administration. Under the district's new policy, 15 to 18 machines are replaced each year. District No. 6 initiated a new replacement policy within the last year which superseded an older more conservative policy. The respondent from this district indicated that in past years the business department was to have received three new typewriters a year, but under the new policy the district will replace one-third of its classroom typewriters (eight machines) each year.

One section of the questionnaire provided for schools which had not established classroom typewriter replacement policies to tell what practices they followed in replacing old typewriters and to make remarks regarding their practices. The practices of 10 districts which have not

established policies of classroom typewriter replacement are reported in the following paragraphs.

Ten Districts without Typewriter Replacement Policies

The respondents from 10 districts indicated that their districts had not established classroom typewriter replacement policies. Old typewriters were replaced whenever it was possible and practical to do so. New typewriters were purchased as the need arose to meet increased enrollments or as money was available. Districts which had experienced rapid increases in enrollment had found it necessary to keep all their old typewriters in addition to purchasing new machines in order to keep up with their needs.

One district within the four-county area under consideration in this study had experienced an expansion, since 1950, from a single four-year high school to six four-year high schools, each with an enrollment of over 1,500 students. This district had no typewriter replacement policy. The business department chairman of the oldest high school within the district explained how her school met the needs of a fluctuating enrollment. This district has kept all its old typewriters and added new machines when the enrollment increased. At times when the enrollment decreased, the typewriters that were not needed in the classrooms were loaned to offices throughout the school, as shown in the following statement:

We are a "poor" district with a steadily increasing student enrollment; therefore, we keep all our typewriters and add new ones as enrollment increases. Enrollments in our high schools fluctuate considerably. We reach a high peak; a new high school is opened

in the district and students transfer; our enrollment drops. When our enrollment is down we "loan" our extra typewriters to offices--the deans, attendance, counselors, department chairmen, etc. When the enrollment is high, we call back enough typewriters to care for our needs.²

Another district in the area had grown, since 1955, from one to three three-year high schools, each with over 1,500 students. This district at one time had a "non-written" replacement policy but because of the rapid growth in enrollment and limited finances the district had abandoned the policy. One business department chairman in the district wrote that replacements at his high school depended primarily upon the condition of the machines and availability of funds.³ The department head of a second high school in the district asserted, "When at irregular intervals replacements are made, the oldest equipment is traded."⁴ This chairman indicated that the classroom typewriters in his department would be kept 10 or more years before replacement. The business department chairman in the third and original high school within this district reported how his district kept all of its old machines but exchanged some of these for a share of the machines that were purchased when a new high school was equipped with typewriters, as shown in the statement:

Our district is expanding rapidly. We keep almost all of our old machines as stand-bys, and purchase new machines only when

²Chairman, Business Department, San Juan High School, San Juan Unified School District, Citrus Heights, California.

³Chairman, Business Department, Norte Del Rio High School, Grant Union School District, North Sacramento, California.

⁴Chairman, Business Department, Highlands High School, Grant Union School District, North Highlands, California.

it is absolutely necessary. When a new high school is opened, the new equipment purchased is divided among the other schools--and the new school takes some of the old equipment.⁵

One of the high school districts without a replacement policy had opened its high school four years ago and had experienced no need to replace its typewriters. The respondent of one of the older districts with an enrollment of less than 500 reported that his district had followed the practice of replacing classroom typewriters after from three to five years of service, depending upon available funds.⁶ The remaining six districts without replacement policies indicated that they replaced typewriters when it was impractical to repair old models and when money was available to purchase new typewriters.

In general it appeared that the practice of replacing classroom typewriters followed by districts which had no established replacement policy was determined largely by the amount of money available to be spent on the purchase of new typewriters. Increasing enrollments necessitated the purchase of additional typewriters which depleted the funds which would ordinarily have gone to finance the replacement of old equipment. Consequently, it became the practice in some districts to keep old typewriters in service for ten years or longer. One district not affected by growing enrollment replaced typewriters after three to five years' service which was comparable to the practice of the six districts which had established policies of replacement.

⁵Chairman, Business Department, Grant High School, Grant Union School District, North Sacramento, California.

⁶Chairman, Business Department, Clarksburg Union High School, Clarksburg, California.

The questionnaire was designed to discover what person had the responsibility for determining which classroom typewriters were to be replaced and whether things other than the age of the typewriter had an influence on the decision made. The report of these findings is given in the following section.

Determining Which Typewriters to Replace

When replacing typewriters, the larger high schools generally relied upon the recommendation of the business department chairman. This was true with schools having an established policy of classroom typewriter replacement as well as with those which did not. The department head in turn considered the recommendations of the classroom teachers. It was the feeling of one chairman⁷ that the teachers had been using the machines for a number of years and that their opinions were reliable. Upon the basis of these teachers' opinions the department chairman made his recommendations for replacement to the principal, and if the principal concurred the recommendation was placed before the district superintendent and the school board for final action. In the smaller high schools the typing teacher recommended replacement of classroom typewriters to the principal. In some instances the principal assumed the responsibility for replacements.

While some of the larger schools indicated that their classroom typewriter replacement policy or practice was based primarily on the age

⁷Chairman, Business Department, El Camino High School, San Juan Unified School District, Carmichael, California.

of the machines that they were replacing, all except two high schools indicated that they would not hesitate to replace a "newer" machine which gave poor service and keep an "older" machine that gave good service. The respondent from one of the districts which made an exception stated, "We just recently replaced some typewriters we had used for 20 years."⁸ It is apparent why the age of the typewriters was an important consideration for this district when it made replacements. The respondent from a small high school expressed her attitude in regard to the relative merits of some of the old and new equipment as follows:

It was our general policy to replace some typewriters every three years, but we decided the older ones were made to stand hard use better than the newer ones, so we decided to keep the old ones. We did get 12 new machines this year just because some of the others were getting so old--but they were still in good condition.⁹

This teacher's observation as to the durability of the new typewriters seemed to reflect an attitude that has prevailed generally relative to many consumer goods that have been put on the market during the past 15 years.

The general practice for deciding which classroom typewriters should be replaced seemed to be one of having the typing teachers designate the machines to be replaced. The teachers' recommendations were usually confirmed by the principal and forwarded to the superintendent and school board for final action.

⁸Chairman, Business Department, Placer High School, Placer High School District, Auburn, California.

⁹Chairman, Business Department, Lincoln Union High School, Lincoln, California.

The final section of the questionnaire was concerned with policies and practices of maintaining the typewriters in high school classrooms. The questionnaire was devised to allow a checkmark to designate how often typewriters were cleaned and serviced, if worn or broken parts were replaced as a part of the service, who performed the service, and whether or not the service was satisfactory.

Typewriter Maintenance Practices

In response to the inquiry into the area of typewriter maintenance, one large high school district indicated that its classroom typewriters were cleaned less than once a year, and one small district responded that its machines were cleaned oftener than once a year. The other 21 respondents indicated that their classroom typewriters were cleaned once a year and were serviced regularly throughout the year on a weekly, bi-weekly, or an "on call" basis. Only 20 per cent of the schools had servicing and maintenance contracts calling for replacement of worn or broken parts.

Except for two small high schools, all the districts under consideration solicited bids from interested agencies as a means of selecting a servicing agency. One small district gave its contract to an agency recommended to the district by a satisfied patron of the agency. The other small district, according to the respondent, had had the same serviceman for years.¹⁰ In no district was the maintenance work done by a district employee. The respondent from one large district commented upon the fact that a local serviceman had done his district's maintenance since 1946.¹¹

¹⁰ Ibid.

¹¹ Chairman, Business Department, Roseville Union High School, Roseville, California.

One three-year high school district with an enrollment of less than 500 students expressed some dissatisfaction with its maintenance and repair service. Another large high school was dissatisfied with the maintenance service the district received from the agency which was engaged because of its low bid. The other 21 high schools were satisfied with the maintenance service they received, and, except for one district of three high schools, none had changed servicemen last year. The excepted district had made a change because its previous serviceman was under bid.

In general, the 23 high schools responding to the questionnaire were satisfied with the arrangements they had for maintaining their classroom typewriters. The following section presents a general summary of the typewriter replacement and typewriter maintenance policies and practices of these high schools.

Summary

One purpose for making a survey of schools was to discover what policies and practices were being followed by the high schools in four California counties relative to the maintenance and replacement of classroom typewriters. The following are summary points on these policies and practices:

1. Six out of 16 high school districts had established classroom typewriter replacement policies.

2. High school enrollment had no affect on establishing a policy; there was no apparent distinction between three-year and four-year high schools.

3. Some of the established replacement policies had been in effect for longer than five years; others were of more recent origin.

4. The average number of years a classroom typewriter was used before replacement was five years.

5. School districts which had established classroom typewriter replacement policies had been in existence for many years.

6. Districts with established policies were not located in areas which had experienced rapid population growth during the past 10 or 12 years.

7. Nine out of 17 high schools which had not established replacement policies were restricted in their replacement program because of limited finances.

8. Eight high schools had found it necessary to keep their old classroom typewriters in addition to purchasing new typewriters in order to have enough equipment on hand to meet the instructional needs of increased enrollments.

9. High schools which had opened recently with new equipment generally had experienced no need to replace their classroom typewriters.

10. In most of the districts the task of deciding which particular typewriters were to be replaced was left up to the classroom typing teachers.

11. In the larger high schools the teachers' recommendations for replacement were subject to the approval of their department chairman and high school principal, and eventually to that of the district administrator and the school board.

12. In the small high schools the principal's decision often carried considerable weight when replacing classroom typewriters.

13. Fourteen out of 16 districts indicated that some older reliable typewriters were kept while other less reliable newer machines were replaced.

14. Generally speaking the maintenance service contracted by the high schools was satisfactory.

15. In five districts the maintenance service contract called for the replacement of worn or broken parts without charge.

16. Fourteen out of 16 districts had their classroom typewriters cleaned and serviced once a year, and were provided maintenance service throughout the school year on the same contract.

17. Most of the districts solicited bids when selecting an agency to provide maintenance and service.

The policies and practices of classroom typewriter replacement and maintenance which are followed in the high schools of four counties in California were given in this chapter. Chapter 5 will present a general summary of this investigation together with conclusions and recommendations.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem of this investigation was to discover what policies and practices relative to high school classroom typewriter replacement and maintenance were being recommended by authorities in the field and what policies and practices were being followed by the high schools in four counties in California. Answers to the problem were sought through: (1) a review of literature to determine the attitudes of authorities on the subject of classroom typewriter replacement and maintenance, (2) a survey of business organizations to learn if any standards had been established for the replacement and maintenance of classroom typewriters, and (3) a survey of 26 high schools in 17 districts located in Placer, El Dorado, Sacramento, and Yolo Counties in California to discover the policies established or practices followed by these high schools in providing for dependable equipment in their business department classrooms.

Summary

In the survey of authorities concerning policies and practices of maintaining and replacing classroom typewriters it was found that through a combination of preventive maintenance carried on by the teacher and students in the classroom and the services provided by a dependable maintenance agency under contract typewriters can be kept operating efficiently for many years. To keep up with the changes that are incorporated in new model typewriters, however, there was a feeling that school districts should establish policies of replacement that will provide some new equipment each year. The replacement of classroom typewriters after from five

to seven years of service was found to be recommended as a desirable policy.

The business organizations that were surveyed did not make recommendations or suggest standards that could be used for establishing a policy for typewriter maintenance and replacement in the high school classroom. There was a feeling that too many factors were involved to make uniform standards practical.

The survey of 16 high school districts showed that six districts had established policies of classroom typewriter replacement. Generally these high schools had been in existence for some time and were not located in areas of recent population growth. The size of the high school was of no apparent significance. On an average, typewriters were replaced after five years' service.

High schools without established policies of classroom typewriter replacement were generally restricted in their replacement practices by the finances available to purchase new equipment. Districts in areas of expanding population generally kept their old equipment in service for more years than would be practical under ordinary circumstances. The responsibility of deciding which typewriters were to be replaced usually was the task of the classroom teacher, with administrative approval. All of the 23 high schools surveyed provided for a maintenance service to keep their classroom typewriters cleaned and in an efficient operating condition. In practically every instance the maintenance service that was provided was satisfactory.

Detailed summaries of the findings of this investigation relative to classroom typewriter replacement and maintenance are found at the

ends of the second, third, and fourth chapters.

Conclusions

Evidence brought forth in this investigation lends itself to the conclusion that in general high schools do not have established policies of classroom typewriter maintenance and replacement. Another conclusion which could be drawn is that although a minority of high schools have established maintenance and replacement policies, all districts provide for the maintenance of their classroom typewriters. There is evidence that the practices of typewriter replacement that are now being followed are determined largely by the particular situation within each district. A final conclusion which could be drawn from the evidence brought forth in this investigation is that from the standpoint of equipment costs and instructional efficiency it is considered sound policy to replace classroom typewriters after about six years of use.

Recommendations

The results of this investigation suggest the three following recommendations that should serve to guide a high school district in formulating a policy of classroom typewriter maintenance and replacement:

1. Each teacher of typewriting should emphasize the care and maintenance of the classroom typewriters, and work with students in an effort to keep the machines in a serviceable condition.
2. A dependable servicing agency should be under contract whose duty it is to inspect, clean and repair all classroom typewriters not under dealer contract. This service should be performed once a year, with periodic maintenance service provided throughout the school year.

3. Whenever replacing old classroom typewriters, the typing teachers and business department chairman should determine the typewriters to be replaced.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Anderson, Ruth I., Professor of Business Education, North Texas State College, Denton, Texas, personal letter, October 23, 1961, in answer to inquiry.
- Bargen, Bernard, "Your Typewriter Repair Dollar," Business Education World 27:18-19, September, 1946.
- Brady, Mary Margaret, "Teach Cleaning the Typewriter," The Journal of Business Education 28:24-26, October, 1952.
- Collins, W. B., Assistant National Sales Manager, Smith-Carona Marchant Inc., New York, N. Y., personal letter, November 2, 1961, in answer to inquiry.
- Fehrenbacher, Albert W., and Thompson, James M., "Teachers Can Make Minor Typewriter Repairs," Balance Sheet 34:211, January, 1953.
- Gotsinger, J. Wilson, and Ashworth, Philip B., "Typewriter Replacement Policies of Large United States Cities," Balance Sheet 36:117, November, 1954.
- Gotsinger, J. Wilson, and Patrick, Charles W., "Is It Time for Typewriter Replacement?" The School Executive 72:67, October, 1953.
- Graff, Doris M., Director Inquiry Service, National Office Management Association, Willow Grove, Pennsylvania, personal letter, October 25, 1961, in answer to inquiry.
- Grey, V. G., Mechanical Engineer, American Standards Association, New York, N. Y., personal letter, November 15, 1961, in answer to inquiry.
- Kimball, N. C., Education Department, Underwood Corporation, New York, N. Y., personal letter, November 9, 1961, in answer to inquiry.
- Lahl, Edgar, "How Often Should You Replace Class Typewriters?" Educational Business, August, 1958, distributed as leaflet by Royal McBee Corporation.
- Lloyd, Alan C., "How Old Are Your Typewriters?" Business Education World 35:30-31, September, 1954.
- National Office Management Association Quarterly Survey, "Value of Maintenance Contracts," excerpts from Office Executive, September, 1958, 9 pp.
- Skimin, Eleanor, "Keep Your Typewriter in Tune!" Business Education World, 26:227-230, February, 1946.

- Traves, Dorothy L., "Don't Call the Repair Man--Unless . . . !" Business Education Forum 7:13-15, November, 1952.
- Walters, R. G., and Nolan, C. A., Principles and Problems of Business Education, South-Western Publishing Co., Cincinnati, 1958, 184 pp.
- Whale, Leslie J., "How Detroit Schools Handle Typewriter Repairs," Business Education World 41:14-15, March, 1961.
- Willins, Stella, Manager, School Department, Royal McBee Corporation, New York, N. Y., personal letter, November 2, 1961, in response to inquiry.

APPENDIX

Appendix A

QUESTIONNAIRE CONCERNING DISTRICT POLICIES AND PRACTICES OF
REPLACING AND MAINTAINING TYPEWRITERS IN HIGH SCHOOL
BUSINESS DEPARTMENT CLASSROOMS

A. Please check the following items for your high school:

- | | |
|---|---|
| 1. Name of district: _____ | 5. Number of students in high school: _____ |
| 2. Name of high school: _____
(if different from district) | a. Less than 250 _____ |
| 3. Location of high school: _____
(city) | b. 251 to 499 _____ |
| _____ (county) | c. 500 to 999 _____ |
| 4. Type of high school: _____ | d. 1000 to 1499 _____ |
| a. Four year _____; b. three year _____ | e. More than 1500 _____ |

B. The following questions concern policies and practices of replacing old typewriters with new typewriters in business department classrooms. Please indicate the policy and practice in your school by checking under "Yes," "No," or "Does Not Apply."

- | | Yes | No | Does Not
Apply |
|---|-------|-------|-------------------|
| 1. Has your district an established policy for replacing typewriters used in the business department classrooms? | _____ | _____ | _____ |
| 2. If the answer to the first question is "Yes," has your replacement policy been in effect for five or more years? | _____ | _____ | _____ |
| 3. If the answer to the first question is "Yes," has your replacement policy been in effect less than three years? | _____ | _____ | _____ |
| 4. If the answer to the first question is "Yes," has your replacement policy been changed within the last three years? If so, please explain. | _____ | _____ | _____ |
| 5. If your district had a replacement policy and has for some reason abandoned it, please explain. | | | |
| 6. If your district has no typewriter replacement policy, who decides the replacement practice? Please explain. | | | |

- | | <u>Yes</u> | <u>No</u> | <u>Does Not
Apply</u> |
|---|------------|-----------|---------------------------|
| 7. Is your replacement policy or practice based entirely on the age of your typewriters? | _____ | _____ | _____ |
| 8. Is your replacement policy or practice based entirely on the typewriter's record of service? | _____ | _____ | _____ |
| 9. Is your replacement policy or practice based on a combination of typewriter age and record of service? | _____ | _____ | _____ |
| 10. Have you within the past five years replaced a "newer" typewriter because of its poor record of service? | _____ | _____ | _____ |
| 11. Have you within the past five years retained an "older" typewriter because of its good record of service? | _____ | _____ | _____ |
| 12. Is your typewriter replacement policy or practice based on something other than age of machine or record of service? (If your answer is "Yes," please explain.) | _____ | _____ | _____ |
| 13. If years of service is an item considered when replacing typewriters, after how many years of service is it your policy or practice to replace typewriters in your business department classroom? | | | |

Years of Service Before Replacement

- | | | | |
|-----------------|-----------------|-----------------|---------------------|
| a. 3 Yrs. _____ | c. 5 Yrs. _____ | e. 7 Yrs. _____ | (Please
explain) |
| b. 4 Yrs. _____ | d. 6 Yrs. _____ | f. Other _____ | |

C. The following questions concern policies and practices of maintaining the typewriters in your business department classrooms.

14. How often are the typewriters in your business department classrooms cleaned and serviced by a contracted agency?

- | | |
|--------------------------|-------|
| a. Once a year | _____ |
| b. More than once a year | _____ |
| c. Less than once a year | _____ |

15. Is the agency responsible for cleaning and servicing typewriters in your business department classrooms

a. A district employee? _____

b. An agency solicited by bid? _____

c. An agency recommended by a satisfied patron? _____

d. Other (Please explain) _____

	<u>Yes</u>	<u>No</u>	<u>Does Not</u> <u>Apply</u>
16. Does your contract for servicing include the replacement of worn or broken parts without cost?	_____	_____	_____

17. Were you satisfied with the maintenance and repair service you contracted last year?

18. Have you changed your maintenance and repair servicing agency since last year?

E. If your district has adopted a policy relative to typewriter replacement in your business department classrooms, I should very much appreciate having a copy of that policy returned with this questionnaire.

F. If you have any comments that you would care to make relative to the replacement, maintenance and repair of classroom typewriters, please use the space below.

Appendix B

Copy of Letter Sent with Questionnaire

Street Address
City, State
Date

Dear Sir or Madam:

May I request a few minutes of your time and ask you to complete the accompanying questionnaire and return it to me. A return envelope is enclosed.

As a part of my graduate work at Montana State College I am investigating school district policies and practices relative to classroom typewriter replacement and maintenance. I am wondering if many districts have adopted policies covering these matters. If they have, I would like to know about them; if they haven't, I would like to know what procedures districts follow in handling typewriter replacement and maintenance. That is the purpose of my letter to you--to ask you for assistance in getting this information.

Previous to this year I taught for 13 years in the business department at Folsom, California. I am on sabbatical leave this year. In formulating recommendations for a policy of typewriter replacement and maintenance for the Folsom district, I am anxious to pattern such recommendations after policies and practices that prevail in the districts in the Sacramento area. For that reason I shall value your prompt response.

Yours very truly,

Dale E. Moore

Appendix C

Copy of Letter Sent to Business Organizations

Street Address
City, State
Date

Gentlemen:

As a graduate student of Business Education at Montana State College, I am investigating current policies and practices of high school districts relative to classroom typewriter maintenance and replacement.

I shall appreciate information you can send me relative to replacement standards your organization recommends, plus any other pertinent materials--or suggestions you could make--that bear on the general area of classroom typewriter maintenance and replacement.

Sincerely,

Dale E. Moore