1953

Business education facilities in large high schools

Maurice Francis Egan

The University of Montana

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BUSINESS EDUCATION FACILITIES IN LARGE HIGH SCHOOLS

by

Maurice F. Egan
B.A., Montana State University, 1949

Presented in partial fulfillment of the requirements for the degree of
Master of Education

MONTANA STATE UNIVERSITY
1953

Approved by:

[Signatures and dates]

[Signatures and dates]
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CHAPTER I

INTRODUCTION

The next ten years will see many changes and improvements in business education, particularly on the secondary school level. Current trends show that a transformation is taking place which will result in increased enrollments in business subjects, increased financial outlay for equipment and facilities, significant changes in curriculum and objectives, and a new faith in and emphasis on research.¹

Business educators must be prepared to meet the challenge of the coming decade. The quality of business education during this period will be determined to a great extent by the willingness of business educators to accept their responsibilities in planning for the increased enrollments. One of the responsibilities which the business educators must accept is the planning of new facilities. Adequate physical facilities are a prime requisite for a satisfactory business education program.

I The Problem

The purpose of this study was to determine what facilities were recommended for business education in high schools with enrollments of 1500 to 2000 students. A survey was made of published materials in business education for the five-year period, 1948-1952. Available materials were reviewed with reference to their recommendations concerning

Specifically, the intent of this study was to collect information with regard to the following questions:

1. How should the business education department be set up as a unit?

2. What are the types and numbers of rooms recommended for a business education department?

3. What should the layout of the business education department be with regard to its internal arrangement?

4. What are the common basic physical requirements for all business education rooms?

5. What are the specific physical requirements for each of the business education rooms?

6. What are the types and numbers of equipment recommended for each of the business education rooms?

II The Purpose

Our schools face a period of rapidly increasing enrollments. These increased enrollments will cause a variety of problems which must be solved by our educators. Rowe states the implications of increased enrollments as they affect business educators:

Business educators are faced today with a complexity of problems and must use every possible source of ideas in order to confront with confidence the immense tasks ahead. All of us are aware of the rapid growth of school population. Our secondary enrollment will
probably double within ten years.\(^2\)

One of the problems which educators will have to face is the space requirements for the additional students. The educators will need to know what the space requirements are for different areas of instruction and how that space can be laid out for maximum learning efficiency. An additional problem concerning the physical plant is the type and amount of equipment which will be needed in the various areas of instruction.

The laying out and the equipping of rooms in fields such as business education is a complex undertaking because of the specialized instruction given and the variety of equipment used. Administrators, who are primarily responsible for planning the physical plants, cannot be expected to be familiar with current ideas in all the fields of education. Whitcraft believes that it is desirable to set up tentative criteria for the guidance of those who have the major responsibility of selecting equipment for the business department.\(^3\) In this study an attempt was made to bring together some of the current recommendations in business education which might be of assistance to those schools which are facing an expansion of facilities.

---


\(^3\)Whitcraft, *loc. cit.*
III The Scope

This study was limited to high schools with an enrollment of 1500 to 2000 students. The data presented are for senior high schools with grades nine through twelve or ten through twelve. The Business Education Index\(^4\) lists annually articles concerning business education compiled from a selected list of periodicals and yearbooks. A study was made of the materials listed in this Index concerning business education facilities for the period, 1948-1952. The Education Index\(^5\) was consulted for publications containing recommendations as to the physical characteristics of classrooms in general. Those materials which were carried by the Montana State University Library were reviewed and the recommendations contained in them were presented. Books on business education were also reviewed and their recommendations presented. The 1953 edition of The American Business Education Yearbook\(^6\) was included in the study.

IV The Limitations

Little standardization exists in education as to the


size and layout of physical plants. Differences in funds available for new construction and differences in the educational offerings desired in various sections of our country have brought about differences in physical layouts.

Likewise, in specialized areas of instruction little standardization exists in regard to layouts and equipment. Research and experience, however, have caused certain recommendations to be made regarding layouts and equipment. This study attempts to bring together those recommendations which have been made concerning business education facilities during the five-year period, 1948-1952. As more research is completed, as teaching methods are changed, and as new equipment is developed, these recommendations will be subject to revision.

Recommendations such as those stated in this paper may be used as a guide in solving the individual problems of a school. These recommendations should not be considered to be a set of rigid specifications but rather as aids to planning.
CHAPTER II

BUSINESS EDUCATION IN THE MODERN HIGH SCHOOL

"Business education may be defined as that phase of education that deals directly with the relationships, attitudes, skills, and knowledges necessary to understand and to adjust to that great economic and social institution, business."1

Business education received an early start in the American high school. As indicated by Walters and Nolan, two years after the establishment of the first American high school in Boston in 1823 bookkeeping was added to the curriculum.2 Walters and Nolan, in tracing the growth of business education in America, add that although business education had gained little more than a foothold in our public schools by 1900, it has assumed today a prominent position in American education. Evidence of the present importance of business education was indicated by its status in New Jersey and California which report that 100% of their high schools offer well-defined business curriculums.3 Langenbach found that of 176 Montana high schools listed on the State Department of Public Instruction Reports, only


3Ibid., p. 2.
about one per cent did not offer some commercial course within a two-year period.⁴

I Aims and Objectives

Business education has two major functions in the secondary school. The first function is to provide a program of vocational training for high school students. The aim of vocational training is to provide qualified and interested students with the skills, understandings, and attitudes necessary to enter a business occupation. The second major function of business education is to contribute to the general educational program of all students by providing a program of social-economic understandings. The aim of this phase of business education is to provide all students with a background of economic understandings so that they may better adjust themselves to the business world with which they will come in contact. This phase of business education contributes to the "economic efficiency" objective of general education.⁵

There appears to be agreement among educators that both of these functions are of fundamental importance.


Hayden, in his study of the major issues of business education, found that ninety-five per cent of a selected group of educators agreed that the aim of business education is, "to provide vocational training as well as to contribute to the general education of all students -- both functions of fundamental or basic importance."\(^6\)

II The Curriculum

The function of the business curriculum is to accomplish the aims and objectives of business education. As the aims and objectives of business education change, the curriculum will also change. The curriculum will also undergo revision as new methods and techniques of teaching are developed and new equipment is invented. The business curriculum in the modern high school is not, therefore, a pattern of subjects which is static. The evaluation and revision of the business curriculum is an omnipresent phase of the educational program.

The business curriculum offerings will vary with the size of the school and the number of specializations to be offered in the school. McGill said,

The greater enrollment and the wider range of business employment opportunities make it feasible for the larger high school to offer a student his choice of different specializations in vocational business education. What these specializations should be will depend upon the

\(^6\)Hayden, op. cit., p. 2.
needs of the area served and the facilities that can be made available.\(^7\)

Since there is this variation in business curriculums, it is not possible to state a curriculum which will meet the needs of all large high schools. McGill lists, however, four areas of major specializations which are increasing in importance in the large high schools:\(^8\)

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\(^8\)Loc. cit.
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CHAPTER III

THE BUSINESS EDUCATION DEPARTMENT AS A UNIT

In reviewing materials on the planning of the business education department as a unit the following problems were considered:

1. Basic design of the department.
2. Location of the department.
3. Number and types of rooms needed.
4. Internal layout of the department.

I. Basic Design of the Department

The determination of the basic design of the business education suite will be influenced by the design of the school plant. The shape of the building, the number of floors, location of the school offices, and the location of supply facilities are some of the factors which will influence the design of the department.

Boyer and Featherstone listed five general factors as influencing the basic design of the business education suite.

1. The geographical location of the school building. Climatic conditions will affect the design of the structure.

2. The kind or type of school, whether it is a business school, general high school, vocational, co-educational, or private school.

3. The number and ages of pupils who will utilize the area.
II Location of the Department

The business education department will operate more efficiently if it is planned as a functional unit. The rooms in the department should be located together as a unit and should not be planned in different parts of the building. If possible, the location of the department in a separate wing of the building would be desirable because of the noise producing activities carried on and because of the number of students who will be taking classes within the department.

Plask and Freeman have summarized eight principles to be considered in the location of the business department.

1. Most authorities agree that the business department should be located on the northern or eastern side of the school building to assure the greatest amount of natural light. If it is impossible to accommodate the complete department in this part of the building, at least the bookkeeping and typewriting rooms should be located there.

2. Since the business department services the administrative offices, a first floor location near the general offices is advisable.

3. The first floor is further desirable because it eliminates much of the noise which is usually transferred through direct vibration of floors.

4. The strongest argument against a first-floor location is the possibility of theft of the costly

---

machine equipment because of easy access.

5. All related business subjects should be grouped in the same part of the building, preferably near a stairway.

6. The typewriting and machine rooms should be located over the cafeteria or shops if the business department is placed on the second floor.

7. Locating typewriting and machine rooms near lavatories facilitates the washing of hands with a minimum of disturbance and waste of time. Even if there is a wash basin in the machines room it takes considerable time for thirty students to wash.

8. Street noises, playgrounds and building design will determine whether the department would be located in the front, side, or rear of the building.²

III Number and Types of Rooms

To determine the number of rooms necessary to house the business education department it will be necessary to ascertain the following items of information:

1. The past, current, and estimated future enrollments of the school.

2. The past, current, and estimated future enrollments in business education.

3. An analysis of the present curriculum, together with any anticipated changes.

4. The special facilities which will be required.

5. The desirable pupil-teacher ratio in the school.

6. The number of class periods the room will be used.
7. The room utilization factor which is to be used in the department.
8. The length of the periods and the number of periods in the school day.

If the data are available for past total school enrollments in proportion to past business enrollments for a period of years, it is possible to estimate future business enrollments in the same ratio. In comparing the past business enrollments to total school enrollments, each business subject which has been taught must be taken into consideration. Planned curriculum revisions must be considered in the estimating of future enrollments in business. Some data are available in the field of estimating business education enrollments. Freeman indicated,

School-building consultants have found that approximately one-fourth to one-third of the pupils in senior high schools are enrolled in business classes. In some large city schools, business department plans are based on the assumption that approximately forty per cent of the student body will take at least one business subject.  

A decision must be reached on each of the other items of information listed above before the number of rooms needed can be determined. When all of these items are known, the number of rooms needed can be computed by the use of a formula such as the one suggested by Boyer and Featherstone.

---

A modification of Anderson's formula is used by the school-building planning division of the Bureau of Educational Research, Ohio State University, in space requirements of this kind. The modification provides a utilization factor which allows one or two free periods per day (depending upon the number of periods in the school day) for each room.4

Table I shows a Planning Table set up by Boyer and Featherstone5 which illustrates how the modification of Anderson's formula may be applied. The program of the high school for which the Planning Table was constructed was based on six one-hour periods per day. One free period a day was allowed which determined the room utilization factor of 83%. A pupil-teacher ratio of 30:1 was set up. The number of pupils was estimated for each subject in the proposed curriculum. It can be noted in the Planning Table that specific areas of instruction, such as shorthand and typewriting were grouped together to form units. It can be seen from the Planning Table that in some cases a fraction of a room was needed. In such cases, when it is possible to do so, one room would be utilized to do the work of two. In this particular Planning Table, 3.33 rooms were needed for typewriting and .40 rooms were needed for Shorthand II. An extra typewriting room was added in which the Shorthand II could be taught.

Some research has been done to aid schools in determining the number of rooms needed in a business education

4Boyer and Featherstone, op. cit., p. 40.
5Ibid., p. 41.
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<th>Pupil-periods per week</th>
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<td></td>
</tr>
<tr>
<td>Salesmanship</td>
<td>9</td>
<td>5</td>
<td>45</td>
<td></td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Total Bookkeeping and General</td>
<td>237</td>
<td>5</td>
<td>1,185</td>
<td></td>
<td>1.59</td>
<td>2</td>
</tr>
<tr>
<td>Typewriting I</td>
<td>360</td>
<td>5</td>
<td>1,800</td>
<td></td>
<td>2.41</td>
<td></td>
</tr>
<tr>
<td>Typewriting II</td>
<td>135</td>
<td>5</td>
<td>685</td>
<td></td>
<td>.92</td>
<td></td>
</tr>
<tr>
<td>Total Typewriting</td>
<td>495</td>
<td>5</td>
<td>2,485</td>
<td></td>
<td>3.33</td>
<td>4</td>
</tr>
<tr>
<td>General Business</td>
<td>120</td>
<td>5</td>
<td>600</td>
<td></td>
<td>.80</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1,181</td>
<td>5</td>
<td>5,915</td>
<td></td>
<td>7.92</td>
<td>9</td>
</tr>
</tbody>
</table>

6 Boyer and Featherstone, loc. cit.
department. Table II, page 18, illustrates the recommendations of R. C. Goodfellow, Director of Business Education in Newark, New Jersey, as quoted by Freeman. Table III, page 19, shows a room schedule as given in the recently completed California study of business education layouts and facilities.

IV Layout of the Department

The business education department should be laid out on a functional basis. Five layouts for a proposed business education department in a school of 1500 students were illustrated in The American Business Education Yearbook. An analysis of these layouts has revealed the following characteristics which are found in all the layouts. (A statement of the apparent values of these characteristics in planning layouts for business education is given.)

1. Shorthand rooms were placed adjacent to the typewriting rooms. This would allow classes to pass easily from typewriting to shorthand, and vice versa. These subjects are often taken concurrently.

7Freeman, op. cit., p. 36.


The total enrollment take at least one business subject. Note: This table assumes that approximately 70% of the total high school enrollment.

<table>
<thead>
<tr>
<th>Total High School Enrollment</th>
<th>2000</th>
<th>1500</th>
<th>1000</th>
<th>500</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Rooms Required</td>
<td>15</td>
<td>10</td>
<td>7</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>No. of Typewriting Rooms Required</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>No. of Bookkeeping Rooms Required</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No. of Secretarial Practice Rooms Required</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other Rooms Required</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Business Enrollment</td>
<td>500</td>
<td>400</td>
<td>300</td>
<td>150</td>
<td>60</td>
</tr>
</tbody>
</table>

Table II

**TABLE II**

**Special Business Rooms Recommended for Schools**

**OP VARIOUS ENROLLMENTS TO**
TABLE III

ROOM SCHEDULE FOR SUBJECTS USUALLY GIVEN BY SCHOOLS IN THE 1600-2000 DIVISION

<table>
<thead>
<tr>
<th>Subjects</th>
<th>No. of Classes</th>
<th>Enrollment Per Class</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typewriting Room</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning Typewriting</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td><strong>Typewriting Room</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning Typewriting</td>
<td>4</td>
<td>33</td>
</tr>
<tr>
<td>Advanced Typewriting</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td><strong>Typewriting Room</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Typewriting</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>Transcription</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Office Practice Room</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Office Practice</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>Secretarial Office Practice</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Coop. Office Practice</td>
<td>1*</td>
<td>--</td>
</tr>
<tr>
<td><strong>Distributive Education Room</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salesmanship</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Merchandising</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>Coop. Training Program</td>
<td>1 (2 periods per day)</td>
<td>--</td>
</tr>
<tr>
<td>Business Law</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td><strong>Bookkeeping Room</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bookkeeping</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>Business Mathematics</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td><strong>Shorthand Room</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shorthand</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Business English</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td><strong>Classroom</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business English</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td>Basic Business</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>Business Mathematics</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>Business Law</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td><strong>Departmental Office and Conference Room</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Students work during various periods -- room may be reserved as a laboratory for 1-2 periods for machines use and remedial training

\[11\] Basset, loc. cit.
2. The department chairman's office was given a central location within the department. This office is the coordinating center for the work of the department, and a central location seems desirable.

3. The department storeroom was placed next to or across the corridor from the department chairman's office. Since the responsibility for supplies lies primarily with the department chairman, this location would make his work easier.

4. Typewriting rooms were placed at one end of corridors while social or basic business rooms are placed at the other end. This arrangement should facilitate traffic flow since the grade placement of these areas tends to be different. An additional value is the grouping of the noise producing equipment in one section of the department.

5. Secretarial practice and office practice rooms were placed next to each other. This allows the students in each of these rooms to use the facilities of the other room.

6. Rooms in each of these areas of instruction -- bookkeeping, social business, and secretarial -- tended to be grouped together. This would also be an aid in controlling the traffic flow.

Figure 1, page 21, shows one of the layouts illustrated in The American Business Education Yearbook. This

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PROPOSED PLAN OF NEWARK BUSINESS DEPARTMENT

Key

1 Secretarial Practice  6 Social Business
2 Office Machines  7 Social Business
3 Bookkeeping  8 Bookkeeping
4 Shorthand  9 Shorthand
5 Typewriting  10 Typewriting

---

13 Kahn, loc. cit.
figure was a plan submitted for the proposed business education department of a Newark, New Jersey high school. This plan was submitted by Kahn. It illustrates the six characteristics of department layouts given above.

The following chapters of this study are concerned with the physical characteristics and the equipment of the types of rooms which may be needed in the business education department. The types of rooms listed in Table III, page 19, were selected for study. The following outline was set up to present the recommendations given for the individual rooms:

A. Activities Carried On.
B. General Physical Characteristics.
C. Type of Furniture to be Used.
D. Type of Equipment to be Used.
E. Storage Space.
F. Provision for Audio-Visual Aids.

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CHAPTER IV

BASIC PHYSICAL REQUIREMENTS FOR ALL BUSINESS EDUCATION ROOMS

There are two general principles to be considered in planning all the rooms of the business education department. The first principle is that business education rooms should simulate business environments to the extent that such simulation is practical. One of the objectives of business education is vocational competency, which includes training in desirable skills, habits, and attitudes. That such training should be given in an environment similar to the one in which the student will later work would seem to be desirable.

The second principle to be considered in the planning of the business rooms is that the physical atmosphere should be conducive to the learning process. As Popham stated this principle,

The whole atmosphere of the business department is reflected in the appearance of the rooms. Students should be happy in school, and one important factor in making them happy and helping them enjoy school is giving them an attractive environment.¹

Recommendations as to certain basic physical characteristics for all the rooms in the business education department were found. These recommendations may be grouped

in the following areas:

1. Lighting.
2. Decoration.
3. Flooring.
4. Acoustics.

I Lighting

The importance of lighting in the classroom is indicated by Adams who quotes a United States Department of Education estimate that eighty per cent of a child's learning is through his eyes and that twenty per cent of all children have visual handicaps.¹

Business students perform a large amount of visual activities in reading, writing, typewriting, and working with numbers. Adequate lighting must be provided for business education rooms if maximum learning with a minimum of eye strain is to take place.

Of primary importance in the planning of lighting facilities is the number of footcandles of light required. Wakefield stated with regard to the number of footcandles,

There is general agreement throughout the Illuminating Engineering Society and among individual engineers that a minimum of thirty footcandles of light is necessary for good seeing. Close work may be helped by a lighting level of fifty footcandles and there are some classrooms and offices in which intensities range

up to 100 footcandles or higher.\(^3\)

The California study suggested a minimum of forty footcandles of high quality lighting, evenly distributed throughout the business education rooms.\(^4\) This study gave this statement as to the validity of such a recommendation.

1. The nature of classwork in most business subjects requires rapid reading of materials containing numbers, and close attention must be given to details.

2. Evening classes in business education for adults are among the most commonly given; thus lighting should be adequate for close reading at night.\(^5\)

In addition to the amount and distribution of footcandles, there are other factors to be considered in adequate lighting facilities. The elimination of glare is one of the most important of these factors. The California study stated, "All sources of high brightness, such as the sky, ground, and electric light fixtures must be shielded from the students' visual fields if good seeing conditions are to be provided."\(^6\) Reflected glare which is caused by the reflection of light from a highly polished surface into the students' eyes is a lighting hazard. Highly polished or varnished surfaces of the equipment and furniture should be avoided.


\(^5\)Loc. cit.

\(^6\)Loc. cit.
The composition and color of the walls and floor as they affect lighting are considered in Part II, Decoration, and Part III, Flooring, of this chapter.

The amount and location of window space must be considered in lighting. A summary of the plans submitted in the national competition for better school design, sponsored by the School Executive, points out that emphasis on abundant lighting was an outstanding characteristic of the plans. It further indicates that continuous fenestration seemed to have been a "must" in the minds of most of the designers. Light from the left will probably prove best except in the typewriting room where light should be from the right because of the position of the copy.

In selecting lighting fixtures the cost, efficiency, and maintenance should be considered. Burda recommended the fluorescent indirect luminaire for high schools, stating that although the original cost is higher than the filament type, the efficiency is higher.

Wakefield summarized the basic principles as to the lighting of classrooms by saying, "In brief, then, 'seeing comfort' results from having (a) enough light (b) controlled to eliminate brightness-darkness contrasts, with (c) the

---


II Decoration

Planners of classrooms are concerned not only with conserving the students' eyesight but with establishing a pleasant working atmosphere. As Adams said,

The psychological effect of color and light is of prime consideration in planning schoolrooms. The old-fashioned dark wood floor is giving way to modern resilient materials, preponderantly asphalt tile, and stark white walls are receding before pastels and lighter tones which reduce eye irritation and conserve sight.\(^9\)

The first consideration in regard to the colors to be used for decoration is the effect of the colors upon the lighting of the room. Every surface within a classroom, ceiling, walls, floor, and furniture, affects the lighting of the classroom. If an incorrect color tone is used on one of the surfaces, light reflection will be too great or too small; the light in the room will be too dim or too bright. Adams discussed the importance of the decorations with regard to lighting as follows,

Today most classroom walls and ceilings are treated with paint which has the proper reflective value according to the standards of the Illuminating Engineering Society.\footnote{Wakefield, \textit{loc. cit.}} Standards of the Illuminating Society, approved by the American Standards Association, call for eighty-\textdegree;\footnote{Adams, \textit{loc. cit.}}
five per cent reflection of light from ceilings --
fifty to sixty per cent from the walls -- thirty to
thirty-five per cent from desks and table tops -- and
fifteen to thirty per cent from floors.\[^{11}\]

The colors to be used in the decoration of business
classrooms are generally based upon the psychological effect
of the colors. Allen said, "The illuminating engineer is
not too concerned with the exact color used so long as it
is within the recommended reflectance range."\[^{12}\] In addition
to the psychological effect, the selection of the colors to
be used in various rooms will be influenced by the direction
of the exposure and the size of the room. Allen continues
his discussion as to selection of colors for classroom walls
as follows,

Blues and greens are considered to be cool colors.
They are frequently recommended for west and south
exposure rooms which they may feel overly warm due to
sunshine. On the other hand, the creams, corals, peach-
es, and tans, are warm colors. They are frequently
recommended for north or east exposure rooms. The cool
pastel colors are receding colors and tend to make a
room seem larger. The reverse is true of the warm col-
ors. Greens are quiet colors while blues tend to create
chilly atmospheres and should be used with warm colors.
Light grays find considerable popularity when used on
one wall.\[^{13}\]

The ceiling is a highly important area in lighting
because of its reflectance value. Wakefield believed that
the ceiling should be white with a reflectance of not less

\[^{11}\text{Adams, loc. cit.}\]

\[^{12}\text{J. Allen, "Classroom Finishes for Visual}
Comfort," American School Board Journal, 126:58, January,
1953.}\]

\[^{13}\text{Ibid., p. 59.}\]
than eighty per cent of the light cast upon it.\textsuperscript{14}

III Flooring

The floors of classrooms are also important areas in the consideration of the lighting facilities. As indicated previously, the Illuminating Engineering Society recommended that floors have fifteen to thirty per cent reflection of light.\textsuperscript{15} This reflectance factor must be considered when selecting the flooring materials. Asphalt tile for floors was recommended by several authorities, including Adams, who said,

\begin{quote}
The majority of floors are of asphalt tile which meets the standards of the Illuminating Engineering Society. Use of asphalt tile as a floor covering for about two-thirds of all classrooms is recommended in Planning Secondary School Buildings, which was written by a group of educational building consultants.\textsuperscript{16}
\end{quote}

The desirability of the use of asphalt tile for flooring was further indicated in the School Executive, which summarized a study made by the American School Publishing Company. In this study, architects of 1000 buildings built between 1930 and 1950 were asked to express their preference with regard to floors. The results of this study showed a marked trend toward the use of asphalt tile for classroom floors. More than one-half the architects expressed a

\textsuperscript{14}Wakefield, loc. cit.
\textsuperscript{15}Adams, loc. cit.
\textsuperscript{16}Loc. cit.
IV Acoustics

Business education rooms which house machines should receive special acoustical treatment for two reasons. The noise producing activities carried on in these rooms should not be allowed to interfere with work in adjacent classrooms. Soundproofing is also essential for the best possible working conditions within a noise producing area. Burda stated that soundproofing will cause an increase in the efficiency of the students in the room where machines are used.\(^{18}\)

One fact to be remembered is that soundproofing does not stop the noise in the room. As Nocar remarked, "Sound conditioning in itself does not stop noise. . . . The loudness, however, is lessened in a sound conditioned room because the original sound dies out faster and is not amplified by repeated 'bouncings' from ceiling to floor to walls, creating a confused noise pattern."\(^{19}\)

The amount of ceiling and wall space to be soundproofed will depend upon the number of machines in the room and the cost of the soundproofing. Nocar stated, "Sound


conditioning through ceiling treatment with acoustical tile is usually ample in most cases. Such treatment of the ceiling usually is effective in reducing the noise level from forty to sixty per cent.\textsuperscript{20}

The soundproofing of areas in which noise producing activities do not take place will follow the pattern of other regular classrooms in the school plant. The summary of the plans for better school design had this to say about acoustics in general, "On the matter of acoustics, one generalization may be made: during 1951 a great deal of attention was given to the methods of sound control. Rare indeed were the buildings entered in this competition which did not show some evidence of this."\textsuperscript{21}

\textsuperscript{20}Nocar, \textit{loc. cit.}

\textsuperscript{21}"Competition for Better School Design," \textit{loc. cit.}
CHAPTER V

BEGINNING TYPEWRITING ROOM

Two kinds of typewriting rooms were recommended for high schools of the size studied. These kinds of rooms include the room for beginning typewriting and the room for advanced typewriting and transcription. This chapter is concerned with the facilities for beginning typewriting. The recommendations given were based upon the assumption that separate rooms were to be provided for the beginning and advanced classes.

I Activities

The type of activities carried on in any learning area will influence the selection of equipment and furniture for that area. Persons such as the administrators who are involved in planning facilities, cannot be expected to be familiar with the type of activities carried on in each of the specialized fields of business education. Therefore, a statement concerning the general kinds of activities carried on in each of the types of rooms discussed in this study seems apropos.

Differences in teaching methods and techniques will cause some variation in the activities carried on. The general activities indicated for the following rooms tend to be basic in most situations.
Students using the beginning typewriting room are primarily engaged in operating typewriters. The students use audio-visual aids of various types. Very little formal recitation takes place.

The teacher makes explanations and gives directions. Actual demonstrations in the use of the typewriter are given by the teacher. He also displays and uses audio-visual aids and conducts discussions concerning these aids.

II General Physical Characteristics

Of primary importance in determining the physical characteristics for a room of a given type is the recommended size for a room of that type. In determining the size of a particular type of room it is necessary to know the number of work stations which will be set up, the number of square feet for each work station, and what special space requirements are necessary.

Some authorities recommended room sizes on a unit basis. A unit is considered to be the amount of space planned for a standard classroom. Freeman uses the unit method when he says, "In a large high school two types of rooms are usually provided in the business education layouts. Standard size rooms are planned for such subjects as general business and business law, while special rooms consisting of one and one-half units are usually planned for subjects such
as bookkeeping and typewriting.\textsuperscript{1}

The California study recommended thirty-five work stations for high school typewriting rooms.\textsuperscript{2} Walker and Crumley agreed with this enrollment figure when they said that the instructional efficiency will begin to decline when the number of typewriting students in a room exceeds thirty-five.\textsuperscript{3}

The amount of space which the work station will occupy will be determined mainly by the size of the desk or table used to hold the typewriter. There has apparently been little standardization with regard to the size of typewriting desks and tables. Whitcraft stated that several school furniture manufacturers build typewriting tables approximately $26'' \times 30''$.\textsuperscript{4} Walker and Crumley recommended individual typewriting tables $18'' \times 30''$.\textsuperscript{5} The California

\begin{itemize}
\item \textsuperscript{1}M. Herbert Freeman, "The Good Business Education Department is Adequately Housed and Equipped," The National Business Education Quarterly, 8:41, December, 1949.
\item \textsuperscript{3}A. L. Walker and Marguerite Crumley, "Virginia Plans Layouts for Business Departments," The Balance Sheet, 19:398, May, 1948.
\item \textsuperscript{5}Walker and Crumley, loc. cit.
\end{itemize}
study, in its diagrams, showed desks 20" x 36" and tables 18" x 34" for typewriting. The California study, however, was explicit in recommending the amount of desirable working space when it recommended a clearance of thirty inches between desks and a side aisle clearance of fifteen inches. These recommended clearances could be used with different sizes of desks or tables.

The California study was the only reference found which gave any recommendations as to the size of the working area for the teacher in business education rooms. This study recommended that the dimensions of the teacher's desk be: 30" wide, 60" long, and 30" high. The study recommended a 42" rear clearance and a 36" side and front clearance.

The diagram showed by the California study was typical of the other diagrams of typewriting rooms found, in its treatment of exits. The California study showed these exits: one exit at the front and one at the back of the room lead to the corridor; one exit lead to the adjacent shorthand room; and one exit lead to the adjacent office practice room.

III Type of Furniture

An attractive desk and chair for the teacher adds

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6 Basset, op. cit., p. 7.
7 Loc. cit.
8 Ibid., p. 9.
9 Ibid., p. 32.
a great deal to the office atmosphere of the classroom. Therese recommended a double pedestal, executive, office-style desk with ample drawer space and with provision for locking, the desk accompanied by an adjustable chair with the back curved for comfortable support.¹⁰

Particular attention should be given to the selection of the typewriting desk or table for the student. The selection of the proper chair to accompany the desk or table is of equal importance. Furniture of the correct type is essential for efficient learning in typewriting. Whitcraft listed these points to be considered in selecting typewriting desks or tables: "strength, weight, freedom from vibration, ability to 'take it' without loosening up at the joints, general workmanship, appearance, and possible table finishes."¹¹

There was some difference of opinion expressed as to the composition of typewriting tables and desks. Therese recommended birch or golden oak with posture chairs to match.¹² The desks exhibited at the National Business Show in 1950 were constructed of metal with linoleum tops, accompanied by posture chairs.¹³


¹¹Whitcraft, loc. cit.

¹²Therese, op. cit., p. 16.

Research has done much to determine the correct height of the typewriter and the desirability of having desks which are adjustable to different heights. Hartnett described some of this research as follows:

A few years ago, studies made in the United States Department of Agriculture established conclusively that a typist would increase his speed and accuracy with lessened fatigue if the typewriter were placed at exactly the right height. The "exactly right height" was defined as one at which the operator's forearms had the same slant as that of the keyboard, thirty degrees. The standard height in government offices was twenty-seven inches, a height incidentally stumbled upon because the first Remington typewriters were mounted on Remington sewing machine stands. This height was too low for efficiency. The invention of the "typewriter-well" elevator which can be raised or lowered within a range of twenty-six to thirty inches from the floor by a twist of the dial solved the problem of individual differences in the students using typewriting desks during different periods of the day.14

Therese indicated the desirability of having adjustable typewriting desks or tables in saying that, "The adjustable typewriting desks or tables that are on the market today have made a major contribution to the teaching of typewriting."15

If it is not possible to purchase adjustable desks for the typewriting room and ordinary tables are used, these tables should vary in height from 26" to 30". Such an arrangement would provide for the individual differences in the heights of students.


15Therese, loc. cit.
IV Type of Equipment

The typewriter is the major type of equipment used in the typewriting room. No recommendations were found as to the exact model of typewriters to be used. Moseley said with regard to make,

The problem common to many business teachers and school administrators is the choice of makes of standard typewriters and the extent to which a variety should be used. Opinions of business educators differ so widely that no pattern as yet has been established.16

The recommendation was made by Whitcraft that the beginning typewriting room be equipped with one make of typewriter to facilitate instruction.17

Some decision must be reached when planning typewriting rooms with regard to the present or future inclusion of electric typewriters. In the construction of new facilities the electrical wiring to provide for future expansion in the use of electric typewriters must be planned. Moseley indicated that electric typewriters are being used in business offices in increasingly large numbers; the question is not whether electric typewriters should be included as basic equipment but rather how many should be provided.18

The number of electric typewriters to be used in typewriting


17 Whitcraft, op. cit., p. 166.

18 loc. cit.
classrooms in the future will depend upon the acceptance of the electric typewriters in business offices. The number of electric typewriters presently used in business offices was not definitely indicated. Popham said, "Two recent samplings indicate that about seventeen per cent would be a good guess."\(^{19}\)

The problem of planning for and setting up the electrical circuits for electric typewriters is ordinarily in the hands of the architect and the electrician. Some suggestions were made relative to this problem. Freeman suggested,

One school recommends that electrical outlets be flush with the floors and that tables or desks at which the work is done requiring electricity be placed directly over these plugs with the wire going up through a hollow leg in the desk. This makes it possible for the operator to plug the machine in the outlet conveniently.\(^{20}\)

Various wiring plans are available for the installation of electric typewriters, and the help from specialists in setting up typewriting rooms wired for electric machines is available. Pepe illustrated one recommended wiring plan for the typewriting classroom and commented, "Representatives of electric typewriter companies are glad to work with the


\(^{20}\)Freeman, op. cit., p. 42.
In selecting typewriters the question of elite or pica type must be decided. If the typewriters in the beginning typewriting room are to be of one make for the purpose of facilitating instruction, they should probably have one kind of type for the same purpose. Bast found in his survey of the comparative use of pica and elite type that ever ninety per cent of the typists interviewed had used elite type at some time in their office careers. Bast also referred to a previous study which found that ninety-five per cent of all business letters were written with typewriters having elite type. Popham said, with regard to the selection of type, "The person responsible for buying school typewriters should also understand that sixty to seventy per cent of typewriters used in offices have elite type."

Walker and Crumley listed the following additional items of equipment for the typewriting room.

1. A typewriter demonstration stand, adjustable height with provision for side view, movable.

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23 *loc. cit.*

24 Popham, *op. cit.*, p. 27.
2. Dictionaries, stapling machines, paper trimmers, letter trays for incoming and outgoing papers and an interval timer are standard equipment for the typewriting room.

Whitcraft said that copyholders, which he considers to be essential equipment, should be heavy enough to remain in place regardless of vibration and should have a felt or rubber-cushioned base so that they will not scratch the table top.

Storage equipment and audio-visual aids equipment are discussed under Part V, Storage Space, and Part VI, Provision for Audio-Visual Aids, of this chapter.

Whitcraft gives this final advice with regard to the selection of equipment and furniture.

Manufacturers are adding new items to their equipment and furniture lines, post-war styles are changing, new building construction is demanding equipment built to new specifications; consequently up-to-date information should be secured from the manufacturers at the time final decisions are made regarding the purchase of furniture and equipment.

V Storage Space

Considerable variation was found in the recommendations for storage space in the typewriting room. Four different sets of recommendations are given below regarding the general storage of supplies.

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25 Walker and Crumley, op. cit., p. 401.

26 Whitcraft, op. cit., p. 167.

27 Loc. cit.
White made the following recommendation with regard to the storage of equipment and supplies:

One solution to the storage of supplies is to provide a storage cabinet in the typewriting room. One section of the cabinet should have provision for locking to safeguard timing equipment and timed tests. A special cabinet may be constructed with a coat rack in the center and cabinets for the storage of typewriter supplies on each side.28

The California study showed a counter-height section for storage with bin and shelf space under the counter. The dimensions of the counter were: 20' long, 2' deep, and 3' high. A wash basin was set in the counter.29

Flask and Freeman listed the following points with regard to storage space.

1. Storage space should be built into walls to eliminate steel cabinets and to conserve room space.

2. Storage space can include combination storage and bulletin board area behind glass. When the glass door is opened, the bulletin board on the door is exposed. Behind this door is a shallow space with adjustable shelves.

3. Storage space, other than that for maps, should be at least thirty-six inches wide and twelve to twenty-four inches deep from front to back.30

Storage space of the following type was indicated by Walker and Crumley.


29Basset, op. cit., p. 25.

1. Built-in storage cabinets about eighteen inches deep, for keeping teaching materials and supplies safely, is provided. Storage space may be constructed under a counter at the front of the room. The counter should measure eighteen inches deep and thirty inches high.

2. One four-drawer metal file case equipped with alphabetic guides and folders is an essential item of equipment.31

Considerable variation was likewise found in the recommendations for the storage of student supplies. The following recommendations were illustrative of two quite different kinds of storage facilities.

Klaus, in discussing the facilities of the proposed Reno senior high school, described the student storage space as follows.

Each typewriting table had rails built beneath the left-hand corner. These rails held an individual work drawer for student supplies. These drawers were ten inches wide, fourteen inches long and three inches deep to accommodate paper and equipment of various sizes. Lockers were built into one wall beneath a bulletin board to house the work drawers when not in use. To provide space for expansion the drawers were built in banks of forty-five, seven deep. At the end of each row of lockers there was a master lock which controlled that bank of lockers. This allowed the teacher to lock and unlock one bank of drawers at a time.32

Payne, in describing standard typewriting tables, said that, "These tables should have one drawer, no locks, for the storage of one or two books, such as the typewriting

31Walker and Crumley, op. cit., p. 401.

VI Provision for Audio-Visual Aids

The two most common visual aids recommended for the typewriting classroom were the chalkboard and the bulletin board.

The teaching of typewriting does not require as much chalkboard space as the teaching of subjects such as shorthand where the teacher does a large amount of writing on the chalkboard. Payne said, with regard to this point, that a room used exclusively for typewriting classes does not require as much chalkboard space as other rooms.34 He suggested that chalkboard be installed on the front wall only, adding that ten running feet of chalkboard is usually sufficient for a room used only for typewriting.35 Plask and Freeman said that chalkboards should be approximately three feet from the floor with a height of not more than six feet.36 No recommendations were found as to the color of chalkboards, except that they must have the proper


34Loc. cit.

35Loc. cit.

36Plask and Freeman, op. cit., p. 19.
reflectance value."

Provision for nested blackboards was suggested by Freeman, in his description of recent building plans.

Some recent building plans have called for innovations which merit careful consideration. Nested blackboards have been suggested for all rooms in the business department. This provision makes it possible to use various colored boards. The boards may be ruled for special purposes such as ledger and journal rulings for bookkeeping or lined boards for shorthand courses. In each nest one white board can be included for slides and motion pictures. Nested boards can be pulled down as needed and returned by a button-control device.

Although all of the plans studied showed the desirability of having a bulletin board, no standard size was recommended. The sizes recommended varied from eight to ten feet as recommended by Payne to a bulletin board running the length of the room, as recommended by Therese.

Other audio-visual aids which were recommended for the teaching of typewriting were:

1. Moving pictures.
2. Slide films.
3. Opaque projections.

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37 Adams, loc. cit.
38 Freeman, op. cit., p. 12.
39 Payne, loc. cit.
40 Therese, loc. cit.
Certain visual aids involving projection require a table for the equipment. Provision for darkening the windows must be made if the type of projection equipment used requires it. Portable projectors and screens can be used or the room may be equipped with such items. Storage space must be planned for any of the items of equipment which are to be stored in the typewriting room.

Space for the display and storage of books and magazines was recommended by some authors, including Klaus, who described provision for these types of articles as follows:

To the right of the storage lockers will be the built-in library. The typewriting library will consist of four shelves spaced one foot apart and twelve to fourteen inches deep. The library nook will have glass doors; here will be found the dictionaries, reference books, style manuals, telephone directory, city directory and any other reference materials considered essential to the typewriting room.\(^{42}\)

Adequate electrical outlets must be installed to provide for the use of audio-visual aids requiring electricity. Klaus recommended a minimum of four electrical outlets for each business education room.\(^{43}\) The location of the electrical outlets is of utmost importance. The outlets must be located so that electrical equipment can be used with a minimum of difficulty. Locating one outlet on each wall would probably be advantageous. The use of multiple outlets should also be considered.

\(^{42}\)Klaus, loc. cit.

\(^{43}\)Ibid., p. 30.
CHAPTER VI

ADVANCED TYPEWRITING AND TRANSCRIPTION ROOM

Many of the recommendations as to the facilities for the advanced typewriting and transcription room were the same as the recommendations for the beginning typewriting room. In instances where this situation arose, the recommendations are not repeated in this chapter, but reference is made to Chapter V.

I Activities

The activities carried on in advanced typewriting are similar to those carried on in beginning typewriting, the difference being that in advanced typewriting the emphasis is on the development of a higher degree of skill and an ability to do production work. Students usually do more project work on an individual basis. The major activity is again the operation of the typewriter by the student.

In transcription classes another activity is added, and that is the writing of shorthand notes by the students as material is dictated by the teacher. There is some oral reading by the students of their shorthand notes. Transcription as a process involves primarily the typewriting of material from shorthand notes. The shorthand notes are usually those which have been written by the students from dictation. The students, however, do some typing of
shorthand notes from the shorthand plates in textbooks. Discussion takes place in a transcription class between the students and teacher relative to points of instruction. Students in transcription classes make use of all the audio-visual aids listed for the beginning typewriting room. The students in advanced typewriting and transcription make more use of reference books than do beginning typewriting students.

II General Physical Characteristics

The California study recommended a maximum enrollment of thirty-five students in advanced typewriting and a maximum of thirty students in transcription.¹ Thirty-five work stations will, therefore, provide sufficient space for both these types of classes. Some authorities recommended the use of a drop-head desk in rooms where both typewriting and transcription are to be taught.² Walters and Nolan stated that the use of drop-head desks allows an unencumbered space for the student to write shorthand, while still providing a typewriter for the transcription of the shorthand notes.³ The problem which arises from the use of drop-head


³Loc. cit.
desks is the additional amount of space which they require. Payne indicated that the size of drop-head desks is from 34" to 36" in length and 26" to 28" in width.\(^4\) Payne continued his discussion of drop-head desks by saying that a careful and studied arrangement is necessary to achieve maximum space efficiency when drop-head desks are used.\(^5\)

The use of drop-head desks in the advanced typewriting and transcription room would allow the room to be used for other classes, if necessary. Such an arrangement would also permit the room to be used for homeroom activity and other activities which would require the use of a space for writing.

Other general physical characteristics were the same as those recommended for the beginning typewriting room in Part II, General Physical Characteristics, Chapter V.

**III Type of Furniture**

The advanced typewriting and transcription room may have the same furniture for the students as the beginning typewriting room; this was the plan illustrated in the California study.\(^6\) As indicated in Part II, General Physical Characteristics, Chapter V.


\(^5\)Loc. cit.

\(^6\)Basset, loc. cit.
Characteristics, of this chapter, some authorities recommended the use of a drop-head desk instead of the adjustable typing desk for a room in which both advanced typewriting and transcription are taught.\(^7\) Drop-head desks, in addition to giving the students a large space on which to write, help to provide an office atmosphere. Klaus said, with regard to this point,

The advanced typewriting room will have individual drop-head desks thirty-six inches long and twenty-six inches wide. It is planned to use this room for transcription, advanced shorthand and some clerical practice work. Regulation desks will not only give the student a "real work atmosphere" but will permit the use of the room for the various purposes of class discussion, dictation, and allied business practices.\(^8\)

Recommendations as to furniture for the teacher were the same as those given under Part II, *Type of Furniture*, Chapter V.

IV Type of Equipment

The major type of equipment used in the advanced typewriting and shorthand room is the typewriter. In determining the makes of typewriters for the beginning typewriting room, it was recommended in Part IV, *Type of Equipment*, Chapter V, that one make of machine be used to facilitate

\(^7\)Walters and Nolan, *loc. cit.*

learning. In the advanced typewriting room, however, it was recommended by Whitcraft that equipping this room with each of the standard makes of typewriters was desirable. Popham suggested a reason for having a variety of makes in the advanced typewriting room when she said that the typewriters provided in the schools should resemble those which will be used following the instruction. Since students will encounter a variety of machines on the job, their training will be more complete if they are familiar with all the standard makes of typewriters.

As Popham stated, about sixty to seventy per cent of the typewriters used in offices have elite type. It would seem logical that most of the machines in the advanced typewriting room should have elite type. A few machines with pica type should be provided to familiarize the students with machines having that kind of type. No recommendations were found as to the exact proportion of elite and pica type on machines in an advanced typewriting room.

With the exception of the audio-visual aids equipment

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11Loc. cit.
which is considered under Part VI of this chapter, there were no other differences in recommendations for equipment from those given for the beginning room in Part V, Type of Equipment, Chapter V.

V Storage Space

The recommended storage space requirements were the same for the advanced typewriting and transcription room as for the beginning typewriting room in Part V, Storage Space, Chapter V, with the exception of the storage requirements for the audio-visual aids equipment which is discussed under Part VI of this chapter.

VI Provision for Audio-Visual Aids

In the teaching of advanced typewriting the same audio-visual aids were recommended as those for beginning typewriting (see Part VI, Provision for Audio-Visual Aids, Chapter V). In the teaching of transcription certain other audio-visual aids were recommended. Neil included the two following groups of audio-visual aids in his discussion.

1. Record and Transcription Player -- A good record player that may be used for filmstrip-with-sound combinations, shorthand instructional records...is most essential for business classes.

2. Sound Recording Equipment -- There are three general types of sound recording equipment, wire, tape, and disc, that can be used to advantage in transcription
classes.\textsuperscript{13}

Space for the storage of any of the above equipment which is included in the planning must be provided.

The transcription class is one of the terminal courses in secretarial training. Hence, the students in this class will need to become acquainted with a wide variety of reference materials, which they will use in school for training purposes and later on the job. Some of the reference materials to be used were listed by Popham, "If the typewriting room is to be used for transcription, secretarial manuals, a Postal Guide, and style books should be available."\textsuperscript{14} Additional display and storage space will be needed for these materials.


\textsuperscript{14}Popham, op. cit., p. 28.
CHAPTER VII

SHORTHAND ROOM

Very few recommendations were found for the detailed planning of a shorthand room. No periodical articles or books reviewed were devoted to the layout and equipping of a room designed specifically for the teaching of shorthand. A statement by Walters and Nolan gave a reason why this situation might have been true, "Little special equipment is needed for the shorthand class. The most important items are comfortable desks... and a good blackboard visible from all parts of the room."1 Most of the recommendations considered the shorthand room to be a standard-size room which did not require special facilities or special construction items.2 Certain recommendations with regard to non-specialized business education rooms, such as shorthand rooms, were given. These recommendations have been quoted in addition to the specific recommendations concerning the shorthand room as such. No recommendations were found which planned separate rooms for the beginning and advanced shorthand classes.

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I Activities

The main activities carried on in the shorthand classroom are the reading and writing of shorthand notes by the students. The reading of shorthand notes is both oral and silent. Since shorthand is a skill subject, the teacher supervises a variety of drill activity, both oral and written. The teacher spends a large amount of time writing on the blackboard. The importance of the teacher in the direction of the activities is stated by Popham, who said, "The classroom in which shorthand is taught follows a more formal arrangement, for the instruction here is again teacher dominated." Audio-visual aids are used extensively in the shorthand classroom.

II General Physical Characteristics

One unit of classroom space was generally recommended as being sufficient for shorthand classes. Barnhart defined the classroom unit for academic class purposes as usually measuring about $24' \times 30'$; he indicated that such a room would be large enough for the shorthand classes.  

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The California study recommended that enrollments in shorthand classes should not exceed thirty.\textsuperscript{5}

The California study, which was the only reference giving the dimensions for the required working space in a shorthand room, recommended ten and two-tenths square feet of working space per pupil.\textsuperscript{6}

Kahn's floor plan illustrated an arrangement of exits for the shorthand room in which one exit at the front and one exit at the back of the room lead to the corridor.\textsuperscript{7} This arrangement was typical of the floor plans studied.

Kahn also recommended the following exit, "A connecting door is provided for between typewriting and shorthand rooms to facilitate passage of advanced classes for transcription purposes."\textsuperscript{8} As indicated previously, Klaus stated that a minimum of four electrical outlets should be planned for all business education rooms.\textsuperscript{9} In addition to having enough


\textsuperscript{6}Ibid., p. 9.


\textsuperscript{8}Ibid., p. 55.

outlets, their location in the room is of primary importance.

III Type of Furniture

In planning the furniture to be used by the students in the shorthand room it must be remembered that the learning of shorthand requires a large amount of writing by the students. Certain teaching techniques in shorthand require the students to copy shorthand notes from a textbook. When such a technique is used, the working area must be large enough for a shorthand notebook and a textbook. The California study was the only reference which recommended what size the desk or table used in shorthand should be. This study recommended a wide-tablet arm chair 20" wide and 30" long.¹⁰ Barnhart stated that in the modern business department no equipment or furniture should be fastened to the floor.¹¹

Klaus gave the following description of furniture to be used by the teacher in all business education rooms.

Large, double-winged teachers' desks, 54" x 30", are recommended as standard equipment for all business education rooms. It is suggested that steel desks may prove an economy in the long run. On one side of each desk a double drawer holding vertical filing equipment for materials for daily work, lesson plans, etc., will be provided. The top drawer will be equipped for 4" x 5" vertical card indices. These will be used in compiling records on equipment and data on students vitally important to the smooth functioning of the department. The drawers on the opposite side of the desk will be the regulation three-drawer variety for storing utility supplies and miscellaneous articles.

¹⁰Basset, op. cit., p. 9.
¹¹Barnhart, op. cit., p. 105.
A swivel desk chair which makes easy turning possible is recommended for each desk.\(^\text{12}\)

IV Type of Equipment

No special equipment was recommended for the shorthand room except that which is described under Part V, Storage Space, and Part VI, Provision for Audio-Visual Aids, of this chapter.

V Storage Space

A variety of recommendations with regard to storage space in the non-specialized business classrooms was given. The following storage space provisions were planned by Lewis for each room.

Two-foot recessed cabinets built in at the back of each room would be used for supplies and general space. These cabinets should be six feet high and constructed in two sections, a top section and a bottom section, each three feet high. The cabinets should have special locks. The top section of the cabinets should have dust-proof sliding doors or regular doors and should have adjustable shelves. The doors in this top section should be of glass -- the first foot of frosted or opaque glass and the top two feet of plain glass. The bottom section could be made up of adjustable shelves and drawers. . . . The doors in the bottom section should be sliding doors of wood paneling construction, conforming with the wood trim in the room.\(^\text{13}\)

VI Provision for Audio-Visual Aids

The importance of visual aids in the shorthand room

\(^\text{12}\)Klaus, op. cit., p. 35.

\(^\text{13}\)Lewis, op. cit., p. 43.
was indicated by Gress.

Perhaps no other subject in the entire business curriculum is so dependent upon the use of visual aids as shorthand. From the opening class period to the day when the students turn out mailable transcriptions at production rates acceptable to the business office, the emphasis is on the visual teaching of shorthand.14

The most important visual aid in the shorthand classroom is the chalkboard. Gress said, "Top billing is given to the use of the blackboard in the teaching of shorthand because of its usefulness in carrying out the following teaching functions... Adequate chalkboard space was recommended in all floor plans studied. Popham said, "The shorthand room should have adequate blackboards. If the room is to be used for shorthand alone, many teachers like to have lines for writing painted on the boards."16 Although all of the materials studied indicated the necessity for adequate chalkboard space for the shorthand room, there was variation in the exact amount recommended. Lewis said that the blackboard should cover the full length of the front wall,17 while Popham recommended that, in addition, chalkboards should also be provided for on the side wall of the room.18

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15 Loc. cit.
16 Popham, loc. cit.
17 Lewis, loc. cit.
18 Popham, loc. cit.
Bulletin boards were recommended for all business education rooms. Immel described the desirability of a bulletin board for the shorthand classroom.¹⁹ No definite amount of bulletin board space was recommended.

Gress listed the following audio-visual aids as having value in a shorthand classroom.

1. Opaque Projector.
2. Motion Pictures.
3. Film Strips.
5. Radio.
6. Television.²⁰

Provision for the operation of visual aids must be made. Such provision would include storage space, room darkening equipment if necessary, and electrical outlets. Projection aids require a screen and a projection stand or table in addition to the projector.

Several articles recommended recording equipment of various types for the shorthand classroom. The value of the voice recorder as a shorthand teaching device was given by Place and Lanham.²¹ The wire recorder as a teaching aid was

²⁰Gress, loc. cit.
discussed by Huggard.22

CHAPTER VIII

BOOKKEEPING ROOM

The activities carried on in a bookkeeping class are of a nature which make special rooms planned primarily for bookkeeping desirable. The number of bookkeeping rooms to be set up is determined by the business curriculum and the enrollment in bookkeeping. The recommendations presented as to the facilities for bookkeeping are for a room designed to house both beginning and advanced classes.

I Activities

Bookkeeping is a recording subject in which students are trained to record business transactions on special forms. Hence, the main activity which takes place in a bookkeeping classroom is the actual recording by the students of facts and figures illustrative of actual business transactions. The teacher explains, illustrates, and develops bookkeeping principles. Individual help is given by the teacher to students who need it. Audio-visual aids are used extensively in bookkeeping classrooms.

II General Physical Characteristics

The California study recommended that the bookkeeping room be built to accommodate thirty students.¹ Plask and

Freeman said that the bookkeeping classroom should be one and a half times as large as the standard classroom.  

Bookkeeping classrooms require one and one-half units of space because of the size of the desks used by the students. Walters and Nolan said with reference to the size and selection of bookkeeping desks,

The ordinary classroom desk is too small for satisfactory work on practice sets or even for the use of loose journal and ledger paper. The bookkeeping room should be equipped, therefore, with special bookkeeping desks that have tops sufficiently large to permit the working out of practice sets. Under no circumstances should a bookkeeping class be required to use tablet arm chairs for written work.

Various sizes of desks for bookkeeping were suggested. Olsen listed these sizes of available bookkeeping desks which he considered suitable: 22" x 32"; 26" x 36"; 26" x 38"; 22" x 38"; and 19" x 34". The California study recommended tables for bookkeeping, 24" deep and 36" long, with a side aisle clearance of 30" and a back clearance of 30".

\[\text{References:}\]

\[4\text{Basset, \textit{op. cit.}, p. 9.}\]
III Type of Furniture

The main principles to be followed in the selection of student bookkeeping desks are that the desks should provide adequate working space and that they should be able to withstand heavy wear and tear. Olson stated that the choice of bookkeeping desks and chairs depended upon the individual school requirements with regard to the following questions.

How much space is available? How much money can be spent for this equipment? Does the teaching emphasize the use of practice sets? If so, the desk may need to be somewhat larger than in a school where very few practice sets are used. Must the desks be used as a storage place for students to keep their bookkeeping materials?

Various sizes of desks as quoted by Olson above and the California study were given. Three of the desks discussed by Olson were adjustable, with provision for adjusting the height from 25" to 31" on one desk and from 26" to 30" on the other desk. The heights of the two non-adjustable desks were 29" and 30". The tables illustrated in the California study were from 26" to 29" high.

If ink is to be used by the students, the bookkeeping desks should provide inkwells, recessed into the top. The

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6 Olson, op. cit., p. 168.
7 Loc. cit.
8 Basset, loc. cit.
9 Olson, loc. cit.
10 Basset, loc. cit.
question of storage space in the bookkeeping room is dis­
cussed in Part V, Storage Space, of this chapter.

Olsen stated that there were several types of chairs
available for use with bookkeeping desks. He described one
type which had a form-fitting back and came in three heights,
13", 15", and 17". An adjustable swivel chair was described
which was adjustable from 14" to 18" in height.\textsuperscript{11} The Cal­
ifornia study recommended an all-purpose type chair with
saddle seat and a curved back in heights from 15" to 17".\textsuperscript{12}

Section III, Type of Furniture, Chapter VII, des­
cribed the furniture which may be used by the teacher.

IV Type of Equipment

Some difference of opinion was found as to the number
of office machines to be used in conjunction with bookkeeping,
although all of the sources indicated the desirability of
having some machines available for student training. Wal­
ters and Nolan did not believe that bookkeeping machines
should be provided, saying, "Few high schools need to be
equipped with bookkeeping machines; they are very expensive;
and most bookkeeping is still done by hand."\textsuperscript{13} A quite
different type of recommendation was made by Snyder, who said,

\textsuperscript{11} Olson, \textit{op. cit.}, p. 171.
\textsuperscript{12} Basset, \textit{loc. cit.}
\textsuperscript{13} Walters and Nolan, \textit{op. cit.}, p. 189.
In keeping with the needs of modern business, the curriculum of every business education department should include thorough training in the operation of the more common types of machines used in connection with bookkeeping and accounting work.¹⁴

Snyder recommended that an office machines laboratory be set up independent of the regular bookkeeping room in which a course of instruction would be offered on these types of machines as part of the bookkeeping curriculum:

1. Adding-listing machines.
2. Rotary calculators.
4. Desk-model bookkeeping machines.
5. Large bookkeeping machines.¹⁵

A third recommendation as to the availability of office machines for bookkeeping students was given by Walker and Crumley. They set up the bookkeeping room next to the office machines laboratory in order to make the computing machines in the office machines laboratory available to bookkeeping students.¹⁶

Storage equipment and audio-visual aids equipment are discussed in Part V, Storage Space, and Part VI, Provision for Audio-Visual Aids, of this chapter.


¹⁵Loc. cit.

V Storage Space

Considerable variation was found as to general storage space provisions in the bookkeeping room. Built-in storage cabinets, eighteen inches deep, with sliding doors, built in at the rear of the room; and one four-drawer steel file case were recommended by Walker and Crumley. Recessed storage cabinets with sliding doors built in at the rear of the room were also recommended in a report by Card, et al. The California study recommended the two following storage features: a counter height storage section, 8' long, 2' deep, 3' high, with combination bins and shelf sections, with sliding doors; and a closet storage section for visual aids, 4' long, 2' deep and 7' high.

In planning the storage facilities for students taking bookkeeping a decision must be reached as to whether or not the students will be allowed to store materials in the room. Klaus recommended work drawers for the bookkeeping room similar to those recommended for the typewriting room, the drawers being stored in built-in lockers when not in use.

17 Walker and Crumley, loc. cit.


19 Bassett, loc. cit.

The work drawers for bookkeeping will need to be fourteen inches in length and four inches deep to accommodate the various sizes of working papers, rulers, and forms with which bookkeeping students must work.\(^{21}\)

The California study made no provision for student storage. This study said that storage drawers in bookkeeping tables are not recommended and that storage baskets may be built on the side of the tables.\(^{22}\)

Bookkeeping desks are also available which have built-in drawers with provision for locking. Such desks may be equipped with a number of drawers equal to the number of periods which the room will be used for bookkeeping.

VI Provision for Audio-Visual Aids

All of the plans studied for bookkeeping rooms recommended adequate blackboard space. Patrick stated that the teaching aid most frequently used in bookkeeping is the blackboard.\(^{23}\) There was a difference of opinion as to whether or not the bookkeeping blackboards should have permanent rulings. Popham said that many teachers feel that painting ruled forms on blackboards wastes too much black-

\(^{21}\)Klaus, loc. cit.

\(^{22}\)Basset, loc. cit.

board space because of the relative infrequency of such lesson presentations; visual charts painted on beaverboard can replace such rulings. Patrick expressed an opinion in favor of ruled blackboards when he said, "To be of great usefulness the blackboard should be ruled with the common bookkeeping forms." Several references, including the California study and Walker and Crumley recommended that chalkboards be built across the front of the bookkeeping room and along one wall. The exact number of running feet to be used was not indicated.

Bulletin boards and display boards were generally recommended for the bookkeeping room. Gibson listed four kinds of boards for the bookkeeping room: blackboards, bulletin boards, flannel boards and display boards. Card recommended a tack board at the rear of the bookkeeping room and a cork display strip ten inches wide above the chalkboard.

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25 Patrick, loc. cit.

26 Basset, loc. cit.

27 Walker and Crumley, loc. cit.


29 Card, loc. cit.
Numerous other audio-visual aids were recommended for the bookkeeping classroom. Gibson listed the following aids as being of value in the teaching of bookkeeping.

1. Motion Pictures.
2. Filmstrips.
3. Pictorial Materials (charts, graphs, posters, etc.)
4. Slides.
5. Radio and Television.
6. Sound Recording and Transcribing Machines.30

Electrical outlets should be installed on each of the walls for the use of electrical equipment. Storage space must be allowed for that aids equipment which will be stored in the bookkeeping room; one such plan indicated in the California study.31

Storage space must also be provided for library materials. Walker and Crumley recommended built-in shelving 10" deep and 4' wide, with four adjustable shelves for library materials.32

30Gibson, op. cit., p. 16.
31Basset, loc. cit.
32Walker and Crumley, loc. cit.
The problem of making definite recommendations as to facilities for a course in office practice was found to be a difficult one. The name office practice does not refer to a standardized pattern of learning activities. Walters and Nolan stated,

Moreover, the nature of office practice is less clearly defined than is the nature of any other business subject except general business; and because it is not clearly defined, the equipment used in one school will vary considerably from that used in another.¹

A course in office practice can be an office training course for secretarial students or it can be an office training course for clerical students. Collins, in her discussion, defined office practice as including both secretarial and clerical practice courses.² Secretarial practice is a course in which the emphasis is upon stenography and its associated duties, while in clerical practice the emphasis is upon bookkeeping and clerical duties.

The amount and type of equipment and the facilities needed in an office practice room will vary, therefore, with the individual school situation. As Walters and Nolan said,


"Because the needs of schools in office practice equipment vary so greatly, it is difficult to offer a standard list of equipment."3

Since this variation exists as to the aims and objectives of a course in office practice, the organization of this chapter has been changed to meet this situation. The following outline was used in collecting and organizing the recommendations as to facilities for an office practice room.

I General Recommendations

Activities Carried On
Size of Room
Location of Room

II Criteria for Selecting Equipment

III Plans for Equipping and Furnishing the Office Practice Room

I General Recommendations

The type of activities which are carried on in an office practice room will vary with the objectives of the course of study in use. Sidney lists five areas of instruction in office practice classes in Chicago high schools.

1. Order, Credit, Billing and Posting Section.
3. Duplicating Section.
4. Statistical Section.

3Walters and Nolan, loc. cit.
5. Filing Section.4

Attention is again drawn to the fact that no definite pattern of activities can be stated for an office practice room unless it is known whether the room will be used for secretarial practice, clerical practice, or both of these two kinds of training.

The size of the office practice room will depend largely upon the anticipated sizes of classes to be trained and the extent of the furnishings and equipment. Walker and Crumley recommended thirty to thirty-five square feet of floor space for most of the machines and desks, and recommended as a maximum enrollment twenty students in office practice.5 The California study recommended a maximum of twenty-five students in office practice.6

The recommendation of Walker and Crumley with regard to the location of the office practice room was typical of the plans studied, "The 'office' is located between the typewriting room and the bookkeeping room and has connecting doors with each of these rooms to make available the special-

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4E. C. Sidney (Mrs.), "Office Practice in the Chicago Schools," UBEA Forum, 4:33, October, 1951.


ized equipment to students from these rooms."\(^7\)

II Criteria for Selecting Equipment

The large amount of equipment needed, the variety of makes and models available, and the high cost of the equipment are factors which make the selection of equipment for the office practice room difficult. Whitcraft stated, "An almost irreducible minimum of equipment is required for an effective training program, but beyond this minimum the training needs and financial resources of the individual school will govern the amount of equipment to secure."\(^8\)

Whitcraft set up the following criteria as a general guide for the selection of office training equipment.

What office equipment should be selected?

1. Equipment which teaches the fundamental or basic operating technics for that class of equipment.

2. Equipment which permits developing satisfactory levels of skill. . . .

3. Equipment for which satisfactory instructional materials and low-cost supplies are available.

4. Commonly used equipment of the type. . . . likely to be found in the modern offices in the area.

5. Equipment of a type. . . . that has a reputation among business educators and office workers for long service, low-cost service, and readily available service.

6. Low-cost, hand-operated models should be selected if these models can be used satisfactorily to teach all

\(^7\) Walker and Crumley, *loc. cit.*

basic operating technics, and expert skill levels are not required.

7. One or more calculating machines with keyboard capacities similar to those in common use in the area should be selected.

8. One or more adding-listing machines having the direct subtraction feature.

9. A variety of types is desirable if new technics are learned on the various types.

10. Equipment should be purchased rather than rented if funds are available, and if buying is more economical in the long run than renting.

11. Desks and chairs should be selected if possible that are designed to specifications recommended by the manufacturer for the operation of equipment at expert skill levels with a minimum of fatigue.

12. Supplementary and facilitating equipment should be selected similar to that used in modern well-regulated offices.9

III Plans for Equipping and Furnishing the Office Practice Room

The following three plans list recommended major furnishings and equipment for an office practice room. These plans were set up in three different sections of the United States, Virginia, California, and Chicago.

Walker and Crumley suggested the following list of equipment and furnishings for an office practice room. This list was set up in the state of Virginia by A. L. Walker, State Supervisor of the Commercial Education Service in Virginia and Marguerite Crumley, the Assistant State Supervisor.

9Whitcraft, loc. cit.
Furnishings

Built-in linoleum-top counter about 18" deep x 36" high x 12" long. The counter should be equipped with storage shelves below and have sliding doors with locks.

Electrical outlets for each desk or work station and additional outlets spaced around the baseboard at convenient locations.

A lavatory installed adjacent to the duplicating equipment.

Paper towel and soap dispensers above the lavatory.

Bookcase -- adjustable shelves.

Linoleum-top work table for stacking and collating duplicated materials.

Section of blackboard.

Section of bulletin board.

Equipment

One to three units of transcribing machines. If possible, the Dictaphone, Ediphone, and Sound Scriber should all be included.

Dictating machines -- Dictaphone, Sound Scriber, or equal.

Adding-listing machines of both types -- selective keyboard and ten-key should be included as primary equipment.

Rotary-type calculators -- Frieden, Marchant, Monroe, or equal.

Key-driven calculators -- Burroughs, Comptometers, or equal.

Stencil-type duplicators -- Mimeograph, Niagra, or equal.

Fluid-type duplicators -- Standard-Wolber, Ditto, or equal.
Electric typewriter.
Portable posting machines.
Mimeoscope or some other illuminated drawing board.
Paper trimmer, automatic numbering machine, stapling machine, time stamp, etc.
One 20-inch typewriter.
Miniature filing trays and guides for filing instruction.
Minimum of one 4-drawer metal file case of standard letter size. 10

An analysis of the floor plans for an office practice room as recommended by the California study revealed the following items. This plan was set up for the high schools of California.

**Furnishings**

1 teachers desk, 30" x 60" -- 30" high, executive model and chair.
1 storage counter with two built-in sinks.
1 section of chalkboard.
2 sections of pinboard.
14 desks for typing and transcription stations, 20" x 36" top, adjustable bed for typewriters.
20 tables for mathematical machines, 18" x 34" working surface.
2 work tables, 30" x 72" working surface.
Posture chairs for all machine and transcription stations.
Electrical outlets for each station.

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10 Walker and Crumley, loc. cit.
Closet storage section, 4' long, 2' deep, 7' high.
4-5 drawer filing cabinet.

**Equipment**

3 long-carriage typewriters.
2 electric typewriters.
6 standard typewriters.
3 full-keyboard adding-listing machines.
2 ten-key adding-listing machines.
6 key calculators.
5 rotary calculators.
4 bookkeeping machines.
3 duplicators.
3 transcribing machines.\(^{11}\)

Sidney presented the following list of furnishings and equipment which are used in office practice rooms in Chicago.

**Furnishings**

1 flat top instructor's desk, 52" x 34", 30" high.
1 stenographer's left-hand pedestal desk, 60" x 34", 30\(\frac{1}{2}\)" high.
1 flat top clerical desk, 42" x 34", 30\(\frac{1}{2}\)" high.
21 typewriting and calculating desks, 45" x 21", 28" high.
2 tables for filing, 60" x 34", 30\(\frac{1}{2}\)" high.

\(^{11}\)Basset, *op. cit.*, p. 32.
32 posture chairs, adjustable.
1 swivel arm chair.
7 arm chairs.
1 straight chair.
5 metal files, letter size, counter height.
1 metal file, legal size, counter height.
1 metal file, legal size, four-drawer, for the conference room.
1 sink
built-in vaults for storage of machines.
built-in storage cabinets.
electrical outlets for machines.

Equipment
2 adding and listing machines.
6 key-driven calculators.
2 desk model posting machines.
4 rotary calculators.
6 transcribing machines.
1 dictating machine.
1 shaving machine.
1 stencil process duplicator.
1 liquid process duplicator.
1 collator.
10 typewriters.
2 copyholders.
6 visible files.
8 complete sets of miniature filing equipment.

1 mimeoscoop.\textsuperscript{12}

In addition to the major furnishings and equipment described in the three plans above, there is a certain amount of smaller equipment and supplies necessary for the office practice room. The following list of miscellaneous equipment for the office practice room was suggested by Collins.

- stationery letterheads, envelopes, second sheets, carbon paper, stenographic pads, scratch pads, memorandum pads, invoices, statements and other business papers.
- pens, pencils, colored pencils.
- ink.
- blotters.
- dating stamp.
- time stamp.
- letter openers.
- envelope sealers.
- stamp affixers.
- postal scales.
- numbering machine.
- copyholders.
- rubber stamps.
- bestitch stapler and combination stapler and tacker.
- folders, labels.
- card files.

\textsuperscript{12}Sidney, loc. cit.
blank cards.
scissors, paper cutters.
rulers.
clips, rubber bands.
mucilage.
typewriter brushes and cleaning fluids.
calendars.

smocks to be worn by pupils using duplication processes and needed to protect clothing.13

13Collins, loc. cit.
CHAPTER X

DISTRIBUTIVE EDUCATION ROOM

Distributive education includes all subjects that prepare students for one of the distributive occupations. According to a bulletin of the United States Office of Education, the distributive occupations are:

those followed by workers directly engaged in merchandising activities, or in direct contact with buyers and sellers when: (a) distributing to consumers, retailers, jobbers, wholesalers, and others the products of farms and industries; (b) managing, operating or conducting a commercial service or personal service business, or selling the services of such a business.¹

The above definition of distributive education is rather a broad one. Walters and Nolan were more specific when they stated that the results of a recent study showed that the most common distributive subjects taught in high schools are salesmanship (or selling), merchandising, retailing, advertising, and store organization.²

The room in which distributive education subjects are taught has been given various names. Some of these names are: work experience laboratory, merchandising laboratory, retail training laboratory, and distributive education room. The name, distributive education room, is used in this study to describe the room in which the distributive subjects are taught.


²Loc. cit.
Various sources described the distributive education room as a laboratory type of room. Meyer defined the work experience laboratory as follows.

The work experience laboratory, as it applies to the cooperative, part-time, distributive occupations program, is a place of employment on a bona-fide job, where planned experiences are used as aids in learning and teaching. Laboratory experiences are activities or series of activities that are performed by students for the explicit purpose of meeting the goals of the unit being taught.3

I Activities

The activities carried on in the distributive education classroom vary with the size of the class, the teaching methods and techniques used, and the extent of the furnishings and equipment. Basically, the activities are concerned with the learning and application of the principles involved in selling. Clark listed the following activities, which he considered desirable, "discussion of pupil experiences, demonstrations by both the teacher and pupils, role-playing without preparation, the use of audio-visual aids, the use of outside speakers, field trips, committee work."4 The following types of activities were suggested by Van Wagenen,

Several periods each week should be devoted to explanations, demonstrations, conferences, reading and special


projects. Other class periods should be devoted to laboratory practice in which students will have an opportunity to try out in natural surroundings the techniques and skills they have heard explained and have seen demonstrated.\(^5\)

**II General Physical Characteristics**

The distributive education room usually contains a large amount of furnishings and equipment. Lewis recommended that this room be one and one-half units in size to accommodate the pupil load and the equipment.\(^6\) The California study said that a maximum of thirty students should be enrolled in salesmanship, a course in distributive education.\(^7\) The recommendation of from twenty-five to thirty-five square feet of floor space per pupil in distributive education rooms was made by Haas.\(^8\)

In accordance with the principle that the business education classrooms should simulate business environments, the distributive education classroom should simulate the

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particular business surroundings in which selling occurs. The California study stated with regard to this principle,

The well-equipped laboratory will simulate, as nearly as possible, the surroundings in which the store activity would generally occur so that the learning which takes place during the laboratory practice can be applied to the job situation. At the same time, such a laboratory must provide usual classroom facilities so that visual aids can be presented and discussion and conference groups can be readily conducted.9

III Equipment, Furnishings, and Storage

The subjects of equipment, furnishings, and storage were considered together in this chapter because of the difficulty in deciding whether to classify a particular item as part of the equipment or furnishings of the room. For example, a counter might be considered to be equipment when used for selling demonstrations and to be furniture if provision for storage of supplies beneath the top were made.

Milligan said that the decision as to what equipment is selected will depend to a large extent upon the nature of the training program, particularly if there is a demand for specialized types of employees in that area.10 The fact was brought out, however, by Milligan that in the vast majority of situations, training will be required for a variety of store occupations; consequently the basic equipment should be

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9Basset, op. cit., p. 33.

of a general nature.\footnote{Milligan, loc. cit.}

If funds are limited when the distributive education room is set up, it will be necessary to select certain basic items of furniture and equipment. Kraushar suggested, with regard to this problem,

Initially it is desirable to have the following pieces of equipment: wrapping desk; display counter; three-way mirror; desk; tables and chairs; movable blackboard; magazine rack; storage cabinet; file cabinet; and wall display case.\footnote{Carl Kraushar, "Why Not Start a Merchandising Laboratory," American School and University (New York: American School Publishing Corporation, 1952), p. 289.}

All of the recommendations studied indicated the desirability of having movable tables and chairs for the use of the students. These tables can be arranged in various conference groupings, separated for committee meetings, or used as display units. Haas stated that work tables for students should be light, easily movable, and equipped with drawers.\footnote{Haas, op. cit., p. 137.}

Certain general recommendations were found concerning the planning of the distributive education room. One general recommendation, made by Kraushar, was that display cases or show windows should be built into the wall facing the corridor.\footnote{Kraushar, op. cit., p. 291.} This feature was also shown in one of the floor plans.
illustrated in Haas' recommendations; and Haas said, "Some of the best-planned retail training rooms have display windows that face the corridor or main hall of the building."  

Another general recommendation, as given in the California study, was that if only one room were available for distributive education, fixtures should be planned for both soft- and hard-lines. This study suggested that shelving and display cases for soft-lines be installed along one wall, and shelvings and mountings for hard-lines along another wall, with the wrapping counter set up to serve both units.  

Haas recommended that every specially equipped room should have furnishings and equipment for visual instruction. He recommended double universal service outlets at the front and back of the room and a permanently mounted roll-type screen installed on brackets above, and projecting in front of the chalk trough.  

There is a variety of furnishings and equipment that can be used to advantage in a distributive education room. The exact amount of such furnishings and equipment to be installed in any particular school will depend upon the course of study followed and the funds available. Milligan  

\[15^{15}\text{Haas, op. cit., p. 143.}\]

\[16^{16}\text{Basset, loc. cit.}\]

\[17^{17}\text{Haas, op. cit., p. 141.}\]
suggested the following extensive list of physical equipment and supplies for the distributive education room.

**Furniture**

- Filing Cabinets
- Shelves
- Counters
- Display Cases
- Desks
- Work Tables
- Moveable Chairs
- Clock
- Waste Baskets
- Mirrors
- Magazine Racks
- Extension Telephone
- Show Windows
- Display Windows
- Floor Displays
- Bookcases
- Supply Case

**Visual Aid Equipment**

- Blackboards
- Bulletin Boards
- Opaque Projectors
- Slide Film Projectors
- Movie Projectors
- Models
- Exhibits
- Actual Merchandise
- Posters
- Charts

**Machines**

- Cash Register
- Measuring Devices
- Price Ticket Marker
- Adding Machine
- Bookkeeping Machine
- Charge-Plate Machine
- Duplicating Device
- Typewriter
- Paper Cutter
Supplies

Wrapping Paper
Twine
Bags
Tape (Gummed)
Swatches
Folders and Guides
Workbooks
Charts
Goggles
Acids and Chemicals

Reference Materials

Sales Manuals
Manufacturers Manuals
Manufacturers Samples
Manufacturers Displays
Library Reference Books
Trade Magazines
Fashion Magazines
Mail Order Catalogs
Dictionary

Forms

Application Forms
Sales Checks
Inventory Forms
Stock Forms

Show Card Paper
Lettering Brushes and Paints
Maps
City Directory

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18 Milligan, op. cit., p. 201.
CHAPTER XI
BASIC BUSINESS ROOM

The basic or social-business subjects are those which seek to provide all students with a background of business and economic understandings so that they may become better adjusted to the business world with which they come in contact.

The number of basic business subjects offered in any particular school will vary with the business curriculum in that school. The following basic business subjects, which have been listed by Turille, may be offered: junior, basic, or general business; business organization; economics; economic geography; consumer business education; business arithmetic; business English; and personalized bookkeeping.¹

Basic business subjects can be taught successfully in a general-purpose classroom, but as Zelliot said, "A classroom that is appropriately arranged and equipped for the purpose will provide conveniences and create an atmosphere that will develop interest in students, reduce the strain on the teacher, and make for efficient, pleasant work."²


I Activities

The problem of describing what activities are carried on in a room where more than one type of subject is taught is difficult. For this reason the subject of general business was selected as one in which the variety of activities carried on would probably include activities carried on in other types of basic business subjects.

Freeman listed the following types of activities which he believed to be desirable in a class in general business:

1. Reading activities -- magazines, newspapers, pamphlets, charts, tables.

2. Writing activities -- taking notes, original compositions, reports, outlines, charts, letters.

3. Speaking activities -- class discussions, forums, debates, quiz programs, plays.

4. Seeing activities -- blackboard and bulletin board displays, illustrations, exhibits, globes, models, motion pictures, film strips.

5. Collecting activities -- stamps, coins, autographs, business stationery, newspaper clippings, products, scrapbooks.

6. Listening activities -- radio and television, recordings, talks by teachers and students, outside lecturers.

7. Investigating activities -- survey of local business firms, cost of installment buying, visit to a bank to get financial information.3

II General Physical Characteristics

The California study recommended an enrollment of thirty students in business English, and thirty-five students in business mathematics and business law, subjects that are taught in the basic business room. Several writers including Barnhart, said that the room(s) housing basic business subjects could be standard-sized classrooms.

The suggestion was made by Zelliot that a conference room, eight or ten feet wide, at one end of the basic business room would provide space for project work by small groups of students.

Kahn recommended that a small stage be built at one end of the basic business room to permit the students to see "sales demonstrations," "job interviews," and similar class activities. Another suggestion made by Kahn was that if two basic business rooms were needed, they should be built

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6 Zelliot, loc. cit.

adjacent to each other, with folding doors between them. Such an arrangement would provide a seating chamber capable of seating from seventy-five to one-hundred students.

III Type of Furniture

Movable furniture was recommended for the basic business rooms to facilitate the various types of activities carried on. Douglas stated that tables approximately two feet by eight feet will conveniently seat three to four students along one side. Ordinary straight-back chairs may be used with such tables.

The large, executive-type, double pedestal desk was generally recommended for the teacher.

IV Type of Equipment — Including Provision for Visual and Audio-Visual Aids

If the basic business room is to house several types of classes, the equipment should be planned to meet the needs of all the classes which are held in it. If only one basic business subject is offered or if several basic business rooms are planned, the equipment can be more specialized to meet the needs of particular subjects. Since the equipment recommended for the basic business room was largely of the audio-

8Kahn, loc. cit.

visual aids type, this section included provision for audiovisual aids equipment.

Douglas listed the following equipment which he said must be either provided in the basic business room or be readily available to the teacher of basic business subjects:

1. A modern opaque projector, preferably the larger type so that it may reproduce maps, charts, business statements, advertisements, pictures, and forms larger than the usual size forms of six by six inches.

2. A large-size projection screen, preferably at least six feet square. This larger size is particularly desirable for opaque projection.

3. A modern motion picture projector.

4. A complete set of physical or economic geography maps.

5. A large world globe, easily accessible to a number of students at the same time.

6. An attractive bulletin board along at least one entire side of the room.

7. A blackboard in the central section of the front of the room.

8. A special movable projection table, perhaps forty to forty-eight inches in height. This also proves useful for occasional classroom demonstrations.

9. A glass display case, with adjustable glass shelves for display of industrial and other products correlating with current study units.

10. Ample storage cabinets for storage of display materials when not in use. Special drawers or files should be provided for materials prepared for the opaque projector for various units in all courses.

11. A magazine display rack for bulletins and current business and general magazines related to current projects and units of study.

12. A bookcase, preferably built into the wall, with locking doors, for reference books and supplementary
texts for student projects.

13. Special electric outlets and facilities for special lighting of displays.\(^{10}\)

The following recommendation was made by Zelliott with reference to the amount of blackboard and bulletin board space needed: ten to twelve feet of blackboard across the front of the room with bulletin boards placed on each side of the blackboard and on the open side wall spaces.\(^{11}\)

V Storage Space

The students in basic business courses, who often work on various projects and activities, use a large amount of materials. Storage space in the room for the materials used by the students seems desirable. One plan for providing student storage space was suggested by Zelliott.

One plan is to have built-in or recessed cupboards fitted with pigeon holes, about 3" x 12" x 14"; a double tier of pigeon holes 30" wide and 60" high, overall, will provide a pigeon hole for each of thirty-six students. Five such cupboards in a row would require about twelve lineal feet of wall space. Each cupboard should have a door that may be unlocked only for the class period for which it is assigned.\(^{12}\)

The California study recommended a counter-height storage section, eight feet long, two feet deep, three feet high, with combination bins and shelf sections, and sliding doors, for general storage in the business education class-

\(^{10}\)Douglas, op. cit., p. 195.

\(^{11}\)Zelliott, op. cit., p. 129.

\(^{12}\)Loc. cit.
Storage space for the audio-visual aids equipment was described by Douglas, above.14

The extent of storage space needed in the basic business room for reference books and magazines will depend upon the extent to which such materials are used in the classroom and the use of a classroom or central library. Zelliot stated, with regard to this point,

If a considerable number of books are used in a class, such as commercial geography, business training, or salesmanship, it is desirable to have three or four adjustable book shelves with doors included as part of the built-in features.15

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13 Basset, loc. cit.
14 Douglas, loc. cit.
15 Zelliot, op. cit., p. 10.
CHAPTER XII

DEPARTMENTAL OFFICE AND DEPARTMENTAL SUPPLY ROOM

Provision for a business education office and a departmental supply room was made for high schools of fifteen hundred students and over in the planning table submitted by Goodfellow.¹ The California study recommended space for a departmental office and supply room in high schools of nine hundred students and over.²

The departmental office was generally given a central position in the business education department. Lewis stated that the department chairman's office was the coordinating center for the work of the department and should be given a central position on the corridor.³ All plans studied showed the departmental office and the departmental supply room built adjacently or across the corridor from each other. The desirability of such planning was indicated by Lewis, who said, "The location of the stock room next to the


department chairman's office is not only convenient and time-saving to him in his constant stock checking but also leads to easy and efficient distribution of books and supplies.\(^4\)

I Departmental Office

No standard size was recommended for the departmental office. Lewis recommended that the chairman's office be planned as half an extra-size classroom, \(12\frac{1}{2}' \times 21'\).\(^5\) The dimensions, \(10' \times 10'\), were recommended by the California study for the departmental office.\(^6\)

The following list of furnishings and equipment for the business departmental office was given by Allen.

- Executive desk with built-in telephone connection, vertical and card files, and interchangeable drawers.
- Two fixed-bed typewriter desks, one of these to include transcriber equipment.
- One dictating unit.
- One large bookcase unit for teachers' professional library.
- Executone Intercommunication System.\(^7\)

The California study recommended that the departmental office contain: one executive desk and chair; one two-drawer

\(^4\)Lewis, loc. cit.
\(^5\)Ibid., p. 46.

file with lock; two four-drawer files; one bookcase section; two outside phone connections with inter-communication arrangement and three duplex electrical connections.  

In the plan for the departmental office recommended by Lewis, it was suggested that the office space be partitioned so that there would be a small outer office about 10' x 21'. This outer office would contain a secretary's desk, a table for book display, chairs, a bulletin board, and a door leading into the stock room. The partition separating the inner and outer office would be built in two parts -- a bottom section approximately five feet high constructed of wood paneling and the top section (to the ceiling) of frosted or opaque glass.  

Such an outer office would provide space for training students in the duties of receptionists.

II Departmental Supply Room

A large amount of supplies is used in the business education department. The central storage and control of supplies contributes to the efficient operation of the department.

Variations in the size of the supply or storage room were found. The California study recommended that a storage

\[^8\text{Basset, loc. cit.}\]
\[^9\text{Lewis, loc. cit.}\]
\[^10\text{Basset, loc. cit.}\]
and conference room, 10' x 20', be provided.\textsuperscript{11} Lewis indicated that the stock room should be the same size as the departmental office, 12½' x 21'.\textsuperscript{12}

Storage arrangements suggested by the California study included: counter-height section with bin storage sections above on two walls; and floor-to-ceiling section with large bins and shelf divisions on the other two walls.\textsuperscript{13}

Certain special features were recommended for the supply room. Lewis recommended that the door leading out into the corridor be built in two sections, the bottom section built like a shelf for the handing out of supplies.\textsuperscript{14} Allen recommended steel shelving which could be sealed against collection of dust, and at least four stock lights for the easy location of materials.\textsuperscript{15}

\textsuperscript{11}Basset, loc. cit.
\textsuperscript{12}Lewis, op. cit., p. 47.
\textsuperscript{13}Basset, loc. cit.
\textsuperscript{14}Lewis, loc. cit.
\textsuperscript{15}Allen, loc. cit.
CHAPTER XIII

SUMMARY AND CONCLUSIONS

The variety of specialized equipment and furniture involved makes the problem of business education facilities a tremendous one, yet the amount of published materials on this problem was found to be relatively small.

The major contribution to the field of business education facilities during the five-year period studied was The American Business Education Yearbook, published in 1948. This yearbook was devoted entirely to a study of physical equipment, layout, and supplies. More studies of such a type are necessary if the business educators are to meet their responsibilities in future planning.

Two types of information are needed when planning facilities which were not found in the materials studied. First, recommendations of minimum essentials with regard to equipment should be available. The recommendations quoted in this study indicated a maximum development insofar as facilities were concerned. Few schools are able to purchase the extensive amount of equipment suggested at the outset. Secondly, no data was found as to the cost of equipment. Although costs vary a great deal with the quality of equipment purchased, some approximation of costs would be desirable.

No attempt was made in this study to evaluate the recommendations quoted. An evaluation would have necessi-
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tated the application of the recommendations to a given situation; and such an application was not the purpose of this study. Hence, the validity of the recommendations stated will be determined by the way in which they meet the demands of existing circumstances.

The recommendations which have been presented in this study were the opinions of certain business educators as to what they believed to be desirable facilities in business education. These recommendations are not to be considered educational specifications, based upon research, which will fulfill the needs of any situation. Rather, these recommendations represent a portion of the current thinking in business education.

The objectives of any building program or revision of facilities in the expansion of the plant are to meet the needs of the individual school situation to the extent that such attainment is feasible and possible. Many of the recommendations in this study would not be applicable in local situations. However, the desirability of knowing what leaders in certain areas recommend and what other schools are doing is apparent. Application of new ideas, modified to meet the needs of the individual school, may often be made advantageously.

Differences of opinion with regard to what is desirable appeared in this study. Such differences of opinion are an indication that there may be several satisfactory
solutions to a local problem. The factor of judgment becomes important in evaluating the ideas studied and arriving at a satisfactory solution.

Certain general procedures in the planning of business education facilities seem necessary. These procedures may be divided into two parts. First, an analysis must be made of the present situation as follows:

1. A determination of the needs of the school in terms of the area to be served.
2. An analysis of the business curriculum in force in relation to the needs of the school.
3. A study of the existing business education facilities as to how they meet the requirements of the curriculum.

Secondly, a program must be developed which will meet the needs of the school:

1. Revision of the business curriculum, if necessary, to meet the needs of the school.
2. A study of the current developments in the field of layouts and facilities.
3. The determination of layouts and the selection of furniture and equipment which will best meet the needs of the curriculum, within the funds available.

The importance of the careful planning of new business education facilities, as indicated above, cannot be over-emphasized. The quality of that planning will determine to a great extent the effectiveness of the business education program of the future.
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