PLANS FOR A UNIVERSITY CLOTHING DEPARTMENT IN SOUTH AFRICA

by

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In recent years the importance of educational planning prior to the erection of new university buildings has been stressed by educators as well as architects. In the past, architects were expected to draw up plans for schools from such meager information as the approximate number of students to be housed, and the approximate amount of money to be spent. Today the greatest satisfaction in school planning comes when a building proves itself functional in use. But functional design for schools is possible only if educational planning goes on before architectural planning takes place.

Hufsiger (13, pp.121, 122) pointed this out. Since the structure of a school room is designed with regard to the functions carried on in it, he said, the layout of the room should be undertaken at the same time, or prior to the design of the building which is to house it. The planning must be done by someone who knows the program, and therefore the function of the room, intimately. Also, specifications for equipment should be separately prepared, or be a distinctly separate section of the
general specifications. Because of these considerations, this study is concerned with the planning of a clothing department for the Stellenbosch University.

This university started in 1863 as a private preparatory school for students of theology. It developed into a state-aided college in 1881, and gained its present status of university in 1916. Like most of the schools in South Africa, it is aided financially partly by the state, and partly from private endowments.

Approximately 60 per cent of the 2,000 students come from rural, and 40 per cent from urban areas, according to statistics compiled by the sociology department at the university. The majority of students receive financial aid from their families, while some are aided by outside sources. Students generally come from families numbering between four and six members; the ages of students average around 19 years. Married students are fairly rare.

The general philosophy of education at Stellenbosch, is that knowledge is pursued in the service of society to further material and spiritual concerns. A student should not only assimilate, but also contribute new knowledge in his subject field and make this available to others. Character building is important, in order that each student shall be a level-headed, harmonious human being, and a responsible citizen.
The home economics department at the university serves at present 10 per cent of the students; they are enrolled either part-time, or as full-time home economics majors.

The Purpose of the Study

The immediate purpose of this study was to set up tentative educational specifications for a new clothing department at the University of Stellenbosch. Floor plans and drawings of some types of furniture that may be practical were developed to stimulate, rather than to prescribe ideas for the new department. It was hoped that the information gathered, may also prove helpful to South African school teachers, extension agents and homemakers who want to arrange convenient and efficient facilities for clothing instruction and for home sewing.

The Need for the Study

The need for this study may be clarified by stating the past history, and the present status of the clothing department at Stellenbosch.

Home economics courses at the university date back as far as 1926 (17). Clothing instruction started in 1929. Physical facilities in those early years were spread over the campus. The foods and nutrition "laboratory" boasted
four work tables in a room in the agriculture building; the space under the built up seats in the lecture room of the annex to the zoology building was utilized to teach and practice care and cleaning of clothes. Household management was taught among entomology showcases, and clothing in the "cookery" of a nearby women's dormitory.

Thanks to the interest and diligence of the Women's Club of the University, a sum of £10,000 (at that time approximately $50,000) was gathered for a home economics building, which was formally opened on August 13, 1933.

The facilities for clothing education in this building consisted of one spacious sewing room, which frequently served as a reception room for community or faculty social events. Auxiliary spaces for clothing consisted of a spacious fitting room with storage facilities for bolts of material and completed students' projects. There was a convenient office adjacent to the fitting room for the one clothing teacher.

Though the 1933 building remained essentially the same, objectives and classroom procedures changed through the ensuing years, while student enrollment and staff slowly increased. In 1956, a total of 193 students were enrolled in home economics courses and three full-time teachers were responsible for clothing instruction.
As for space and equipment, folding doors were utilized to create two small sewing rooms out of the existing one. Wardrobes and closets were added to the walls of the fitting room to provide storage at the cost of floor space. A second desk, and a second filing cabinet were moved into the staff office at the cost of floor space as well as privacy. Additional modern sewing machine heads were installed in the sewing rooms and while still inadequate in number, they usurped the little space that was left.

Limitations of the Study

This study was made with the specific purpose of assisting South African teachers; though some of the information given may be well known in the United States. Because of the limiting factor of distance, equipment on the South African market could not be studied without considerable expense. It was estimated, however, by the physical plant at the university, that sewing tables could be constructed at a price considerably lower there than similar tables in the United States. Other materials might, on the other hand, prove more expensive in comparison. It was for this reason that no estimation of cost was attempted at any stage during this study.
Since co-operative planning with co-workers at the University of Stellenbosch was impossible because of the distance, the specifications that were made as a conclusion of the study necessarily have to be tentative.

Procedure

Information pertaining to the planning of clothing and textile departments for colleges and universities was collected by:

1. Reviewing recent literature on
   a) evaluation of home economics programs
   b) objectives of clothing and textiles education
   c) activities that take place in clothing rooms
   d) recent trends in equipment and arrangements for sewing
   e) planning of storage, space and heights for work surfaces
   f) recent trends in school building

2. Carrying on correspondence with teachers in high schools and higher education institutions to ascertain how theories worked out in practice. In some instances it was possible to obtain blueprints of floor plans and equipment.

3. Visiting some clothing rooms and departments, and discussing with the teachers the
advantages and disadvantages of various arrangements.

The information gathered from these various sources was evaluated in terms of the needs of the department. Finally, specifications were set up, and tentative floor plans and plans for some equipment were drawn.
CHAPTER II

REVIEW OF LITERATURE

Current Trends in Clothing and Textiles Education

At a 1956 meeting of clothing and textiles teachers, representing various areas of the United States, there was a tendency in the thinking to de-emphasize clothing construction. The importance of a better understanding of the economic, aesthetic, psychological and cultural values of clothing and textiles was emphasized (35, p.636; 20, p. 280).

As far as clothing construction is concerned, the emphasis is placed today on the skills of planning and managing time and economic and personal resources, rather than on perfection of workmanship (12, 21). This change of emphasis involves changes in the method of presentation, as well as changes in the arrangement and kinds of tools and equipment in the sewing room.

Areas for Clothing and Textiles and Their Location

In 1955 a conference was held on planning space and equipment for home economics in higher institutions. Participants came from 36 institutions in 27 states, the staff of the U.S. Department of Agriculture, the staff
of the Office of Education, and the American Home Economics Association. At this conference the need was recognized (34) for the following areas for clothing and textiles: Graduate research, textile testing, clothing design, clothing selection, care of clothing, clothing construction, and seminar or conference rooms.

**Graduate research.** If a graduate program is to be offered, research should be considered. Offices for students and research staff are necessary, as well as space and apparatus to carry out research programs. More space is needed per graduate than per undergraduate student (9, p.288).

**Textile testing.** This area may require a room with controlled temperature and humidity. The need for such a room must be decided early in the planning because of the special construction features that it requires. In some cases a "textile selection" room which contains work surfaces for simple chemical testing and microscope work is furnished instead. The need for display facilities and files for teaching materials in such a room is stressed.

**Clothing design.** A special room for this purpose is not always necessary, since clothing design may be taught in the same areas as related art, home furnishings
or clothing selection. The only requirements are waterproofed work surfaces and connections for water. Display areas, storage for students' work, as well as teaching aids, are necessities.

**Clothing selection.** In addition to ordinary space for displays, seating accommodations, and tables, the following facilities may be required: storage and equipment for demonstrations in fitting ready-to-wear garments; well-lighted display facilities and storage for forms and frames; grooming areas with dressing table space and mirrors; lighting which gives a minimum of color distortion; and storage for devices for color study.

**Care of clothing.** The care of clothing involves the removal of spots and stains, and may be taught more conveniently in the home management department.

**Clothing construction.** A special workroom is necessary for practical sewing experience. The amount of space required depends to a certain extent on the type of equipment and its arrangement. This subject will be fully discussed later.

**Seminar and/or conference rooms.** Accommodation for 20 to 30 persons is desirable in seminar rooms. Such rooms should be equipped with tables and chairs, book
shelves, chalkboards and bulletin boards, and at least one cabinet with a lock.

The location of these various areas should be tentatively decided by the faculty even before consulting the chosen architect. Location by force of habit must be avoided.

When planning for a graduate program, the staff needs to decide whether research facilities for all subject-matter areas will be grouped together in one part of the building, or whether in each subject-matter section, a suite of laboratories and offices will be closed off from undergraduate teaching. Loss of valuable time and even damage to equipment may result when research areas are planned to include undergraduate teaching.

A staff member's office is usually adjacent to, or in the teaching area that it serves; grouped with other offices for the same teaching area, or grouped together with all other offices in an "administrative area". Some considerations are the availability of staff to the administrator, utilization of typing and mimeographing facilities in the general office by the staff supervision of extra-class laboratory activities, preparation of teaching materials and their transportation to classrooms, noise control, and counseling opportunities for students.
On each floor provision should be made for adequate restroom facilities, as well as for at least one utility room.

Size of Rooms

No specifications for sizes of clothing rooms in colleges and universities were found. A formula for the calculation of college and university space requirements has been reported by Donovan (9, p.288) but no reference to home economics was made.

Johnson (14), reporting on "unit" sewing tables for clothing construction rooms, mentioned the importance of preplanning the arrangement of equipment, since "some units call for a lot of room traffic". In this respect mention should be made of the studies by Wilson and by Roberts, et al (25).

The Roberts study specified that the minimum space for passage between built-ins or furniture of less than elbow height is estimated from the measurement for the breadth of body at the hips with two inches added for clearance. Wilson (33, p.23) stated that the minimum width of a major passage between fixed objects should be 30 inches. Hufziger, writing about science rooms for high schools, recommended 36 inches as the minimum width for major traffic aisles (13, p.52).
Floors

Rhilinger listed the types of flooring for institutional use in order of lowest to highest cost as asphalt, vinyl asbestos, rubber, cork, vinyl, and heavyweight linoleum. Cork, or rubber flooring is best where quiet and underfoot comfort are important; the former stains easily and is difficult to clean, while rubber is damaged by excessive heat, moisture and solvents. Where a floor cannot be refinished more than once or twice a year, asphalt tile or vinyl asbestos with two coats of asphalt finish instead of wax, wear longer than some of the other tiles, insufficiently waxed. It is doubtful, however, that the high cost of vinyl tile is justified on this basis alone.

Briefly comparing the disadvantages of the different types, the same author states that asphalt tile chips easily, cracks under heavy loads, is least quiet of all and harmed by grease, oil, gasoline and other solvents. It requires a very even subfloor. Vinyl asbestos is more durable, but twice the price of asphalt tile. Rubber proved less satisfactory than synthetics in spite of its resilience, sound absorbency and attractive appearance. Cork is difficult to keep clean, while linoleum cleans easily but is shorter lived than the others. Vinyl
proved satisfactory, except for price, which is five times that of asphalt.

According to Johnson (14), floors underneath unit sewing tables need to be very even, and she recommends asphalt tile. Light grey asphalt tile was used in some instances because of its light reflecting qualities (5; 23). In remodeling, heavy duty sheet linoleum, linoleum tile and vinyl proved most satisfactory for use over old wood floors (30). Linotile floors were also used for related arts laboratories because they were considered easier to maintain than some plastic tiles (1).

Walls

In planning the walls of various rooms in the clothing department, attention should be given to features such as flexibility, sound transmission, economy, and display areas.

The importance of flexibility can hardly be overstressed. Movable office or factory type partitions between various rooms may be useful for this purpose (13). Davis (6) mentioned sound transmission problems presented by temporary partition walls.

The following statement of the National Science Teachers Association was quoted by Hufziger (13), who stated that the general principles therein "apply equally
well to wall construction":

In designing partitions for science rooms, it should be kept in mind that sound absorptive materials are often relatively inefficient in reducing sound transmission through walls. The reduction of sound transmission is accomplished through the increased weight of the partition material per unit area and upon the use of double wall construction with a minimum of connecting material between the two surfaces.

Beatty (3) suggested sound absorbing floors and ceilings for administrative areas so that the elimination of doors, and the use of less than full-height partitions might be possible. This would also make for more flexibility.

Describing architectural innovations in the Garfield School, Brooks and Coddington (5) mentioned that "special acoustic treatment adjacent to the windows absorbs sound reflection from the hard surface. Acoustic tile tackboards cover the rear walls of the classrooms. ... An acoustic strip over the side chalkboards also helps prevent undesirable sound reflection".

In regard to economy in wall construction, Hufziger (13, p.126) pointed out that:

1. Combining "two or more of the sciences in the same room" may decrease cost of construction.

2. Outside walls should be straight, since offsets and corners increase cost.
3. Rooms should approach a square as nearly as possible—but the function of the room is of paramount importance in determining its design.

4. "In general, small recessed units in masonry walls are proportionately more expensive installed than large storage units and should be avoided unless a high degree of utilization is insured."

5. Alcoves within classrooms should be avoided since broken wall lines incur higher construction cost.

6. Masonry block, "dry wall" or movable partitions are economical for inside walls. Davis (6) mentioned that "oak truck flooring laid horizontally" was used on corridor walls, and that the minimum use of plaster helped to reduce cost. Cinder block or brick may also take the place of plastered walls (13, p.13). The rough surface has acoustical value, but a gloomier atmosphere results on account of the lower light reflection factor.

The importance of a warm, friendly atmosphere in school buildings was pointed out by Obst (23), and the contribution of color towards an attractive appearance was stressed. Beatty (3) also was conscious of the need for an inviting appearance when he referred to
administrative areas thus:

Corridor walls of the guidance suite are glass curtain walls, opening into the main corridor. The single-loaded corridor gives light to the offices and children now come to the counselor voluntarily.

Articles in professional journals of home economics indicate the generous use of bulletin boards and showcases (1; 18). It seems advisable to have showcases in areas where they can be seen by all the students, as well as by visitors to the school—especially if one purpose of displays is to advertise the home economics department (34). Each specific area in the home economics department does, however, need its own display case. Cases should be well lighted and should have cork walls; smaller ones should have adjustable glass shelves.

Bulletin boards are located inside the class room; sometimes a whole wall is lined with cork for pinning. Hufziger favors cork for tackboards because of its resiliency. Various light colors are obtainable (13, p.16).

Chalkboards, like tackboards, should never occupy wall space that might be needed for storage. They may be applied to sliding doors if wall space is at a premium.

Lighting

The quantity of light that falls on any surface in
a room, is expressed in foot-candles. It is recommended (34) that in clothing rooms 60-80 foot-candles of uniformly distributed light be supplied. Reporting on methods of daylighting schools, Spencer (29, p.404) concludes that:

None of the methods of daylighting which have been proposed so far satisfies the criteria for an optimum luminous environment for all lines of sight.

If bilateral and toplighting is used and the 3:1 helios ratio is exceeded, direct and reflected glare will be present for many lines of sight.

The criteria for the optimum luminous environment are satisfied if luminous ceilings or suitable combinations of daylighting and luminous ceilings are employed. Today such designs appear to offer the most practical answer to the visual needs of the classroom.

It was recommended by Hufziger that (13, p.43):

Ceiling light fixtures should be arranged and wired so that the row of fixtures near the fenestration is on a switch separate from the row of fixtures near the interior wall of the room. Thus, on bright days, the row of lights near the windows can be turned off, while the row of lights near the darker part of the room can be used.

In clothing laboratories special lighting should be furnished near the mirrors for fitting and in the grooming area (34).

A matte finish for walls is necessary to eliminate glare from light reflection. A light colored paint with a high reflectance value of 80-85 per cent should be used
for the ceiling and upper walls. Lower walls, if they are
different, should have a reflectance value of between
50-70 per cent. Sharp value contrasts should be avoided
between wall, floor and equipment surfaces. The minimum
reflectance value for wood trim should be 30-40 per cent;
for window mullions 75-80 per cent; for furniture tops
35-50 per cent; for floors 15-30 per cent; for tackboards
50-60 per cent, and for chalkboards 15-20 per cent
(22, p.367).

The exposure of the room must be considered in
choosing a color. Sunny rooms need cool colors on the
walls, while rooms on the cold side of the building will
need warm colors.

Service Facilities

Service facilities for clothing laboratories in-
clude adequate electrical connections and water supplies.
It is recommended (34) that the floors of sewing rooms be
wired so as to provide a socket for each student’s sewing
area. In addition to that, strip outlets may be placed
along the walls at six-foot intervals, and the wiring
should provide for additional unassigned current. Pilot
lights may be furnished on all outlets, but are essential
on those where irons might be used. There must be a
safety switch to disconnect power from all outlets in
each room.

One or more sinks or wash basins with hot and cold water supply is necessary in each laboratory.

Storage

The types of storage needed in clothing departments include storage rooms, closets with hanging space, cabinets with adjustable shelving, drawer space, files and book shelves. It was pointed out (34) that the need for storage space increases with the number of purposes for which the room is used. Movable storage units may be utilized as partitions to increase the usefulness of a room. Sliding doors with ball-bearing rollers proved very satisfactory for closets and cabinets in rooms where aisle space was at a premium.

Storage space is functional to the extent that it is located close to the place where stored articles are first used and where objects are easily seen, reached and grasped. Though flexibility is important, expense for unnecessary and useless storage must be avoided.

In clothing departments storage must be designed for general use, for individual students' use, and for teachers' use. The type of furniture and its arrangement influences decisions for storage. In sewing rooms, general storage must supply closed closets with rods for hanging
garments under construction as well as storage for dress forms, sewing machine attachments, slopers, mounted rolls of paper, tailor's squares and yardsticks, shears, bobbins and various similar kinds of small equipment. A place for books and periodicals must be provided also. Pressing equipment such as irons and hams, press cloths, and press boards may require either individual or general storage.

For the students' individual equipment like patterns, thimble, thread, fabric and so forth, "tote" drawers are generally recommended. Krasnecki (20) suggests that "tote" boxes should be built-in as part of the recessed storage space in the laboratory, and that the size of the tray should be five inches deep by 14 inches wide by 18 inches long. The "tote" drawers may also be stored in the hall in a bank of recessed units. Recently, there has been a trend to store "tote" drawers in the "unit" sewing tables in the sawing room. The number of individual "tote" drawers should equal the room capacity of students per semester. Sturm (30) mentioned "tote" tray cases with metal slides that eliminate loss of space due to dividing shelves.

In the classrooms a storage for teachers is provided in the demonstration desk and in a general preparation room and/or office. Teaching materials and tools for their preparation, papers and other
paraphernalia of the teacher may be stored in units such as: legal and standard size files, adjustable shelves, shallow tray drawers, bin drawers with rods (for storage of textile fabric swatches), blueprint file cabinets (for posters), bookshelves and closet space (for projectors and/or collapsible platforms or other odd-shaped equipment). A private closet for hat, coat and overshoes in the office is desirable.

There are some other factors pertinent to the planning of storage for clothing rooms. For the sake of safety, a maximum shelf height of 84 inches must not be exceeded. For students' storage the maximum height should be 60 inches. Rounded corners for shelves and work surfaces and asbestos-lined shelves for irons are other safety precautions (34).

Concerning closets, it was pointed out that (10, p.2-4) a "reach-in" closet with rod running from left to right, should never be less than two feet deep. If the closet floor is at least two inches above the floor of the room, dust will not seep in freely. If there is a shelf above the rod a minimum of two and one-half inches should be allowed between the top of the rod and the bottom of the shelf. The minimum distance from the top of the rod to the floor of the closet for evening gowns should be 72 inches, and for daytime dresses 63 inches.
Space allowance on the rod for the former should be two inches, and for the latter one and one-half inches. A rod for children's clothing may be 45 inches from the floor of the closet.

The top of a full-length mirror should be no less than five feet, eleven inches from the floor.

In regard to shelves and drawers, a minimum front to back and bottom to top clearance of one inch over stored articles (33, p.26) is necessary. Drawers containing two or more removable insets are more flexible and more economical than individual small drawers. Ventilated drawers are preferable for some purposes, for instance, for storing damp pressing hams.

Edwards suggested (10, p.19) that shelves in sewing closets should be at least nine inches apart, and that a towel bar for wet pressing cloths would be convenient. A minimum width for shelves for hats (10, p.5) would be 12 inches from front to back, and a maximum of 15 inches. The distance between the shelves should be nine inches from the top of the lower shelf to the bottom of the shelf above.

Furniture and Equipment

Tables for clothing construction rooms should provide, for each student, a large, even surface on
which to lay patterns on cloth. A space for hand basting, a sewing machine, equipment for pressing, mirrors to aid in fitting garments, and a comfortable chair should be part of the furnishings.

Recent literature has stressed the extreme importance of functional arrangement of the furniture and equipment in order to cultivate efficient habits of sewing. It is interesting to note that there is a corresponding tendency in another construction area, that of the industrial arts workshop (7).

An experimental study by Bennion (4) at Utah State College in 1950 proved the importance of arranging the cutting and basting surface next to the sewing machine for more efficiency and for less fatigue. A similar study was made in 1950 at Oregon State College by Sherman (27).

Jones (16) experimented with various arrangements at Purdue University in 1955. She found that, for the best utilization of time and energy, an L-shaped arrangement was preferable to a straight one. She stated that (16, p. 30):

The distance travelled when the press center was on the left was greater than when it was on the right. The operator or the garment could possibly be burned if the iron were on the left while stitching.
Most of the operations occurred at the sewing center and the press center; therefore, the closer they are together, the less distance will be travelled. It would be more convenient for a right-handed person to use a right L-shape than a left L-shape arrangement.

Manufacturers of schoolroom equipment and various teachers of clothing construction recently have devised special desks or tables which would combine in one spot the various work areas for making garments (19; 2; 32; 8).

In 1956 Johnson (15) made a study of these various "unit" tables available on the market, and reported on 22 different models. Ten were commercially produced, and the rest were original designs by colleges and universities. Some tables accommodated one, others two, and others four students. Some provided all the necessary work areas, while others furnished only some of the work areas. Varying amounts of storage space were included in the units.

The installation of unit tables or the convenient arrangement of ordinary lightweight tables, is a moot question, and depends on the individual circumstances of departments (34). Johnson listed the factors to consider before deciding about a unit table. She considered the relative room size and class enrollments as of major importance.
Other considerations for all sewing tables are the height and type of work surface they provide. For cutting purposes, a height of 35.5 inches was recommended (25), while for hand sewing, when seated, 26 inches to 30 inches with the right chair proved feasible. According to most authorities, cork is a good work surface; it is resilient, noise absorbent and lusterless.

A work space adequate in size for a seated worker is 24 inches from side to side and 27 inches from back to front (33, p.23). The normal side-to-side reach is 48 inches (16, p.15). Wilson also recommended (33, p.25) that the open space under a table should be at least 18 inches wide and 16 inches deep; the top of the open space should be at least 25 inches from the floor or foot rest.

A swivel chair is a great convenience in clothing construction, and a type with adjustable back and seat height was recommended (34). It is interesting to note that in a study made by Smola (28), high school students indicated comfortable chairs as the greatest physical need in their homemaking departments.

Listed (31) as possible results of using uncomfortable chairs, were fatigue, discomfort, poor posture, muscular pain, and tension. A desk or table which is too high in relation to the chair, starts muscular
aching in the neck, shoulders and upper back.

The use of many varied makes of sewing machines was recommended by some sources (34; 3), so as to avail students of a wider range of experience; this assumes the availability of agencies for maintenance. The ideal of one machine per student was stressed. The desirability of relatively low tables, and special storage space for portable sewing machines were mentioned.

Snap-up types of sewing machines are not favored, and machines in roller-type cabinets require locks on the rollers, according to Johnson (14). It seems desirable to have the tops of surfaces for hand sewing flush with machine beds.

The kind and amount of pressing equipment furnished depends on the kind and arrangement of sewing tables. A table, or more than one large padded surface for the pressing of yardage, as well as one ironing board plus iron per pair of students, was recommended (34). Pressing facilities in use with unit tables were either one large ironing board per room, one ironing board at the end of each unit, one small press board for each table, or snap-up ironing boards attached to the tables (14).

Three types of demonstration desk arrangements for sewing were explored by Jones (16). She preferred a "parallel arrangement" to a "straight arrangement".
In the former, storage for teacher supplies is recessed in a wall three feet behind the demonstrator at the desk. Drawers for storing small sewing tools, supplies and pressing equipment, and files for illustrative materials were part of the demonstration desk itself. A chalkboard on the wall behind the teacher, and swinging bulletin boards were suggested. Length and width of the desk were 7.5 feet by 2.5 feet. The height was not indicated. Convenient eye-level height for a seated person is 29.4 inches (25, pp. 24, 25). A wash basin near the demonstration desk proved convenient.

Auxiliary Spaces

Convenient offices for the staff contribute to better teaching. It has been found (9, p. 296) that almost any type of office operation is satisfactorily accommodated if approximately two-thirds of the floor space is free of furniture and equipment. One source (26) suggested that 120 square feet is considered by some as adequate space for a staff office.

Recommended (34) facilities for an instructor's office included adequate storage space for coats and the like, restrooms, work space for the preparation of teaching materials, opportunities for counseling, and if necessary, possibility for laboratory supervision outside of class
hours. Other suggestions (26) included the following:
a desk top fastened to the wall instead of to a pedestal,
a bulletin board and display place above the desk top,
a shelf beneath the desk top to accommodate a medium-sized drawing board (to which current work may be pinned for storage during interviews).

Other auxiliary spaces for clothing and textiles should include storage space for students' coats and overshoes, and restroom facilities. Some institutions also provide a workroom for students' use outside of class hours.
Present Status of the Clothing Department

The students who pass through the clothing department in home economics at Stellenbosch are preparing themselves either for homemaking, teaching, extension work, nutrition research, or dietetics.

Freshmen who wish to major in home economics may enroll for either a four year program which culminates in a bachelor of science degree, or for a two year program which culminates in a diploma in home economics. Freshmen are encouraged to visit the teachers in the home economics department during freshmen week particularly, in order to gain an understanding of the advantages and disadvantages of both programs in view of their individual situations. They also consult with senior students selected as advisers by the institution.

Home economics graduates holding a diploma may enroll for a one-year course in education, in order to specialize as home economics teachers for junior high schools. Students engaged in the four-year program must decide at the end of their second year whether they wish
to specialize in teaching, dietetics, or in general home economics. Both of the latter enable students to proceed with graduate work after they have obtained the Bachelor's degree. Their decisions determine their future courses in the clothing department where no electives are taught. There is no graduate program in clothing.

Some courses in clothing are one semester long, but two-semester courses are much more common. Teachers determine the length of time to be spent on various units during the year, according to the needs of the particular groups.

Textiles education is classified under home management at Stellenbosch and does not form part of the clothing department. It does include a fairly extensive theoretical study of the physical and chemical properties of natural and synthetic fibres, as well as the theory and practice of selection, care and cleaning of textile fabrics. A study of the clothing and textile industry and textile design has not up to the present been a part of the program.

Formerly the aims of clothing education stressed sewing skills, painstaking workmanship, aesthetic appreciation, and creativeness. Management of time and energy, and an understanding of clothing and textiles as a social and economic force were neglected.
Units of subject matter taught in the clothing department are basic sewing, dressmaking, pattern drafting, children's clothing, fine needlework and lingerie, tailoring, clothing selection and the clothing budget, embroidery work and millinery work.

**Basic sewing.** All home economics majors devote approximately one semester to basic sewing. Manipulation of sewing tools, basic stitches and procedures, like various seams, hems, and so forth, are stressed, as well as how to lay out and cut simple garments.

**Dressmaking.** In this unit, emphasis is placed on the use and alteration of commercial patterns and the fitting of garments; it provides valuable additional sewing practice.

**Pattern drafting.** In the past this unit received attention prior to, or at the same time as dressmaking, since commercial patterns were unavailable. At present, the unit follows one on dressmaking and is retained since school teachers are required to teach pattern drafting in high schools. Commercial patterns are available in most parts of the country, however. Evaluation of this particular unit and its place in the program seems to be indicated.
Children's clothing. Majors as well as non-majors in home economics learn how to construct children's clothing. Majors spend more time than non-majors on constructing simple tailored garments for boys, and in studying the psychological and hygienic aspects of children's clothes.

Fine needlework and lingerie. This unit is retained solely because future high school teachers find it helpful. Construction procedures on silk, and fine embroidery and lace trim are new learnings. It is a time-consuming unit and probably is of the least practical value to students in present day living. Revision and evaluation seems to be indicated also.

Tailoring. A course in tailoring is taught at present only to senior students in the four-year program. It proves especially helpful to extension agents. Requests have been made by students enrolled in the two-year homemaking course for inclusion of a similar unit in their program. With the available physical facilities and without revision of the entire clothing program, this is difficult to accomplish.

Clothing selection and the clothing budget. This solitary reading unit among the many construction courses probably does not get proper attention from the students.
They, nevertheless, seem to welcome the change. Since attention is given to selection and budgeting towards the end of the clothing program, it is difficult to assess the practical value to students.

**Embroidery work.** Attention is given to various types of embroidery work, history, suitable designs, colors and thread, and practical application. Home economics majors devote one semester of their time in clothing to this unit.

**Millinery work.** Practice in millinery work, a semester course for all home economics majors, proves useful to school teachers as well as to extension agents.

The table on page 35 shows the total number of laboratory and lecture hours for clothing students in these various courses and the student enrollment.

The physical facilities for clothing, at the present, consist of one sewing laboratory, one fitting room, and one office for the staff, all located in the west part of the building.
Home Economics Majors And Non-majors
Enrolled in Clothing Courses in 1956

<table>
<thead>
<tr>
<th>Classification</th>
<th>No. of Students</th>
<th>No. of Sections</th>
<th>No. of Lecture Hours</th>
<th>No. of Laboratory Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Home Economics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seniors</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Juniors</td>
<td>13</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Sophomores</td>
<td>18</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Diploma in Home Economics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomores</td>
<td>20</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Freshmen</td>
<td>45</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Teacher's Diploma in Home Economics</td>
<td>18</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Teacher's Diploma in Elementary Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomores</td>
<td>13</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Freshmen</td>
<td>48</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>147</td>
<td>13</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

Since in three instances above, the class size necessitates a repetition of laboratory sessions (only 16 students per section can be accommodated in a laboratory), the total number of laboratory hours will be 17 instead of 12 as listed above. A laboratory session is scheduled for two and one-half hours. Three laboratory sessions are the maximum number that are possible in one day.
The sewing room, 32 feet by 47 feet large, is divided by folding doors into two workrooms, furnished alike with

- Six long cutting tables and one small for demonstrations
- Straight, wooden chairs
- Five treadle machines occupying all the available floor space
- Five hand-operated sewing machines housed on collapsible counters running the length of the wall and too high and narrow for sewing
- One ironing board occupying the available space between washbasin and blackboard
- One small blackboard, difficult to reach
- One very small bulletin board, difficult to see
- Two electrical outlets next to each other

Occasionally the sewing room with dividing doors folded back, is used for community or faculty receptions, or for student-staff social events. At such times the sewing equipment is moved to the fitting room and staff office. A spacious, cheerful and inviting reception room is achieved, even though small equipment of the two laboratories is sometimes mixed and even temporarily mislaid.

The fitting room adjoins the sewing rooms. It is long, narrow, and has two doors and one window. Every inch of wall space between is occupied by wardrobes and cabinets with mirrors on the doors that swing open into the room. It is almost impossible to avoid congestion there. With two teachers supervising two student groups working on different garments while others are getting
into and out of garments, there is little opportunity for efficient teaching and learning.

The single staff office is shared by two clothing teachers. The third shares the office of a colleague in home management. Current periodicals are stored in the office, which make them to a certain extent inaccessible for students. Opportunities for interviews with students also leave much to be desired as the office itself is small, originally being intended for one person only.

Home economics graduates need to know the use of efficient appliances and to be able to plan the expenditure of time, energy and money wisely and well. It is felt that in the clothing department this aim is, under present conditions, unnecessarily difficult to reach, because of

Inadequate lighting

Inadequate space for furniture, equipment and traffic

Inconvenient arrangement of outmoded equipment

Poor facilities for fitting and modeling garments

Lack of storage space for students' work

Inconvenient location of the available storage space

Lack of display areas

Lack of electrical outlets
Noise caused by traffic in sewing rooms and transmitted through the folding doors

Lack of facilities for students' out of class use.

Proposed Plans for the Clothing Department

To set up plans for the future without a proper evaluation of the present is rather an inadequate procedure; evaluation of a department must be objective and co-operative, and must include not only teachers and present students, but also the opinions of alumnae on their jobs. After evaluation, plans for the future must begin with a philosophy and the objectives of clothing education. These must be formulated co-operatively by all the teachers concerned, so that there shall be harmony of purpose and procedure and no undue confusion for the students.

The author believes that, since sewing is part of a homemaker's job, the student of home economics should learn to make sewing a "well-organized home activity so that the new clothes are not obtained at the cost of nervous fatigue, eye fatigue and household disruption" (21). In addition to developing efficient habits of managing time, energy and economic resources, ability to make judgments can be sharpened through clothing education, creativeness can be stimulated and appreciation and
respect for manual work enhanced. It is not the aim of home economics to produce professional seamstresses, or professional designers of clothes or textiles. A student who is an efficient home sewer should learn easily enough to become a professional home economist who will impart her own knowledge to others. It is reasonable to expect that the attainment of a degree of sewing skill and management must form only a basis for broader education in the field of clothing in order to achieve wider interests and understanding for homemakers. Programs and courses should be set up with this end in view, and physical facilities can contribute much towards the achievement of such a goal.

The new space for clothing education at Stellenbosch, will be located on the third story in the western part of the home economics building. A lecture room for general use in home economics will be located on the same floor, but in the eastern corner of the building. The size of clothing spaces is limited by the shape of the building and by the location of the windows and some inside walls which have to correspond to those on the first and second stories.

The importance of flexibility in planning must be recognized. To give adequate instruction in basic sewing skills and management in which all the large beginning
classes are engaged, the larger proportion of space shall inevitably be devoted to clothing construction. For this reason emphasis in the plans are largely on construction rooms and their equipment.

Tentative Educational Specifications
For Physical Facilities

Areas

1. Two rooms for practical sewing; they must allow approximately 70 square feet of floor space for each of 16 students.

2. One room that may serve as a laboratory, discussion and general work room, should provide a minimum of 50 square feet for each of 16 students.

3. Three staff offices each with a minimum size of 120 square feet.

4. Two rest rooms.

A drawing on the next page shows the floor plan of the third story. This illustrates the possibility of meeting the above specifications and observing the limitations on the location of windows and inside walls.
Proposed Third Floor Plan

This plan of the third story presents one way to meet the specified requirements for space. The limitations on the location of inside walls and windows are observed. The doors are located to insure a maximum utilization of space inside the class rooms in view of the contemplated arrangement of furniture.
Floors
1. Floors must be easy to maintain.
2. A sound-absorbing material is desirable, particularly in the corridor.
3. A high light reflectance factor is very important in the classrooms and office.

Walls
1. Walls must be easy to maintain.
2. A good light reflectance factor is important on all the walls.
3. In the hall the walls must provide showcase facilities.
4. Generous amounts of bulletin board and chalkboard are required in classrooms; these must be supplied where they are within reach, but where the space is not required for recessed storage. They may be applied to the sliding doors of cabinets or closets.
5. Additional bulletin boards in a well-lighted and in an obvious place in the corridor are advocated. They are also desirable near the teachers' desks in offices.

Ceilings
1. Acoustical treatment is desirable on ceilings.
2. A high light reflectance factor is essential.
Service facilities

1. At least one wash basin in each sewing room, and two or more sinks in the dual purpose room are required.

2. Electrical connections for an iron and a sewing machine must be provided at the desk of each student in sewing rooms; preferably through wiring of the floor.

3. In the dual purpose room, the floor may be wired and electrical connections furnished along the walls at 6-foot intervals and at a height of 45 inches from the floor. Wiring must allow for unassigned current.

4. At the demonstration desks in the classrooms electrical connections for an iron and a sewing machine must be supplied, as well as a washbasin with cold water faucets which should be lower than the table surface.

5. A pair of three-way mirrors with special lighting near by is required in the sewing rooms, as well as skirt mirrors at intervals along the inside wall near the desks of the students.

6. Mirror space with adequate lighting and in more than one area of the dual purpose room is required.

7. In the staff offices electrical connections for irons and sewing machines must be located at the sewing areas, either on the wall 45 inches above the floor, or at the sewing table. Extra electrical connections
are necessary for desk lights, fan or electrical heater.

Storage

1. In the sewing rooms storage area per student must include locker space approximately 18 inches by 22 inches by five inches. It should also include hanging space 72 inches high and 24 inches deep. The number of students to accommodate at present is 80 per laboratory per semester.

2. In the dual purpose room storage for 48 students is required. It must consist of a minimum per student of 15 inches by 30 inches by nine inches high of shelf space in a closed cabinet.

3. Slanted shelves for periodical literature is necessary in each classroom in an area where free circulation around the shelf is possible. Space beneath the shelf may be utilized for mounted rolls of paper.

4. A drawer to accommodate small sewing equipment like tracing wheels, tailor's chalk and so forth must be provided at each student's desk; removable partitions in such drawers are desirable. Space for a tailor's square and 36 inch ruler is also desirable.

5. Pressing equipment such as electric iron, seam presser and hams, can be accommodated in drawers of seven inches deep (inside measurement), six inches wide and
20 inches long. Each student must have storage for her pressing tools. A rod or hook is necessary to hang up wet press cloths.

6. General supplies like slopers, half-size dress forms and so forth can be stored on a shelf above the rod in the closet.

**Lighting**

1. A minimum of 60 foot candles of light must be furnished in classrooms and offices. Ten-foot candles is sufficient for halls and toilets.

2. Fenestration should be such that the lights in the dark side of the room may be turned on while those near the windows are turned off.

3. There should be no glare from the evenly distributed fluorescent ceiling lights.

4. Some means of excluding glare at the windows is required.

5. All the room and furniture surfaces should have a light colored matte finish, and there should be no sharp value contrasts in the colors.

6. Special lighting must be furnished near the mirrors.

7. Special lighting is required at the sewing centers in the offices.
Auxiliary spaces

1. In the staff offices furnishings must include overcoat closets, filing cabinets, a desk and posture chair, visitor’s chair, open and closed shelf space and a sewing center for the preparation of teaching materials; the sewing centers may be of a kind that will be applicable to the home, with adequate storage space for sewing tools and supplies.

2. Halls must provide storage for students’ overcoats and overshoes.

3. It is desirable that counters for periodicals be available in the corridor where students can use it at any time.

Circulation

1. Doors must be planned so as to avoid congestion in the halls between classes.

2. Sliding doors on ball bearings are necessary for closets.

3. Major traffic aisles in classrooms must be no less than 36 inches wide.
Offices

A special feature of this arrangement is the sewing corner where demonstration and illustrative materials may be prepared. This corner may also prove useful to students for out of class work; or may accommodate one additional student in a class section. Two offices are shown to indicate the storage arrangement between them; the actual furniture arrangement need not be the same.
Sewing Center for Offices

This area attempts to exemplify a home sewing center. The sewing desk closely resembles the "unit" tables in the laboratories. Additional features include the storage cabinets on the walls and the lighting beneath the cabinet.
4. A passage of 36 inches must be between the demonstration desk and the wall behind it. An illustration follows on the next page.

**Furniture**

1. Unit tables for individual students are preferred to ordinary tables in the sewing rooms, provided that they supply storage space.

2. The height of the tables must be 30 inches.

3. The "unit" table should furnish a minimum cutting surface of 72 inches long by 20 inches wide. It must also have a surface flush with the machine bed and of sufficient size for hand basting to the left of the sewing machine with a pressing board of adequate size to the right of the machine. All of these areas must be close enough to each other to eliminate steps. It is desirable to have a space for a student's private locker to the left of the hand sewing area. The sewing machine head may be recessed in the table top. Illustrations of a table that may prove feasible is included.

4. The table may be made of light weight, light colored wood, and the top must be lined with cork.

5. Posture chairs with adjustable backs and seat heights are required.
Clothing Construction Laboratory

The pairs of "unit" tables provide storage for individual student's supplies. The closet behind the demonstration desk furnishes space for hanging garments as well as shelves for general storage. Three-way mirrors are located in two corners, and skirt mirrors are at convenient intervals on one wall. A shelf is provided for magazines at the extreme end of the room. Bulletin boards are planned for the wall behind the demonstration desk and chalkboards are designed for the sliding doors of the closet. A minimum amount of room traffic will be necessary.
Student Sewing Table

This table combines necessary facilities for sewing with easy-to-reach storage areas. Individual storage is provided for five students; the drawers are interchangeable. Three smaller drawers for general supplies permit flexibility for future increase in enrollment.
ISOMETRIC VIEW OF SEWING TABLE

LAYOUT SHEET

TESTING BOARD
6. Sewing machines of the same brand are preferred for the sewing rooms since that proves less confusing to beginners.

7. The instructor's demonstration desk must supply the same facilities as students' tables and it must be of the same height so that the students can see clearly while a demonstration is in progress. Additional drawers for filing of teaching aids is necessary. An illustration of a proposed demonstration desk is included.

8. In the dual purpose room, lightweight tables and chairs must fill the center of the room while work counters with storage beneath may run along the walls at a height of 35.5 inches.

9. Office desks and chairs must be of a convenient size, shape and height.
Demonstration Table

This desk is planned for easy sewing demonstrations. The sewing machine is located near the center. To the left of the worker are files for teaching aids and drawers with removable trays for small sewing equipment. To the right is storage for pressing equipment and for bulky demonstration samples. Near the end of the table is located a washbasin which may be closed with a removable cover to provide additional space for cutting garments.
DEMONSTRATION TABLE

ISOMETRIC

SINK COVER

DROP LEAF

PLAN ELEVATION

FRONT ELEVATION
CHAPTER IV

PROCEDURE FOR IMPLEMENTING THE PROPOSED PLANS

The clothing department is an integral part of the home economics department. The sympathetic understanding of the head of home economics and the close co-operation of the entire staff are of paramount importance in implementing the proposed plans.

It is necessary that the clothing department define its place in relation to the basic home economics program at the university. The philosophy and aims of home economics education must be stated explicitly and must coincide with the general objectives of the institution. These aims should meet the needs of the students who are enrolled in home economics courses. In addition, the existing educational facilities and the possible future development of home economics must be considered.

When the members of the staff are in agreement in regard to the adequacy of their program, they can evaluate co-operatively the proposals discussed in Chapter III. Preliminary consultations with the architect and the purchasing agent can orient the staff as to the financial implications of the scheme. After revision of the requirements, the faculty members must present a clear picture of the activities that will take
place in the classrooms to the architect. He then will translate these ideas into tangible architectural shapes and forms.

Rapport between the staff members and the architect can contribute considerably towards eventual satisfaction with the building. Misunderstandings in communication among so many individuals may be expected in view of the number of small details that need attention during the planning. Tensions can be kept to a minimum through painstaking review of the architect's specifications by each instructor for the area with which she is particularly concerned. A list of the items that need particular attention may be co-operatively compiled and may assist in the revision of details. Changes of mind after the architect's specifications have been approved may strain relationships.

If the actual building needs to be postponed for any considerable period of time after the plans are completed, it is necessary to re-evaluate carefully such plans before the construction begins.

The procedure outlined in the preceding paragraphs should have as a result a building that proves functional and pleasing to all. However, a more important outcome
should be that the staff gains, through such a procedure, a clearer understanding of their goals, a more clearly defined purpose in their activities, and a better mutual understanding.
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