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BETTY HALLIGAN MOEBES

ORGANIZATION OF CONTENT FOR A SELF-INSTRUCTIONAL PROGRAM

FOR THE CONSTRUCTION OF A BLOUSE

by

Betty Halligan Moebes

A Thesis Submitted to  
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The purpose of the study was to organize the subject matter for a self-instructional program for the construction of a simple blouse. The organization of content for the program included the analysis of construction procedures into component skills which must be mastered by the student in order to construct a blouse; the selection of procedures to be submitted to the writers of a self-instructional program; the grouping of procedures into learning units suitable for programming; the development of a logical sequence of learning experiences within each unit; and the development of a logical order of units.

The procedure for attaining the objectives of this study included an analysis of construction procedures recommended in selected published material, the construction of experimental blouses, interviews with in-service teachers, and consultations with an accepted authority in the field of clothing construction.

A study in depth was made of the specific procedures necessary for each construction task recommended by writers of seven frequently used high school texts and guide books.

Three collarless overblouses with set-in sleeves were constructed to appraise the ease of negotiating each of the construction tasks necessary for making a blouse. The unit method of construction was used. Construction of the blouses and evaluation of the procedures used were begun at the point where the blouse was cut and marked, but the blouse units remained pinned to the pattern pieces. No fitting was included in the subject matter for the study.

Six home economics supervising teachers from the high schools in Guilford County, North Carolina, five of whom were presently teaching clothing on the ninth grade level, were informally interviewed. The teachers were asked to describe the procedures related to blouse construction which they had found effective and practical for use by beginning students.

A member of the clothing faculty at the University of North Carolina at Greensboro participated throughout the study, guiding the analysis of construction tasks.

The organized subject matter was presented to the writers of the self-instructional program in the form of a series of learning units representing the major tasks necessary for the construction of a blouse. Each learning unit consisted of an outline of construction procedures which had been found necessary for its completion. A discussion including the observations made during the construction of the experimental blouses, the reactions of the supervising teachers interviewed, and the advice of the clothing consultant preceded each of the learning units submitted to the programmers.

The learning units for the construction of the blouses were submitted to the programmers in the following order: (1) staystitching, (2) pressing, (3) darts, (4) seams, (5) facings, (6) attaching facings, (7) sleeves, and (8) hems.

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## CHAPTER I

### INTRODUCTION

Programmed instruction, a relatively new teaching technique which is an outgrowth of psychological theory, is beginning to take its place in the structure of modern education. Programs have been found effective by instructors in industry and in the armed services as well as in the schools.

The success of programmed instruction depends on the quality of the self-instructional program. Programmed instruction requires precise learning objectives and intense study of the structure of the subject matter content.

Kay, a British educator, believed that one of the principal attributes of the programming procedure is the "exacting exercise" of analyzing the subject matter.

All forms of programming are most exacting to write. It is not a short cut to easy teaching. The programmer or subject matter expert must be absolutely familiar with the material in order to break it down into a sequence of small steps. The exercise demands the greatest care and many experienced teachers facing this task for the first time, have found themselves having to reexamine their subject. Nothing but good can come of this effort to think again about the problem of how to teach a subject (7, p.37).

Educators as well as programmers would find it helpful to analyze the content and re-discover the basic elements and logical sequence of the subject matter. This analysis is important because controlled practice of the 'wrong' material could cause hours of un-learning misconceptions. The result could be confusion for the learner which may be sufficient to discourage him from further effort toward the desired

goal. Consequences of this nature could be especially serious where programmed instruction is concerned because once the pattern or paradigm for the program has been established it is sometimes difficult to rearrange the subject matter without rewriting the entire program. Fry (4, p.117) emphasized that the classroom teacher usually is present to correct misunderstandings which may arise or explain meanings which may be obscure to the learner, but a program must be sufficient unto itself, specific and extremely clear.

#### Purpose of the Study

The purpose of the present study was to organize the subject matter for a program for the construction of a simple blouse. Organization of content for the program included the analysis of necessary construction tasks into component skills which must be mastered by the student in order to construct a blouse; the selection of the general principles of clothing construction on which the skills are based; the grouping of learning principles and related skills into learning units suitable for programming; the development of logical sequence of learning experiences within each unit; and the determination of a logical order of units.

#### Background for the Study

The home economics education staff at the University of North Carolina at Greensboro became interested in exploring the value of self-instructional programs as teaching instruments in 1960. The staff was especially interested in the possible adaptability of programmed instruction to areas in the home economics curriculum. Moore (10, p.2) reported in 1962 that although self-instructional programs had been published and 630 were in the process of development, no programs were

available to home economics teachers. At this time the home economics education staff decided to conduct a pilot study.

In 1963, as an outgrowth of the pilot study, a larger project in the area of programmed instruction was planned. Moore and Huffman completed theses related to programming. Moore (10, pp.62-63) developed a linear program of 321 frames on the use of the sewing machine for seventh, eighth, and ninth grade students in a first year home economics class. A preliminary field test of the programs using forty selected students from three schools in the Greensboro, North Carolina, area revealed a significant increase in scores on a criterion test and favorable student reaction to this method of learning.

Huffman (5, pp. 70-71) questioned a sample of 200 drawn from 878 North Carolina vocational home economics teachers to determine problems which might arise in the preparation of home economics teachers to use programmed instruction and to recommend methods for using programmed materials. Huffman found the teachers interested in programs. Specific sections of the clothing, housing, and foods areas were most frequently suggested by the teachers as topics for future programs. Teachers felt that efficiency of the teaching method in general did not necessarily mean that any one program was good, implying that the content of a program was significant and would be reviewed critically before the instrument was used in the classroom.

In the spring of 1963 a seminar was held for the home economics staff and interested graduate students. Members of the seminar participated in the first revision of Moore's sewing machine program. In the process of revising the program, the committee analyzed specific tasks involved in sewing machine operation, discovering for the first time that

some important learning experiences were often taken for granted by teachers so familiar with the task that they themselves performed them automatically.

Shoffner (11) submitted a master's thesis in 1964 reporting results of subsequent testing of a revision of Moore's sewing machine program.

The revised sewing machine program was administered to 108 ninth grade students enrolled in Home Economics I classes in four schools in the proximity of Greensboro, North Carolina. Shoffner observed that at least five class periods of fifty-five minutes each were required to complete the program.

Shoffner reported that student reaction to programmed instruction was generally favorable. Students enjoyed the active participation required by this method of instruction, as well as the opportunity to proceed at their individual learning rates.

After informal interviews with the teachers who had cooperated in the study, Shoffner reported comparisons made by teachers between students who used the program and students of previous years who had been instructed in the use of the sewing machine by conventional methods. Teachers indicated that students who had learned to use the sewing machine by means of the program worked more efficiently and with less individual teacher attention. Although more time was required for taking the program, teachers stated that they thought students learned more effectively by this method.

Teachers observed increased skill by students in operating the machine as well as in adjusting the machine parts.

By 1964 plans had been completed by members of the home economics

education staff for a comprehensive study of self-instructional programs. The study was designed to evaluate the effectiveness and efficiency of three self-instructional programs in the area of clothing construction.

The plan for the larger project was accepted by The Cooperative Research Branch of the United States Office of Education. A two weeks workshop on the development of self-instructional programs was conducted at the University of North Carolina at Greensboro by representatives of the American Institute for Research. Activities required by the workshop provided the writer with practice in developing simple programs and with greater insight into the character of the subject matter suitable for programming.

The project, designed to extend over a three and one-half year period, required the completion of three self-instructional programs during the first year. The sewing machine program was then in the process of a third revision. Subject matter was being organized for the program on understanding and use of a commercial pattern, and this writer began to prepare the subject matter for the blouse construction program.

#### Limitations

Since the program writers were given a limited amount of time to write the programs, they needed organized subject matter to begin their work of frame writing. After analyzing tasks by means of the construction of three blouses as an exploratory measure, observations were limited to a thorough study of basic principles and related skills necessary for the construction of a collarless overblouse with set-in sleeves made of cotton fabric.

The construction program began with the blouse cut out, marked,

but with the pattern pieces still pinned to the garment units. Fitting problems were assumed to have been solved before the cutting of the blouse. All necessary construction procedures were to be included in the program up to, but not including, closures.

#### Definitions of Terms and Abbreviations Used

The terms related to programmed instruction which were selected to be used throughout this study were defined by Shoffner. These definitions are representative of those used by the Home Economics Education Staff at the University of North Carolina at Greensboro.

The terms related to clothing construction for the purpose of this study were defined by the writer and approved by a consultant from the Clothing Staff at the University of North Carolina at Greensboro.

#### Terms Related to Programmed Instruction

Programmed instruction: the method of teaching in which the program becomes a tutor for the student. It is designed and sequenced to lead the student through a set of specified behaviors which make it more probable that he will behave in a given desired way. This term is synonymous with automated instruction and automated teaching.

Self-instructional Program: the sequence of carefully constructed frames leading the student to mastery of a subject with a minimum of errors. It is synonymous with auto-instructional program, self-tutoring device, and self-teaching device.

Frame: a single unit of material which the student considers at one time. It varies in length from one sentence to one page of material and usually concludes by requiring a response from the student. This term is synonymous with item.

Programmer: the person responsible for developing the program. The programmer may be a subject matter specialist, a psychologist, a person trained in programming techniques, or a combination of these.

Programming: the process of arranging the material to be learned into a series of small steps, specifying the kind of response to be made by the learner and providing for reinforcement of

the correct response.

Target Population: the population of students for whom the program is prepared.

#### Terms Related to Clothing Construction

Unit method of construction: a method of construction by which all finishing is done on each separate unit of a garment before the units are joined together to make the finished garment.

Keying: a technique by which seamlines and ends of seamlines are perfectly matched.

Anchor: a process by which one piece of fabric is attached to another.

Machine tacking: a means of attaching one piece of fabric to another using machine stitching.

Hand tacking: a means of attaching one piece of fabric to another by means of small permanent stitches made by hand.

Enclosed seam: a seam with no seam allowance exposed. e.g. The neckline seam is enclosed between the blouse and the facing.

#### Abbreviations Used

Simplicity: Simplicity Pattern Company, Inc. Simplicity Sewing Book. New York: 1958.

McCall: McCall Corporation. McCall's Sewing Book. New York: Random House, Inc., 1963.

Let's Face It: Coats and Clark, Inc., Educational Bureau. Let's Face It. (Stitch In Time: Vol. 34, No. 1-T For Teachers.) New York: Coats and Clark, Inc., 1963.

I.H.E.A.: Iowa State Home Economics Association. Unit Method of Sewing, Third Edition. Ames, Iowa: The Iowa State University Press, 1961.

## CHAPTER II

### REVIEW OF SELECTED REFERENCES

The purpose of this study was the organization of subject matter for a self-instructional program for the construction of a simple blouse. Organization of content for a clothing construction program included the analysis of specific tasks which must be performed in making a garment, the determination of underlying principles, and the arrangement of the two in a logical sequence.

Specific procedures recommended by writers of frequently used high school texts and guide books for accomplishing each of the steps used in constructing a simple blouse were reviewed in preparation for selecting subject matter for the instructional program. In the following review of literature a comparison of these techniques recommended by the various writers is presented.

The review is organized around the major tasks performed in constructing the blouse. A few comments about the references in general will preface the discussion of each construction task.

#### High School Texts and Guide Books

Much has been accomplished in recent years to simplify techniques of clothing construction. Experts who have attempted to communicate with teachers and students through text books, guide books, charts, and films have improved the clarity of visual and verbal presentation. A review of recent published information in the area of clothing construction reveals variety in approach and in presentation for varying levels of skill.



Text and guide books selected for this review contained up-to-date information and sound principles on which authors were largely in agreement. Two high school text books reviewed, Sturm and Grieser (13) and Lewis et al. (8) were concerned with many phases of clothing. Sturm and Grieser (13) devoted two-thirds of the book to various phases of clothing construction. Seven chapters contained step-by-step instructions for clothing projects, one of which was a simple blouse. Each step in construction was illustrated in detail by means of photographs and diagrams. New learnings and specific procedures were outlined and recorded in separate columns. Easy access to specific procedures makes the book valuable as a reference.

Lewis et al. (8) devoted one-third of the book to construction principles and procedures. The construction section of the book was printed on pages of a different color to make it more readily accessible as a reference.

Both Sturm and Grieser (13) and Lewis et al. (8) based their sequences of learning on the unit method of construction. These references were written for high school students. They began with simple concepts and procedures and continued a step at a time toward more complex techniques, building on skills previously mastered. Since much more information was contained in these text books than a student would ordinarily use, Sturm and Grieser (13, p.ix) suggested the need for choosing techniques suited to the students' abilities.

Throughout this study, the researcher referred to a manual by East and Wines (3) planned for teaching high school girls how to sew. About 80 per cent of the information in the manual was in the area of clothing construction. Construction principles were stressed throughout the book

and presented as key ideas. Seven projects were described accompanied by diagrams and photographs. At the beginning of each project students were given a list of procedures previously learned which were to be repeated in the new project. New key learnings were included in each successive project.

The Unit Method of Sewing (6), a construction guide book prepared by members of the I.H.E.A. was used as a reference for this study. The illustrations and glossary were especially useful as references.

Bishop and Arch (1, p.iii) emphasize the mastery of principles which can be applied to any construction project. The book presents standards of workmanship and efficiency in techniques of construction. Bishop and Arch (1, p.23) selected a simple blouse as a first project for beginners.

Two commercial guide books used for the study were Simplicity (12) and McCall (9), both excellent references with easy-to-follow instructions and diagrams.

Let's Face It (2), a leaflet of the Stitch in Time series, was used extensively in the selection of subject matter related to facings and their attachment to the garment.

### Clothing Construction Procedures

#### Staystitching

Staystitching is a line of machine stitching through a single thickness of fabric to prevent off-grain edges from stretching during construction. East and Wines (3, p.74) stated that stabilizing the grain line by staystitching insures good fit and proper hang. All off-grain edges where further construction is to be done require staystitching.

Most authorities reviewed required regular tension and regulation size machine stitches for staystitching. I.H.E.A. (6, p.66) suggested basting length stitches. Lewis et al. (8, p.440) emphasized a well-regulated tension since a puckered stayline can distort the grain of the fabric.

Few authorities recommended marking the seamlines. The use of a seam guide was suggested as an aid to stitching equidistant from the cut edge of the fabric. Bishop and Arch (1, p.212) and East and Wines (3, p.75) located the stayline close to the seamline and into the seam allowance, using a seam guide to measure this distance from the edge. Sturm and Grieser (13, p.346), Lewis et al. (8, p.440), and I.H.E.A. (6, p.66) specified that the stayline be placed one-eighth inch from the seamline into the seam allowance. I.H.E.A. (6, p.66) recommended that the neckline be staystitched one-sixteenth inch from the marked seamline.

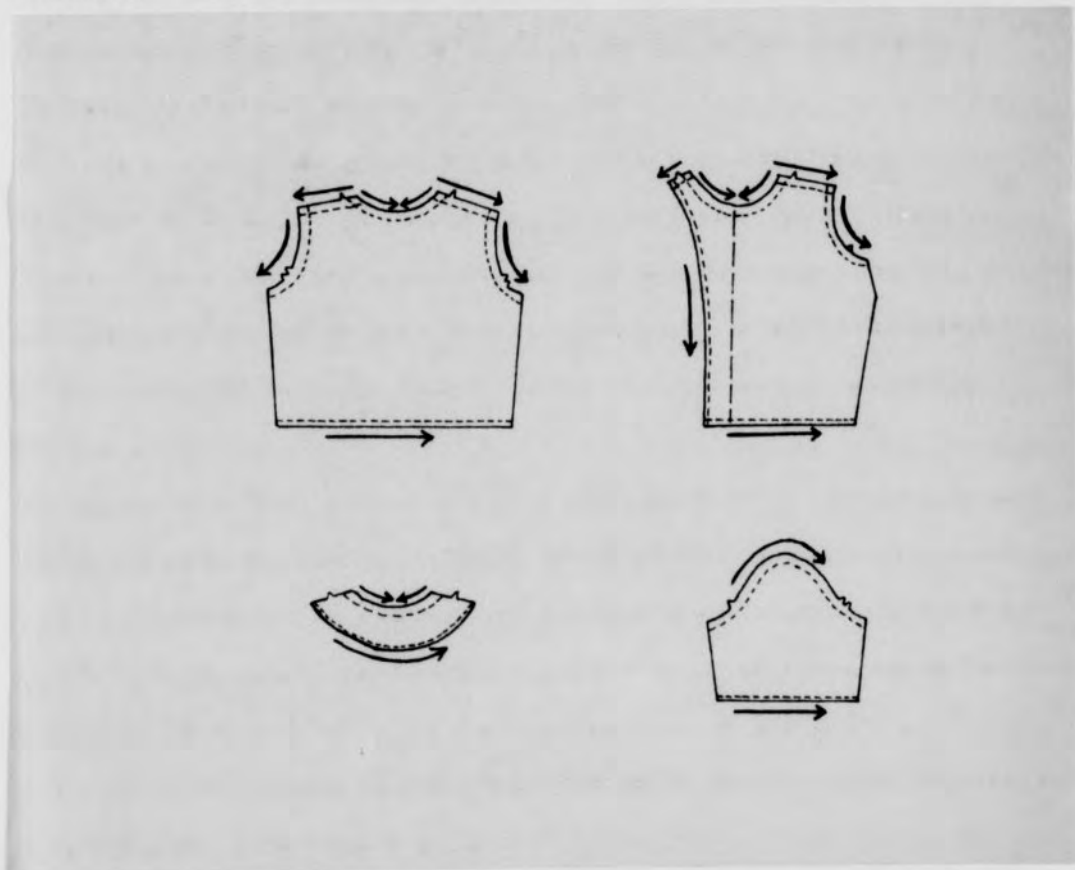
Staystitching must be done in the direction of the fabric grain. Bishop and Arch (1, p.158) and Sturm and Grieser (13, p.251) suggested that grain direction be determined by rubbing the finger along the cut edge of the fabric. When the frayed yarn is smoothed down, the correct direction for staystitching is indicated. East and Wines (3, p.74) pointed out that the direction for staystitching is from the wide section of the garment to the narrow.

#### Bridgestitching

Placing a row of stitches one-fourth inch from free edges which subsequently will be hemmed or cleanfinished was accepted by all authorities reviewed. Bishop and Arch (1, p.130) located this line one-eighth to one-fourth inch from the cut edge of the fabric. East and Wines (3, p.75)

referred to it as bridgestitching since its purpose is to form a bridge to facilitate turning back the raw edge the desired amount prior to stitching on the folded edge.

In conformance with these general rules for staystitching, the following diagrams represent a summary of recommendations in the references reviewed concerning edges to be staystitched and bridge-stitched:



### Darts

Darts are the construction details most frequently used for shaping garment sections to fit the curves of the body. I.H.E.A. (6, p.73) defined a dart as "a fold of fabric stitched from a specified width and tapering to nothing at one or both ends." McCall (9, p.136) referred

to a single pointed dart as a standard dart. Standard darts were the only kind of darts used for the construction of the blouse. As used in this report, the term "dart" is synonymous with a standard or single-pointed dart.

All authorities reviewed assumed that the fold and stitching lines of darts had been previously marked before pinbasting and stitching. Bishop and Arch (1, p.21) and Simplicity (12, p.68) recommended a short, horizontal line marked exactly across the point of the dart to help in terminating the dart precisely at the point.

A dart is prepared for stitching by folding it on the marked center or "pick-up" line and pinning through the dart seam lines. Usually the right sides of the fabric are together and the stitching lines are matched exactly. Pinbasting as preparation for stitching a dart was recommended by all authorities except East and Wines (3), and several different methods were described for this procedure. I.H.E.A. (6, p.73), Sturm and Grieser (13, p.399), and Lewis et al. (8, pp.256-57) preferred that pins be placed parallel to the stitching line with the heads toward the pointed end of the dart for easy removal during stitching. Simplicity (12, p.68) and McCall (9, p.136) recommended placing pins at right angles to the dart stitching line.

Sturm and Grieser (13, p.399), East and Wines (3, p.75), Bishop and Arch (1, p.27), and McCall (9, p.136) recommended stitching from the wide end of the dart to the pointed end. I.H.E.A. (6, p.73) and Simplicity (12, p.68) recommended stitching a dart beginning at either end as long as it is stitched exactly on the marked line. A deviation from the stitching line at the point of a dart can cause an indentation in the fabric which is visible from the outside when the garment is worn. All authorities

reviewed stressed the fact that a dart must be stitched tapering precisely to the point. McCall (9, p.136) and Sturm and Grieser (13, p.399) suggested taking the last few stitches exactly on the fold line and running the last stitch off the edge.

All writers reviewed recommended that the stitching be secured except Lewis et al. (8, pp.456-57) who indicated a preference for leaving the threads unfastened and trimming them to a length of three-eighths to one-half inch. Bishop and Arch (1, p.27) recommended securing the stitching by stitching back into the dart flap about one-half inch and lockstitching. East and Wines (3, p.75) preferred backstitching at both ends of the dart, and Sturm and Grieser (13, p.399) preferred hand-tying. All writers reviewed preferred to leave darts exactly as they were when completed with no further construction such as trimming or slashing except in cases of extremely wide darts or those in very bulky fabrics.

A dart should be pressed as soon as it is stitched before it is crossed by a seam during construction of the garment. Pressing was not recommended by most authors before the dart was stitched. Since the purpose of a dart is to shape the garment, all writers reviewed recommended further shaping by blocking the dart over a curved surface such as a ham or cushion. In two references, Sturm and Grieser (13, p.303) and Lewis et al. (8, pp.256-57) specific directions were outlined for blocking darts. All writers agreed that horizontal darts should be pressed downward and vertical darts should be pressed toward the center front or center back of the garment.

It was recommended that a strip of paper be slipped under the fold line of the dart to prevent an imprint which may show on the right side of the fabric. Lewis et al. (8, pp.256-57) suggested that the dart be

pressed first with the fabric folded as it was folded when the dart was stitched, to crease the center fold and flatten the stitching line.

### Seams

A seam is a line of stitching which joins two or more pieces of fabric together permanently. Two basic kinds of seams, the plain seam and the enclosed seam, were necessary for the construction of the blouses selected for the study. Sturm and Grieser (13, p.260) defined a plain seam as "a seam on which the edges of the seam allowance are left exposed on the inside of the garment." Sturm (13, p.260) identified an enclosed seam as a seam in which the seam allowance will be concealed.

All writers reviewed recommended regulation size machine stitches and regular tension for a plain seam on medium weight cotton. Sturm and Grieser (13, p.262) and I.H.E.A. (6, p.67) emphasized matching notches, keying the ends of seams on the stitching line, and keeping the seam-lines coinciding during stitching.

Pinbasting was recommended before stitching seams when no fitting was to be done during construction and when no matching of design was required. Sturm and Grieser (13, p.262), McCall (9, p.127), and Lewis et al. (8, p.442) recommended inserting pins through the seamline and perpendicular to it, with heads out for easy removal during stitching. Lewis et al. (8, p.442) cautioned that the heads of the pins should be inside the raw edge of the fabric if a metal seam gauge is used. McCall (9, p.127), and Sturm and Grieser (13, p.262) thought that stitching over pins, even with the flexible presser foot, made seams uneven.

Bishop and Arch (1, p.130), East and Wines (3, p.75), I.H.E.A. (6, p.68), McCall (9, p.127), and Sturm and Grieser (13, p.262) recommended stitching seams with the fabric grain. Bishop stressed the

importance of directional stitching, instructing the student as follows:

...In stitching one of the shoulder seams, for example, the back of the bodice will be on top; in stitching the second one, the front will be on top. It does not matter which one is on top-- the correct direction for stitching is the important thing.

Directional stitching eliminates many self-caused sewing and fitting problems. It holds the grain threads in position, prevents fabric from stretching, and preserves the pattern line (1, p.130).

I.H.E.A. (6, p.66) permitted staystitched seams to be stitched against the grain to facilitate handling. On a seam such as an armhole seam, when the direction of the grain changes for only a short distance, Sturm and Grieser (13, p.252) suggested stitching in the direction that is with the grain for the greatest distance.

Perfection in the fit of a garment depends upon accurately matched seamlines and seam allowances of a specified, uniform width. The stitching line should be smooth because deviations will show on the outside of the garment. East and Wines (3, p.47) suggested that beginning students use stitching guides. Bishop and Arch (1, p.25) and Sturm and Grieser (13, p.253) recommended the use of detachable metal seam guides. Other suggestions included the markings on the throat plate of the machine, adhesive tape, mystic tape, or colored gum tape. I.H.E.A. (6, p.53) suggested the presser foot as a guide for edge and top stitching.

The threads at the end of a seam which is to be crossed by another seam during construction need not be secured. A hand tied knot at each end of the seam was suggested by McCall (9, p.128), Lewis et al. (8, p.445), and by Sturm and Grieser who described the method as follows:

. . . turn the fabric to the wrong side; pull on the end of the thread, and draw a loop of the other thread through the fabric; pull the loop through so that the ends of both threads are on the wrong side; and make a square knot (13, p.254).

Bishop and Arch (1, p.24) recommended the lockstitch, or machine knot,



for securing stitches and outlined the following procedure:

. . . Place the needle in fabric on stitching line. Hold fabric firm with left hand. Release pressure on presser foot slightly with right hand (the height of one thread is the amount to release it). Stitch several times in one spot. Holding the fabric with the left hand and releasing pressure with the right hand prevents the feed dog from feeding through the fabric, and keeps it in one place. Cleancut the threads as you proceed (1, p.24).

Most authorities thought that the machine knot was too difficult for beginners. Sturm and Grieser (13, p.254), East and Wines (3, p.47), Lewis et al. (8, p.444) and I.H.E.A. (6, p.67) listed it as an alternate method, but indicated a preference for backstitching. I.H.E.A. described the following method for backstitching:

. . . Hold the seam securely when beginning to stitch by backstitching at the end of the seam. If the machine has a reverse gear, start one-half inch from the end of the seam, backstitch to the end, return to forward gear, and proceed. If the machine has no reverse gear, turn garment around, start one-half inch from the end of seam, stitch to end, reverse garment, and proceed (6, p.67).

McCall (9, p.32) defined a seam finish as ". . . a finish applied to a raw edge to control fraying or raveling." Bishop and Arch (1, p.119) and I.H.E.A. (6, p.72) recommended that a plain seam be considered complete without a finish for fabrics that do not ravel or will not be washed often or hard. Unfinished seams have the advantage of being quick and easy. However, they stated that seams cut on the straight of the grain will ravel more easily than those cut on the true bias, or very much on the bias. Therefore, in the same fabric the straight seams may require some kind of finish even if those cut on the bias do not. East and Wines (3, p.75) pointed out that even though the fabric selected for a first sewing project probably would not ravel very much, the student may wish to finish the seams in some simple way for practice.

The most common seam finish is pinking. McCall (9, p.31) defined

pinking as "a notched seam finish cut with pinking shears." Pinking should be done as close to the seam edge as possible to retain the original seam width. I.H.E.A. (6, p.72), Lewis et al. (8, pp.449-50), McCall (9, p.134), and Simplicity (12, p.71) recommended pinking seams in fabrics which will ravel only slightly, if at all. I.H.E.A. listed three disadvantages of pinking:

1. Does not prevent raveling on fabrics loosely woven or washed often.
2. Danger of clipping garment with ends of shears.
3. Shows through on sheer fabric (6, p.72).

A seam should be finished before it is crossed by another seam during construction. Bishop and Arch (1, p.119) recommended that a seam be pinked before it is pressed open. Sturm and Grieser (13, p.262) stated that "a seam which is to be finished should first be pressed either open or with both seam allowances turned in the same direction, depending upon the location of the seam on the garment and the finish which is to be used." Lewis et al. (8, p.450) recommended pressing seams open before finishing even though both edges are pinked at the same time.

Pressing is an important step in the construction of seams. East and Wines (3, p.55), Sturm and Grieser (13, p.294), and Lewis et al. (8, p.450) recommended underpressing seams in cotton fabric on the wrong side. The point of the iron is placed directly on the line of stitching, using either a steam iron or a dry iron and damp sponge or fabric. Most seams are pressed flat and open. Bishop and Arch prescribed the following method for pressing seams:

Take time to place your garment in position for pressing; place it on the board on grain. Areas that are to be blocked on a cushion are placed over a cushion on grain.

Pull the seam apart before pressing by placing hands to the right and left of the seam and smoothing fabric. Press the

seam open first without any moisture, using the iron on the line of stitching only. If this results in a wrinkle in the fabric, or a well or groove at the stitching line, it is easier to correct before applying moisture. Certain fabrics press more professionally if a seam or dart is underpressed only slightly, and then completed with top-pressing (1, p.89).

One seam edge is sometimes slightly fuller than the one to which it must be joined. The fullness must be eased or "worked" to fit the other seam without gathers or pleats. Ease should be adjusted evenly between pattern markings before the seam is stitched. If a seam requires only a slight amount of ease, I.H.E.A. (6, p.59) and Simplicity (12, p.16) suggested pinbasting, placing the pins closer together in the section to be eased and "working" the fullness in with the fingers while stitching. Sturm and Grieser (13, pp.254-56) described the staystitch plus method for easing in fullness. This is done by placing a finger of the right hand against the back of the presser foot so that the fabric piles up against it while several inches are being stitched. McCall (9, p.129) and Lewis et al. (8, p.445) recommended distributing the extra fullness on gathering stitches before stitching the seam, and Simplicity (12, p.16) suggested a continuous staystitch and gathering line. McCall (9, p.129) advocated steam pressing to shrink out the fullness after it had been distributed evenly.

#### Facings

A facing is a piece of fabric stitched to the edge of a garment and turned to form an enclosed seam. The fold formed when a facing is turned provides a neat finish for edges of garment openings. The extra layer of fabric provided by a facing gives support or body to the openings.

A fitted facing is a separate piece of fabric cut in the same shape as the opening to be faced and stitched to an edge. An extended

facing is cut as one piece with the garment unit. It forms a fold when turned to the inside of the garment.

The front and back neck facings of the blouse used for this study were joined with a plain seam at the shoulder seam edges. Bishop and Arch (1, p.32) recommended trimming the seam allowances to one-fourth inch and pressing them open. East and Wines (3, p.76) recommended leaving them untrimmed. And Lewis et al. (8, p.470) suggested trimming the seam allowances to three-eighths inch and cutting away the corners.

Cleanfinishing was described by Bishop and Arch (1, p.212) as turning under the free edge one-eighth or one-fourth inch and stitching close to the folded edge. Cleanfinishing is used to prevent raveling and to give a smooth finished look to under sections of a garment. Sturm and Grieser (13, p.409) and East and Wines (3, p.76) recommended turning the edge of the facing to the wrong side on the stayline or bridgeline and top stitching from the wrong side not more than one-eighth inch from the fold. I.H.E.A. (6, p.98) and East and Wines (3, p.76) suggested the same method but included pressing the fold on the bridgeline before stitching.

All references reviewed recommended cleanfinishing the entire free edge of the facing unit after the front and back facings had been joined at the shoulders. Lewis et al. (8, p.470) recommended finishing the outer edge of the facing after it was attached to the garment. I.H.E.A. (6, p.98) suggested the use of the inside edge of the small toe of the presser foot as a guide for stitching.

#### Attaching Facings

A facing is usually attached to a corresponding garment section with right sides of the fabric together, center back and ends keyed, and notches and seamlines matched. If the seamlines have been previously

marked as suggested by I.H.E.A. (6, p.96), the seamlines can be more easily placed so that they coincide. The marked line can serve as a guide for stitching. Bishop and Arch (1, p.32) and Sturm and Grieser (13, p.409) recommended that the seam be stitched from the garment side.

Clipping consists of a straight cut with the points of the scissors through the seam allowances at right angles to the seam. East and Wines (3, p.76) and Let's Face It (2, p.3) stated that the purpose of clipping is to allow seam allowances to spread and form a smooth flat area. Let's Face It (2, p.3) suggested that an inside curve should be clipped enough times to make it lie flat. The slashes may be as close together as one-fourth inch. The deeper the curve and the firmer the fabric, the greater the number of clips necessary. Bishop and Arch (1, p.32), Let's Face It (2, p.3), and East and Wines (3, p.76) recommended clipping to within one thread of the seamline. I.H.E.A. (6, p.98) suggested clipping the neckline seam allowances to the stayline and stitching the facing to the garment as a straight seam. Sturm and Grieser (13, pp.409-10) agreed with this procedure, suggesting further clipping to the seamline after the seam allowances were trimmed. All other references reviewed recommended stitching the facing to the blouse on the seamline around the inside curve before clipping the seam allowances.

Before turning the facing, the seam allowances must be trimmed or graded to eliminate bulk. Let's Face It (2, p.3) defined trimming as cutting down the width of the seam allowances, and grading as trimming seam allowances to different widths. Sturm and Grieser (13, p.410), Bishop and Arch (1, p.32), Lewis et al. (8, p.471), and I.H.E.A. (6, p.98) recommended trimming the facing and blouse seam allowances to one-fourth inch. McCall (9, p.147), East and Wines (3, p.76), and Let's Face It

(2, p.3) recommended grading them following the general rule that the seam allowance which will be next to the garment should be the widest one. McCall (9, p.147) suggested trimming the blouse seam allowance to three-eighths inch and the facing seam allowance to one-fourth inch. Let's Face It (2, p.3) suggested trimming both to one-fourth inch, and then trimming the facing seam allowance to one-eighth inch. I.H.E.A. (6, p.98) and Let's Face It (2, p.3) recommended trimming the ends of the seam allowances with a diagonal cut almost to the seamline.

All authorities recommended understitching before anchoring the facing to the inside of the blouse. Understitching prevents the facing from rolling over the seam edge and showing on the outside of the garment. Bishop and Arch (1, p.32) defined understitching as ". . . a row of machine stitching that catches the trimmed seams to the facing." Let's Face It described the following method for understitching:

After seam allowances (whether straight or curved) are trimmed, graded, and clipped, place work with facing opened out, right side up. On facing very close to seam, make a line of stitching through all thicknesses. . . . If there is a corner, begin and end stitching about one inch from the corner (2, p.4).

All authorities reviewed recommended anchoring the facing to the shoulder seam allowance by tacking, using small hand stitches. Sturm and Grieser (13, p.410) suggested stitching the facing to the shoulder seam allowances by machine as an alternate method.

Simplicity (12, p.64) outlined the following steps for finishing a faced opening:

If a blouse or shirt will be worn outside the skirt or trousers, or if a garment buttons all the way to the hem in front or back, the hem or any faced opening at the bottom of the garment should be finished with a neat, enclosed corner. Proceed as follows:

- a. With the facing turned to the outside, stitch the facing to the garment on the hemline. Trim off the corner at the fold edge.

- b. Trim the facing edge below the stitching line to about one-fourth inch wide. Trim the garment edge just slightly wider, trimming from the fold edge to within three-fourths of the inner edge of the facing.
- c. Press the trimmed seam open. Then turn the facing to the inside and press.
- d. Turn and press the remainder of the hem and finish as desired (12, p.64).

#### Hems

A hem is used to finish a raw edge of a garment. The hemline is the line at the edge of the garment where the hem will be folded up. If the length of the garment has been determined and the garment has been cut to fit, the hem will be turned up on the hemline indicated by the pattern hem marking. East and Wines (3, p.80) suggested that a machine hem at the lower edge of a blouse should be no more than one and one-half inches wide when finished.

Bishop and Arch (1, p.34) and Sturm and Grieser (13, p.412) recommended turning the raw edge of the hem on the stayline, making a second turn on the desired hemline, pinbasting while pressing, and then stitching along the upper fold line. McCall (9, p.153) and Simplicity (12, p.100) gave no directions for machine hemming other than the narrow shirtail hem. I.H.E.A. (6, p.136) and East and Wines (3, p.68) preferred a machine stitched hem on which stitches would not show from the outside. East and Wines (3, p.80) suggested a tailored hem, and gave the following directions for making one:

To make a tailored hem, press the usual one-fourth inch turn-down along the staystitch bridge. Then fold again to make a second row along the bridge crease. Then stitch along the crease at the bottom edge of the blouse. This makes a flat hem finish which won't show much whether the blouse is worn inside or outside the skirt. And it is a quick method!

One caution: To avoid ripples in this narrow hem finish, make the second row of stitching in the same direction as you

stitched the first row (3, p.80).

To hem an edge which has a faced opening, East and Wines (3, p.111) Lewis et al. (8, p.530), and McCall (9, p.155) recommended hemming the edge with the facings opened out, then turning the facing back and slipstitching it to the hem. The steps outlined by Simplicity (12, p.64) for finishing a faced opening are on page 22 of this report.

#### Tubular Hem

A tubular hem can be used to finish a continuous edge such as the lower edge of a sleeve designed to fold back on itself to form a cuff. Topstitching by machine along the upper fold of the hem on the underside of the sleeve is an easy and practical method for constructing a tubular hem. East and Wines (3, p.108) suggested pressing the creases on the bridgeline and hemline before stitching the sleeve seam but not pinning or stitching them at this time. Pressing in creases on the flat sleeve unit is easy, and insures a hem of more uniform width. They recommended hemming the sleeve before setting it into the armhole but after stitching, pressing, and finishing the sleeve seam. I.H.E.A. (6, p.127) permitted the use of a hand or machine hem to be completed before the sleeve is set into the armhole. McCall (9, p.157) instructed the student "to determine the sleeve length after the sleeve is stitched into the armhole." East and Wines (3, p.80) recommended grading away the sleeve seam allowance inside the hem area to reduce bulk.

#### Sleeves

Well-made sleeves correctly set into the armholes are important to the professional appearance of a garment. Sturm and Grieser (13, p.476) and I.H.E.A. (6, p.126) stated that the grainline of a well



set-in sleeve should hang with the lengthwise grain perpendicular and the crosswise grain parallel to the floor. Furthermore, the ease in the sleeve cap should be worked in smoothly without pleats or gathers. I.H.E.A. (6, p.126) reminded students that there is a small amount of ease in the underarm area.

Set-in sleeves must be cut so that the sleeve cap is larger than the armhole into which it will fit. All authorities reviewed required that the fullness in the sleeve cap be adjusted before the sleeve was stitched into the armhole. However, there were differences of opinion as to the method in which this should be accomplished. Lewis et al. (8, p.167), Simplicity (12, p.27), and I.H.E.A. (6, p.127) recommended one row of long machine stitches (ten stitches to the inch) between notches on the seamline and a second row one-fourth inch from the first within the seam allowance. I.H.E.A. (6, p.127) suggested using only one row of stitches on the seamline for those who have some skill. Sturm and Grieser (13, p.492), East and Wines (3, p.108), McCall (9, p.158), and Bishop and Arch (1, p.75) recommended a continuous row of staystitching over the entire upper sleeve. Bishop and Arch described the procedure as follows:

With matching thread and precisely on the five-eighths inch seamline, staystitch cap of sleeve, changing to the longest machine stitch between notches.

On crease-resistant fabrics, and others that are resistant to holding a cap in pressing, use a little shorter than the longest stitch. The space between stitches will be shorter, and the fabric will mold and shrink more easily. This will control the ease over the cap and is known as "ease line" method (1, p.75).

I.H.E.A. (6, p.128) and East and Wines (3, p.109) instructed students to pull up the threads until the sleeve cap takes the shape of the finished sleeve or until the seam allowance forms a right angle

to the outer line of the sleeve. Simplicity (12, p.27) provided for adjusting the ease evenly around the sleeve cap between notches by pulling the bobbin thread until the sleeve fits the armhole seamline. About one inch at the top of the sleeve has no ease. Lewis et al. (8, p.167), East and Wines (3, p.108), Sturm and Grieser (13, p.478), and Bishop and Arch (1, p.77) recommended blocking, or molding, the sleeve cap before setting the sleeve into the armhole. The following procedure for shrinking out ease in the sleeve cap was outlined by Bishop and Arch:

Shrink out ease by pressing with point of iron at seamline to form a smooth, rounded cap five-eighths inch beyond seamline. There can be little pleats in seam allowance but never at the line of stitching. In pressing without a steam iron, place dampened cheesecloth on the cushion first, then sleeve wrong side up. Now, with the press cloth below, the sleeve cap will be visible for pressing with a regular iron (1, p.92).

McCall (9, p.159) recommended shrinking out ease after the sleeve was basted into the armhole.

All authorities reviewed recommended stitching, pressing, and finishing the sleeve seam before setting the sleeve into the armhole.

All authorities reviewed instructed students to insert the sleeve into the armhole with right sides of the fabric together, matching notches, underarm seams, and seamlines. The center point of the sleeve should be matched with the blouse shoulder seam. All authorities except one instructed students to place pins at these key places. Bishop and Arch (1, p.77) recommended two pins, placed at the shoulder and underarm seams. All authorities except one recommended pinbasting the armhole seam, placing pins perpendicular to the seamline. I.H.E.A. (6, p.128) recommended placing pins all around the armhole on the sleeve side parallel to the seamline. McCall (9, p.159) and Lewis et al.

(8, pp.168-69) suggested that beginners hand baste the sleeves firmly in place. East and Wines (3, p.109) recommended machine basting assuming that fitting would be done before stitching the armhole seam.

Bishop and Arch (1, p.77), East and Wines (3, p.109), McCall (9, p.159), Sturm and Grieser (13, p.478), and Lewis et al. (8, pp.168-9) recommended stitching the armhole seam with the sleeve side up under the presser foot. East and Wines (3, p.109), Simplicity (12, p.83), and Bishop and Arch (1, p.77) instructed students to begin stitching at the underarm seam. Sturm and Grieser (13, p.478) recommended beginning at a notch and stitching with a shortened stitch in the underarm area. Lewis et al. (8, p.169) suggested that stitching should be started just back of the underarm seam. All authorities reviewed except McCall (9), specified overlapping the original stitches to secure the seam and provide underarm reinforcement.

To finish the armhole seam, East and Wines (3, p.110) suggested pinking the edges of the five-eighths inch seam allowance. They stated that the seam allowance should not be clipped since clipping weakens the seam and is not necessary if the sleeve fits well. On fabric which might ravel, Sturm and Grieser (13, p.478) and Bishop and Arch (1, p.77) recommended stitching one-fourth inch from the edge of the armhole and then pinking the edges. Lewis et al. (8, p.168) suggested stitching one-fourth inch from the edge and trimming almost to the second row of stitching.

All authorities reviewed recommended a light underpressing of the armhole seam, as a general rule toward the sleeve, using a cushion or sleeve board. Bishop and Arch (1, p.92) and McCall (9, p.159) specified pressing only over the sleeve cap leaving the seam allowance turned up

at the underarm. East and Wines (3, p.110) recommended pressing the seam only at the underarm, allowing the sleeve to form a roll at the top of the armhole.

### Pressing

A well-made garment is one which has been adequately and skillfully pressed.

I.H.E.A. (6, p.76), Sturm and Grieser (13, p.284), East and Wines (3, p.51), and Simplicity (12, p.103) distinguished between ironing and pressing. Ironing, a process used to smooth and dry fabrics, consists of sliding the iron on the fabric. Pressing is a process by which heat and moisture are used with an up and down motion of the iron.

Sturm and Grieser (13, p.288) and I.H.E.A. (6, p.50) emphasized the importance of having pressing equipment ready for use during construction. All references reviewed presented an illustrated list of required pressing equipment. The minimum equipment recommended for making a cotton blouse included a steam or dry iron, a pressing cloth, an ironing board, a tailor's ham or pressing cushion, and a sleeve board.

All authorities reviewed recommended the use of both construction pressing and final pressing. Bishop and Arch (1, p.86), Sturm and Grieser (13, p.286), and Simplicity (12, p.103) identified construction pressing as that pressing done on the garment while it is being made, and final pressing as pressing done on the outside of the garment after it has been completed.

Sturm and Grieser (13, pp.285-86) distinguished among underpressing, blocking, and top pressing. Underpressing is pressing on the

under side of a garment detail, or on the under side of an entire unit before it is joined to another unit. Blocking is pressing over a curved surface to shape the garment to the curves of the body. Top pressing is pressing on the right side of the garment and is usually used for the final pressing.

East and Wines (3, p.51) recommended that the student become familiar with the manufacturer's directions for using the iron. Sturm and Grieser (13, p.289) and McCall (9, p.118) suggested that the student know the fiber content of the fabric used and check the directions for pressing which may accompany the bolt of fabric. The majority of the authorities reviewed recommended testing a sample of fabric for the effects of pressing.

All of the authorities reviewed emphasized pressing in the direction of the fabric grain.

Sturm and Grieser (13, p.288) and Bishop and Arch (1, p.90) recommended blocking, since the main purpose of pressing is shaping the garment to fit the figure.

I.H.E.A. (6, p.76) and Sturm and Grieser (13, p.288) emphasized the importance of removing pins during pressing. Pressing over pins damages the surface of the iron.

Sturm and Grieser (13, p.285) suggested that two or more units be completed and pressed in one trip to the pressing center to save time and energy.

## CHAPTER III

### PROCEDURE

The purpose of this study was the organization of subject matter for a blouse construction program. Construction principles and procedures most practical for use with respect to the abilities of the target population and the objectives of programmed instruction were to be selected, based on a summary of principles and techniques advocated by selected clothing authorities.

The plan for the selection of principles and procedures included:

1. the construction of a number of blouses for the purpose of exploring and evaluating alternate construction procedures, and determining their logical sequence.
2. informal interviews with selected in-service teachers to provide information relative to the ability of the target population to successfully perform specified construction tasks and a description of the product standards considered acceptable at the beginning level.
3. regular consultation with a member of the clothing faculty at the University of North Carolina at Greensboro to provide the researcher with knowledge of the technical complexities related to each central concept and the qualifications necessary for acceptable standards of construction.
4. study of the objectives and methods of programming with the object of organizing subject matter to meet the qualifications for this instructional method.

### Blouse Construction

Three collarless overblouses with set-in sleeves were constructed of cotton fabric to appraise the ease of negotiating each task, the minimum time necessary for its satisfactory completion, and the logical sequence of tasks. The researcher began construction and evaluation of the principles and techniques at the point where the blouse was cut out and marked, and the blouse units remained pinned to the pattern pieces. No fitting was included in the subject matter.

The conditions under which the blouses were constructed approximated high school laboratory conditions in that sewing and pressing equipment used was that generally found in the average home economics clothing laboratory. This included standard model electric sewing machine with seam guides marked on the throat plate, a detachable metal seam guide, ironing board, steam iron, sleeve board, and pressing cushion. In addition to the more obvious sewing supplies, a tracing wheel and dressmaker carbon paper were available. In the average laboratory situation sewing and pressing equipment must be shared with other students; this was not the case in this project.

Three blouse patterns were selected which contained the following pieces: back, front with extended front facing, sleeve, and fitted back neck facing. One pattern was selected because it contained the same pieces as the others except that the front facing was cut as a separate unit. All patterns used provided for a five-eighths inch seam allowance. Cotton fabrics were used. An easy care, disciplined fabric was selected for one of the blouses.

The blouses were identical in design having shoulder and bust-line darts, openings all the way down the front, and set-in sleeves with

deep hems which turned back to form cuffs.

No pattern alterations were made. The blouses were cut according to the specified pattern layouts. Darts and center fronts were marked, but the only seamlines marked were the neckline and sleeve caps on two of the blouses. The pattern pieces were left pinned to the fabric until ready to be handled during construction. In general, the unit method of construction was followed. Procedures were varied to include as many different construction processes as possible. Observations were made as to the ease or difficulty of handling each procedure. Observations for procedures selected for programming are recorded in Chapter IV.

#### Interviews with Teachers

Six home economics supervising teachers from the high schools in Guilford County, North Carolina, were interviewed. Each of these teachers qualified as a superior teacher if one considered as criteria for superiority such qualifications as recent advanced training and years of experience in the instruction of students in beginning clothing units.

Five of the teachers were presently teaching clothing on the ninth grade level. One teacher had taught the subject at this level for twenty-six years. It may be assumed that these teachers understood the developmental level of Home Economics I pupils, students in the target population, and that they had a realistic level of expectation of their sewing skill.

Each of the teachers consulted was asked to describe the construction procedures she had found effective, efficient and practical for use by beginning students. Teachers were also asked to describe what



they considered acceptable performance for beginning students for each of the specified procedures. Teachers reacted to a number of methods for performing the tasks involved in blouse construction such as several methods for joining a sleeve unit to the garment. The teachers' recommendations were summarized.

#### Faculty Consultant

A member of the clothing faculty at the University of North Carolina at Greensboro who had participated in a workshop on programming guided the researcher in the study of clothing techniques which might be recommended for the target population. This clothing consultant participated throughout the study and was asked to verify the general principles involved in blouse construction, to make judgments involving technically complex discriminations, and to describe standards for the various tasks.

#### Researcher

Since the clothing subject matter was to be organized for self-instructional purposes it was necessary for the researcher to become familiar with both construction procedures and with the psychological bases and developmental procedures used in programmed learning. The researcher had taught clothing construction on the Home Economics I level for five years; had advanced training in the teaching of clothing by modern methods; participated in a seminar on programmed instruction; and participated in a two-week workshop conducted by the American Institute for Research for personnel employed to write self-instructional programs.

## CHAPTER IV

### RESULTS OF THE STUDY

The subject matter for the self-instructional program was presented to the programmers in the form of a series of learning units representing the major tasks necessary for the construction of a blouse. Each learning unit consisted of an outline of definitions and construction procedures found to be necessary for the completion of this unit.

A discussion preceding each learning unit in the series included: (a) observations resulting from the construction of three experimental blouses, (b) a summary of the reactions of the teachers interviewed to the construction procedures recommended by the authorities reviewed in Chapter II of this report, and (c) the advice of a clothing consultant from the University of North Carolina at Greensboro.

The subject matter included in each learning unit was organized insofar as possible into small steps in an ascending order of difficulty to meet the requirements of programmed instruction. The process of constructing a blouse follows a logical order since certain tasks must be completed before other tasks are begun. Because of this characteristic, the order of the process must be preserved.

The learning units for the construction of the blouse were submitted to the writers of the self-instructional program in the following order:

1. Staystitching and Bridgestitching
2. Pressing
3. Darts

4. Seams
5. Facings
6. Attaching facings
7. Sleeves
8. Hems

#### Staystitching and Bridgestitching

The six teachers interviewed agreed that staystitching should be done immediately after removing the pattern from the garment units.

Two of the teachers located the stayline one-half inch and two teachers located it three-eighths inch from the cut edge of the fabric. These four teachers had students use guide lines on the bed of the machine to maintain an accurate stayline. The researcher found this method practical for straight stitching, but difficult to use for curved lines. Two of the teachers instructed students to use the presser foot against a marked seamline as the guide for a line of stitching. The majority of the teachers stated that they were satisfied if the stayline were close to but "outside" the seamline, into the seam allowance.

The six teachers interviewed required students to staystitch the neckline, shoulder, and armhole edges of the back and front blouse units, and the neckline edge of the facing unit. The clothing consultant at the University of North Carolina at Greensboro did not recommend staystitching the underarm sections of the garment or sleeve unit. Easing the slight fullness in these areas is more difficult if staystitching is done.

The six teachers interviewed stated that they instructed students to staystitch in the direction of the fabric grain.

### Bridgestitching

A bridgestitching line was found to be a very helpful guide for making the one-fourth inch turn on edges which were to be hemmed or cleanfinished. Two of the teachers interviewed required their students to use one-fourth inch staystitching but did not refer to it as bridge-stitching.

The following outline for staystitching was prepared for submission to the writers of the self-instructional program:

#### Learning Unit I: Staystitching and Bridgestitching

##### Staystitching

1. Staystitching is a line of stitching through a single thickness of fabric to prevent stretching during construction.
2. Use regular length machine stitches for staystitching.
3. Use thread which matches the predominant color of the fabric.
4. Cut staystitching threads. Do not secure them.
5. Staystitch edges of a garment which are offgrain.
6. Staystitch in the direction of the fabric grain.
7. Determine the correct direction for staystitching by stroking the cut edge of the fabric with the finger. The fibers lie smooth when the edge is stroked in the direction of the grain.

##### Bridgestitching

1. Bridgestitching is a line of staystitching one-fourth inch from the cut edge of the fabric.
2. Bridgestitch all free edges which are to be clean-finished.

The diagrams on the following page indicate the positions and directions for staystitching and bridgestitching the blouse units.

##### Pressing

The six teachers interviewed reported that the following equipment was available to the students: an ironing board, a steam and dry

Diagrams for Staystitching and Bridgestitching

| Garment Unit     | Staystitching   | Bridgestitching   | Diagram |
|------------------|---|---|---------|
| Blouse Back      | <ol style="list-style-type: none"> <li>1. Neckline curve</li> <li>2. Armhole from shoulder to notch</li> </ol>                              | <ol style="list-style-type: none"> <li>1. Bottom edge</li> </ol>  |         |
| Blouse Front     | <ol style="list-style-type: none"> <li>1. Curve of neck opening and extended facing.</li> <li>2. Armhole from shoulder to notch.</li> </ol> | <ol style="list-style-type: none"> <li>1. Bottom edge</li> <li>2. The outside or free edge of the extended front facing.</li> </ol> |         |
| Back Neck Facing | <ol style="list-style-type: none"> <li>1. Neckline curve</li> </ol>   | <ol style="list-style-type: none"> <li>1. The lower, or free edge.</li> </ol>   |         |
| Sleeve           | None  | <ol style="list-style-type: none"> <li>1. The bottom edge.</li> </ol>   |         |

iron, a press cloth, a tailor's ham or pressing cushion, and a sleeve board. This equipment was located in the pressing center of each classroom. Three of the teachers interviewed reported that two ironing boards and two irons were available to the students. Students were encouraged to complete two or more units before pressing for better management of time and energy.

Specific procedures for pressing during construction have been included with each learning unit submitted to the programmers.

The following general rules for pressing were submitted to the writers of the self-instructional program:

#### Learning Unit II: Pressing

1. Pressing is a process for smoothing and shaping fabric by applying heat, moisture, and pressure downward on the fabric.
2. Ironing is a process for drying and smoothing wrinkled fabric by applying slight pressure across the fabric using a sliding motion of the iron.
3. Adequate pressing equipment includes an ironing board, a steam iron, or a dry iron with a damp press cloth, and a sleeve board.
4. A garment is pressed at each step of construction.
5. Top pressing is pressing done on the right side of a garment, and is used for the final pressing of a completed garment.
6. Blocking is a process by which heat, moisture, and pressure are used to mold a curved section of a garment.
7. Press on the underside of the garment when possible.
8. Set the iron temperature according to the manufacturer's directions for pressing specific fibers.
9. Test a sample of the fabric to be used for the effects of pressing.
10. Press parts of a garment which are flat over a flat surface, and parts of a garment which are curved over a curved surface.
11. Remove pins as you press to avoid scratching the sole plate of the iron.
12. Two or more units may be completed and pressed in one trip to the pressing center to save time and energy.

### Darts

The six teachers interviewed required that beginning students learn to construct a standard dart.

According to the clothing consultant, a dart stitching line should be slightly curved toward the fold line near the point, and most pattern companies are now taking this into consideration when marking the dart lines on the patterns. To avoid an indentation in the fabric at the point of a dart, the final several stitches may be taken one thread in from the dart fold line.

The six teachers interviewed required that students transfer the pattern markings for darts with a tracing wheel, stitch from the wide end of the dart to the narrow end and stitch exactly on the marked line. The researcher observed that this method produced satisfactory results on the experimental blouses, and required less skill than the other methods tried. The six teachers interviewed required pinbasting in preparation for stitching darts. Two of the teachers also required hand basting on the dart line. Five of the six teachers instructed students to place pins perpendicular to the stitching line.

Methods for securing the dart stitches on the experimental blouses included backstitching, hand tying, and leaving the threads one or two inches long without tying them. When constructing the experimental blouses the researcher observed that hand tying was a satisfactory method for securing thread ends and was easy to do. Teachers were equally divided with respect to their preferences for a method of securing stitches.

The six teachers interviewed recommended that darts be under-pressed over a curved surface, horizontal darts toward the floor and

vertical darts toward the center of the garment.

The following outline for darts was prepared for submission to the writers of the self-instructional program:

#### Learning Unit III: Darts

1. A dart is a construction detail used to shape a garment to fit the curves of the body.
2. A dart is a fold of fabric, usually wide at one end and tapering to a point at the other.
3. A dart is usually marked with three lines which meet at a point, the center or fold line and two stitching lines.
4. Pinbaste a dart by folding on the fold line, placing stitching lines so that they coincide, and pinning with the points of the pins toward the wide end of the dart.
5. Stitch a dart exactly on the stitching line from the wide to the narrow end.
6. Secure a dart at the point by means of a hand knot.
7. Underpress a dart with the flat forepoint of the iron, using steam.
8. Press a dart over a curved surface for shaping and smoothing the fabric.
9. Press vertical darts toward the center of the garment and horizontal darts toward the hem of the garment.

#### Seams

The six teachers interviewed recommended that the stitches of a plain seam be even and exactly on the prescribed seamline. Three of the teachers interviewed were of the opinion that marking all seamlines gives the average beginner self-confidence. Three teachers recommended stitching a measured distance from the cut edge of the fabric using a seam guide on the machine, even though the curved seams were marked.

Pinbasting in preparation for stitching seams was recommended by four of the teachers. Two of the teachers required beginning students to hand baste. Three teachers recommended sewing over pins and the



other three recommended removing pins during stitching. The teachers who required pinbasting had students place pins perpendicular to the seamline. All of the teachers interviewed emphasized the importance of placing pins on the seamline rather than near the cut edge of the fabric.

Teachers agreed that seams should be stitched in the direction of the fabric grain. Four teachers regarded this rule for directional stitching as inflexible. However, two teachers recommended an exception to this rule where easing of fullness was required. In this case they recommended stitching with the full side up.

One teacher reported success in teaching beginning students to secure stitches by means of the lockstitch. However, the majority of the teachers thought that this method required better coordination than most beginning students possess.

The clothing consultant recommended some appropriate seam finish for fabrics which are likely to ravel. The researcher observed that those seams which were pinked raveled only slightly less than those which had no finish. A single row of machine stitching near the cut edge of the seam allowance seemed to be an adequate finish for wash and wear fabrics. The six teachers interviewed were opposed to pinking, having observed that beginning students have difficulty handling pinking shears, and often trim away much of the seam allowance, or accidentally cut the garment. Teachers generally preferred no seam finish at all for cotton fabric.

The six teachers interviewed emphasized the importance of underpressing seams during construction. Teachers instructed students to press seams in the direction of the fabric grain. Students were instructed by teachers to use tailor's hams or pressing cushions for pressing seams

designed to fit over curved parts of the body.

Two teachers required the students to adjust ease before shoulder stitching, using long machine stitches on the seamline between notches. The majority of the teachers recommended distributing the fullness evenly between the notches and pinbasting.

The following outline for the construction of seams was prepared for submission to the writers of the self-instructional program:

#### Learning Unit IV: Seams

1. A seam is a line of stitching which joins two pieces of fabric together.
2. A plain seam is stitched with right sides of the fabric together.
3. A seam allowance is the width of fabric between the seamline and the edge of the garment unit.
4. Most plain seams have a five-eighths inch seam allowance.
5. Consult the pattern guide sheet to determine the width of the seam allowance.
6. Match seamlines accurately before stitching seams.
7. Pinbaste a seam before it is stitched, placing pins at right angles to the seamline.
8. Place pins at the ends of the seamline, at the matched notches, and at four to six inch intervals on the seamline.
9. Stitch seams with thread which matches the predominant color in the fabric.
10. Use regular size machine stitches.
11. Adjust the tension on the machine for the fabric weight before stitching the first seam.
12. Stitch a seam in the direction of the fabric grain.
13. To stitch a plain seam, lower the needle into the fabric at the exact point at which the stitching is to begin. As the seam is stitched, remove the pins. Make the last few stitches with the right hand on the hand wheel.
14. Stitches need not be secured at the ends of a seam which is to be crossed by another line of stitching during construction.
15. Seams may be secured by pulling both threads to one side of the fabric and tying a square knot.
16. Seams may be secured by backstitching at each end.
17. To backstitch, put the machine in reverse gear. Lower the needle into the fabric one-half inch in front of the starting point of the seam. Backstitch to the starting point, change to the forward gear and continue

- stitching the seam to the last stitch.  
Change to the reverse gear and stitch one-half inch.
18. Underpress a seam with the point of the iron and with the seam allowances separated and lying flat against the garment.
  19. Easing is a process by which extra fabric is "worked" into a seam when joining two edges, one of which is cut fuller than the other. The fullness is eased so that no gathers or small pleats are formed.
  20. To ease fullness into a plain seam, pinbaste the garment units on the seamline and distribute the ease evenly between the ease notches.
  21. Stitch the seam with the fuller side up when fullness is to be eased into a seam.

#### Facings

The back neck facing of a blouse is usually joined to a fitted or extended front facing at the shoulders to form a complete neck facing unit.

The blouse patterns used for this study contained pattern pieces for fitted back neck facings. Two of the patterns used for the experimental blouses were designed with extended front facings. One pattern was cut with a fitted front facing. Using the extended front facing eliminated matching, stitching, pressing, and trimming two seams.

The six teachers interviewed required students to staystitch the neck edges of the facings. Four of the six teachers required bridge-stitching on the free edges of the facings.

Front and back facings of a blouse are joined at the shoulders with a plain seam pressed open. Three teachers preferred leaving the shoulder seam untrimmed. Three teachers recommended trimming it to one-fourth or three-eighths inch to eliminate bulk.

The six teachers interviewed required students to cleanfinish the free edges of facings.

The guide sheet for one of the commercial patterns used for the

experimental blouses included instructions for cleanfinishing the separate facing units before joining them. Two guide sheets included instructions for cleanfinishing the complete facing unit. The teachers interviewed agreed that a smoother finish is obtained by cleanfinishing the complete facing.

For cleanfinishing, all teachers required students to turn back one-fourth inch of the free edge of the facing. Four teachers had students stitch on the wrong side one-eighth inch from the fold. Two teachers located this line of stitching slightly more than one-eighth inch from the fold.

The following outline for the construction of facings was prepared for submission to the writers of the self-instructional program:

#### Learning Unit V: Facings

1. A facing is a piece of fabric used to finish the raw edge of a garment.
2. A facing is usually cut from the same fabric as the garment to be faced.
3. A fitted facing is a separate unit cut on the same grain, and in the same shape as the outer section to be faced.
4. A fitted facing is included in the cutting layout and is cut at the same time as the rest of the garment.
5. A fitted facing is turned back on the seam which was used to attach the facing to the garment.
6. An extended facing is an extension of a straight edge and is cut in one piece with the outer garment section. A fold is formed when the facing is turned to the inside of the garment.
7. To form a complete neck and front facing unit, join the fitted back neck facing to the extended front facing at the shoulders with a plain seam. Trim the seam to one-fourth inch and press open.
8. Cleanfinish all free edges of facings to prevent them from raveling and give them a smooth finished look.
9. To cleanfinish the free edge of a facing, press a crease on the bridgestitch line. Top stitch from the wrong side with the inside edge of the small toe of the presser foot against the fold.

### Attaching Facings

Preparation for stitching the facings to the blouse included pinbasting, matching notches and seamlines.

The facing was attached to the blouse at the neckline with a plain seam. Clipping the neckline seam to the stayline and stitching it as a straight seam was tried on one of the experimental blouses and found to be satisfactory for the researcher. None of the teachers interviewed were in favor of this method because they thought that if students clipped deeply enough to straighten the curve they may accidentally clip through the seamline. Five of the six teachers interviewed had students stitch the neckline seam on a marked seamline from the garment side. One teacher required students to hand baste the seam before stitching it.

Opinions of the teachers interviewed were equally divided between those who preferred trimming both of the neckline seam allowances to one-fourth inch and those who preferred grading them. The teachers who preferred grading taught students the principle that the seam allowance next to the outside of the garment should be wider.

The six teachers interviewed required the students to clip the neckline seam allowances. Three of them taught the principle that the depth of the curve determines the number of clips necessary. Five of the six teachers preferred clipping the seam allowances after trimming or grading them. Four of the teachers stated that they thought that students could clip to within one thread of the neckline seam after it was stitched. Two of the teachers preferred that students clip to the stayline.

The six teachers interviewed required that students understitch the neckline seam allowances to the facing. Five teachers recommended that understitching be done after trimming or grading and clipping the seam allowances.

Five of the six teachers interviewed instructed students to extend the understitching as close to each end of the neckline seam as possible. The majority of the teachers stated that students were able to extend the understitching to within one-half inch of each end of the neckline seam. The majority of the teachers preferred that the understitching be secured by back stitching at each end. Three methods for securing understitching were tried on the experimental blouses. Hand tying on the inside of the enclosed neckline seam was the most satisfactory in appearance on the experimental blouses.

Hand tacking and topstitching by machine were used for anchoring the neckline facing to the blouse. The researcher found that skill and practice were required to anchor the facings by machine. The majority of the teachers interviewed preferred anchoring the facings by hand tacking.

Five of the six teachers interviewed recommended attaching the front facings to the blouse at the hemline before hemming the lower edge of the blouse. Four of the teachers interviewed recommended trimming out the hem allowances on the facing and blouse. Hand tacking was the method preferred by the teachers for anchoring the vertical side of the front facings to the blouse at the hemline.

The following outline for attaching facings was submitted to the writers of the self-instructional program:

Learning Unit VI: Attaching Facings

1. The facing unit is usually attached to the blouse with right sides of the fabric together and notches and seamlines matched.
2. Pinbaste the facing to the blouse neckline with the pins placed on the seamline and perpendicular to it.
3. Join the facing to the blouse with a plain seam. Secure the stitches at each end by backstitching.
4. Trimming is cutting down the width of the seam allowance to reduce bulk.
5. Trim facing and garment seam allowances to one-fourth inch.
6. Clipping is a straight cut at right angles to the seamline with the points of the scissors to allow the seam allowance to spread.
7. The deeper the curve or the firmer the fabric, the greater the number of clips needed.
8. Clip the facing and garment seam allowances about every one-half inch through the staystitch line to within one thread of the seamline.
9. Understitching is a line of machine top stitching on the right side of the facing through the facing and both seam allowances.
10. Understitching prevents the facing fold from rolling over the seam edge and showing on the outside of the garment.
11. When understitching use gentle pressure with the fingers to flatten the seam, and guide the stitching with the inside edge of the large toe of the presser foot on the seamline.
12. Understitching does not show on the right side of the garment.
13. Begin and end the understitching one inch from the ends of the neckline. Secure the stitching at each end by pulling both threads to the inside and tying a square knot.
14. Anchor the neck facing at the shoulders by tacking it to the garment shoulder seam allowances using small hand stitches.
15. An extended front facing is joined to the garment at the hemline as follows:
  - a. Fold the extended front facing to the outside of the garment right sides together along the front fold line, and pin baste.
  - b. Stitch the facing to the garment at the five-eighths inch seamline. Backstitch at each end.
  - c. Trim both seam allowances to one-fourth inch. Begin at front fold and trim to within one-fourth inch of the cleanfinished edge of the facing. Continue trimming the facing seam allowance through the cleanfinished edge.
  - d. Trim off corner with a diagonal cut.
  - e. Turn the facing to the inside and top press.

### Sleeves

Sleeves were prepared for setting into the blouse armholes by adjusting the fullness to produce a smooth seamline without puckers or pleats. Four of the six teachers interviewed required that the students mark the armhole seamlines on the sleeve and blouse units.

Six methods for controlling ease in the sleeve cap were tried on the experimental blouses. The most satisfactory procedure found by the researcher provided for two rows of long machine stitches (eight to ten stitches to the inch). One line of stitching was placed on the seamline and a second line placed one-fourth inch into the seam allowance around the top of the sleeve cap. Three of the six teachers interviewed preferred this method. Two of the teachers had observed that students could control the fullness in the sleeve cap by stay-stitching on the sleeve cap seamline while stretching the fabric on the bias, perpendicular to the seam.

Two of the six teachers interviewed preferred that the armhole seam be stitched with the blouse and sleeve units flat, before stitching the sleeve and underarm areas with one continuous seam. Four of the six teachers recommended that the sleeve and blouse underarm seams be completed before the sleeve was joined to the blouse. Sleeves on the experimental blouses put in by this second method fit better and appeared smoother than did sleeves seamed to the blouse when the units were flat.

Four of the six teachers interviewed suggested that the armhole seam be stitched with the sleeve side up. Stitching was begun at the double notches, proceeded across the underarm section, and then around the cap. From notch to notch in the underarm area, stitching was



continued to make two rows of stitching for reinforcement.

Three of the six teachers interviewed recommended leaving the armhole seam allowances with no finish. Three teachers preferred stitching the seam allowances together near the seamline and trimming them almost to the line of stitching.

The following outline for sleeves was submitted to the writers of the self-instructional program:

#### Learning Unit VII: Sleeves

1. A well set-in sleeve hangs straight from the shoulder without wrinkling or pulling and has a smooth, even armhole seam.
2. A set-in sleeve is fuller at the seamline than the armhole into which it is designed to fit. The fullness of the sleeve must be eased into the armhole.
3. Sleeves should be prepared for setting into the blouse armholes by adjusting the fullness to produce a smooth seamline without puckers or pleats.
4. To adjust the ease in the sleeve cap, place one row of long stitches (eight to ten stitches to the inch) on the seamline between the notches and a second row of stitches one-fourth inch from the seamline inside the seam allowance.
5. Ease in the underarm area may be distributed evenly during pinbasting of the armhole seam.
6. To attach the sleeve to the blouse, place the completed sleeve unit in the armhole with right sides of the fabric together. Pin at the center of the sleeve cap, at the notches, and at the underarm seam. Pull the ease threads until the sleeve fits the armhole.
7. Stitch the armhole seam from the sleeve side beginning at the double notches, stitching the underarm section, proceeding around the cap of the sleeve and stitching over the beginning stitches between notches at the underarm for reinforcement.
8. To finish the armhole seam, stitch the seam allowances together on the staystitch line and clip almost to this line of stitching.
9. Top press the seam allowances toward the sleeve.

#### Hems

The six teachers interviewed recommended that students press a crease on the hemline using a measuring device, and pinbaste the hem.

Three of the teachers suggested the same procedure for pressing a crease at the one-fourth inch turn. The two teachers who had required students to bridgestitch instructed them to press a crease on the bridgeline.

One of the six teachers interviewed required that students cleanfinish the raw edge and sew the blouse hem by hand. Five teachers recommended a machine hem for a tailored blouse with a full length front opening.

Backstitching, lockstitching, and hand tying were methods used to secure the stitches on the experimental blouse hems. The researcher observed that backstitching required less time than the other two methods. The hand tied stitches did not show on the outside of the blouse hem.

The six teachers interviewed recommended that the tubular hem in the sleeve be stitched after the sleeve seam had been completed. The researcher found this to be the most satisfactory method tried. The creases for the sleeve hem were more accurately and easily pressed with the sleeve unit flat on the ironing board, followed by stitching the sleeve seam, then the hem.

The following outline for the construction of hems was prepared for submission to the writers of the self-instructional program:

#### Learning Unit VIII: Hems

1. A hem is a fold of fabric turned back to finish a raw edge of a garment.
2. A hemline is a line on which the hem is turned back.
3. To prepare a straight hem for stitching, press a crease on the bridgeline and a second crease on the hemline using a measuring device. Pinbaste while pressing.
4. For a tailored blouse with front opening stitch the hem after the facings have been attached at the hemline and

- turned. (See Attaching Facings, page 47 of this report.)
5. To top stitch a straight hem:
    - a. Work from the wrong side of the garment.
    - b. Place the fabric under the presser foot so that the inside edge of the long toe is against, but not on the fold.
    - c. Begin and end stitching at the edges of the front facings.
    - d. Secure the threads by hand tying.
  6. Prepare a tubular hem for stitching with the sleeve unit flat on the ironing board. Press a crease on the bridge-line and a second crease on the hemline using a measuring device. Complete the sleeve seam, then turn the hem on the pressed line and pinbaste.
  7. To topstitch a tubular hem:
    - a. Leave the garment right-side-out.
    - b. Slide the wide hem under the presserfoot until the inside edge of the long toe of the presserfoot is against, but not on the bridgeline crease.
    - c. Lower the needle at a point close to, but not on, the underarm seam.
    - d. Stitch the hem by turning the garment as you stitch.
    - e. Secure the threads by stitching one inch past the starting point.

## CHAPTER V

### SUMMARY AND RECOMMENDATIONS

#### Summary

The purpose of the study was to organize the subject matter for a self-instructional program for the construction of a simple blouse. The organization of content for the program included the analysis of construction procedures into component skills which must be mastered by the student in order to construct a blouse; the selection of procedures to be submitted to the writers of a self-instructional program; the grouping of procedures into learning units suitable for programming; the development of a logical sequence of learning experiences within each unit; and the development of a logical order of units.

The procedure for attaining the objectives of this study included an analysis of construction procedures recommended in selected published material, the construction of experimental blouses, interviews with in-service teachers, and consultations with an accepted authority in the field of clothing construction.

A study in depth was made of the specific procedures necessary for each construction task recommended by writers of seven frequently used high school texts and guide books.

Three collarless overblouses with set-in sleeves were constructed to appraise the ease of negotiating each of the construction tasks necessary for making the blouse. Construction of the blouses and evaluation of the procedures used were begun at the point where the blouse was

cut out and marked, but the blouse units remained pinned to the pattern pieces. No fitting was included in the subject matter for this study.

The conditions under which the blouses were constructed approximated high school laboratory conditions in that the same sewing and pressing equipment was used as that usually found in a home economics clothing laboratory.

Three blouse patterns were selected which were identical in design. Two of the patterns contained the following pieces: back, front with extended front facing, sleeve, and fitted back neck facing. One pattern was selected because it contained the same pieces as the other two except that the front facings were cut as separate pieces. All three patterns provided for a five-eighths inch seam allowance. Cotton fabric was used for the three blouses. An easy care, disciplined fabric was selected for the construction of one of the blouses.

The unit method of construction was employed for the construction of the three blouses. The construction procedures used were varied to include as many alternatives as possible.

Six home economics supervising teachers from the high schools in Guilford County, North Carolina, five of whom were presently teaching clothing on the ninth grade level, were informally interviewed. The teachers were asked to describe the procedures related to blouse construction which they had found effective and practical for use by beginning students.

A member of the clothing faculty at the University of North Carolina at Greensboro participated throughout the study.

The researcher participated in a two-week workshop conducted by

the American Institute of Research and in a seminar for programmed instruction in preparation for conducting this study.

The organized subject matter was presented to the writers of the self-instructional program in the form of a series of learning units representing the major tasks necessary for the construction of a blouse. Each learning unit consisted of an outline of construction procedures which had been found necessary for its completion. A discussion including the observations made during the construction of the experimental blouses, the reactions of the supervising teachers interviewed, and the advice of the clothing consultant preceded each of the learning units submitted to the programmers.

The learning units for the construction of the blouses were submitted to the programmers in the following order: (1) staystitching, (2) pressing, (3) darts, (4) seams, (5) facings, (6) attaching facings, (7) sleeves, and (8) hems.

#### Recommendations

Development of a Self-instructional Program for Blouse Construction

The following suggestions for further research using the body of subject matter content organized for this study are recommended:

1. Prepare a set of objectives for a blouse construction program.
2. Develop a self-instructional program for a beginning student to use while constructing a blouse.
3. Prepare panels and materials to be used in conjunction with the self-instructional program.
4. Develop evaluation instruments to be used with the program.

5. Conduct a field test of the program.
6. Compare students who completed the blouse construction program with students who were instructed in the same material by superior teachers with respect to:
  - a. knowledge gain and retention
  - b. transfer of training
  - c. time required to master the skills
  - d. degree of proficiency in performing the tasks
  - e. scores on completed garments

#### Organization of Subject Matter for Future Programs

The following research with respect to organizing subject matter for future self-instructional programs is recommended:

1. Conduct a survey of problems encountered by home economics teachers when teaching subjects which require the mastery of skills.
2. Establish criteria for evaluating the subject matter content of a self-instructional program.
3. Prepare a source book of comparative clothing construction procedures recommended by experts in the field.

#### Research in the Field of Clothing Construction

1. Develop the following self-instructional programs related to clothing construction:
  - a. construction of a skirt
  - b. attaching a skirt to a bodice
  - c. closures for garment openings
  - d. fitting a garment
  - e. pattern alteration

2. Develop a clothing construction program for a class of beginning students providing for different levels of student ability and/or experience.
3. Develop programs designed for on-the-job training in the area of clothing construction.
4. Translate clothing construction programs into different languages to extend the teachers resources of organizations engaged in the field of education in other countries.



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