THE APPLICATION OF PRINCIPLES OF CLOTHING CONSTRUCTION TO PATTERN MAKING AND DESIGNING WITH EMPHASIS ON FITTING

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Anne Paule Kernaleguen

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ABSTRACT

THE APPLICATION OF PRINCIPLES OF CLOTHING CONSTRUCTION TO PATTERN MAKING AND DESIGNING WITH EMPHASIS ON FITTING

by Anne Paule Kernaleguen

The purpose of this study undertaken at Michigan State University was to evaluate the effect of the principles of clothing construction, as taught in a beginning course, on a more advanced class in pattern making and designing. From the assumptions that the principles of clothing construction could be applied to pattern making and designing and thereby reinforce previous learnings and establish an understanding of fitting and pattern making, the following objectives were made:

1. To develop a teaching unit which would include: a) principles of clothing construction, specifically Principles I* and III;** as they related to Principles of Pattern Making (TCRA 355); b) instruction for the development of a thorough understanding of fitting; c) illustrative materials to supplement classroom instruction.

2. To present this teaching unit in spring, 1963.

3. To ascertain student reaction to the unit.

Two instruments were developed and administered to the twenty students in the pattern making class: a questionnaire at the beginning of the term and a reactionnaire upon completion of the course.

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A self-rating of competencies in fitting, selection, and clothing construction techniques revealed that as a class the students felt more competent in selection and clothing construction than in fitting.

The revised course differed from the one previously taught mainly in approach and emphasis. The principles of clothing construction were reviewed and explained as an introductory approach to pattern making. Principles I and III provided the foundation for the course content. The emphasis throughout the course was on the methods and importance of fitting.

Visual aids were used to supplement lectures and laboratory experiences. A panel of judges rated the general appearance, design qualities, and fit of the garments.

From the achievements, reactions, and attitudes of the students in this one pattern making class, the following conclusions were drawn: 1) the principles approach to pattern making and designing seemed to reinforce and extend previous learnings; 2) the course seemed to meet the students' present needs in learning to fit; 3) that this experience developed students' awareness of their need for further assistance and experience in the area of clothing construction.

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*Principle I: Shaping flat fabric to conform to body curves requires reducing the perimeter of garment pieces.

**Principle III: Manipulation of any given material is dependent upon its component parts.

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CHAPTER I

INTRODUCTION

The twentieth century has brought vast and rapid changes in our society. Education is challenged to meet the social, economic, and technological needs of our times. Faculties of home economics have been thinking together to achieve a sense of direction while adapting to our world of change.

As we revamp clothing courses, we should " . . . develop an awareness that as changes occur in the American way of life, there must be changes in concept of values in the area of clothing and textiles."[1]

We live in an era when principles are recognized as an important part of the educational process. In the area of clothing construction, there is no question that skills are involved. However, the emphasis has shifted from teaching skills alone to the teaching and application of basic principles. The transfer of skills previously learned and the fresh application of basic attitudes and principles to similar situations constitutes the effectiveness of education. The more fundamental the knowledge, the greater

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[1]Martha Dee Wallace, "Integrated Clothing Courses for Prospective Teachers," Journal of Home Economics, LI, No. 1 (January, 1959), p. 25.

is the possibility of application to new situations.[2]

"The emphasis upon change in the world today and its relation to education should not create the impression that change is new and education has not had to deal with changes in earlier periods. . . . The establishment of land-grant colleges was in response to the view that the existing colleges did not adequately provide for the education required by a developing agricultural and industrial economy and did not exploit sufficiently the contribution which science could make to the lives of the American people."[3] Tyler identifies four new aspects of change in the present period: change is much more rapid, it is a world-wide phenomenon, education's role is more clearly defined, and there are many serious consequences of delay.[4]

In 1957, the faculty and "significant others" at Michigan State University recognized a need for some revision of the home economics course of study; the time was "ripe" for launching such a revision.[5] As a result, a three-year study of the home economics curriculum was undertaken.

In August, 1960, Dr. Scott, addressing an

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[2]Jerome S. Bruner, The Process of Education (Cambridge: Harvard University Press, 1961), p. 17.

[3]Ralph W. Tyler, "Education in a World of Change," Journal of Home Economics, LIV, No. 7 (September, 1962), p. 527.

[4]Ibid., pp. 527-528.

[5]Rosalind Mentzer, "A Report of Curriculum Revision," East Lansing: College of Home Economics, Michigan State University, 1962, p. 1.

administrators' workshop, questioned the emphasis on skills in higher education.[6] She quoted McGrath, "even professional instruction should stress broad principles, key ideas, and over arching generalization."[7] The workshop "agreed" that: some clarification of the appropriate nature and content of home economics at the university level might be achieved with experimental programs; there should be an appropriate balance between the professional and the liberal, the theoretical and the practical; a real problem existed in tying together the discipline-oriented (concepts, principles) and the problem-oriented (how-to-do) areas of subject matter.[8]

One outcome of the curriculum revision was the initiation in winter term, 1962, of a new approach to the teaching of beginning clothing construction, on an experimental basis, in the College of Home Economics at Michigan State University.

The basic philosophy of the staff from the Department

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[6]Dorothy D. Scott, "Organization of the Professional Component in Home Economics," Administrators' Workshop on Home Economics in Higher Education, ed. Thelma Porter (East Lansing, Michigan: College of Home Economics, Michigan State University, 1960), p. 47.

[7]Earl J. McGrath, "Professional Education for the Twentieth Century," in Liberal Education and Nursing, ed. Charles Russell (New York: Teachers College, Columbia University, 1959), pp. 4-6.

[8]Thelma Porter, Administrators' Workshop on Home Economics in Higher Education (East Lansing, Michigan: College of Home Economics, Michigan State University, 1960), pp. 66-67.

of Textiles, Clothing and Related Arts toward teaching beginning clothing construction at the university level was reflected in the three following objectives:

I. Students should gain an understanding of basic principles fundamental to all aspects of clothing construction and an ability to apply them.

II. Students should develop an understanding of processes and techniques of clothing construction and learn to evaluate them for specific end uses.

III. Students should develop an ability to recognize and/or appreciate standards of clothing construction.[9]

The following principles and their associated corollaries were developed by a faculty committee for use in the beginning clothing construction course:

I. Shaping flat fabric to conform to body curves requires reducing the perimeter of garment pieces.

Corollary I: The amount of reduction of the perimeter of garment pieces is relative to the degree of prominence of body curves.

Corollary II: Darts, tucks, gathers and ease radiate from the most prominent body curves to be covered by a given garment piece.

II. When concentric circles or arcs of different radii are used in clothing construction, certain adjustments in the circumferences are necessary.

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[9]Elizabeth H. Stewartson, "An Experimental Approach to the Teaching of Beginning Clothing Construction" (unfinished Master's Thesis, Michigan State University, in progress).

III. Manipulation of any given material is dependent upon its component parts.

Corollary I: Structure is a determinant of the extensibility of fabric.

Corollary II: Texture is a determinant of the behavior of fabric.

IV. Choice of construction methods and techniques and choice of fabric are interrelated.[10]

During spring term, 1962, DeLong undertook a study to discover teachers' and students' reactions to the newly developed clothing construction course based on principles. Although changes were suggested by the people involved, all the teachers and 94 per cent of the students expressed a favorable attitude toward the course at the end of the term. DeLong's recommendation was that this experimental approach be continued.[11]

The relationship of knowledge gained from different areas should be emphasized whenever possible. Whitehead urges educators to "eradicate the fatal disconnection of subjects which kills the vitality of our modern curriculum."[12] He further adds that "a principle which has been thoroughly

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[10]Principles of clothing construction as presented in TCRA 152, College of Home Economics, Michigan State University, East Lansing.

[11]Marilyn Revell DeLong, "A Study of Student and Faculty Reactions to the Teaching of a Course in Principles of Clothing Construction" (unpublished Master's Thesis, Michigan State University, 1962), p. 56.

[12]Alfred North Whitehead, The Aims of Education (New York: The New American Library of World Literature, Inc., A Mentor Book, 1961), p. 18.

soaked into you is rather a mental habit than a formal statement."[13]

The present study was undertaken on the assumptions that:

I. The application of the principles of clothing construction as taught to the beginning group could be used in an advanced class in Principles of Pattern Making (TCRA 355) and that these principles would reinforce previous learnings and help the students establish understandings of fitting and pattern making.

II. Many students have limited background in clothing construction and consequently have little opportunity to develop fitting proficiency.

III. An understanding of fitting will enable the student to comprehend more readily the principles of pattern making.

Thar states that the inability not only to recognize a good fit, but actually to have the skill to fit a garment is one of the problems of women: professionals, teachers, and homemakers.[14] The ability to analyze fitting faults and to know when and where to make alterations is essential to make well-fitted garments and more especially to teach others. Fit is basic to a pleasing appearance and

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[13] Ibid., p. 37.

[14] Margaret Thar, "Problems in Pattern Fitting" (Master's Problem, Michigan State University, 1959), p. 92.

is fundamental to personal satisfaction and comfort.[15]

Since anatomical structures vary in actual measurements and in proportions, the problem of fitting is a complex one. It involves a thorough comprehension of principles, and the acquisition of specific techniques applicable to individual problems. Chambers and Moulton state, "The processes of fitting and designing cannot be separated."[16] A good fitter will "inject style and smartness as well as comfort into a design."[17]

The problem of developing proficiency in fitting confronts every home sewer, but especially the prospective teacher who will be teaching others. Instruction aimed at developing an understanding of a good fit, and the methods of attaining it, is a major concern of all teachers in clothing construction classes. Visual aids used to complement the teaching of fitting should help to develop meanings, broaden experience, and arouse genuine interest. In addition, visual aids should enable the student to establish correct concepts and stimulate a desire for proficiency in fitting and pattern making. For effective teaching, the more senses involved, the greater is the comprehension

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[15]Ngaire Margaret Domigan, "A Study of the Use of the Standard Dart and Seam Variations as Sources of Design in Dress" (unpublished Master's thesis, Michigan State University, 1954), p. 1.

[16]Helen Chambers and Verna Moulton, Clothing Selection (New York: J. B. Lippincott Co., 1961), p. 91.

[17]Marion Hillhouse and Evelyn Mansfield, Dress Design (Cambridge-Riverside Press: Houghton and Mifflin Co., 1948), p. 193.

and retention of the subject taught. "Because teaching at its best is the stimulation and direction of learning, what learners look at and listen to are major factors in the effectiveness of learning. Furthermore, the interplay of looking and hearing clearly influences how well people learn."[18]

The objectives of the present study were:

I. To develop a teaching unit which would include:

   A. The principles of clothing construction and specifically principles I and III as related to Principles of Pattern Making (TCRA 355).

   B. The importance of a thorough understanding of fitting.

   C. Illustrative material to supplement classroom instruction.

II. To present this unit to the students taking Principles of Pattern Making (TCRA 355) in spring term, 1963.

III. To ascertain student reaction to the unit.

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[18]Walter Wittich and Charles Schuller, Audio-Visual Materials (New York: Harper and Brothers, 1962), p. xiv.

CHAPTER II

REVIEW OF THE LITERATURE

The writer found it imperative to investigate aspects relevant to the study. According to Selltiz, et al., "an exploratory or formulative study is concerned with an area in which a hypothesis has not yet been formulated; the task then is to review the available material with sensitivity to the hypothesis that may be derived from it. Often one finds that no research of significance has been done in one's area of interest."[1] Although much has been written on the fitting and designing of clothing and its importance to the individual, very little is recorded on this topic from a teaching point of view. Similarly, there is an abundance of literature emphasizing cognitive learnings; the teaching of concepts, skills, and values but no available literature specifically relates the principles of clothing construction to pattern making, designing or fitting.

The review of literature is divided into sections:

Fitting and Designing of Clothing and Their Effect on Appearance of the Individual.

Dress Designing at University Level.

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[1]Claire Selltiz, et al., Research Methods in Social Relations, rev. ed. (New York: Holt, Rinehart and Winston, 1961), p. 5.

Relationship of Fitting and Designing.

Teaching Pattern Making and Designing.

Evaluation.

The first three sections are directly related to the teaching of designing and fitting, at college level, while the last two are indirectly associated with the proposed study. The study was planned to make extensive use of illustrative materials in design application; consequently, an investigation into the many possibilities of visual aids was necessary. A short investigation of evaluation procedures is also included.

Fitting and Designing of Clothing and Their Effect on the Appearance of the Individual

Sociologists and psychologists have expressed the opinion that clothing is of major importance to the appearance of the individual, establishes one's identity, and fosters social communication. In the terms of G. H. Mead, Stone relates the importance of appearance to the individual: " . . . the self as object and attitude is established by appearance. . . . One's clothes impart value to the wearer, both in the wearer's own eyes and in the eyes of others."[2] He proposes a theoretical framework for analyzing appearance and asserts that the appraisal of appearance is basic to social transaction and communication, for, "as the self

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[2]Gregory Stone, "Appearance and the Self," Human Behavior and Social Processes, ed. Arnold Rose (Boston: Houghton-Mifflin Co., 1962), p. 92.

is dressed, it is simultaneously addressed. . . . "[3] Stone further emphasizes the value of clothing when he says:

" . . . Clothing represents our action, past, present, and future, as it is established by the proposals and anticipations that occur in every social transaction."[4] Stone also states that by appearance, the person announces his identity, shows his value, expresses his mood or proposes his attitude."[5] Carlyle goes so far as to say that society may in fact be founded on cloth.[6]

Several factors affect the appearance which clothes give the wearer. Of these, the way a garment fits is one of foremost importance, because a poor fit can never be concealed.[7] Writers agree that fit is a most significant factor in the appearance which clothes will impart to the wearer. "Personal appearance and grace in movement are facilitated by properly fitted garments. Attractive, well-fitted clothes help an individual have more self-assurance and poise; correct fitting adds materially to one's effectiveness in every day living."[8]

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[3] Ibid., p. 101.

[4] Ibid., p. 100.

[5] Ibid., p. 101.

[6] Thomas Carlyle, Sartor Resartus (New York: Charles Scribner's Sons, 1924), p. 54.

[7] Grace M. Morton, The Arts of Costume and Personal Appearance (New York: John Wiley and Sons, Inc., 1943), p. 44.

[8] Mabel Erwin, Practical Dress Design (New York: Macmillan Co., 1940), p. 111.

Dearborn comments that " . . . well-fitting clothes . . . imply taste and culture."[9]

Mansfield asserts that a garment is judged by its appearance on the wearer and nothing is more important than the way it fits.[10] Personal satisfaction and comfort are gained when both the design and the fit of the garment are right for the individual.

"A well-designed and well-fitted garment will look right and be comfortable to wear."[11]

In her study designed to judge the adequacy of wardrobes according to the owner's personal opinion, Shively found that poor fit was listed as the most frequent cause of dissatisfaction.[12] Ostapovitch found that half of the one hundred home sewers she contacted had had "the unhappy experience of making garments for themselves which they have seldom or never worn. The women most frequently mentioned 'poor fit,' 'error in style selection,' 'looks homemade,' and 'poor choice of fabric' as their reasons for not wearing the garments. There are indications that students need experience and training in altering and fitting patterns

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[9]George Dearborn, "Psychology of Clothes," Psychological Monographs, Volume 26 (No. 1, Whole No. 112, 1918), p. 66.

[10]Evelyn Mansfield, Clothing Construction (New York: Houghton Mifflin Co., 1953), p. 49.

[11]Chambers and Moulton, op. cit., p. 91.

[12]Anna E. Shively and Elizabeth D. Roseberry, "Adequacy of College Wardrobes Judged," Journal of Home Economics, IL, No. 2 (February, 1948), p. 82.

to overcome figure defects. More emphasis may also be needed in the selection of suitable pattern styles and fabrics for the individual."[13]

There seems to be widespread agreement among authorities that the fit of a person's clothing is a significant contributing factor to the appearance of the wearer and to the feeling of well-being of the individual.

Dress Designing at University Level

"Alert students living in a complex world of today might well ask: why do people continue to devote themselves to constructing clothing? . . . In truth, traditional lines of reasoning may no longer convince one that the ends justify the means. . . . The justification for clothing construction must be found within oneself at the intellectual level. Thus conceived, clothing construction is a creative performance. Creative, not in response to necessity, but as an outlet for a human urge to explore, to experiment, and to discover."[14]

Before investigating the different aspects of fitting and designing, the reason for teaching a course on this subject was investigated.

The knowledge gained at the university should be a

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[13]Annette D. Ostapovitch, "A Study of the Motives for and Satisfactions of Home Sewing as Expressed by a Selected Group of Michigan Women Who Do Home Sewing" (unpublished Master's problem, Michigan State University, 1961), p. 31.

[14]Edna Meshke, Textiles and Clothing, Analysis and Synthesis (Minneapolis: Burgess Publishing Co., 1961), p. 1.

beginning for what knowledge will be acquired later on. "'Unless education initiates a chain reaction in which each advance in understanding sets off the desire for greater growth in wisdom, those who leave our campuses will soon reach a state of permanent intellectual rest.'"[15]

Much criticism has been directed toward college courses which are thought to teach skills, on the assumption that the place for the acquisition of skills is in the trade and technical school. At the same time, if the purpose of a university is to impart knowledge imaginatively, principles have a place in a college curriculum. Tyler agrees that, " . . . emphasis will need to be given to understanding of basic principles and the development of an ability to apply these principles to new situations as they are encountered."[16]

Hollen states that, "of great importance also is the feeling of confidence which comes with an understanding of pattern making principles and the feeling of pleasure derived from creative activities."[17] Designing and clothing construction are expressive arts through which the individual expresses creativity and individuality. The motives for home sewing were investigated in a research problem at

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[15]Pauline C. Paul, "The Purposes of Higher Education in Modern Society," Administrators' Workshop, op. cit., p. 7, citing McGrath.

[16]Tyler, op. cit., p. 533.

[17]Norma Hollen, Flat Pattern Methods (Minneapolis: Burgess Publishing Co., 1961), p. iii.

Michigan State University by Ostapovitch in 1961. The study revealed that 1) 29 per cent of the women sewed because they enjoyed it; 2) 27 per cent sewed to save money; 3) 17 per cent sewed for the creative appeal which sewing offers; 4) 11 per cent sewed because they could have more clothes for the same amount of money.[18] Another study by Mitchell investigating home sewing practices in Lubbock County, Texas, mentioned originality, individual styling, and creativeness as the reasons for sewing in 47.2 per cent of the cases investigated. Mitchell concluded that "the keen interest in home sewing may represent an effort to satisfy a basic need to create as well as a means of extending the clothing dollar."[19]

The need to create is fulfilled by expressing design in the media of fabric. Dress designing involves a study of anatomy, an application of the art principles in the development of an idea, and a plan for a specific garment appropriate for the individual. Designing, furthermore, involves the mathematical precision of developing the pattern. In the execution of the plan on cloth, designing involves the principles of clothing construction and fitting. Both construction and designing require a careful management of time and resources; in each a continual process

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[18]Ostapovitch, op. cit., p. 19.

[19]Marjorie F. Mitchell, "A Study of Home Sewing Practices of a Group of 100 Women in Lubbock County, Texas" (unpublished Master's thesis, Texas Technological College, Lubbock, Texas, 1959), p. 3.

of decision making is involved. According to McDonald, creative teaching is the initiative and ability of the teacher to combine understandings and resources into new relationships.[20] Thus in teaching dress designing, a teacher gives the students tools for the development of creative expression and decision making. These tools are the principles which the student will apply to new situations; that is, they are the doors to further expression and creativity.

Relationship of Fitting and Designing

In recent years, much emphasis has been placed on an understated simplicity in clothes. Roshco defines that "understated look" as a "discreet elegance without gadgetry. . . . "[21]--clothes so well and luxuriously made to enhance the appearance of the wearer by their line and placement of details. Also the trend in many phases of design is to place more importance on functional quality than on other characteristics. Beauty and charm depend upon form and quality of material. Little effort is made to disguise the method of construction; consequently, a decided modesty of design exists. "This may be a good trend if the term 'simplicity' is interpreted as the use of as few structural lines as are necessary to produce perfect fit of the fabric

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[20]Alice O. McDonald, "Indicators for Creative Teaching," Journal of Home Economics, LIII, No. 8 (October, 1961), p. 667.

[21]Bernard Roshco, The Rag Race (New York: Funk & Wagnalls Co., Inc., 1963), p. 137.

to the three dimensional form, as well as the desired silhouette effect."[22] Trilling and Williams are of the opinion that real beauty must have its foundation in structural design.[23]

With simplicity the keynote of clothing design, fitting becomes much more important than decorative aspects. Beauty comes from a good design, well-fitted to the individual and suitable for the individual's proportions. The trend toward simplicity and a closer fit in clothing has necessitated more individualized fitting.[24]

A garment may be perfect in line and beautifully cut, but it must fit correctly to do justice to the design. Hillhouse and Mansfield maintain that a good fitter is also a designer, " . . . a good fitter will flatter the figure by skillfully bridging across the too narrow or too flat area into the too broad or rounded one, thus making both less noticeable."[25] Domigan's study revealed that fit improves with better design quality.[26] Tanous claims that only by designing and making one's clothes can perfect fit be achieved, and that if the human shape underneath the

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[22]Domigan, op. cit., p. 2.

[23]Mabel Trilling and Florence Williams, Art in Home and Clothing (Chicago: J. P. Lippincott, 1936), pp. 68-69.

[24]Thelma S. Berry, Fitting Patterns on the Figure (Orono, Maine: University of Maine Bookstore, 1957), p. 1.

[25]Hillhouse and Mansfield, op. cit., p. 193.

[26]Domigan, op. cit., p. 125.

garment is ignored, "the results are disastrous."[27] Spears believes that, "the whole problem of fitting is in adjusting flat fabric to the round lines of the figure,"[28] while Chambers and Moulton[29] define fitting as the adjustment of the design to the human form.

Erwin identifies fitting as "the recognition of wrinkles, off-grain conditions, slanting lines where they should be straight, lack of balance at bulges or poking out areas and a strained tightness or a place too loose--not snug enough to be neat or in fashion."[30] A poor fit will distort the lines of the garment and impair its design qualities. Erwin goes on to say that when a person recognizes a fitting problem, the next step is to recognize the fault, find a remedy, and, lastly, choose the best method of alteration.[31]

However, "one of the great problems of women who sew is the inability to recognize a good fit and to fit a garment. . . . The ability to analyze fitting faults and to know when and where to make alterations is a prerequisite

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[27]Nicol Tanous, Designing Your Own Dress Patterns (Peoria: Charles Bennett Co., 1951), p. 205.

[28]Ruth Spears, Better Dressmaking (New York: Silver Burdett Co., 1943), p. 55.

[29]Chambers and Moulton, op. cit., p. 91.

[30]Mabel Erwin, Clothing for Moderns (New York: Macmillan Co., 1949), p. 355.

[31]Ibid., p. 339.

if one is to have a well-fitted garment."[32] The process of fitting patterns and fabrics on the figure is a sensitive and responsive process. An understanding of the fitting principles can be acquired by trial and error experiences, but bad fitting habits may develop. To become adept at fitting, it is necessary to analyze flaws, understand the corrective methods and recognize the basic principles. Without an understanding of the principles of fitting, the fitter is likely to overfit. Hillhouse and Mansfield believe that in learning to fit successfully, the relationships of the contours of the figure should be observed as the sculptor would study them. Grain of the fabric determines adjustments in the figure; moreover, figure irregularities, pattern mistakes, or poor posture may be the cause of wrinkles or unwanted bulges.[33] A good fit is the sum total of many details of cutting and manipulating of the fabric that makes the garment seem a part of the wearer. A properly fitted garment conforms to the figure and has adequate ease for movement; its lines are not strained or changed by the body. "A wrinkle is an indication that either the garment is too long, too wide, too short, or too narrow or the grain is not controlled where and as it should be.

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[32]Phyllis Zack, "Problems in Pattern Fitting" (unpublished Master's thesis, Michigan State University, 1959), p. 109.

[33]Hillhouse and Mansfield, op. cit., p. 195.

Wrinkles should not be confused with folds that are an integral part of the design. . . . "[34]

According to Bishop, the standards for a good fitting garment include the following:

1. The garment is in perfect balance in relation to the individual figure.
2. The garment fits smoothly without wrinkles or strain.
3. The shoulder seam falls exactly on top of the shoulder, one inch behind the lobe of the ear.
4. The waistline falls at the natural waistline which is the smallest part of the figure. An exception is the person with a short waist, a large bust, or large hips, whose figure will be improved if the waistline is lowered an inch or two.
5. The side seams hang perfectly straight from armhole seam to hemline. This vertical line is also known as the plumb line.
6. Front bodice darts stop short of the crown of the bust, and bust darts are in line with the crown of the bust and also stop short of it.
7. Back hip darts stop short of the fullest part of the hips.
8. Elbow darts fall at the end of the elbow.
9. Neckline lies smoothly at the base of the neck, where the neck joins the body.
10. Front armhole line should fall in a straight line from the top of the shoulder to front notch underarm.
11. The elbow should be bent before determining the correct length of the long sleeve. It

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[34]Chambers and Moulton, op. cit., p. 91.

> should fall at a point where the hand ends and where the wrist begins.[35]

In addition, Bishop maintains that real problems in fitting are solved by following key grain lines and learning which alterations are needed. For a perfect fit, grain is the key to success. "The well-fitted dress is grain perfect on the individual figure."[36]

Chambers and Moulton list factors to be considered in fitting:

1. The hang and the drape of the garment.
2. Grain and grain control.
3. Cutting and assembling parts of the garment.
4. Control and fullness for the type of fabric, body proportions and silhouette.
5. Balance of the parts of the garment on the figure.
6. Figure irregularities.[37]

The best way of fitting a pattern is a subject of contention. In flat pattern designing, fitting becomes a very important factor as the accuracy of the sloper depends on how well the person was able to fit the commercial pattern and secondly, how well the muslin shell was made to conform to the figure. Several writers endorse the method of pin fitting the paper pattern to check the fit. Spears

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[35]Edna B. Bishop, The Bishop Method of Clothing Construction (New York: J. P. Lippincott, 1959), p. 48.

[36]Ibid., p. 49.

[37]Chambers and Moulton, op. cit., p. 91.

advocates pinning the paper together and testing it on the figure, for many adjustments may be made in the pattern that cannot be made in the fabric.[38] Meg Carter of McCall Corporation also recommends pin fitting the pattern tissue.[39] According to Mansfield, "fitting a paper pattern directly on the figure and making adjustments is easier than taking body measurements and checking them against the flat pattern. Measurements help in checking alterations already made, but do not show the kind of pattern changes needed."[40] Berry mentions that of all the methods for individualizing garment fit, that of fitting the paper pattern directly on the figure seems faster and most accurate.[41] Erwin proposes the easiest method of fitting is to pin the pattern and try it on; however, she mentions that more accurate methods involve making a trial garment and/or comparing with a garment that fits.[42] Meshke endorses the plan of "testing parts of a pattern by placing them on the figure and noting where basic and subdivision lines are located on the anatomical structures and body formation."[43]

Other writers are not so favorable in their comments

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[38]Spears, op. cit., p. 62.

[39]Meg Carter, 1001 Questions about Sewing (New York: McCall Corporation, 1961), p. 84.

[40]Mansfield, op. cit., p. 53.

[41]Berry, op. cit., p. 2.

[42]Erwin, Practical Dress Design, op. cit., p. 44.

[43]Meshke, op. cit., p. 34.

of pinning a paper pattern. According to Bane, "pinning a pattern together and fitting is not a satisfactory way of checking size; she contends that a pinned pattern always appears too small."[44]

Bishop believes that checking a tissue pattern for fit is of "no value"; instead, one's measurements should be taken and compared with the measurements on the pattern envelope. Furthermore, Bishop adds, much can be gained by making up a basic dress from percale or broadcloth, especially when the individual has fitting problems. "Unbleached muslin is not recommended for the basic dress, because it does not conform to the lines of the body and does not have the same draping quality as fabric used in making garments."[45]

During the review of literature, the writer became very much aware of the many references made to the importance of the basic dart in fitting and designing. Hollen writes that an understanding of darts is necessary for successful pattern work because moving the darts to gathers and seamlines is a basic part of flat pattern designing.[46] In a study on the basic dart variations in pattern designing, Domigan concludes that fit improves with the improvement of design quality and that the basic dart, while

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[44]Allyne Bane, Creative Sewing (New York: McGraw-Hill Book Company, 1956), p. 54.

[45]Bishop, op. cit., p. 47.

[46]Hollen, op. cit., p. 4.

producing good fit, can also serve the purpose of providing the entire interest of the design as well.[47]

Teaching Pattern Making and Designing

The proposed research was also investigated from a teaching point of view. In order to raise the standards of the students, a teacher must be thoroughly familiar with the principles of fitting.[48] Zack states that a knowledge of accurate analyzing of fitting flaws and skillful altering is necessary when teaching girls in home economics, 4-H leaders or groups of women.[49] Students, preparing to teach, should have every opportunity possible to gain experience in fitting others. Erwin suggests the plan of having three girls working together; one girl is the fitter, one is being fitted and the third one takes the notes on required alterations.[50]

An important aspect of teaching clothing construction is the use of visual aids in the classroom. "Various aids are planned to increase motivation, establish clear goals for learning, and indicate proper and adequate use of the subject matter, thereby fostering the most effective learning."[51] Discrimination in the selection of teaching

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[47]Domigan, op. cit., p. 127.

[48]Thar, op. cit., p. 92.

[49]Zack, op. cit., p. 110.

[50]Erwin, Practical Dress Design, op. cit., p. 46.

[51]E. Dale, Audio-Visual Methods in Teaching (New York: Dryden Press, 1946), p. 13.

aids is important. Dale emphasizes that audio-visual materials must be understood in their relationship to teaching as a whole and to the learning process in general.[52] Ideally, learners should have available combinations of audio-visual experiences to provide efficient mastery of understandings and concepts.[53] Burton and Bruechner state that " . . . visual aids . . . for the unit of work should be correlated with other sensory appeals, especially those of hearing and kinesthetic sense, so as to form a multisensory experience."[54] Wiles suggests the use of a wide variety of teaching aids to make teaching more effective.[55] Audio-visual materials are means of enriching learning opportunities. It is the teacher, however, who supplies the skill, imagination, and guidance which means the difference between successful and mediocre use of audio-visual materials.[56]

Koskey discusses the value of pertinent information on bulletin boards and suggests a procedure for planning and setting up effective displays. He mentions how interest can be attracted and held by good arrangement, with

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[52] Ibid., p. 7.

[53] Wittich and Schuller, op. cit., p. 22.

[54] W. Burton and L. Bruechner, Supervision a Social Process (New York: Appleton Century Crofts, Inc.), p. 441.

[55] K. Wiles, Teaching for Better Schools (New York: Prentice Hall, Inc., 1954), p. 208.

[56] Wittich and Schuller, op. cit., p. 460.

correlated colors, with logical lettering, with captivating captions, with good space treatment, with tantalizing textures and with arresting realism.[57]

In a thesis done at Cornell University in 1948, Hogan established the following criteria for the selection of illustrative material and visual aids:

1. It must contribute directly to the class goals and to the unit being studied.
2. It must be based upon interest and needs of the group for which it is intended.
3. It must contribute to the individual growth of the student.
4. It must be valuable in clarifying a point.
5. It must emphasize application of the principles being taught.
6. It must stimulate and sustain interest on the part of the user.
7. It must set standards commonly accepted at the particular level.
8. It must be easily interpreted by the group.
9. It must attract attention by its artistic appeal.
10. It must have information which is up to date.
11. It must allow student to visualize the finished product.
12. It must be adaptable for different uses.
13. It must be durable.
14. It must be easily stored.

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[57] T. Koskey, Baited Bulletin Boards (San Francisco: Pearon Publishers, 1957), pp. 1-32.

15. It must not be too expensive in comparison to its use.[58]

DeLong, in evaluating teachers' reaction toward the application of principles of clothing construction in a beginning course, found: two teachers said more frequent use of illustrative materials and better materials would be most beneficial; one teacher commented that there was not enough illustrative materials which students could see and suggested that materials could be mounted on a bulletin board for later reference by the students.[59]

Evaluation

Instruction and evaluation should be focused upon goals rather than upon content; students should realize how the knowledge gained, skill acquired, and judgment developed would be useful in the future. Once the goals are clearly defined and accepted, planning together and measuring the progress towards them is possible.[60] Self-evaluation can be an effective teaching aid for both teachers and students. If given an opportunity for self-appraisal, students will compete with themselves rather than with others, and judge progress on the basis of accomplishments.[61]

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[58]Catherine Hogan, "Research in the Preparation of Illustrative Material for Advanced Dressmaking Courses" (unpublished Master's thesis, Cornell University, 1948).

[59]DeLong, op. cit., p. 47.

[60]Clara Brown Arny, Evaluation in Home Economics (New York: Appleton Century Crofts, Inc., 1953), p. 11.

[61]Bradley S. Sibley, "Evaluation in Home Economics Education," Journal of Home Economics, Volume LI, No. 4 (April, 1959), p. 275.

Self-evaluation also helps in developing students' judgment and provides experience in evaluation. Sibley suggests that the teacher may use direct evaluative techniques by having students evaluate her teaching. "For teacher as well as for student, self-appraisal of progress stimulates growth."[62]

Summary

The review of literature points out clearly that fit and design of clothing have a considerable effect on the individual's general appearance. Both fit and design contribute to the wearer's feeling of satisfaction and well-being. Authorities note a direct relationship between fit and design: a poor fit will impair design qualities while an inferior design could affect the fit of the garment.

Writers agree that designing is a creative expression. Taught at university level, designing helps to establish understandings and at the same time satisfies the individual's need for creativity.

The comprehension of fitting and the ability to teach high standards of fitting are major responsibilities of clothing construction teachers. The wise selection and use of visual aids will help the teacher in transmitting easily and more effectively such information to the students.

Evaluation of teaching methods, of visual aids

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[62] Ibid.

choice and use, of course content and course objectives is a necessary continuous process for the most effective teaching. The teacher should recognize the importance of self-evaluation both for herself and for her students.

CHAPTER III

METHODOLOGY

This chapter deals with the procedure of the study and a description of the teaching procedures developed and used in Principles of Pattern Making and Designing (TCRA 355).

Design of Study

The design for this study was exploratory and descriptive.

Because of the trend of instruction at college level towards the application of principles and the development of basic understandings, Principles of Pattern Making (TCRA 355) was modified. The revision was one of emphasis* and approach** rather than one of subject matter.

Principles of Pattern Making is a four-credit course. Within the last five years, the class time allotment for this course has changed from one hour of lecture and six hours of laboratory to two hours of lecture and four hours

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*Emphasis in the re-organized course was placed on the importance of recognizing and attaining high standards of fitting.

**Approach to methods of pattern making and designing in the revised course was centered in the application of the principles of clothing construction, specifically the application of Principles I and III.

of laboratory per week. This study did not involve a change in clock hours but rather a shift in emphasis. The shift resulted from curriculum revision and the development of the prerequisite course, Principles of Clothing Construction (TCRA 152), which approaches the teaching of clothing construction from a theoretical framework with accent on fundamental principles.

The modification of Principles of Pattern Making entails the use of the principles introduced in the beginning clothing construction course (see Appendix A) to reinforce previous learnings, to broaden the student's basic understandings and to meet the needs of the student for related learnings.

The objectives for the course as previously taught were:

General objectives:

1. To introduce the student to the field of pattern making in order to help her understand patterns both commercial and those made from a master pattern. Understanding how commercial patterns are made in turn leads directly to an understanding of how to change any pattern correctly for either design or fit.

2. To improve understanding of construction techniques in relation to fabric, speed, and skill.

Specific objectives:

1. To introduce basic principles underlying fitting and thereby achieve comfort and ease in clothes.

2. To introduce the idea of making pattern changes in design and thereby achieving individuality in clothes.

3. To help gain the understanding that good design is functional and, therefore, related to structure.

4. To encourage students to analyze their own skills and to manage to keep the problem within their own capabilities.

5. To encourage students and give them enough enthusiasm to make clothes for themselves and also to teach clothing construction more effectively.

The proposed revision in the emphasis and the new approach to the course made some changes in the objectives imperative. The objectives for the reorganized course were outlined as follows:

Objectives:

1. To develop students' awareness of the importance of fitting and to establish basic understandings of fitting.

2. To introduce the various methods of pattern making and the procedures involved in making a pattern.

3. To relate the principles of clothing construction to pattern making with particular emphases on Principles I and III.

4. To emphasize the interrelationship of dress design to fabric, figure, fit, and personality.

5. To provide experience in using the flat pattern method to develop a pattern for a simple design which is becoming to the individual.

The different approach brought about a discussion of the principles of clothing construction as they apply to pattern making and designing. Another alteration in the course content came in connection with the dress showing at the termination of the course. With the intention of emphasizing high standards of fitting among the students, garments were individually judged on design and fit by a panel of twelve judges, all faculty and teaching graduate students in the Clothing, Textiles and Related Arts

Department (for description, see Chapter V). Moreover, a class evaluation was conducted on the day set for the final examination (for results, see Chapter V).

In the initial stages of the course revision, the value of requiring each student to design and construct a garment for herself was carefully weighed. Faculty members previously involved in teaching Principles of Pattern Making deliberated over the possibility of omitting the dress project in favor of further training in pattern making and designing. The final decision was to retain the dress requirement but to place less stress on detailed and intricate design.

The course content for the revised course was listed as follows:

1. A discussion of the principles of clothing construction, specifically Principles I and III, as they relate to dress designing and pattern making.
2. A discussion of the procedures of pattern making by lecture demonstration, supplemented by the drafting of a sleeve from individual measurements and the draping of a design on a half-size dress form.
3. A discussion of the flat pattern technique of pattern making. Students will be required to:
    a. Transfer a muslin pattern to tagboard for use in flat pattern designing.
    b. Gain experience in flat pattern methods through the completion of quarter-size assignments.
    c. Develop a pattern for a garment of simple design through flat pattern technique.
4. A discussion of construction methods for the execution of the developed designs.

5. A discussion of project evaluation. Each garment will be rated by:

   a. A panel of judges at the dress showing.
   b. The instructor.
   c. The student by self-evaluation.

6. A discussion of fashion show and modeling techniques for the dress showing at the termination of the course.

The outline for the course was drafted on the basis of two one-hour lectures and two two-hour laboratories per week for the nine week duration of the spring term, 1963 (see Appendix B). Principles I and III of clothing construction were used as a basis for the introduction of techniques of pattern making.

Plan of Administration

The course, Principles of Pattern Making (TCRA 355) was presented to twenty students, spring term, 1963. A part-time laboratory assistant, in addition to the investigator, worked with the students during laboratory hours; the assistant helped in alleviating the problem of larger group instruction in a limited laboratory teaching situation. The class was composed of three sophomores, nine juniors and eight graduating seniors. Fourteen girls were majoring in home economics education, three in retailing, two in general textiles and clothing and one in social science. The group represented girls with varied clothing backgrounds and experiences.

Two instruments were administered to the population: The first, a questionnaire, completed at the beginning of

the course, was designed to obtain general information about the students, a self-rating of their competencies at various tasks of fitting, selection and clothing construction, and their expectancies from the course (see Appendix M). A detailed analysis of the population appears with the findings from the questionnaire in Chapter IV. The second instrument, a reactionnaire, was filled out by the students upon completion of the term. The purpose of this reactionnaire was to obtain the students' reactions and attitudes, as well as their suggestions for changes in course content and requirement (see Appendix N). The analysis of the reactionnaire is discussed in Chapter V.

Description of the Teaching Unit

Lecture Outlines for First Four Lectures

Lectures and discussions were an outgrowth of the following lecture outlines. These are based upon the principles of clothing construction approach to teaching of fitting and pattern making.

First Lecture	Orientation of students to the course and its content
Second Lecture	Pattern making and fitting as related to Principle I
Third Lecture	Pattern making and fitting as related to Principle III
Fourth Lecture	Fitting

First Lecture Outline

Subject: Orientation of the students to the course and its content

Objectives: To introduce the course objectives and course content

To introduce methods of pattern making

To review the principles of clothing construction

Subject matter	Teaching aids
I. Principles of Pattern Making	Bulletin Board: "Pattern making--Drafting, Draping, Flat Pattern Techniques" (see page 43)
A. Course objectives (see page 32)	
B. Course content (see page 33)	
C. Course outline (see Appendix B)	
II. Development of patterns	
A. Types of garments	
1. Loose	Pakistani sari used to demonstrate the wearing of fabric draped on the body as contrasted to the fitted clothes of our Western civilization
2. Tailored or fitted	
a. Historical development of patterns	
b. Patterns from other countries	French pattern illustrating grading of different sizes
B. Methods of developing patterns	Drafted sleeve pattern
1. Drafting 2. Draping 3. Flat pattern techniques	Pattern designed through flat pattern methods by use of the sloper
III. Principles of clothing construction	Principles of Clothing Construction (see Appendix A)

A. Development of principles

B. Statement of the principles

C. Relationship of pattern making and designing to these principles

Second Lecture Outline

Subject: Pattern making and fitting as related to Principle I

Objectives: To explain Principle I

To relate Principle I to fitting

To relate Principle I to pattern making

Subject matter	Teaching aids
I. Principle I A. Statement: "Shaping flat fabric to conform to body curves requires reducing the perimeter of garment pieces." B. Basic elements 1. Fabric--two dimensional 2. Human form--three dimensional, tubular, capable of movement Major body contours: bust, abdomen, hipbone, side hip, buttocks, upper shoulder, lower shoulder, elbow and dowager's hump	Bulletin Board: "Fitting fabric to conform to body curves involves a reduction of the perimeter by ease, darts, tucks, gathers and seams" (see page 43)
II. Relationship of Principle I to fitting A. Methods of perimeter reduction: darts, gathers, tucks, ease and seams B. Corollary I 1. Statement: "The amount of reduction of the perimeter of garment pieces is relative to the degree of prominence of body curves."	Dresses showing tucks in the skirt front, darts in the skirt back, gathers in the bodice, shaping in the shoulders, and ease in the sleeve

2. Effect of excessive reduction of the perimeter	Bodice on half-size dress form illustrated wrinkles from excessive and inadequate darting
3. Effect of inadequate reduction of the perimeter	
C. Corollary II	
1. Statement: "Darts, tucks, gathers and ease radiate from the most prominent body curves to be covered by a given garment piece."	
2. Perimeter reduction in relation to body curves	Draping on half-size dress form illustrated various dart positions
a. Darts b. Tucks c. Gathers d. Ease e. Seams	Darts (see Appendix C)
III. Relationship of Principle I to pattern making	
A. Dart position and design	Fashion illustrations showed various dart positions creating pleasing structural designs
B. Dart position and body proportions	
C. Dart position and body curves	
D. Darting replaced by other methods of perimeter reduction for design variations	Fashion illustrations
1. Gathers	
2. Tucks	
3. Ease	
4. Seams	<u>Assignment</u>: Draping on the half-size dress form (see Appendix C)

Third Lecture Outline

Subject: Pattern making and fitting as related to Principle III

Objectives: To explain Principle III

To relate Principle III to fitting

To relate Principle III to pattern making

Subject matter	Teaching aids
I. Principle III	Bulletin Board: "Key to successful design--Texture" (see page 44)
A. Statement: "Manipulation of any given materials is dependent upon its component parts."	
II. Relationship of Principle III to fitting	
A. Corollary I	
1. Statement: "Structure is a determinant of the extensibility of fabric."	Skirts draped on half-size dress forms illustrated silhouette differences achieved from a knit and a woven fabric
2. Types of fabrics--woven, knitted, felted	
3. Extensibility of fabric	Skirts draped on half-size dress form illustrated silhouette differences achieved by various grain positions
a. Characteristics of fabric affecting extensibility--warp, weft, bias, true bias	Fabric structural characteristics (see Appendix D)
b. Structure and extensibility--loose and firm weaves	Drapability of fabric dramatized by comparison of the silhouette effect of a silk sari and an equal yardage of crisp gingham
c. Extensibility and fit	
B. Corollary II	

1. Statement: "Texture is a determinant of the behavior of fabric."

2. Definition of texture

3. Texture and fit--bulky, firm, napped, crisp, and drapable fabrics

Skirt draped on half-size dress form illustrated the silhouette difference produced by
   a. Batiste
   b. Gingham
   c. Taffeta

III. Relationship of Principle III to pattern making

A. Grain position related to silhouette

B. Extensibility and design

C. Texture and design

Fourth Lecture Outline

Subject: Fitting

Objectives: To recognize a good fit

To present alteration principles for the attainment of a good fit

Subject matter	Teaching aids
I. Characteristics of a good fit	Bulletin Board: "Does it fit?" (see page 44)
A. Structural garment lines in relation to anatomy	Basic Structural Garment Lines (see Appendix E)
B. Reduction of the perimeter of garment pieces	
1. Amount of reduction in relation to body curves	
2. Location of reduction in relation to body curves	
3. Method of reduction of the perimeter to best flatter the silhouette	Fashion pictures to illus- appropriateness of perimeter reduction to conceal figure faults
C. Suitable amount of ease in a well fitted garment	
1. Dependent on fashion	Costumes from the historic collection used to demonstrate variations in the amount of ease used at different periods in history
2. Dependent on type of garment	
3. Dependent on physical build of wearer	Fashion pictures to illustrate present trend toward the semi-fitted silhouette
4. Dependent on likes and dislikes of individual	
II. Techniques for pattern alteration	
A. Method of taking accurate body measurements	Demonstration of method of taking figure measurements

B. Use of muslin shells to determine size of pattern to buy	Muslin shells and cotton printed pattern shells* in various sizes and figure types
C. Testing the paper pattern for fit	
1. Pinning paper pattern and trying it on	Demonstration of paper dress fitting
2. Comparing the figure measurements with those of the pattern	Demonstration of checking pattern measurements with figure measurements
D. Altering a paper pattern (see Appendix F)	Pattern alteration charts Assignment: Pattern alteration charts for common fitting problems (see Appendix F)

*Printed pattern shells available through commercial pattern company.

Teaching Aids

Teaching aids were used extensively. An effort was made to have something of interest in the form of visual aids to supplement the material covered in every lecture. In addition, informative bulletin boards and full-size illustrative materials were used to clarify the points brought out in lecture and laboratory.

Bulletin Boards

Bulletin boards were set up weekly. A total of nine bulletin boards were used; all, with the exception of two, were retained for the week. These two bulletin boards were designed to maintain interest and produce a creative atmosphere in the classroom. A brief description of the bulletin boards and the theme of each follows:

1. The first bulletin board was planned to introduce the methods of pattern making to the class. Entitled "Pattern Making," the arrangement and the color combination directed attention to "draping," "drafting" and "flat pattern methods."

2. An attempt to develop a better understanding of Principle I was the purpose of the second bulletin board. A statement of the principle, "Fitting fabric to conform to the curves of the body involves a reduction of the perimeter of the garment pieces," appeared on the left. Fabric was draped around a central figure and to the right five samples showed methods of perimeter reduction: darting, tucking, gathering, easing, and seaming.

3. Lecture material on Principle III was supplemented by the third bulletin board showing fabrics of different structures and textures. The theme: "Texture, a key to successful design," was illustrated by an arrangement of fabric samples of various textures from the soft, light textures, to the heavy, bulky ones.

4. A bulletin board captioned: "Does it fit?" helped develop an awareness of the importance of proper fitting. Red arrows pointed from an itemized check list necessary for a proper fit to a fashionable black and white silhouette.

5. The discussion of suitable designs for the individual was supplemented by a bulletin board entitled: "Co-ordinate the best lines, colors and textures for you." The illustrations used carried out the idea of suitability of lines, colors and textures for the individual figure. On the left portion of the bulletin board were shown illusions created with vertical, horizontal, and diagonal lines; in the center a panel with three figure silhouettes showed the effect of warm and cool, bright and dull, and light and dark colors. To the right magazine pictures illustrated the illusions created by various lines, textures, and colors.

6. During the time students were deciding on their designs for the final project, a bulletin board entitled, "A basketful of ideas," was planned to motivate the student to create individual designs. A set of charts displayed the usual notions and various decorative seams and trims.

7. Principle IV was discussed in lecture and provided the main idea of the last bulletin board which was entitled, "Construction techniques vary with different fabrics." Four groups of fabrics were shown which required different methods of handling. Many of the fabrics displayed were those which the students were using for the final projects.

Visual Aids

The detailed outline of the presentation of the first four lectures has been given in this chapter (see pages 35-43). In this outline, mention is made of the use of various types of visuals which supplemented the lecture material.

Current American and French fashion magazines were shown and used in the classroom. For inspiration in the development of design ideas or the adaptation of original ideas to meet the needs of students, it was recommended that these magazines be studied. Four garments from the historic costume collection were used to emphasize the fact that construction methods as well as designs change with the times. An inspection of these garments developed an appreciation for detailed hand work exemplified in these costumes and called attention to the use of different fabrics, linings, and interfacings.

Throughout the term while working with clothing construction, actual garments made from a variety of fabrics were shown to point out different aspects of construction, i.e., various types of interfacings used, types of linings

and underlinings, seam finishes, types of closures and seam treatments.

Alteration charts were used in the lecture-demonstration to show the correct methods for making paper pattern alterations. Other charts suggesting decorative seams and trims were used to promote design ideas.

The reaction of the students to all the teaching aids was favorable. Students commented that they looked forward to the lectures in anticipation of what was going to be shown in the line of visuals; they discussed these visuals and the bulletin boards for their value to them as students and as prospective teachers. In addition to developing a greater interest on the part of the students, the visuals afforded the instructor more time in the classroom.

Duplicated Material

Another type of teaching aid used in this course was a set of duplicated material pertinent to the lecture discussions. These materials were valuable to the students because during the lecture demonstration they could give undivided attention to the presentation.

Laboratories

The laboratory assignments were planned to correlate with the lecture materials. After Principle I was explained and the draping technique was demonstrated, students draped a basic batiste bodice on the half-size dress forms. With

the introduction of Principle III, the students draped a circular skirt of batiste and one of taffeta. In addition, each student draped a design on the half-size dress form in gingham. It was anticipated that by introducing the students to pattern making through draping in different fabrics and textures, the students would become more aware of design details as they affect fit and appearance. Basic structural lines of a garment were discussed in relationship to body contours and with the emphasis on fitting.

Drafting, as a second method of making patterns, was used to develop the sleeve pattern for the sloper. This nominal experience was used as an introduction to drafting and was not intended to develop any student proficiency.

Flat pattern techniques were introduced last as it was felt that by this time the students would have developed some feeling for dart placement, proportion and design details. After the students were instructed how to use flat pattern techniques and to apply them to designing, the students were encouraged to use the flat pattern method for developing their patterns for the final dress project.

Concurrent with the flat pattern assignments, the students made a muslin basic from a commercial pattern. Basic shells of different sizes and figure types were shown and special features explained. Shells were used to estimate the size of the commercial pattern to purchase.

While the advantages and disadvantages of pinning

a paper pattern together for checking size with a paper dress fitting were being discussed, methods of verifying the pattern measurements against the actual body measurements were also discussed. In order to illustrate these two methods, two muslins were made for one girl, one from the pattern which had been altered after a paper dress fitting, and the second from the pattern altered according to actual measurements. The two muslins were modeled so that the class could evaluate these methods of fitting a pattern in terms of the fit achieved. In this instance, the position of darts and seams in relation to the anatomical structure was more accurate in the muslin constructed from the pattern which had been pin-fitted in a paper dress fitting and altered accordingly. The class evaluated the fit of this muslin superior to the other; it did have excessive ease which had to be removed.

One student in the class purchased a 'basic try-on' pattern sold by a commercial pattern company. A class discussion of this type of pattern followed in anticipation of the advantages and disadvantages of developing students' awareness of available patterns.

Students worked with laboratory partners. When a student had fitted the muslin for her partner, the instructor checked each one individually, suggesting improvements and indicating choices that an individual needed to make in order to achieve a good fit. From this muslin the master pattern or sloper was developed which is the basic pattern

used for all flat pattern designing. The student developed the pattern or the design of the final project from the sloper using flat pattern designing techniques. The design was constructed in muslin for a preliminary fitting before cutting the garment in dress fabric. It was anticipated that this procedure would assure an excellent fit, and the achievement of pleasing design proportions for the individual.

During the actual construction of the garments, there were ample opportunities to show the relationship of fabric to design. Moreover, with the wide variety of fabrics used, it was possible to illustrate the handling required by various fabrics. Some fabrics presented problems which emphasized the fact that ease of handling depends not only on structure of material, but also on texture, fiber content and fabric finishes.

The students were given assignments in alteration of paper patterns (Appendix F), in draping (Appendix C) and in flat pattern designing (Appendix K). Before the dress showing, students were also asked to write out a tentative commentary to be read by the commentator at the dress showing (see Appendix L).

Due to the limited laboratory time, students were expected to complete some of the laboratory assignments outside of class. The amount of work necessitated careful management of time and resources, in order for the assignments to be handed in at the designated time.

Final Project

The students were instructed to design a garment of their own choice. With only three weeks' time allowed for the total execution of this final project, students were advised to select a design with simplicity and character in order to eliminate detailed construction techniques while achieving a distinctive effect. Students were informed that their dress project would be evaluated in terms of the appropriateness of fabric and design and the total effect of the garment on the individual. Careful management of time and resources was also stressed in the hope that each student would complete her project in time for the dress showing at the end of the term.

Some lecture time was given to a discussion of designs suitable for various figure and personality types. In addition, a lecture-demonstration was conducted illustrating the effect of various colors and textures and showing the relationship of fabric and design to fit and silhouette.

No limitations were imposed in regard to design or type of fabric chosen; however, specific recommendations were made for each individual to manage her time and resources carefully. The fabric selections were varied. The number of girls and their choices were as follows:

4 cotton -- two cotton faille, one gingham, and one sail cloth

3 knits -- cotton double knits

3 silk shantung

3 wool -- one wool suiting, one wool crepe and one mohair

2 drapable synthetic fabrics -- one Dacron and one nylon acetate blend

2 linen and viscose blends

2 rayon textured blends

1 arnel sharkskin

The design selections were as varied as the fabric choices. In general, the designs were understated. Two girls chose to design suits, and 18 to design dresses. Six garments reflected the trend in fashion toward the semi-fitted silhouette.

The students received an information sheet regarding the handling of different fabrics (see Appendix F). This information was distributed so that it would reach the student before construction was undertaken. A bulletin board, "Construction techniques vary with different fabrics," was displayed.

Fashion publications available to students included recent copies of: l'Officiel, Elysee Fabrics, Vogue's Special Issue of Paris Designs, Bazaar, Vogue Magazine, and Women's Wear.

Early in the term, the students were consulted regarding their reaction to a panel of judges rating their final projects on general appearance and fit. A rating of the students by the panel is discussed briefly in Chapter V.

Dress Showing

The dress showing was held during the last meeting of the class. Twenty girls modelled the garments they had designed and constructed for themselves. The audience was made up of teachers, students, and a few outside guests. The commentator was a senior student who had previously taken this course.

The students were given some basic points in modelling that could be applied to classroom teaching or a school or business dress showing (see Appendix H).

A panel of 12 judges rated the students on the general appearance and fit of their garments. Seven judges were teachers in the Clothing, Textiles and Related Arts Department, two were Extension personnel directly involved in adult and 4-H clothing work, and three were graduate assistants who were either presently assisting in clothing construction laboratories or had been within the last year. The judges were contacted by letter (see Appendix I) and requested to fill out a score sheet for each student at the time of the dress showing (Appendix J).

CHAPTER IV

DESCRIPTION OF THE SAMPLE

A questionnaire was formulated and administered to the twenty students enrolled in Principles of Pattern Making (TCRA 355) at the first class meeting. Since only one group of students met the requirements for this study, no pretesting was feasible and comparisons with other groups could not be undertaken. The questionnaire was designed to obtain general information about the students and the extent of their clothing experience; to secure from the students a self-evaluation of their level of competency in specific tasks of fitting, selection, and clothing construction techniques; and to elicit from the students their expectations in taking the course (see Appendix M).

Analysis of Population

General Information

The class consisted of three sophomores, nine juniors, and eight graduating seniors. The grade point averages* indicated a range from 2.07 to 3.58, with a class average of 2.64. All grade point averages given by the students were checked against official records.

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*Grade point averages figured on a four-point system with A equal to 4 points; B, 3 points; C, 2 points; D, 1 point.

These students had varied majors. Fourteen girls were majoring in home economics education, three in retailing, two in general textiles and clothing, and one in social science.

Past Experiences

In answer to the question, "Have you had clothing work in school before coming to college?" nine girls indicated that they had had clothing work in junior high school and 14 had had some work in senior high. Eleven girls had been enrolled in 4-H club work and had completed from six to 15 clothing projects. Three girls had had no previous clothing experience prior to enrolling in a college class.

Responses to the request, "List the clothing construction courses which you have completed in college," revealed that members of the class had varied backgrounds. Nine girls indicated they had taken Clothing Construction I (TCRA 150A), while 10 had completed the revised course, Principles of Clothing Construction (TCRA 152). Three girls had completed a second clothing construction course, Clothing Construction II (TCRA 250D), and two had had a more recent course in the curriculum, Construction Techniques (TCRA 252). One girl reported having had both beginning and advanced clothing construction courses at another institution.

All the students indicated they had had some course work in color and design in either high school or college.

In response to the question, "Do you sew for yourself?" four girls answered "always," 12 "frequently," and four "sometimes." Five girls mentioned that they "frequently" sewed for others; eight "sometimes," and seven "never" sewed for anyone else.

The extent to which advice and assistance was sought revealed that two girls "frequently" needed help, 16 girls indicated that they "sometimes" required assistance, and two "never" needed to consult a teacher or a more experienced person.

Level of Competency

The second section of the questionnaire was designed to obtain the student's rating of her level of competency in performing tasks. This section was divided into three parts: fitting, selection, and construction techniques. Each student was asked to rate her own abilities in the performance of specific tasks according to a rating scale of one to four: one indicating incompetency, four representing full competency. Part A on fitting was made up of four general fitting problems: fitting a paper pattern, fitting a garment, altering a pattern, altering a garment. The rating for the class ranged from 1.5 to 4 with an average of 2.66. As a group, the class felt slightly more competent in fitting a garment and least competent in altering a garment. Complete rating by the students as well as the class average for each fitting task and for individual

students is shown in Table 1, page 58.

Part B on selection consisted of seven tasks: choosing appropriate pattern for figure; choosing appropriate fabric for figure; choosing appropriate color for figure; coordinating pattern and fabric; choosing appropriate trims, buttons, decorative seams; choosing pleasing color combinations; and visualizing the finished garment from the pattern picture. The class as a group expressed a higher rating of competency in selection than in fitting. The class average was 3.24, ranging from a low of 2 to a high of 4. The two problems in which the students felt least competent were in the selection of appropriate trims, buttons, and decorative seams and in visualizing a finished garment from a picture. A detailed rating of the selection tasks as well as the class averages and individual averages are found in Table 2, page 59.

Part C was directed toward students' self-evaluation of competency in construction techniques. This part presented twelve tasks, namely: pressing different fabrics; handling darts, tucks, and gathers; choosing and applying interfacings; choosing and applying underlinings; inserting slide fasteners; attaching waistbands; fitting a collar; fitting a sleeve; applying facings and bindings; turning up a hem; making corded buttonholes; and lining a garment. The class average of competency, according to self-rating by students, was 2.79, ranging from a low of 2.22 to a high

Table 1.--Self-evaluation of level of competency of students in four fitting tasks before taking a pattern-making class

Student	Fitting tasks				Average for each student
	Fitting a paper pattern	Fitting a garment	Altering a pattern	Altering a garment	
	Competency ratings*				
A	2	2	2	2	2
B	2	2	2	2	2
C	4	4	3	3	3.5
D	3	3	3	3	3
E	2	2	1	2	1.75
F	2	3	2	3	2.5
G	4	4	4	4	4
H	3	3	3	3	3
I	3	3	2	2	2.5
J	3	3	3	2	2.75
K	2	2	1	2	1.75
L	3	3	3	2	2.75
M	2	2	1	1	1.50
N	2	2	2	2	2
O	3	3	4	3	3.25
P	3	3	3	3	3
Q	4	4	4	4	4
R	3	3	4	3	3.25
S	2	3	1	1	1.75
T	3	3	3	3	3
Class average for each task	2.75	2.85	2.55	2.50	2.66

*Competency rating scale of 1 to 4. 1 representing incompetency; 4 indicating full competency.

Table 2.--Self-evaluation of level of competency of students in seven selection tasks before taking a pattern-making class

Student	Selection tasks: Choosing pattern for figure	Choosing fabric for figure	Choosing color for figure	Coordinating pattern and fabric	Choosing appropriate trims, buttons, decorative seams	Choosing pleasing color combinations	Visualizing the finished garment from picture	Average for each student
	Competency rating*							
A	3	3	3	3	3	2	3	2.86
B	3	3	3	3	3	3	2	2.86
C	4	4	4	4	4	4	4	4
D	3	3	3	3	3	3	3	3
E	4	4	4	4	4	4	3	3.86
F	3	3	3	3	3	4	4	3.29
G	3	3	4	3	2	4	4	3.29
H	3	3	3	4	4	4	4	3.57
I	3	1	3	1	2	3	3	2.29
J	3	3	3	4	3	3	2	3
K	4	4	4	4	4	4	3	3.86
L	3	4	4	4	3	3	4	3.57
M	3	3	3	3	3	3	2	2.86
N	4	4	4	3	3	3	3	3.43
O	3	4	3	4	4	4	3	3.57
P	4	3	4	4	3	4	4	3.71
Q	3	3	3	3	3	3	3	3
R	3	3	3	3	2	3	4	3
S	2	2	2	2	2	2	2	2
T	4	4	4	4	4	4	3	3.86
Class average for each task	3.25	3.20	3.35	3.30	3.10	3.25	3.15	3.24

*Competency rating scale of one to four. One representing incompetency; four indicating full competency.

of 3.70. The construction technique in which the students rated themselves least competent was in making corded buttonholes, followed by the choice and application of underlinings. Complete rating scores for construction techniques by the students plus student and class averages are found in Table 3, page 61.

The analysis of this self-evaluation reveals that the class rated itself at the highest level of competency in selection (3.24) followed by construction techniques (2.79) and its lowest level of competency in fitting (2.66). This would tend to justify the student's expressed need for further assistance and experience in the area of fitting.

Course Expectations

The students were asked to give three reasons for enrolling in Principles of Pattern Making and to indicate these choices in rank order. "I would like to make my own patterns," was mentioned 17 times with seven students listing this as the first choice, and eight as second choice. "I would like to understand fitting," was selected a total of 16 times: six times as first choice, seven as second, and three as third. Complete ratings of students' reasons are found in Table 4, page 62.

With the exception of one student, the class was unanimous in answering "yes" to the final question, "Do you feel some training in modelling would be of value to you later on in the work which you propose to do when you finish college?"

Table 3.--Self-evaluation of level of competency of students in twelve clothing construction techniques before taking pattern-making class

Student	Clothing Construction Techniques												
	Pressing different fabrics	Handling darts, tucks, gathers	Choosing and applying interfacing	Choosing and applying underlinings	Inserting slide fasteners	Attaching waistbands	Fitting a collar	Fitting in sleeve	Applying facings and bindings	Turning a hem	Making corded buttonholes	Lining a garment	Average for each student
	Competency ratings*												
A	2	3	2	-	3	4	3	3	3	3	2	3	2.57
B	2	3	3	3	2	2	2	2	2	3	1	2	2.39
C	4	4	3	3	4	4	4	4	4	4	2	3	3.70
D	3	3	3	3	3	3	3	3	3	3	3	3	3
E	3	3	2	1	2	3	3	3	3	4	3	3	2.91
F	4	4	3	3	4	4	3	3	3	4	3	3	3.21
G	3	4	4	3	3	4	4	4	4	4	4	4	3.65
H	4	4	3	4	4	4	3	4	4	4	3	4	3.57
I	2	2	2	1	1	3	3	3	2	3	2	2	2.22
J	2	3	3	3	3	3	2	3	3	3	1	3	2.76
K	3	2	2	2	2	2	2	2	2	2	1	2	2.52
L	3	4	3	3	3	4	4	4	4	4	2	3	3.35
M	3	3	2	2	3	3	3	2	2	3	2	2	2.43
N	2	4	3	3	4	4	4	3	3	4	3	3	3.13
O	3	4	4	3	2	3	4	4	3	3	3	3	3.35
P	2	3	2	2	3	3	3	3	3	3	3	3	3.13
Q	3	3	3	2	3	3	3	4	4	4	1	3	3.17
R	3	4	3	3	3	3	3	4	4	4	3	3	3.21
S	3	3	3	2	3	3	3	3	3	3	2	3	2.39
T	3	3	2	3	3	2	4	3	3	4	3	2	3.21
Class average for each technique	2.85	3.30	2.75	2.45	2.90	3.20	3.15	3.15	3.10	3.45	2.35	2.85	2.79

*Competency rating scale of one to four--one representing incompetency, four indicating full competency.

Table 4.--Reasons given by students for enrolling in Principles of Pattern Making (TRA 355)

Reason	First choice	Second choice	Third choice	Total
I would like to make my own patterns	7	8	2	17
I would like to understand fitting	6	7	3	16
I enjoy sewing	3	1	6	10
I need more experience in construction	0	4	3	7
I am interested in a dress designing career	2	0	2	4
I need extra credits in construction	0	0	2	2
I am taking it at the suggestion of my advisor	0	0	1	1
Others	2	0	1	3
Total	20	20	20	60

In summary, an analysis of the questionnaire revealed that the students had varied backgrounds in clothing work and did a considerable amount of home sewing. Students felt less competent in fitting than in selection or construction techniques. The reasons given for taking the course indicated that students were the most interested in making their own patterns and in understanding fitting.

CHAPTER V

ANALYSIS OF STUDENT ACHIEVEMENT

In this chapter three evaluations of the garments designed and constructed by the students will be analyzed, followed by the analysis of the reactionnaire administered to the class at the end of the term.

Evaluation of Garments

Upon completion of the final project, a dress showing was held at which time each girl was rated on general appearance and fit of the garment she had designed and constructed. A panel of 12 judges, all members of the teaching staff in the Department of Textiles, Clothing and Related Arts, scored each student individually according to a scoring sheet (see Appendix J). The comments written by the judges were then passed on to the students as a further learning experience.

Each student was also asked for a self-rating. Using the same score sheet as the instructor (see Appendix O), the girls judged their own garments on design qualities, fit, and construction. In addition, the students rated themselves in management of time and resources. This self-rating was done before the students had received the judges' comments.

A tabulation of the instructor's rating, the students'

self-rating, and the average score from the panel of judges showed general consistency in the three scores (see Table 5).

Poorer students, however, tended to rate themselves higher than they were rated by the instructor or the panel of judges. There appeared to be some discrepancy, however, between the instructor's average score for the class and the students' self-rating in the area of management. The instructor's score proved to be considerably higher than the students'. In rating themselves low in management, some students commented that they did not work as independently as they should have and relied upon teachers and/or assistance from others.

Analysis of Reactionnaire

A reactionnaire was administered to the 20 students taking the course on the day of final examination (see Appendix N). These questions were designed to obtain the students' attitudes and feelings regarding the course, Principles of Pattern Making, with the hope that the answers would shed light on the value of a different approach and the shift in emphasis in this course. To increase the possibility of unbiased responses, students were requested not to sign their names. No pretesting of the instrument was possible since only one class in pattern making was taught.

The class was unanimous in stating that they had gained from the course what they had anticipated. Three

Table 5.--Ratings of garments completed in Principles of Pattern Making indicating instructor's score, student's self-rating and judges' average score for each student

Student code	Design			Fit			Construction		Management	
	Teacher's score	Student's self-rating	Panel average score	Teacher's score	Student's self-rating	Panel average score	Teacher's score	Student's self-rating	Teacher's score	Student's self-rating
	*Rating scale 1 to 5									
A	4	3	3.92	5	3	3.83	4	3	4	3
B	4	4	3.58	2	3	3.17	3	3	3	3
C	4	5	4.17	5	4	4.33	5	4	5	4
D	4	5	4.62	5	4	4.33	5	4	5	5
E	5	4	3.45	4	4	3.33	4	4	4	3
F	4	3	4.37	5	5	4.33	5	5	5	3
G	5	5	4.71	4	4	4.42	2	4	4	4
H	5	5	4.6	5	5	4.37	5	5	5	4
I	5	5	4.42	5	4	4.08	5	3	5	4
J	4	5	3.75	3	4	3.87	3	3	5	5
K	5	4	4.6	3	4	3.87	2	5	1	2
L	5	4	4.07	4	3	4.42	5	4	4	4
M	4	4	4.65	3	3	4.54	3	3	4	5
N	4	3	3.45	3	5	3.17	4	4	4	3
O	3	4	3.54	4	4	3.8	4	4	5	3
P	5	4	4.20	5	5	4.54	5	5	5	4
Q	4	3	3.5	5	4	4.37	4	3	5	3
R	5	5	3.92	5	4	3.33	4	5	5	4
S	2	4	3.17	5	5	4.53	4	4	5	4
T	4	5	3.75	4	4	3.83	3	3	4	4
Average	4.25		4.02	4.2		4.02	3.99		4.35	
		4.2			4.05			3.9		3.7

*Rating scale 1 to 5: one indicating low level of achievement; 5 indicating high level of achievement.

remarked that they had gained more than they had expected, while two commented that the course had been an excellent learning experience.

Eighteen girls favored making no changes in the lecture while two suggested that more time be allotted to this aspect of the course. There were no suggested changes in the laboratory except one student indicated that the required time be shortened.

The use of the principles from the beginning course, Principles of Clothing Construction, was new to those students who had taken Clothing Construction I (TCRA 150A) as a prerequisite; to those students who had taken Principles of Clothing Construction (TCRA 152), the principles were a review. The question was asked, "How well do you feel you understand Principles I, II, III and IV?" (see Table 6). Ninety per cent of the girls felt they understood Principles I and IV very well, and 10 per cent understood most of it.

The degree of understanding of Principle III was slightly lower with 80 per cent reporting understanding it very well and 20 per cent understanding most of it. Only 50 per cent of the group felt they understood Principle II very well, 40 per cent understood most of it, and 10 per cent understood some of it.

In her study with beginners in clothing construction, DeLong also found that students expressed a higher degree of understanding of Principles I and IV than of

Table 6.--Number and percentage of students showing degree of understanding of the principles of clothing construction after applying these principles in pattern making

Principle of clothing construction	Degree of understanding of principles by students									
	Understood very well 5		Understood most of it 4		Understood some of it 3		Understood very little 2		Do not understand 1	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	18	90	2	10						
2	10	50	8	40	2	10				
3	16	80	4	20						
4	18	90	2	10						

Principles II and III.[1]

According to DeLong's findings,[2] the percentage of students who understood the principles of clothing construction very well was considerably lower than the students in this study. A comparison of the findings of these two studies would seem to indicate that, for this limited group of students, further discussion of the principles of clothing construction and additional application of these principles reinforced and expanded previous learnings.

In analyzing responses to the two questions, "Which part of the course was most difficult?" and "Which part of the course was the least difficult?", the flat pattern assignments, draping, fitting, and alteration of patterns, and the final project were mentioned in response to both questions. Fitting and altering patterns was judged most difficult by six students and least difficult by two. Five girls encountered difficulty with the flat pattern assignments while three reported them as the least difficult part of the course. Six students reported draping as least difficult, while four felt it was the most difficult. The final project, that of designing and constructing a garment, was noted the least difficult by four girls but considered most difficult by two. In giving their reasons for finding

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[1] DeLong, op. cit., p. 23.

[2] Ibid.

one part of the course more difficult than others, students often mentioned "lack of experience" and "lack of time." Three girls omitted the first question, five the second.

Nineteen girls felt the level of difficulty of this course was about right to be challenging; three were of the opinion that the course involved too much busy work.

In relation to other college courses, nine students remarked that this course was "about as difficult as other courses," seven felt it was "more difficult than many," and four found it "less difficult than other courses." In relation to the four credits earned, eleven girls felt the amount of work was too much, eight thought it was about right, and one did not think there was sufficient work required.

In response to the question, "Would you recommend that the final project (your garment) be omitted from the requirements of the course and that the time be spent in learning more about pattern making?" sixteen girls were in favor of retaining the dress requirement. Some of the reasons given were the final project: "coordinates the term's work," "makes the principles more understandable," "is necessary to obtain full benefit from the problems," and "is the necessary application of knowledge." The four girls who were not in favor of constructing a garment preferred to have more experience in designing and pattern making suggesting muslin construction of their designs.

The question, "In what way do you feel the course

content of TCRA 355 will be most helpful to you?" received multiple responses. The answers are tabulated in Table 7. The class indicated that this course would be most helpful in the future with pattern modifications, pattern alterations, pattern designing, and with fitting problems. Eighty per cent felt the course would contribute to a greater enjoyment of clothing construction. A smaller number thought the course would be valuable in judging the fit of ready-to-wear. Eleven girls from the group of 15 majors in home economics education noted that it would be helpful "in developing classroom visual aids"; nine, that it would be helpful "in teaching clothing construction" and "in planning bulletin boards."

Reactions of 16 students to the panel of judges rating them on general appearance and fit at the dress showing was: "interesting to know the reaction of the clothing staff"; eight found it "worthwhile to have an objective rating of one's appearance"; seven thought the comments were " . . . helpful in recognizing ways of improvement"; two found the "panel too critical"; one felt the "comments discouraging"; and one considered the "panel too lenient."*

Every member of the class would recommend this course to a friend; however, certain conditions were expressed in the comments: three would recommend this course to a friend who enjoys and is proficient in clothing construction; one

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*Students gave multiple responses.

Table 7.--Ways in which students foresee the course, Principles of Pattern Making, as helping them in the future

Number of responses*	Ways in which students foresee the course will be of value
19	In pattern modifications
18	In pattern alterations
18	In designing my own patterns
17	In fitting garments
16	Will contribute to greater enjoyment of clothing construction
12	In judging the fit of ready-to-wear
11	In developing classroom visual aids
9	In teaching clothing construction
9	In planning bulletin boards
7	In organizing dress showings for school or business
6	In applying clothing construction techniques

*Students gave multiple responses.

would recommend it to a person who is interested in fitting; one, if the friend were interested in making her own patterns. Five said they would recommend the course because it is challenging and gratifying, and there is a great deal to learn. One girl mentioned that she already had recommended the course.

In replying to the question, "Is there anything in particular that you liked or disliked about this course?" twelve students expressed favorable reaction to the classroom atmosphere while four complained of the lack of sufficient working space due to the large number in the class. Two girls mentioned they liked the informality and congeniality in the classroom, and one girl thought the laboratory time was excessive.

Areas of clothing in which the students still felt in need of additional training and experience was asked for in the last question. Nine girls considered they needed practical experience in construction, and four others expressed concern about the handling of new fabrics. Four students mentioned fitting: "fitting experience," "experience in fitting different figure types," "more experience in fitting," and "changing patterns to fit my figure." One girl mentioned the lack of sufficient training in color and design while another one felt that in general she needed "more clothing courses."

In general, the responses to the reactionnaire indicated favorable attitudes toward the course. A few minor

suggestions were made regarding changes; however, satisfaction was expressed by the majority. Most of the students felt the course was challenging and a worthwhile learning experience. The class indicated that this course would be helpful in the future in pattern modifications and pattern designing and in the handling of alteration and fitting problems. Over half of the prospective home economics teachers commented that the course would be helpful in teaching clothing construction, developing visual aids and in planning bulletin boards.

Sixty-five per cent of the class was aware of its need for further help in construction and in handling new fabrics, while 20 per cent of the group realized a need for more experience in fitting garments. The self-evaluation at the beginning of the course indicated that the class rated itself more competent in construction techniques than in fitting. The reactionnaire, however, revealed that while some expressed a need for more fitting experience, a much higher percentage felt deficient in clothing construction techniques. With the limited time allowed for the final project, this experience may have developed the students' awareness of a need for further assistance and experience in the area of clothing construction.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary and Conclusions

In view of the current trend in college education towards the teaching of broad principles and basic understandings, this study was undertaken with the purpose of evaluating the effect of the principles of clothing construction, as taught in a beginning course, on a more advanced class in pattern making and designing. The assumption was made that the principles approach in teaching a more advanced class would relate the principles to fitting and pattern making, thus reinforcing learnings, and developing a greater appreciation for higher standards of fitting.

The objectives of this study were:

1. To develop a teaching unit which would include:
    a. The principles of clothing construction and specifically Principles I and III as they relate to Principles of Pattern Making (TCRA 355).
    b. The importance of a thorough understanding of fitting.
    c. Illustrative material to supplement classroom instruction.
2. To present this unit to the students taking Principles of Pattern Making (TCRA 355) in spring term, 1963.
3. To ascertain student reaction to the unit.

The teaching unit was presented to the students enrolled in Principles of Pattern Making (TCRA 355), spring term, 1963. Since only one class in pattern making was taught, a comparative analysis could not be made.

A questionnaire administered at the beginning of the course was designed to secure information about the students' backgrounds, competencies in selection, fitting and clothing construction, and to determine the students' expectations from the course. A reactionnaire completed at the end of the term ascertained the students' attitudes and reactions to the course.

The class at Michigan State University was composed of 20 sophomores, juniors, and seniors, of which 14 were majoring in home economics education, three in general textiles and clothing, two in retailing, and one in social science.

The teaching unit which constituted this study did not differ greatly in content from the one previously taught; the experimental aspect was primarily one of approach and emphasis. Pattern making techniques were introduced through the principles of clothing construction, with emphasis directed to the importance of fitting.

Principle I was related to the achievement of a desirable fit, and the development of a good design through the placement of darts and structural lines. Principle III was helpful in showing the interrelationships of fabric characteristics with design, fit and construction.

A comparison of the degree of understanding of the principles of clothing construction by beginners in clothing construction, as reported by DeLong,[1] with students in Principles of Pattern Making, revealed that the latter expressed a considerably higher degree of comprehension of the principles after having applied them to pattern making techniques. Ninety per cent of the students in Principles of Pattern Making said they understood Principle I very well, as compared to 63 per cent of the beginning students. Principle III was understood very well by 80 per cent of the advanced students, as compared to 35 per cent of the beginners. The responses of these students would seem to justify the conclusion that principles of clothing construction became clearer to the students when discussed and experienced in connection with pattern making and designing.

Teaching aids were employed throughout the course to supplement lectures. Bulletin boards were set up weekly to emphasize course content. Visual aids in the form of charts, contemporary and historic garments, costumes and patterns from other lands, garments made from new and different fabrics, and fashion magazines supplemented the lecture and laboratory. Duplicated materials including instructions, assignments and notes on specific aspects of the course were distributed to give additional information and conserve time of the students and the instructor.

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[1]DeLong, op. cit., p. 23.

Laboratory assignments included work in draping, drafting and flat pattern techniques. Each student designed and constructed a garment which she modeled at a dress showing held at the last class meeting. A panel of judges rated the students individually on general appearance, design qualities, and fit of the finished garment. The judges were also asked for comments which were distributed to the students as a further learning experience. Students participated in self-rating of their final project prior to receiving the judges' comments.

Eighty per cent of the students in the study were in favor of the dress requirement. The concensus of opinion of these students was that the project was the practical application of knowledge gained earlier in the course. Furthermore, 80 per cent of the students felt the rating by the panel of judges at the dress showing was interesting and valuable. The instructor viewed ratings by the staff as one criterion for judging the ability of students to apply their understandings of the principles of clothing construction and the ability of students to fit an actual garment.

The questionnaire revealed that the class expressed more competency in selection and clothing construction than in fitting. Eighty per cent of the students indicated that they hoped to gain a better understanding of fitting as a result of this course. Analysis of the reactionnaires indicated unanimous agreement among the students that they had

gained from this course what they had anticipated. However, 20 per cent expressed a desire for more fitting experience, and 65 per cent expressed a desire for more experience in construction techniques. The above responses indicate that the understanding of fitting, gained as a result of this course, met the students' immediate needs. Perhaps the recent experience of constructing a garment from an original design, in a limited period of time, pointed up the need for more experience in clothing construction techniques.

As a result of this study, the investigator feels justified in making the following statements in respect to the teaching of clothing construction:

1. The present trend toward limited laboratory time makes the management of time, energy, and resources a responsibility of both the teacher and the student.
2. The use of appropriate teaching aids can be a valuable asset in the teachers' and students' management of time, energy, and other resources.
3. Limited laboratory time in clothing construction at the college level does not allow the student an opportunity to develop skill through repeated experience.

Recommendations

From the findings of this study, the following recommendations pertaining specifically to the course, Principles

of Pattern Making (TCRA 355), are made. General recommendations for the teaching of clothing construction courses at the college level and suggestions for further study in teaching clothing construction are also presented as an outgrowth of this investigation.

A. Specific recommendations for Principles of Pattern Making (TCRA 355):

   1. That the principles approach to the teaching of clothing construction be continued with the advanced class in pattern making.
   2. That the dress requirement for this course be retained in view of the fact that in the clothing construction courses now offered, this assignment gives the students maximum opportunity for developing originality and creative expression in the choice of design and fabric.
   3. That the modeling of completed garments at the end of the term be continued with the practice of having a panel of judges rate the student on general appearance and fit.

B. General recommendations for teaching clothing construction courses at the college level:

   1. That the principles approach to the study of clothing construction at the college level be continued. The investigator feels that the development of an understanding of the principles of clothing construction is interrelated with experience. Also, the

successful understanding of these principles develops with further application.

2. That the contribution the course, Principles of Pattern Making, can make to understanding of fitting and clothing construction be considered in further revision and reorganization of clothing courses offered in the College of Home Economics.
3. That department teaching aids be developed for the course with particular emphasis on the teaching of fitting.
4. Experimental attempts must continue to be made to bring about a recognition of high standards of workmanship by students without extensive time devoted to laboratory experiences.

C. Suggestions for further study:

1. That another study of students in pattern making and designing be undertaken for the purpose of comparison with and/or validation of the inconclusive findings of this study.
2. That a study of the second course in clothing construction, Construction Techniques (TRA 252), be undertaken to determine the relationship between the principles approach to clothing construction and students' understanding and achievement.
3. That visual aids in clothing construction courses be investigated further in these two aspects:

a. Effectiveness of teaching in relation to the use of illustrative materials.

b. The use of visual aids, including demonstrations, in relation to the best expenditure of teachers' time with both small and large group instruction.

4. That the development of audio-visual aids explaining fitting, based upon the principles of clothing construction, be investigated.

APPENDIX A

PRINCIPLES OF CLOTHING CONSTRUCTION

Principle I. Shaping flat fabric to conform to body curves requires reducing the perimeter of garment pieces.

Corollary I: The amount of reduction of the perimeter of garment pieces is relative to the degree of prominence of body curves.

Corollary II: Darts, tucks, gathers and ease radiate from the most prominent body curves to be covered by a given garment piece.

Principle II. When concentric circles or arcs of different radii are used in clothing construction, certain adjustments in the circumferences are necessary.

Principle III. Manipulation of any given material is dependent upon its component parts.

Corollary I: Structure is a determinant of the extensibility of fabric.

Corollary II: Texture is a determinant of the behavior of fabric.

Principle IV. Choice of construction methods and techniques and choice of fabric are interrelated.

APPENDIX B

TCRA 355 COURSE OUTLINE, Spring, 1963, A. Kernaleguen

Texts: Hillhouse and Mansfield: Dress Design
Mansfield: Clothing Construction

Dates	Lectures	Laboratories	Assignments
March 28	Introduction to course, review content and objectives Introduction of Principles I II and their application to procedures of pattern making	Demonstration of Principles I and II by the use of ready-made garments and the draping technique	Purchase supplies for laboratory work and for draping assignments Read pages 16 to 27, 60 to 70, in Dress Design
April 2	Lecture demonstration of draping technique for blouse and skirt	Draping project--basic blouse, blouse with dart variation, standard two-gore skirt, circular skirt	Draping assignment in gingham Read pages 29 to 59, 72 to 92 in Dress Design
April 4	Principles of fitting Fitting a paper pattern Alterations	Demonstration in fitting a paper pattern Assembling paper pattern	Assignment on alterations Read pages 53 to 58 in Clothing Construction
April 9	Alterations (continued)	Paper pattern fittings Alterations on paper patterns	Assignment on alterations Read pages 59 to 107 in Clothing Construction

April 11	Sleeve draft	Individual sleeve draft Complete paper pattern fittings and alterations	Muslin layouts Read pages 112 to 119 in Dress Design
April 16	Comparison of muslin basics made from 1. Pattern checked with body measurements 2. Pinned paper pattern fitted on individual	Muslin cut out; basic muslin assembled and fitted Complete sleeve draft	Read pages 46, 94 and 136 in Dress Design
April 18	Comparison of the fit of a muslin basic vs. a percale basic Tagboard Flat pattern technique for blouse	Muslin fittings Demonstration of Principle III and its application to pattern making Quarter-size pattern assignment	Flat pattern blouse assignment on quarter-size dress form (due April 23) Collect ideas for final project Read pages 44 to 59, 92 to 96 in Dress Design
April 23	Flat pattern technique for skirt Dress designs Relation of design to figure	Muslin fittings completed Tagboards started Quarter-size pattern work	Flat pattern skirt assignment on quarter-size form (due April 25) Read pages 97 to 111, 112 to 119 in Dress Design
April 25	Flat pattern technique for sleeve Collars Dress designs Relation of design to fashion	Tagboards completed Quarter-size pattern work	Flat pattern sleeve assignment (due April 30) Read pages 119 to 192 in Dress Design

April 30	Mid-term Pattern making for final project	Plan final project	Tagboards handed in for grading
May 2	Muslin pattern for final project Principle IV discussed	Pattern making for final project	
May 7	Cutting out final garment Lecture-demonstration on linings, underlinings and interfacings Unit construction	Muslin pattern for final project Estimate of fabric required	Purchase fabric and notions for final garment
May 9	Lecture-demonstration on pressing, darts, curves and gussets	Fabric layouts	
May 14	Lecture-demonstration on buttonholes	Construction	
May 16	Discussion of accessories for dress showing Plans for dress showing	Construction	
May 21	Discussion of seam finishes and hems	Construction	
May 23	Plans for dress showing	Construction	
May 30	Dress showing and class evaluation		Garments turned in for grading

APPENDIX C

NOTES ON DARTS

TCRA 355

"The system of draping and flat pattern design are both founded on a clear understanding of the purpose of the fundamental dart." (Hillhouse and Mansfield, p. 16) Darts are necessary to shape and to fit a flat piece of material to a three-dimensional form.

I. Darts may be placed at the neckline, shoulder, armhole, underarm seam, waistline, and center front of the bodice without sacrificing the original fit.

II. Dart fullness may be broken up into several smaller darts; may be converted into tucks, dart tucks, shirring or pleats; or may be cleverly concealed in design features or seam lines.

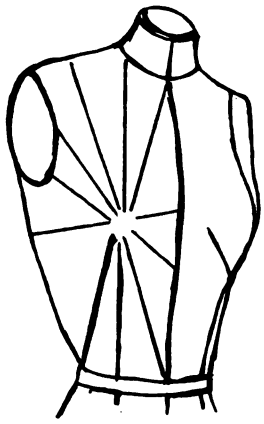
III. Darts, besides being structural, may be decorative and functional.

IV. Darts, regardless of their position, must converge at the apex of bust in front and from the shoulders and shoulder blades in the back.

V. The size of the body curve will determine the size of the darts, and the position of the bust, high or low, may make it necessary to shift the excess from one dart to the other in order to keep the crosswise grain at the bust line parallel to the floor.

VI. Study the positions of the darts on the attached sheet. You may wish to experiment with one or more of these positions for the draping assignment. You might like to use these suggestions later for the flat pattern design assignments.

VII. It is of prime importance to understand the function of the dart before starting to drape, and the possibilities for inspiration while draping.



Darts always radiate outward from the highest point of the body bulge.

ASSIGNMENT: In gingham, drape a design on the half-size dress form. This includes bodice front and back as well as skirt front and back. Have the design checked on the form (preferably by April 4th if possible). After this checking, mark all seam lines and dart lines, remove from the form, remove pins, true the pattern and hand it in to the instructor. Completed draping assignment due April 9th.

APPENDIX D

FABRIC STRUCTURAL CHARACTERISTICS*

	Definition and Source	Characteristics	Location
Lengthwise grain	The direction of the warp yarns which parallel the selvage	Minimum to no stretch; greatest strength; stiffer hand than crosswise grain or bias	Measure parallel to selvage; follow warp yarn or woven stripe
Crosswise grain	The direction of the weft or filling yarns which lie at right angles to the lengthwise yarns	Some slight stretch possible; softer hand than lengthwise grain, stiffer than bias	Form right angle to lengthwise grain or selvage; fabric will often tear on true crosswise grain; a filling yarn may be pulled to mark crosswise grain. Test: A single yarn will ravel across entire fabric width
Selvage	The woven finished edge along both sides of a length of fabric	Firmly woven tape along fabric edge; may pull tighter and distort body of fabric; cannot ravel	Easily found as finished edges along length of fabric
Bias	Any line not following a lengthwise or crosswise yarn	Does not follow a single yarn; more stretch than lengthwise or crosswise grain, less than true bias; will not ravel in a continuous yarn; grain is not balanced on either side of line	By definition, any line not on a lengthwise or crosswise yarn

True bias	A line falling at 45° angles to the lengthwise or crosswise yarns	Maximum flexibility; cut edges may fray but cannot ravel; grain is balanced on either side of true bias line	Measure 45° angle to selvage, lengthwise or crosswise grain line; fold fabric with selvage forming right angles with itself, fold line will be true bias

*TCRA 152--Adapted Materials.

APPENDIX E

BASIC STRUCTURAL GARMENT LINES*

Line	Relation to Anatomy	Test of Appearance
Neckline	Touches: hollow at throat in front, intersection of neck and shoulder, most prominent vertebrae at back of neck base	Appears to rest comfortably at base of neck; center front dips slightly, center back is level with shoulder intersection
Shoulder seam	From point at neck beneath center of ear lobe to bone at top of shoulder (on most figures)	Should be inconspicuous from front or back; well balanced front to back when seen from side
Armscye	From top of shoulder bone downward	Should appear straight from shoulder tip to point at which it disappears; illusion of right angle with shoulder seam
Waistline	Line at which torso creases when bent; normally smallest measurement of torso	Should appear to fall at comfortable level; line level when viewed from side (on most figures)
Side seam	No reliable reference	Perpendicular to floor; straight line, visually balanced front to back when viewing from side; inconspicuous from front and back

Center front	Aligned with throat hollow, deepest depression between breasts, navel	Perpendicular to floor; straight line; figure visually balanced into two halves
Center back	Center of vertebrae	
Darts, tucks Interior fitting	Fullness released at fullest point of body contour	Perimeter end of dart spaced to form pleasing proportions with other design lines

*TCRA 152--Adapted Materials.

APPENDIX F

TCRA 355 NOTES ON FITTING AND ALTERING A PATTERN

1. The whole problem of fitting is to adjust fabric to the rounded lines of the body. There are eight bulges on the human form. When fitting a paper pattern, check all of them. They are: bust, abdomen and front hip-bone, side hip, buttocks (back hip), upper shoulder, lower shoulder, elbow and dowager's hump (rounded shoulders).

2. The larger the body curve, the deeper and larger must be any darts related to this curve.

3. When buying a pattern, do not ask for the size you wear in ready-to-wear. Purchase a pattern according to your bust measurements, unless the hips are unusually large or the pattern has a complicated skirt. In the latter case, you might consider buying according to hip measurements, or you might better purchase two patterns, one to fit the bust and the second one, the hip.

4. Know your figure.

5. The amount of ease depends on: a) The make of pattern (Some pattern companies provide more ease than others.); b) Fashion; c) Type of garment (You would want more ease in sportswear than in evening clothes.); d) The individual likes and dislikes.

6. Analyze the problem or problems while fitting a paper pattern. Once you find the problem, make the alterations.

7. Retain the original structural or design lines when making alterations.

8. An altered pattern, as the original commercial pattern, must lie flat.

9. Alterations to adjust length are usually made between points of movement: bodice between shoulder and bust, and bust and waist; skirt, between hip and hem; sleeve, between shoulder and elbow, and elbow and wrist.

10. Practically without exceptions, center backs and center fronts are not locations for alterations.

11. Lines drawn for alterations should be drawn at right angles to the straight of grain line. Grain lines must be maintained.

12. For increase or decrease in width alterations are usually made between side seams and darts.

13. If one piece is changed, alter all pieces which must be attached to it, so that the pattern will still fit together perfectly.

14. Slash from one seam line to another for any alteration. You cannot slash halfway through a pattern and spread or overlap.

15. Shifting a dart from one position to another does not change the fit of a garment; it changes the shape of the garment piece and throws the fullness where it is needed. Some darts are more flattering to a particular figure than others. Be guided by what looks best on you.

16. Bodice dart control is usually divided between waistline and underarm or waistline and shoulder. From the standpoint of fit, almost any combination of darts is better than a single dart. With two or more darts, ease is distributed over a larger area and fitting can be smoother.

17. Any dart will interrupt the continuity of the design; therefore, choose darts which will do so with the least disturbing effect. Always consider fabric and fit in deciding which dart or darts to use.

18. Set-in sleeves:
Measurements of the sleeve cap should exceed the armhole measurement of the bodice approximately one to one and a half inches. The excess is shaped into the cap of the sleeve for a smooth set-in sleeve. In wool, ease to the amount of two or three inches can be handled; in the synthetics, blends, and treated cottons, only one inch to one and a half inches of ease can be satisfactorily worked into the armscye.

19. In the slashing technique of dart adjustment or replacement, the following four steps are essential:

    a. locate new dart position.
    b. cut on new dart line.
    c. close old dart.
    d. draw in new dart line.

20. The length of the finished dart depends on the figure. The waistline dart should come to within ½ to 1" from the bustline (closer if using underlining). Shoulder darts on the front bodice usually come from mid-point on the shoulder to within 2" of the bust point.

21. There are an infinite variety and complexity of figure problems. Analyze the problems and apply general principles to decide on the best alteration possible. Some common alteration problems include:

    a. Skirt too snug through the hips.
    b. Bodice too long or too short, an even or an uneven amount.
    c. Bodice too snug through the bust.
    d. Skirt too long.
    e. Sloping shoulders.
    f. Bodice front and back gap at armscye.
    g. Back shoulder dart does not point to point of bulge. Dart may need to be transferred to a neckline dart.
    h. Bust point too low or too high.
    i. Too much ease in the sleeve cap.
    j. Sleeve too snug through the girth line.

APPENDIX G

TCRA 355 NOTES ON CLOTHING CONSTRUCTION

PRINCIPLE IV: Choice of construction methods and techniques and choice of fabric are interrelated.

Special precautions to be taken when handling certain fabrics:

A. **Knits:** Knits and especially double knits have proven very popular in the last few years.

1. Most knits are sold in a tubular form. Very often the creases are permanent. To avoid having these creases in the finished garment, cut fabric apart along one of the creases and place pattern pieces on both sides of the remaining crease.

2. Cut with sharp shears.

3. Avoid bias cut skirts because of the excess stretching.

4. Underline all lightweight knits. Firmer knits are often left unlined in order to retain suppleness. A firm taffeta slip is often suggested for the unlined knit skirt.

5. Follow a lengthwise rib to lay out fabric; straighten knit by pulling at 45° angle.

6. Staystitch curved edges.

7. Use mercerized thread, with a stitch length of 12-15 stitches per inch.

8. If the garment is not underlined, stretch seams slightly for resiliency after stitching.

9. A very fine zig-zag stitch may be used for permanent stitching. This will allow the seam to stretch without thread breakage. The zig-zag stitch is ideal for a tie belt.

10. Before turning hem, stitch $\frac{1}{4}$" from cut edge. Some books recommend using two rows of stitching next to the cut edge. Finish hem with Tailor's hem.

11. Stay shoulder and waistline seams with seam binding to prevent stretching.

12. Reinforce buttonholes with suitable weight interfacing. Machine or bound buttonholes may be used.

13. Use a sharp needle.

14. If any ripping is necessary, special care should be taken so as not to pull yarns.

B. Synthetics and wash and wear finished fabrics:

1. Fabrics of 100 per cent synthetic yarns, blends of synthetics with other synthetics or natural fibers, and fabrics treated for wash and wear qualities possess certain common characteristics: crease-resistance, dimensional stability, fast drying and require little or no ironing.

2. Check correctness of grain. When permanent finishes are applied, it may be impossible to straighten off-grain fabrics at home by pulling or by steaming.

3. Choose simple, uncomplicated designs since the stability of the fabrics will make shrinking and easing difficult and in some cases impossible.

4. For set-in sleeves, you may be able to:
   a. Reduce the ease in the sleeve cap.
   b. Cut the sleeve on the bias.
   c. Take a small dart on the cap of the sleeve to take care of the amount which ordinarily would be eased in.

5. Select washable notions if the garment is to be washed.

6. Machine tension is very important. A looser tension than usual plus a medium to long stitch (10-12) will prevent puckering. You may have to stitch over tissue paper if the two pieces of fabric are not feeding at an even rate through the feed dog.

7. Press as little as possible. A steam iron plus a press cloth is recommended. ALWAYS CHECK THE TEMPERATURE OF THE IRON BEFORE TOUCHING THE FABRIC WITH THE IRON.

8. Finish seams by edge stitching and pinking if the fabric seems firm. If fabric ravels, use zig-zag stitching, hand overcasting, French seams or mock French seams.

9. You will need very sharp shears, sharp fine needles and pins.

10. If the fabric is very sheer, a looser fit is more desirable.

11. On sheer fabrics, a very deep hem or a rolled hem is most suitable.

C. Loose weaves:

There are many fabrics with very loose weaves on the market; they tend to stretch a great deal and to ravel as soon as cut.

1. Handle as little as possible.

2. Pre-shrink the fabric first. Some of the loosely woven fabrics will tend to shrink when pressed with a steam iron. Mohair fabrics are an example of a fabric which should be pre-shrunk very carefully.

3. As soon as the fabric is cut, staystitch loosely woven fabrics with the underlining, being careful to handle fabric as little as possible, and always to support the fabric.

4. If loops catch in the presser foot, stitch with tissue paper over the fabric.

5. Stabilize buttonhole area with interfacing. Mohairs will take a press-on interfacing well in this area.

6. If the fabric ravels very easily, you may have to zig-zag around each pattern piece before you assemble the garment.

7. Seam finishes will need to be strong to hold the fabric. Zig-zag the edges by machine if you can or overcast by hand, finishing both the outer fabric and underlining as one.

8. Very loosely woven fabrics are usually not made into garments which are closely fitted. Use simple patterns with as few seams as possible.

D. Fabrics with structural and printed design:

1. This general group of fabrics would include such fabrics as corduroy, velvet, velveteen (pile fabrics), brushed wools (with a nap), plaids, checks, suede, ribbed fabrics, etc.

2. Pile fabrics should be cut with the pile running up.

3. Brushed wools should be cut with the nap running down.

4. If you are using a plaid, check to see if there is an up-and-down to the plaid; check also for a right and left. It takes time to plan the layout for a plaid fabric with the plaids matching perfectly up and down as well as across the figure.

5. It is sometimes quicker to cut each garment piece individually when working with plaids or checks (rather than folding the fabric and pinning so that the plaids on the top layer coincide with the bottom layer).

6. All stripes and checks larger than ¼" should be matched at seam lines.

7. If the fabric is a print, consider whether or not there is an up-and-down to the print. If there is, then lay out the pattern so that the pattern of the fabric is going in the same direction on the garment. If the print is a large one, consider the spacing of the print on the figure.

Sources: Vogue Sewing Book, 1963 edition.
McCall Sewing Book, 1963 edition.

APPENDIX H

TCRA 355 NOTES ON MODELING

1. Our dress showing is planned for May 28th, at 4 p.m., in Room 201, H. Ec. Bldg.

2. The purpose of a fashion show is to show the audience certain garments. In a school fashion show, the audience is not only interested in the garments, but is most interested in you as a student.

3. In a commercial establishment, the audience viewing a fashion show may be critical. In a school fashion show, the opposite is true. The teachers who come are interested in seeing how well you have done; the students come with the purpose of finding out what the advanced clothing construction students have accomplished.

4. No matter how stunning your ensemble, the most important part of you is your face. Look happy, smile and the audience will smile with you and will keep looking at you. Whatever you do--SMILE!

5. A fashion show such as ours may be compared with a relay race. The girl modeling holds the attention of the audience. It is her responsibility to maintain that attention and pass it on to the next student. Should you look away from the audience, you will lose that attention. The second thing to remember, therefore, is to LOOK AT THE AUDIENCE!

6. Always stand at silhouette position. The front foot points to the audience, the second is behind and at an angle. When your feet are in this position, your body will automatically turn slightly, so that the audience does not see a blocky figure in front of them, but they see a pleasing feminine silhouette.

7. It is important that you plan early what accessories you will be wearing. Feel confident that you look smart and the audience will be convinced. BE CONFIDENT!

8. Practice walking. Shoulders well back and standing as tall as possible.

9. If you have a jacket or a coat to remove, practice doing so several times so that it can be a smooth operation at the showing. While facing the audience, do not struggle with buttonholes. Instead, show the audience the back of the coat. With your back turned to them, unbutton the coat. Turn around to face them and proceed to remove the coat while facing the audience. Once the coat is off, but still in your hand and back of you, turn and fold the coat over your arm. The folded coat should show as little of the lining as possible. A bit of practice and you can completely conceal the lining.

10. Hands have a habit of getting in the way. Be sure to relax your hands before you walk out to model. Take a deep breath just before going out. This helps you to overcome your nervousness.

11. Listen to the commentator. You must make sure that the audience notices what she is commenting about.

12. Write a commentary of your final project. It need not be long (three or four sentences will be satisfactory.) Fashion magazines may help you do this. Avoid flowery expressions such as, "Mary looks ravishing," etc.

13. Practice, smile, look at your audience, be confident, and the dress showing will be a pleasant occasion for all.

APPENDIX I

LETTER TO JUDGES

The students in Principles of Pattern Making, TCRA 355, are having their dress showing Tuesday afternoon, May 28th, at 4:00 p.m., in Room 201. Some of the guests have been asked to judge the students on the work they have done. Your assistance in acting as one of the judges will be appreciated.

The rating scale for each individual girl is designed to secure your general reaction to the appearance and fit of the garments modeled. The rating scale is set up as follows:

	1	2	3	4	5
General Appearance and Originality	Design and fabric inappropriate for individual. No evidence of originality		Fair choice of color, style and fabric. Evidence of creative ability		Good coordination of style, fabric and color. Original design, professional appearance
Fit of Garment	1	2	3	4	5
	Poor fit, wrinkles, improper amount of ease		Fair fit, improper darting, fair treatment of neckline and sleeve details		Attractive fit, correct drape of garment, absence of wrinkles, smooth fitting details

You will be asked to circle the number for each girl which best expresses your general rating of her garment in these two respects. There will be a blank space on the rating scale for comments. These comments will be valuable

to the students in recognizing their shortcomings and will help me in evaluating the class as part of my master's thesis.

Thank you for your cooperation.

Anne Kernaleguen

APPENDIX J

EVALUATION SHEET FOR DRESS SHOWING

Name of student: _____

	1	2	3	4	5
General Appearance and Originality	Design and fabric inappropriate for individual; no evidence of originality		Fair choice of color, style and fabric; evidence of creative ability		Good coordination of style, fabric and color; original design and professional appearance

Comments:

_____

_____

_____

	1	2	3	4	5
Fit of Garment	Poor fit; wrinkles; improper amount of ease		Fair fit; improper darting; fair treatment of neckline and sleeve details		Attractive fit; correct drape of garment; absence of wrinkles; smooth fitting details

Comments:

_____

_____

_____

APPENDIX K

TCRA 355 FLAT PATTERN ASSIGNMENTS

General Instructions:

1. Make several copies of each master pattern in quarter size.

2. For each problem, mount illustrations on 8½" x 11" paper showing all the steps and work necessary to produce the desired result from the master pattern. Label appropriately. The final pieces must be accurate and complete with cross-marks and grain lines located.

3. Give page reference for directions which you followed or modified.

4. Each assignment is to be handed in to your instructor at the lecture period indicated. Points will be deducted for late assignments.

ASSIGNMENT I: Blouses; read pages 44-59, Dress Design. Due April 23.

1. Front--Divide the basic blocking dart into two sewing darts so that the pattern resembles your own master pattern.

2. Front--Choose a current fashion illustration with at least part of the dart used in a decorative manner (left unstitched, made on outside, or in unusual position) and make pattern which will produce this effect.

3. Front and back--Choose a current fashion illustration in which most of the front dart is concealed in the design (either in seam lines or less common draped effects). Plan an interesting or at least consistent back to go with this front and make the pattern for both.

ASSIGNMENT II: Skirts; read pages 92-111, Dress Design. Due April 25.

1. Front and back--Select an illustration of a skirt with more than two gores and make the pattern to reproduce the space division and amount of flare (hem circumference) indicated.

2. Front--Select a circular type skirt illustration and make a pattern of comparable proportions.

ASSIGNMENT III: Sleeves; read pages 119-148, 159-182, Dress Design. Due April 28.

1. Select illustrations showing two different types of set-in sleeves and make the pattern for each.

2. Select an illustration showing a kimona sleeve and make the complete front and back blouse pattern.

INDIVIDUAL MASTER PATTERNS: Due April 27.

When your muslin basics are completed, perfectly fitted and checked, you will be given a set of directions for the master patterns.

CAUTION: EXTREME ACCURACY IS ESSENTIAL FOR THESE ASSIGNMENTS. CHECK SEVERAL TIMES TO MAKE CERTAIN THAT THE DEVELOPED PATTERNS ARE CORRECT AND PROPERLY MARKED (grain, cross marks, center front, center back).

APPENDIX L

TCRA 355 COMMENTARY FOR FASHION SHOW

1. At the dress showing on May 28th, a commentary will be read as you model. The commentator will be a senior student. Your only job will be to show your final project.

2. Anyone may come to the fashion show. If you live near East Lansing, your mother may like to come. Other students from the university are welcomed, as well as any of your friends.

3. Commentary:

   Write out a brief commentary for your final project. For descriptions of lines or colors, fashion magazines might give you some ideas.

   It is better to refrain from stating how stunning you look. The audience will find that out.

   When writing the commentary, try to arrange the sentences in a logical sequence so that you are able to show details without having to turn 4 or 5 times. Example: Comment about the neckline, waistline, skirt, then proceed with the back details, such as pleats in the skirt, stole, etc.

   Complete this by May 23 and hand in to the instructor on that day. This will give sufficient time for typing the commentaries and getting them to the commentator. We will try to have the commentator come before the fashion showing on May 28 so that we may practice with her.

Name: _____

Commentary: _____

_____

_____

_____

_____

_____

APPENDIX M

STUDENT QUESTIONNAIRE

Name_____Class_____Grade Point_____

Academic Advisor_____Major_____

Local Address_____Telephone_____

I. Past Experience

A. Have you had clothing work in school before coming to college? yes___ no___

	Approximate number of weeks spent on clothing projects	Number of projects completed
Junior High School		
Senior High School		

B. Have you completed 4-H Club projects? Yes___

Approximate number of projects_____

C. List the college clothing construction courses which you have completed

Course	College or University

D. List the college clothing selection courses which you have completed

Course	College or University

E. Have you taken courses in color and design, either in high school or at college level? Yes___ No___

F. Do you sew for yourself? Always___ Frequently___ Sometimes___ Never___

G. Do you sew for others? Frequently___ Sometimes___ Never___

H. Do you require the advice and assistance of a teacher or of a more experienced person in order to complete a project? Always___ Frequently___ Sometimes___ Never___

II. Level of Competence

According to how competent you feel about performing the following tasks, record the level of each of these by circling the number 4, 3, 2, or 1.

	Competent		Incompetent	
A. Fitting				
Fitting a paper pattern	4	3	2	1
Fitting a garment	4	3	2	1
Altering a pattern	4	3	2	1
Altering a garment	4	3	2	1
B. Selection				
Choosing appropriate pattern for figure	4	3	2	1
Choosing appropriate fabric for figure	4	3	2	1
Choosing appropriate color for figure	4	3	2	1
Coordinating pattern and fabric	4	3	2	1
Choosing appropriate trims, buttons, decorative seams	4	3	2	1
Choosing pleasing color combinations	4	3	2	1
Visualizing the finished garment from the pattern picture	4	3	2	1

C. Construction techniques

Pressing different fabrics	4	3	2	1
Handling darts, tucks, gathers	4	3	2	1
Choosing and applying interfacings	4	3	2	1
Choosing and applying underlinings	4	3	2	1
Inserting slide fasteners	4	3	2	1
Attaching waistbands	4	3	2	1
Fitting a collar	4	3	2	1
Fitting a sleeve	4	3	2	1
Applying facings and bindings	4	3	2	1
Turning up a hem	4	3	2	1
Making corded buttonholes	4	3	2	1
Lining a garment	4	3	2	1

III. Expectations for this course, TCRA 355

A. What are your three main reasons for enrolling in TCRA 355? (Indicate first, second, third choice by the numbers 1, 2, 3.)

___I would like to make my own patterns

___I would like a better understanding of fitting

___I need more experience in construction

___I am interested in a dress design career

___I am taking it at the suggestion of my advisor

___I need extra credits in construction

___I enjoy sewing

___Others (list)

B. Do you feel that some training in modeling would be of value to you later on in the work which you propose to do when you finish college? Yes___ No___

APPENDIX N

STUDENT REACTIONNAIRE TO PATTERN MAKING COURSE

The purpose of this reactionnaire is to determine your reactions to the course in Principles of Pattern Making, TCRA 355. Your comments will not affect your grade in any way.

1. Did you gain from this course what you anticipated?

   Yes___ No___

   Comments_____

   _____

2. Do you feel changes should be made in the lecture? Yes___ No___. Laboratory? Yes___ No___.
   If yes, explain the suggested changes.

   _____

   _____

3. How well do you feel you understand the principles of clothing construction after applying them to pattern making?

	Understood very well	Understood most of it	Understood some of it	Understood very little	Do not understand
Principle I: shaping flat fabric to conform to body curves requires reducing the perimeter of garment pieces	5	4	3	2	1
Principle II: Manipulation of any given material is dependent upon its component parts	5	4	3	2	1

Principle III: When concentric circles or arcs of different radii are used in clothing construction, certain adjustments in the circumference are necessary	5	4	3	2	1
Principle IV: Choice of construction methods and techniques and choice of fabric are interrelated	5	4	3	2	1

4. What part of the course was the most difficult? _____

_____

Why? _____

_____

5. What part of the course was the least difficult? _____

_____

Why? _____

_____

6. What is your reaction to the level of difficulty of this course?

___A. Failed to grasp the points

___B. About right to be challenging

___C. Too much busy work

___D. Could have learned this material on my own

___E. Others

7. What do you feel about the difficulty of the course in relation to other courses in college?

___A. Most difficult course I have had.

___B. More difficult than many.

___C. About as difficult as other courses.

___D. Less difficult than other courses.

___E. Least difficult of my courses.

___F. Other reactions.

8. What do you feel about the amount of work required in relation to the credits earned (this is a four-credit course)?

___A. Too much.

___B. About right.

___C. Not enough.

9. Would you recommend that the final project (your garment) be omitted from the requirements of the course and that the time be spent in learning more about pattern making? Yes___ No___.

Comments _____

_____

10. In what way do you feel the course content of TCRA 355 will be most helpful to you? Check as many as apply.

___A. in fitting garments.

___B. in pattern alterations.

___C. in judging the fit of ready-to-wear.

___D. in pattern modifications.

___E. in designing my own patterns.

___F. in applying clothing construction techniques.

___G. in teaching clothing construction.

___H. in developing classroom visual aids.

___I. in planning bulletin boards.

___J. in organizing dress showings for school or business.

___K. will contribute to greater enjoyment of clothing construction.

___L. others (list).

11. How did you feel about having a panel of judges rate the finished garments at the dress showing? Check as many as apply.

___A. worthwhile to have an objective rating of one's appearance.

___B. interesting to know the reaction of the clothing staff.

___C. comments helpful in recognizing ways of improvement.

___D. comments discouraging.

___E. panel too critical.

___F. panel too lenient.

12. Would you recommend this course to a friend? Yes___ No___

Comments: _____

13. Is there anything in particular that you liked or disliked about this course? (This could include atmosphere in classroom, attitude of teacher or students, quality of instruction, physical set up in classroom, equipment, etc.) _____

_____

14. In what area or areas of clothing do you still feel in need of further training and experience? _____

_____

APPENDIX O

TCRA 355 GARMENT EVALUATION

Student: _____

Each item in the scale is described at three levels. Underline those words or phrases that most accurately describe that particular aspect of the garment. Decide upon a score, 1 to 5, for the first item and place it in the blank at the right. Repeat this process for each item and total these numbers to obtain a final score.

DESIGN

	1	2	3	4	5
1.	Suitability to individual: Design not becoming to individual's figure		Some consideration given to personality and figure of individual		Discriminating choice of design for individual's personality and figure
					1. _____
	1	2	3	4	5
2.	Coordination of fabric: Fabric, color and texture not flattering to individual; fabric choice poor for design		Acceptable fabric and texture for design; acceptable color and texture for individual		Discriminating choice of fabric for design; color and texture highly desirable for individual
					2. _____
	1	2	3	4	5
3.	Art principles: Design emphasizes individual's figure faults; lack of harmony of lines, colors and textures; poor proportions		Acceptable harmony of fabric, color and textures; acceptable proportions		Design emphasizes figure assets and deters from figure faults; harmonious lines and design; pleasing proportions
					3. _____
	1	2	3	4	5
4.	Creativeness and originality: Lack of creativeness and originality; no awareness of fashion		Some originality evident; little fashion sense		Discriminating choice of lines; unusual details; evidence of fashion consciousness
					4. _____

	1	2	3	4	5
5.	Professional appearance: Design lacks interest or individuality		Mediocre appearance; design lacks distinctiveness		Professional appearance; distinctive design

5._____

COMMENTS ON DESIGN: _____

_____

_____

TOTAL SCORE FOR DESIGN _____

MEAN _____

FITTING

	1	2	3	4	5
6.	Ease: Excessive or inadequate amount of ease for appearance and comfort		Acceptable amount and distribution of ease in parts of the garment		Becoming amount and proper distribution of ease for a smooth fit

6._____

	1	2	3	4	5
7.	Sleeve and neckline details: Sleeve cap too long or too short; neckline draws or gaps; collar not smooth		Acceptable fit of sleeves, neckline and/or collar		Smooth fitting sleeve and neckline details

7._____

	1	2	3	4	5
8.	Location of lines: Waistline, hipline, neckline, bustline at improper location on figure		Acceptable location of waist, hip, bust and neckline		Waistline, hipline, bustline and neckline conform to figure lines

8._____

	1	2	3	4	5
9.	Side seams, center front and back, shoulder seams: Center front, center back and side seams not perpendicular to floor, side seams swing forward or back, conspicuous shoulder seams		Most seams in correct position		Side seams, center front, center back hanging perpendicular to floor; shoulder seams inconspicuous from front and back

9._____

	1	2	3	4	5
10.	Grain position and darting: Poor placement of grain; wrinkles resulting from under or over darting		Acceptable darting; acceptable position of grain		Smooth fitting garment; absence of wrinkles; suitable grain position; adequate darting in correct location on figure

10._____

COMMENTS ON FITTING: _____

_____

_____

TOTAL SCORE FOR FITTING _____

MEAN _____

CONSTRUCTION TECHNIQUES

	1	2	3	4	5
11.	Pressing: Soiled; insufficient pressing; darts and seams pressed in wrong direction, imprints on the right side		Needs more careful pressing; overhandled; some dart imprints		Clean; neat, professional appearance

11._____

	1	2	3	4	5
12.	Darts, tucks, gathers, stitching: Darts not tapered; gathers not evenly distributed; seams and top stitching uneven		Darts require more tapering; more even distribution of gathers; topstitching acceptable		Seams straight, darts neatly tapered, gathers and tucks even; topstitching straight

12._____

	1	2	3	4	5
13.	Facings, collar, hems, sleeves: Facings bulky, seams not graded or sufficiently clipped; hem conspicuous; sleeve and collar details poorly executed		Uneven and slightly conspicuous hem, seam allowances not sufficiently graded or clipped in facings and collars; acceptable treatment of sleeves and collar details		Facings and hems inconspicuous; smooth collar and sleeve details; sufficient grading and clipping of curved seam allowances

13._____

	1	2	3	4	5
14.	Closures, seam finishes: Slide fastener conspicuous; buttonholes poorly constructed; hooks and eyes omitted or conspicuous; no seam finishes		Stitching for slide fastener crooked; improper size of hooks and eyes; acceptable construction of belt; buttons sewed without shanks; acceptable seam finishes		Inconspicuous slide fastener, snaps and hooks and eyes; correct size of buttons for buttonholes; appropriate seam finishes

14._____

	1	2	3	4	5
15.	Underlinings, interfacings, linings: Underlinings, interfacings and linings of improper weight; not suitable for garment fabric; not smoothly applied		Acceptable choice of linings, underlinings, interfacings		Discriminating choice of linings, underlinings, interfacings

15._____

COMMENTS ON CONSTRUCTION TECHNIQUES: _____

_____

_____

TOTAL SCORE FOR CONSTRUCTION TECHNIQUES

_____

MEAN _____

MANAGEMENT OF TIME, ENERGY AND OTHER RESOURCES

	1	2	3	4	5
16.	Cooperation: Student did not work well with fitting partner; lack of consideration for others in the laboratory		Sporadic participation with fitting partner; careless management of available laboratory facilities		Student worked well with fitting partner; evidence of good time planning and organization of laboratory work

16._____

	1	2	3	4	5
17.	Independence: No evidence of thinking through problems; relies upon assistance of others in all tasks		Relies upon other students for help; evidence of hesitation in working and solving problems that arise		Works independently upon receiving instructions; thinks through problems and applies learning to the task at hand

17._____

	1	2	3	4	5
18.	Ability to follow directions: Does not pay attention to directions; fails to work out problems in recommended manner		Evidence of sporadic following of directions; failure to understand the need to follow directions		Follows directions; carries out instructions well; evidence of understanding the need to follow directions

18._____

	1	2	3	4	5
19.	Rate of progress: Work not at established level of completion; lack of progress; unfinished at due time		Hesitant in procedures; evidence of laboring over tasks; inadequate allowance of time causing rushed and careless work to meet due date		Work completed in due time; adequate consideration given to time needed for a well finished garment; rate of progress coincides with established level of completion

19._____

	1	2	3	4	5
20.	General achievement and understanding: Lack of understanding; poor standards of pattern making and clothing construction techniques		Evidence of lack of some understanding; evidence of indecision		Recognition of standards of clothing construction and pattern making; understanding of clothing construction and pattern making processes

20._____

COMMENTS ON MANAGEMENT: _____

_____

_____

TOTAL SCORE FOR MANAGEMENT _____

TOTAL SCORE: Design _____ MEAN _____

Fitting _____

Construction _____

Management _____

MEAN: _____

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