A COMPARISON OF 8mm FILMLOOP DEMONSTRATION AND TEACHER DEMONSTRATION IN TEACHING CLOTHING CONSTRUCTION TECHNIQUES

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ABSTRACT

A COMPARISON OF 8mm FILMLOOP
DEMONSTRATION AND TEACHER DEMONSTRATION
IN TEACHING CLOTHING CONSTRUCTION
TECHNIQUES.

by

Emily Reid

The purpose of this study was to investigate the effectiveness of 8mm filmloop in teaching selected clothing construction techniques to beginning students.

Two topics, staystitching and darts, were selected for the investigation using a study population of seventy-four students - four classes of eighth grade girls enrolled in textiles and clothing at Howard S. Billings Regional High School in Chateauguay. One-way analysis of variance of IQ scores, experience indices (numerical ratings representing levels of sewing experience) and staystitching and darts pre-tests showed no significant initial differences among the four classes. Thus, they were treated as two comparable groups, the experimental classes receiving filmloop demonstrations of staystitching and darts and the control classes having teacher demonstrations. Throughout the term, all students were given some filmloop lessons and some teacher presentations to help

counteract any possible effects of differential treatment between experimental and control groups. It was hypothesized that the filmloop presentation method would be as effective as the teacher demonstration method in terms of initial understanding, retention of learning, ability to copy the processes demonstrated and quality of product.

Two-way analysis of variance by treatment and IQ level (high, middle or low) was performed for staystitching gain scores, darts gain scores, total gain scores, retention test gain scores, staystitching process scores, staystitching product scores, darts process scores, darts product scores, average process scores and average product scores. Students' opinions of the methods of instruction were gathered by a written reactionnaire.

From the evidence presented in this limited study, the following conclusions may be drawn.

1. The filmloop method of presentation was as effective as the teacher demonstration method in promoting initial understanding of techniques taught.
2. Retention of learning was significantly greater for groups having filmloop demonstrations than for those having teacher presentations.
3. Ability to copy the techniques demonstrated and to produce good quality products was significantly greater in the experimental classes than in the control classes.

4. Interaction of levels of ability and methods of presentation was not a significant factor in achievement for either written or performance tests.
5. Students accepted and preferred the filmloop method of lesson presentation because it provided increased visibility, made lessons easier to understand and saved time compared to teacher demonstrations. Lack of sound and not being able to stop a lesson to ask questions were considered disadvantages.
6. Teachers' acceptance of the filmloop method of demonstrating sewing techniques was very good because it improves the efficiency of use of students' class time and teachers' preparation and instructional hours by helping provide self-paced instruction which is not dependent on teacher participation.

A Comparison of 8mm Filmloop Demonstration and Teacher Demonstration in Teaching Clothing Construction Techniques

By

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CHAPTER I

INTRODUCTION AND STATEMENT OF PROBLEM

Programs of education must constantly face evaluation of their relevance and their effectiveness. In home economics, the increasing variety of demands to be met indicates that a broad repetoire of approaches must be considered in order to reach each audience effectively with appropriate curricula. As needs and facilities change, the efficiency of current teaching methods cannot remain unexplored. Critical evaluation is essential to development and improvement of meaningful education systems.

The demands of relevancy of content and effectiveness of instruction have caused several modifications in the teaching of clothing construction in the past decade. In secondary schools today, a comprehensive home economics program provides only a limited amount of time for any one area of study. Since the teacher has many aspects of clothing with which she is expected to deal, "her use of methods to decrease construction time in order to teach other areas of clothing is a major indication of her willingness to move forward with the needs of the times."[1] Also, it is not un-

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[1]Katharine B. Hall, "Teaching Clothing Realistically," American Vocational Journal, XXXVII October, 1962, p. 32.

usual to have overly large classes of extremely mixed abilities, backgrounds and needs. With flexible scheduling, and rejection of group norms in favor of individualized programs and independent study, the traditional group lesson demonstration by the class teacher of any clothing construction principle or technique is impractical in many cases. To be effective, classes need new materials with which to learn as much as possible in the limited time available. Unfortunately, "The vast majority of instructional materials which are presently available were designed to make group-paced instruction workable, regardless of what is known about how children learn and about their individual learning styles."[2]

Universities face similar problems of diversity of backgrounds and aims among students in clothing construction courses. Also, increasing enrollments frequently have required development of methods for large group instruction. At the university level, course content emphasizes basic principles so that the student may understand a number of similar examples without exploring each in detail.[3] In the same way, particular skills and techniques are taught for their contribution to "the understanding of processes for

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[2]Philip G. Kapfer and Gardner Swenson, "Individualizing Instruction for Self-paced Learning," Clearing House, XLII (7), March, 1968, p. 405.

[3]Jane Werden, "The Place of Clothing Construction in the College Program," Journal of Home Economics, LII (9), November, 1960, p. 340.

transfer to new tasks."[4] To teach such principles and techniques effectively to a broad spectrum of students under present conditions, "We must find better ways to communicate ideas and we must make these means of communications adaptable to the needs of individuals, whether they work alone or as members of groups."[5] This study will evaluate the effectiveness of two self-instructional Super 8mm filmloops, Staystitching and Darts. The two loops are part of a series of twenty-eight films developed as a tool for implementing a flexible, individually-paced program for teaching beginning clothing construction techniques.

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[4]H. Johnson, B. Clawson and S. Shoffner, "Using Programmed Instruction to Teach a Skill for Transfer," Journal of Home Economics, LXI (1), January, 1969, p. 35.

[5]Louise Forsdale, "Communication Technology and Education," 8mm Sound Film and Education, ed. Louis Forsdale (New York: Bureau of Publications, Teachers College, Columbia University, 1962), p. 12.

CHAPTER II

REVIEW OF LITERATURE

Relevance: The Demands of Changing Times

Contemporary curricula and methodology in home economics have evolved from earlier patterns as a response to changing conditions. In general, before 1900, woman's university education followed the same literary path as men's. In the sciences, courses in home economics or domestic economy were based on the principles of science and economics and had as their primary purpose preparation for women's role in the home.[6] As schools and colleges teaching home economics courses greatly increased in number during the last quarter of the nineteenth century,[7] the demand for teachers required that the universities engage in their professional preparation which included consideration of teaching methods. Passage of the Smith-Lever Act in 1914 provided funds for co-operative extension programs and placed home economics on a par

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[6] Jeanette A. Lee and Paul L. Dressel, Liberal Education and Home Economics (New York: Bureau of Publications, Teachers College, Columbia University, 1963), p. 24.

[7] Beulah I. Coon, Home Economics Instruction in the Secondary Schools (New York: The Center for Applied Research in Education, Inc., 1965), p. 20.

with agriculture.[8] The 1917 Smith-Hughes Act made funds available for vocational courses of less than college level and for the preparation, professional improvement or salary of teachers for such courses.[9] Relevance in education meant recognizing a broader area of responsibility for home economics educators. In terms of girls' vocational education, "the purpose, to train students for 'useful employment' was interpreted in home economics to mean preparation of girls and women for useful employment as daughters and homemakers."[10] Dressel claims that university courses at this time emphasized training personnel to manage the expanding home economics education programs.[11]

Thus, the place of clothing courses in education has been influenced by several factors; its beginnings in the manual training movement,[12] its development in universities as a subject of study requiring development of principles "from the concrete doing through the scientific to the eco-

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[8]Eileen Elliott Quigley, Introduction to Home Economics (New York: The Macmillan Company, 1969), p. 20

[9]Coon, op. cit. p. 22.

[10]Ibid. p. 22.

[11]Dressel, op. cit. p. 27.

[12]Quigley, op. cit. p. 18.

nomic",[13] its importance in the preparation of teachers for all levels of education, and its personal use as it contributes to self-expression and creativity in home life or to a career in a related area.[14]

In contemporary curricula, clothing construction courses are still in demand. Regardless of whether the student's interest is vocational, professional or recreational, professional integrity and educational efficiency dictate that the clothing specialist develop appropriate and effective methods of teaching individuals and groups. "We can and must make each hour of student effort more productive, and we can and must do the same for the teacher."[15]

Methods of Teaching

Methods of presentation used to teach understanding of clothing construction processes include classroom demonstration, filmstrips, 8mm motion pictures, slides, transparencies for overhead projection, television, programmed materials and 8mm filmloops.

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[13]"Report of Special Committee of Lake Placid Concerence on Home Economics in Elementary and Secondary Schools," Lake Placid Conference on Home Economics 1899-1904, p. 6.

[14]Doris Johnson, "A New Direction in Clothing Construction," Journal of Home Economics, LII (9), November, 1960, p. 753.

[15]Bruce Miles, "New Ways of Communicating with Students," Proceedings: National Textiles and Clothing Meeting, ed. Barbara S. Stowe, 1968, p. 23.

Teacher Demonstration

The traditional classroom demonstration has the advantage of reducing dependency on written or oral directions which may be vaguely expressed or may be misinterpreted.[16] This particularly benefits the poor reader or the student who does not easily comprehend the language of instruction. At the same time, the instructor can exemplify high standards of performance in procedures and in quality of product.[17] The demonstration method, however, is not suitable for large group instruction, for only those who are very close can see adequately.[18] Thus the demonstration must be repeated several times consuming valuable class contact time as well as demonstration materials.

The necessity of classroom demonstration and supervised laboratory work was questioned by McCrady and Tomljonovich. They conducted an experiment in teaching the principles of clothing construction and selection to two hundred fifty homemakers in groups as large as fifty-two. Lessons were presented with the aid of large illustrations, oversized samples and a system of parallel demonstrations in which the

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[16] Hazel M. Hatcher and Mildred E. Andrews, *The Teaching of Home Economics* (New York: Houghton Mifflin Company, 1963), p. 117.

[17] *Ibid*. p. 117.

[18] Evelyn A. Mansfield, *Clothing Construction* (Boston: Houghton Mifflin Company, 1953), p. v.

class was divided into small groups to try out the techniques previously explained. All construction work was done at home without supervision. From questionnaires and observations, the researchers concluded that clothing construction and selection can be effectively taught to large groups without supervised laboratory experience or close-up demonstrations.[19] However, methods of evaluation of understanding and of product rating were not reported in detail. Further studies have not pursued this approach to group instruction.

The relationship of construction techniques used to quality of product produced has also been investigated. Senecal found that the product quality of a class using traditional construction techniques was superior in most details to the quality of garments made by the Bishop method.[20] In a comparison of six construction techniques, Smith determined that, in all six processes, thread basting produced better results than pin basting.[21] However, rather than be prescriptive of technique, current thought emphasizes intelligent decision making and considers "sewing within the context of individual investment potential - the individual's interest, aptitude, time, energy

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[19] Christine McCready and Malva Tomljonovich, "Challenge of New Methods of Clothing Construction," Journal of Home Economics, LVII (1), January, 1965, p. 63.

[20] Evelyn Carlson Senecal, "A Comparison of Clothing Construction Methods," unpublished Master's problem, College of Home Economics, Michigan State University, 1960, p. 103.

[21] Margaret Smith, "A Comparison of Pin and Thread Basting in Clothing Construction," Journal of Home Economics, XLIX (1), January, 1957, p. 40.

and money resources which are involved."[22] If the student is to learn to evaluate alternatives and to make choices, a variety of methods must be presented. The time element for so doing virtually precludes the demonstration method of teaching as a feasible procedure given current objectives.

16mm Motion Pictures

The use of 16mm film for demonstrating clothing construction techniques was pioneered by Helen Lohr who prepared seven ten-minute black and white sound films called the Young America Sewing Series in the years 1947 to 1951.[23] In 1956, Almanac Films released the Sew Easy series of twenty-five twelve and one-half minute black and white sound films[24] for the Simplicity Pattern Company. These teaching films were prepared by Lucille Rea as revisions of work done at Iowa State College in 1952-53 in developing films for research in instruction by television.[25] A survey of the literature shows no record of systematic evaluation of the

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[22]Bernetta Kahabka and Sue Kuehne, 520 Clothing and Textiles 1969-70 Progress Report, Michigan State University Co-operative Extension Service.

[23]Frederic A. Krahn (ed.), Educational Film Guide, 11th ed., (New York: The H.W. Wilson Co., 1958), p. 684.

[24]Ibid., p. 684.

[25]Correspondence with Elsie K. Williams, assistant professor, Department of Textiles and Clothing, College of Home Economics, Iowa State University.

effectiveness of these commercially distributed films. It is hypothesized that, due to individual preferences in technique, methods other than classroom demonstration were used only in supplementary fashion until the pressure of class sizes and diversity of backgrounds of learners demanded that alternate approaches be explored. In addition, 16mm motion pictures are costly to buy[26] and frequently require rigid structuring of time and facilities if borrowed. A twenty minute demonstration given at a time likely days removed from when the learner will use the information cannot be expected to be of maximum effectiveness.

The Overhead Projector

In dealing with the problems of large group instruction, Stam developed a series of transparencies for teaching selected principles of clothing construction using the overhead projector. Use of the visuals was found to be as effective as the classroom demonstration method of presentation as measured by pencil and paper tests.[27] The advantages of the overhead projector are that the teacher can main-

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[26]Averaging the prices of twenty educational films picked at random from a film catalogue yielded a cost just under $6.00 per minute for black and white sound films and $11.90 for color sound films in 1972.

[27]Judy Yaryan Stam, "An Evaluation of the Effectiveness of the Overhead Projector in Teaching Clothing Construction," unpublished Master's thesis, College of Home Economics, Michigan State University, 1964, p. 56.

tain eye contact with the students and can control the rate and order of the presentation. Images may be projected clearly in a lighted room and to large groups.[28] The main limitation of the use of the overhead projector is that lessons are group oriented. A particular learner cannot proceed at his own pace for he is tied to the class schedule. The overhead projector is an effective tool but not for all purposes. "We should look carefully at the media we choose in terms of the consequences we are seeking."[29]

Television

The use of television in the teaching of clothing construction was initiated by university extension personnel. In 1951, the Office of Information, textiles and clothing division of the Bureau of Human Nutrition and Home Economics, United States Department of Agriculture presented a series of eleven twelve-minute programs entitled, "How to Make a Dress". A survey of viewers' opinions showed that the series was considered effective in showing new dressmaking ideas and in improving methods.[30] The Agricultural Exten-

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[28] _Ibid._, p. 56.

[29] Donald K. Smith, "Perspectives on Communication," _Proceedings: National Textiles and Clothing Meeting_ ed. Barbara S. Stowe, 1968, p. 11.

[30] Eva Medved, "A Review of Home Economics Programs in Television," _Journal of Home Economics_, LIX (2), February, 1967, p. 106.

sion Service of Iowa State University's series "Let's Make a Dress - T.V." in 1952 indicated that, although the audience size decreased with successive programs, there was a positive relationship between the number of programs a subject watched and her view of their helpfulness. Of the one third of the viewers who reported making a dress as a result of the program series, ninety-three per cent reported satisfaction with their work, and eighty per cent reported finding the construction easy.[31]

In more formal studies concerning the teaching of university credit courses, at Ohio State University, Meacham taught two clothing classes giving one a televised presentation and the other the traditional classroom lecture-demonstration presentation. The television lessons were developed to utilize the advantages of the medium such as dissolves for transitions, close-up shots for construction demonstrations and music to establish moods.[32] An eighteen minute question period in class followed each televised lesson to help equate them with the regular lectures in which questions and discussions were permitted. Results showed no significant difference in effectiveness of the two methods as measured by three tests of understanding and two of applica-

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[31] Ibid., p. 106.

[32] Esther Meacham, "Television in the Clothing Classroom," Journal of Home Economics, LVI (2), February, 1964, p. 90.

tion.[33] The experimental group performed significantly better (t-value = 2.24) in laboratory work.[34]

Students' negative reactions to the medium were that some found the pace of presentation too fast and that there was no opportunity to ask questions during the presentation. Positive responses included favorable reactions to the number of illustrations used and appreciation of seeing the demonstrations clearly. The instructor found the students more punctual and more attentive for the televised lessons than for the classroom lectures. Also, there was little distraction from the lesson in preparation of demonstration materials for these remained out of camera range until needed, and there were no interruptions for questions to break the continuity of the presentation. Although the televised lessons were time-consuming to prepare, the researcher felt that the investment was justified since the programs could be used to teach future classes, to acquaint new teachers with the courses and to broadcast to audiences outside the university.[35]

In a larger context, Kumata's comprehensive studies of instructional television provide the following information: in relation to achievement

- in the overwhelming majority of cases, in subject matter

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[33] Ibid., p. 90

[34] Ibid., p. 90

[35] Ibid., p, 91

tests including short term (usually thirty to forty-five days) retention tests, there is no significant difference between groups taught by television and by face-to-face lessons.

- neither increasing the size of the televised class nor having proctors present has a significant effect on learning.
- students viewing a program at home have slightly higher achievement than students seeing the program in a lecture room.
- low ability students learn more from televised lessons while high ability students learn more from face-to-face lessons.
- results indicating the novelty effect of the television presentation are inconclusive.

in relation to acceptance

- attrition rates show no significant difference due to mode of presentation.
- there is a slight tendency towards rejection of television as a method of presentation; however, students having previously taken televised courses respond more favorably to it than do students for whom it is a new experience.
- when classes are large, students tend to choose televised presentation over classroom lecture presentation.
- acceptance of the televised presentation is highest among adults and elementary students and lower among high school

and especially among university students.

- if no provision is made for asking questions, reactions are unfavorable; however, facilities when provided are seldom used and make no significant difference in achievement.
- results indicating the effect of the televised mode of presentation on attitude toward course content are inconclusive.[36]

Meacham's study may be interpreted in the light of Kumata's findings. The comparable levels of learning follow the customary pattern while the gain in laboratory performance recommends the television presentation. This suggests that, since the principles taught in each class were the same, differences in the style of presentation, e.g. more illustrations used in the televised lessons, contributed to the understanding and/or motivation of students and resulted in superior performance in lab work. The question period may be valuable more in maintaining interaction leading to positive attitude than in increasing understanding. The promptness and attentiveness of students for the televised classes might be interpreted as evidence of student interest and motivation and it likely contributed to teacher satisfaction.

Tentatively, one may conclude that the use of television

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[36]Hideya Kumata, "A Decade of Teaching by Television," The Impact of Educational Television, ed. Walter Schramm (Urbana: University of Illinois Press, 1960), p. 177-82 passim.

in teaching clothing courses which include construction techniques is desirable when close-up demonstrations must be shown to large groups, when the scope of the material cannot be presented as effectively in the same time in a regular class and when material televised is reusable. Facilities and release time for development of programs are more available to universities than to high schools. Thus, the latter usually have access only to educational channel television programs which may not suit the goals or timetable of the class.[37] At present, program production for individual schools' needs is not a common practice, and no studies of dial access programs are reported.

Videotape

In a later study, Losey investigated the effectiveness of videotape in teaching clothing construction techniques. Although there was no significant difference in the samples of work graded, sound videotape presentations had a higher acceptance than either silent videotape presentations or instruction by written directions.[38] The absence of sound track to students accustomed to sound with films proved a

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[37] Louis Forsdale, "8mm Sound Film and Education", 8mm Sound Film and Education, ed. Louis Forsdale (New York: Bureau of Publications, Teachers College, Columbia University, 1962) p. 6.

[38] Kathleen D. Losey, "The Use of Recorded Motion and Sound in Presenting Instructions for Sewing Techniques", unpublished Master's thesis, Ohio State University, 1968, p. 62.

distraction to some. 8mm film was suggested as an improvement over videotape as images would be clearer and color would be possible.[39] Both videotape and 8mm cartridge films were considered suitable for classroom use and for dial access retrieval systems.[40]

Self-Instructional Media

Concurrent with studies using the overhead projector and television videotape, research was begun on the development of auto-instructional lesson units for teaching clothing construction. When a pilot study at the University of North Carolina was initiated in 1952, Fleck reports that there were no such published materials available in home economics.[41] A self-instruction program on the use of the sewing machine was developed by Moore[42] in 1963 and revised by Shoffner[43] in 1964. Written tests and performance tests were developed in

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[39] Ibid., p. 64

[40] Ibid., p. 10

[41] Henrietta Fleck, Toward Better Teaching of Home Economics, (New York: The Macmillan Company, 1968), p. 41.

[42] Catherine P. Moore, "Development of a Self-Instructional Program on the Sewing Machine", unpublished Master's thesis, College of Home Economics, University of North Carolina, 1963.

[43] Marjorie A. Shoffner, "Revision and Field Test of a Self-Instructional Program on the Sewing Machine", unpublished Master's thesis, College of Home Economics, University of North Carolina, 1964.

1965.[44] Johnson continued research at the University of North Carolina on self-instructional media for the purpose of teaching clothing construction skills with sufficient comprehension and application of basic processes that new tasks could be handled independently.[45] Recognizing Smith's contention that, "The need is clear for face-to-face instruction to provide effective support for students",[46] the programmed materials required the student to refer to the instructor periodically for verification of work[47] thus maintaining supportive contact.

The five dependent variables in comparing the self-instructional presentation to the traditional classroom presentation were: two pencil and paper tests, one emphasizing understanding and one emphasizing application, a one-hour performance replication test, a three-hour performance application test and a product rating scale. The study showed discrimination beyond the one per cent level on all five variables.[48] "The variables which most successfully

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[44] Carolyn E. Ross, "Development of a Performance Test and a Paper and Pencil Test to Accompany a Self-Instructional Program on the Sewing Machine", unpublished Master's thesis, College of Home Economics, University of North Carolina, 1965.

[45] H. Johnson, B. Clawson and S. Shoffner, _op.cit._, p.35.

[46] Smith, _op. cit._, p. 11.

[47] H. Johnson, B. Clawson and S. Shoffner, _op. cit._, p.37

[48] _Ibid._, p. 38.

discriminated between program taught and teacher taught sections were the blouse rating scale, one-hour performance test and the application test. "The blouse score was the most sensitive measure of what was learned."[49]

Since the test of understanding was one of the two less discriminating variables while the blouse rating scores showed the greatest effect of learning, in effect, the groups differed less in understanding than in performance skill as a result of the method of teaching - programmed instruction or teacher presentation.

Wissink found that students working with programmed materials used less time to complete a technique and made fewer referrals to the teacher and more to the instructional materials than did students taught by teacher demonstration lessons. Thus the teacher time spent answering questions was reduced while the quality of product was as good as or superior to the work of students taught by traditional methods.[50]

Murphy developed a program which provided for initial differences in understanding by allowing students to by-pass some sections depending on their response to certain "gate" frames. Her study showed that there was no significant difference in learning, retention, construction performance and/

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[49] Ibid., p. 39.

[50] Vivien B. Wissink, "An Experiment in the Use of Programmed Materials in Teaching Clothing Construction", unpublished Master's thesis, Mankato State College, 1968, p. 44.

or time required for the program between the students completing the entire program and those who by-passed some sections.[51] Although students by-passed more often than the teacher thought they should,[52] the students' reaction to programmed instruction was not very favorable.[53] The main value of by-passing seemed to be decreasing the monotony of strict linear programming.[54]

Auto-instructional programs have two main advantages over other modes of teaching: they do not require constant teacher participation in the learning process and, as a result, each student may proceed independently without being restricted by a group schedule. Ideally, auto-instructional materials should be capable of individualizing the direction of a program as well as the speed with which the student handles the subject matter. Linear programs by definition must proceed in a sequence toward a goal. Unless they are planned as a series of short, independent lessons, they lack the flexibility and diversity that one would wish for in order to prevent the frustration and boredom of having to follow the programmer's path rather than personal interest.

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[51]Mae George Murphy, "An Evaluation of By-Passing as a Technique for Adjusting a Self-Instructional Clothing Programme to Initial Individual Differences", unpublished Master's thesis, University of North Carolina at Greensboro, 1967, p. 45 - 48 passim.

[52]*Ibid.*, p. 56.

[53]*Ibid.*, p. 59.

[54]*Ibid.*, p. 67.

Tools which do not have to be used in a prescribed sequence might be more favorably received and more generally useful than a more rigid format.

The studies above seem to indicate that programmed instruction results in equivalent or improved understanding and performance ability while using equivalent or shorter periods of student and teacher time than does the teacher demonstration method.

At Oklahoma State University, the beginning course in clothing selection was formerly scheduled as three lecture/discussion periods per week. This was replaced with one lecture, one quiz and one independent study period.[55] A self-instructional open laboratory using tapes, slides, filmstrips, displays and question sheets was provided for independent work. Of the 155 students surveyed, 61% preferred to retain the quiz and laboratory sections and eliminate the one remaining lecture. Only 4% of the students expressed a preference for the lecture/discussion method. In using the laboratory, 67% of the students expressed the desire to have taped commentaries with the visual material while 33% preferred to have mimeographed notes. None of the students felt that a text should be used for the course. In visual materials, 58% preferred filmstrips for their ease of handling, 40% preferred slides for flexibility, 3% stated no preference. However,

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[55] Grovalynn Sisler, "Student Reactions to an Audio-tutorial System", Journal of Home Economics, LXII (1), January, 1970, p. 34.

75% of the students wished to have tapes with the filmstrips or slides to eliminate having to read captions.[56] Sisler reported that the course material would undergo constant revision to adapt to students' preferences in methods of presentation. Such adaptations to student preferences and to individual learners rather than groups capitalizes on the understanding that "learning is essentially personal, that the individual student's willingness to learn is the most effective agent for change in his behavior, hence learning."[57] "The method is important only insofar as it meets the objectives of an individualized approach to instruction."[58]

8mm Filmloops

In teaching clothing construction techniques, the use of 8mm filmloops is one method of providing repeatable demonstrations for individual or group use without consuming

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[56] *Ibid.*, p. 41

[57] Beatrice Paolucci, "Principles of College Teaching Illustrated", *Journal of Home Economics*, XLIX (1), January 1957, p. 34

[58] C.H. Gausman and J. Vennes, "The Single Concept Film - Tool for Individualized Instruction", *American Vocational Journal*, XLIV (1) January, 1969, p. 17.

teacher time or delaying student progress. A single concept film or filmloop may be defined as "a segment of film with a short describable instructional content".[59] Most frequently the film is packaged in continuous loop format in a plastic cassette. The cassette is inserted into a filmloop projector for conventional or rear screen projection whenever required.

Strader developed a series of filmloop demonstrations of clothing construction techniques and reported that they were as effective with junior and senior high school students and with adults as they were with college classes.[60] Methods of evaluation were not reported in detail. Students were more receptive to the filmloops than to a parallel set of slides of the same processes. Seeing the actual handling movements and ease of operation of the filmloop projector were important factors in determining students' preferences.[61]

In comparing filmloop demonstration and teacher demonstration, Powers reported no significant difference in the quality of products in a sample of twenty-eight students having little or no previous sewing experience and no previous

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[59]Elwood E. Miller and Charles G. Bollmann, "Promises and Pitfalls", <u>Single Concept Film Clip Project, Part I</u> (East Lansing: Michigan State University, 1967), p. 73.

[60]Gayle Gilbert Strader, "Development of Single Concept Films", <u>Illinois Teacher</u>, XII (5), Spring 1968-69, p. 304.

[61]<u>Ibid</u>., p. 304.

formal sewing instruction.[62]

Strader recommends the use of locally prepared film-loops over those commercially available because of costs - six dollars compared to twenty dollars - and because commercially prepared loops "may not handle the process in the same manner as an individual teacher".[63] Meacham expressed the need for "two or three ways of doing a lot of techniques recorded on film, to help students with decision making".[64] In developing independent study and continuous progress systems in any subject area, Gausman and Vennes believe that "the ultimate success of this approach to individualized instruction will depend greatly on adequate film and tape resources upon which each instructor may draw".[65] "The role of the teacher must change if self-paced learning is to replace group-paced learning: the teacher's role must become that of a manager of learning for individual students. The teacher will monitor each student's progress, diagnose learning problems, prescribe possible alternate learning materials and

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[62] Jerilyn Ruth Powers, "A Comparison of Teacher Demonstration and Single Concept Film in the Development of Sewing Skills", unpublished Master's thesis, Indiana State University, 1968, p. 27.

[63] <u>Ibid</u>., p. 302-3.

[64] Esther Meacham, "8mm Film and Clothing", <u>Proceedings: National Textiles and Clothing Meeting</u>, ed. Barbara S. Stowe, 1968, p. 25.

[65] Gausman and Vennes, <u>op.cit</u>., p. 16

activities which will help to solve the problems, and evaluate each student's progress in achieving stated behavioral objectives."[66] A multiplicity of resources is essential for continuous progress independent study.

Characteristics of Filmloops

A filmloop is a continuous loop of 8mm motion picture film permanently sealed in a plastic cassette. The standard Super 8mm cassette has a capacity of forty-one and four tenths feet or four minutes running time. Such filmloops usually deal with one topic and are sometimes called single concept films. Longer films can also be encased in cartridges of greater capacity for other models of projectors.[67] Filmloops are available with sound track or with printed captions, and they are adaptable to closed circuit television and to dial access retrieval systems.

Since filmloops are in one continuous piece, it is not necessary to thread the filmloop projector or to rewind film. Thus they may be used independently by students without a teacher's participation in the lesson. Filmloops provide instantly available, perfect, repeatable, color demonstrations. Since not all teachers have the time, skill or financial resources for constant demonstration, filmloops represent an

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[66]Kapfer and Swenson, op. cit., p. 408.

[67]A variety of products are available, but sizes are not standardized across brands.

efficient, accurate and low cost alternative. In presenting clothing construction techniques, a filmloop can utilize close-up, slow motion, freeze action, and split screen shots to clarify ideas and processes. Also, the loop may be stopped at any point and used as a slide until a detail is mastered. Moreover, it is possible to shoot filmloops from the demonstrator's perspective. In this way, the student sees the demonstration from the same viewpoint as he will when he is using his own two hands in performing the same technique.

By combining locally prepared and commercially produced loops, a teacher can build a filmloop library of alternative methods for all construction processes. Additional films can be acquired as new fabrics demand new techniques.

Focus of the Study

Purpose

The purpose of this study is to investigate the effectiveness of Super 8mm filmloops in teaching selected clothing construction concepts and techniques. The specific objectives guiding this study are:

1. to develop a series of Super 8mm silent filmloops to demonstrate clothing construction techniques.

2. to compare the test results showing change in knowledge of the filmloop demonstration (experimental) group and the classroom teacher demonstration (control) group.

3. to compare the accuracy with which students copy a technique (process scores) of the experimental group and control group.

4. to compare product test results (product scores) of the experimental group and control group.

5. to compare the correlation of total gain scores and retention test scores with product score averages of the experimental group and the control group.

6. to compare the correlation between process scores averages and product scores averages of the experimental group and control group.

7. to compare end-of-term retention test results of the experimental group and the control group.

8. to determine which method - filmloop demonstration or classroom teacher demonstration - is more effective in teaching high ability, middle ability and low ability students.

9. to survey students' opinions about filmloop demonstration compared to classroom teacher demonstration of clothing construction techniques.

Hypothesis

The filmloop method of demonstration of clothing construction techniques will be as effective as the classroom teacher demonstration method.

Assumptions

In the design of this study, the following assumptions have been made:

1. It is possible to develop Super 8mm filmloops to demonstrate clothing construction techniques.

2. Filmloops are comparable to classroom teacher demonstrations of the same technique.

3. The effectiveness of teaching methods can be measured by pencil and paper tests.
    a. a pre-test will measure the initial knowledge of clothing construction techniques.
    b. an equivalent form post test administered immediately after the lesson will measure the new level of knowledge of clothing construction techniques.

c. a retention test administered at the end of the term will measure the knowledge retained.

4. Score sheets can record students' performance.
   a. process scores will reflect accurately the degree to which students' performance copies the techniques demonstrated.
   b. product scores will reflect accurately the degree to which students' products conform to standards demonstrated.

5. Students will attempt to follow the methods demonstrated for each technique.

6. A questionnaire will reflect accurately the students' previous clothing construction experience.

7. IQ scores in the students' personal data files were obtained by means of comparable standardized tests.

Limitations

The factors which may affect the usefulness of the results of this study are:

1. the number of students in the study is only seventy-four.

2. the classes used by the researcher were not her regular classes. Thus she could not control the methods used or approved in lab experiences during the period between the lessons, the performance test and the end of the term retention test.

3. the time lag between the lessons and the performance tests ranged from one day to three weeks because only the researcher's non-teaching periods could be used for student testing.

4. the time of day and day of the week upon which a class occurred could influence learning.

5. only two techniques are tested in this study.

6. standardization of procedure required that students not be permitted free access to filmloop demonstrations for the techniques being tested. Thus the learning recorded does not measure the full usefulness of filmloops in a normal teaching situation.

7. left-handed students have to adapt right-handed

demonstrations to their particular needs.

Definitions

Specific terms used in this study are:

filmloop - a filmloop is a continuous loop of motion picture film permanently sealed in a cartridge for use in a filmloop projector.

cassette - a cassette is a plastic cartridge which contains a filmloop.

Super 8mm film - Super 8mm film is motion picture film of standard 8mm width upon which the frame occupies a larger area and the sprocket edging a smaller area than on standard 8mm film. Thus super 8mm film provides clearer pictures than standard 8mm film at comparable cost.

process score - a process score is a numerical measure expressed in percentage of the degree to which a student's performance copies a technique demonstrated. Process scores are obtained from a checklist completed by the researcher while observing a student performing the process being scored.

product score - a product score is a numerical measure expressed in percentage of the degree to which a student's product conforms to the standard demonstrated. Product scores are obtained from a checklist completed by the researcher while inspecting a sample produced during individual performance tests.

gain score - a gain score is a raw score representing the difference between a post test score and a pretest score.

CHAPTER III

METHODOLOGY

This study investigated the effectiveness of 8mm film-loop in teaching beginning clothing construction technqiues.

Design of the Study

The experimental design of the study consisted of presenting the same lesson content to four groups of students. Two of the groups received teacher demonstration lessons, and two received filmloop demonstrations. The effectiveness of the methods of presentation was evaluated in terms of the change in knowledge and retention of learning, the ability to perform the processes demonstrated and the quality of products produced. Information concerning students' opinions of the two methods of lesson presentation was collected by means of a student reactionnaire.

The clothing construction techniques selected for presentation in this study were staystitching and darts. The factors which governed the selection of these two topics were:

1. the two techniques are part of most beginning courses in clothing construction including the course follow-

ed by the study population.

2. the techniques involve no overlapping of understanding or skills required other than the operation of the sewing machine.

Population

The population consisted of four classes of eighth grade girls enrolled in a thirteen-week beginning course in textiles and clothing during spring term 1971 at Howard S. Billings Regional High School in Chateauguay, Quebec. The students are products of a continuous progress program in the six years of elementary school. The previous year, they were admitted to a five year high school at age twelve without reference to their level of academic achievement. Unlike English, French and mathematics classes, the home economics classes are not phased or streamed, and thus they contain students of all abilities with the exception of those enrolled in special education programs for the educable mentally retarded. Each class has a normal maximum size of twenty students. The population available for the study comprised seventy-seven students; however, three subjects did not complete the program due to absence or to school transfer. Table 1 shows the original class sizes and the numbers in each class that completed the study. Classes 8A and 8D were randomly selected as experimental groups, while 8B and 8C were designated as control groups.

TABLE 1.--Original class sizes and numbers of students completing the study.

Class	Original Size	Number Completing the Study
8A	17	16
8B	20	20
8C	19	18
8D	21	20

Development of Instruments

The researcher's interest in individually-paced instruction led to the investigation of using 8mm filmloop to demonstrate clothing construction techniques. Film tests made with non-professional equipment proved the feasibility of making extreme close-up motion pictures which could present construction processes clearly. During 1967, discussions with Mr. Mark Else of the McGraw-Hill Book Company Text-Film Division resulted in an agreement to produce twenty-eight Super 8mm filmloops of clothing construction techniques from motion picture scripts written by the researcher and approved by the publisher in consultation with Mrs. Frances Gutman, Educational Director of Coats and Clark, Inc.

The two filmloops, Staystitching and Darts, used in this study are part of the Sewing Techniques Series produced over the next two summers and released for distribution December 1, 1970.

The evaluation devices for the study consisted of:

1. Staystitching Pretest
2. Staystitching Post Test
3. Darts Pretest
4. Darts Post Test
5. Retention Test
6. Process Scoresheet: Staystitching
7. Product Scoresheet: Staystitching
8. Process Scoresheet: Darts
9. Product Scoresheet: Darts
10. Student Experience Questionnaire
11. Student Reactionnaire

Five pencil-and-paper multiple choice tests were developed to measure the students' knowledge.[68] For each film, a seventeen-item pretest was constructed to measure initial understanding, and an equivalent form seventeen-item post test was constructed to measure the change in learning. A twenty-four item retention test sampling the content of the two lessons was developed to measure retention of knowledge.

Four scoresheets of the checklist type were prepared for the study.[69] In order to translate observed behaviors into numerical values for statistical analysis, for each technique

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[68]See Appendix II.

[69]See Appendix II.

there was designed a process observation scoresheet describing a range of observable behaviors, each of which was assigned a numerical value. To grade students' samples of staystitching and of darts, product scoresheets giving the numerical value of a range of observable results were constructed.

Limitations of student and faculty time precluded individual pretesting of all students to determine manual dexterity and ability to control the sewing machine. Although these factors would be influenced by visual motor co-ordination, such co-ordination was assumed to be a randomly distributed variable and was not tested in this study. However, since Meacham[70] and Chadeayne[71] both found that the level of students' previous experience affected performance tests, a self-reporting Student Experience Questionnaire was designed to give a numerical value to the students' previous experience with use of the sewing machine, making or mending sewn articles and with formal or informal instruction in sewing.

A Student Reactionnaire was developed in order to collect the students' opinions concerning the methods of les-

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[70]Esther Anne Meacham, "The Relative Effectiveness of Face to Face Lecture vs. Instructional Television in a College Clothing Course," unpublished doctoral dissertation, Ohio State University, 1964, p. 70.

[71]Evelyn A.S. Chadeayne, "Reasons for Student Errors in Clothing Construction and their Implications for Teaching College Clothing Construction Courses," unpublished Master's thesis, Ohio State University, 1964, p. 71.

son presentation which they experienced.[72]

Pilot Study

The entire file of pretest and post test questions was administered to sixty-three grade nine students as a pilot study to aid in refinement of the test items and to provide preliminary data concerning the equivalence of the test forms. Table 2 gives the minimum and maximum values, the range, mean, standard deviation and t-value of the difference between means for the item difficulty for the tests.

TABLE 2.--Minimum and maximum values, range, mean, standard deviation and t-value for differences between means for the item difficulty of pretests and post tests.

Test	Min.	Max.	Range	Mean	S.D.	t-Value
Staystitching Pretest	25	62	37	45.18	11.47	0.383 #
Staystitching Post Test	27	67	40	43.59	12.65	
Darts Pretest	19	75	56	47.71	16.45	0.059 #
Darts Post Test	16	81	65	47.35	18.37	

non-significant at the .05 level

The data summarized in Table 2 indicates that there was no significant difference at the .05 level in the diffi-

[72]See Appendix II.

culty of the alternate forms of the tests.

Table 3 gives the minimum and maximum values, the range, mean, standard deviation and t-values for the differences between means for the scores of the two alternate forms for each test.

TABLE 3.--Minimum and maximum values, range, mean, standard deviation and t-value for differences between means for scores of pretests and post tests.

Test	Min.	Max.	Range	Mean	S.D.	t-Value
Staystitching Pretest	0	16	16	9.38	4.62	0.104 #
Staystitching Post Test	0	16	16	9.30	3.90	
Darts Pretest	4	15	11	9.49	2.82	0.200 #
Darts Post Test	0	16	16	9.38	3.39	

non-significant at the .05 level

The data summarized in Table 3 indicates that there was no significant difference at the .05 level between the mean scores of the pretest and the post test question files. Thus the tests were accepted as comparable alternate forms. Minor revisions in wording were made to improve the readability of five questions.

The product scoresheets were pretested for ease of use and for consistency of scoring in two ways. First, two home economists experienced in the teaching of clothing construction and the researcher each scored the sample products independently. Table 4 shows the grades assigned by the three scorers and the maximum possible grade for the products.

TABLE 4.--Grades assigned by three scorers and the total possible score for staystitching and dart samples.

	Scorer A	Scorer B	Scorer C	Possible Score
Staystitching				
Sample 1	26	25	25	33
Sample 2	29	30	29	33
Darts				
Sample 1	28	27	28	38
Sample 2	31	30	30	38

A week later, the researcher regraded the samples and compared her two sets of scores. Since the grades for the three scorers showed a variation of only one point for each technique, and since rescoring of the samples one week later produced no variation in the grades assigned by the researcher, the product scoresheets and the researcher's judgment were considered sufficiently reliable for use in the study.

The process scoresheets were not pretested for consistency of the scorer's judgment because scoring sometimes required that the observer question the student without unduly influencing her performance. Three observers could not simultaneously participate in this process. However, the process scoresheets were pretested for completeness and for ease of scoring during the pilot study.

Validity

The purpose of the testing instruments was to record accurately the students' knowledge and performance. The following procedures are considered to have contributed to the validity of the tests and scoresheets:

1. The file of test questions with answers and the scoresheets were reviewed during their development by faculty members teaching courses in textiles and clothing and in home economics education.

2. Testing procedures were reviewed by faculty members in Personnel Services and Evaluation Services.

3. The tests, process scoresheets and product scoresheets were pretested in a pilot study.

4. The pilot study population experienced no difficulties in following the test directions, "Select the correct answer, and fill in the corresponding space on the answer sheet", or in understanding the test questions.

5. All subjects had had previous experience using machine-scored answer sheets; thus the method of response was familiar to them.

6. All students were able to complete each test within the allotted time period.

7. In order to equalize possible effects on achievement of differential treatment, during an explanation of the study, all classes were informed that they would receive some teacher demonstrations and at least three filmloop demonstrations. Each class was told which three films they would see.

8. The possible effect of anxiety on achievement was

lessened by assuring the students that test scores would not influence term grades in any way.

Reliability

The factors which may have influenced the reliability of the testing tools were:

1. Each question used on the post tests was an alternate form of a question used on a pretest. Thus, the sampling of lesson content of the post tests was the same as the sampling of the pretests.

2. A pilot study conducted with sixty-three grade nine students showed no significant difference in difficulty or in mean scores between the pretest and the post test question files.[73]

3. The pretests, post tests and retention tests were machine-scored.

4. All students did their performance tests at the same sewing machine using identical fabric.

5. All performance tests were scored by the same observer.

6. In order to reduce possible bias caused by knowing control group students from experimental group students, class sections were not recorded on the students' scoresheets until grading was completed.

Methods of Presentation

Prior to the study, the four classes used in the project had completed with their regular teacher lessons in the following areas related to beginning clothing construction:

1. sewing machine operation
2. figure types and pattern sizing

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[73]See TABLE 2, page 35 and TABLE 3, page 36.

3. fabric preparation
4. pattern symbols
5. pattern layout, cutting and marking

The researcher met twice with each class. During the first visit, she explained that a study was being conducted to investigate how students learn. It was stressed that the results would not affect the term grades in any way. It was explained that some lessons would be presented by filmloop demonstration and some by teacher demonstration. The control groups were informed that they would receive teacher demonstrations of staystitching and darts, and filmloop demonstrations of preparing a facing, applying a facing and preparing a curved hem. The experimental groups were advised that they would receive filmloop demonstrations of staystitching, darts and preparing a curved hem, and teacher demonstrations of preparing a facing and applying a facing. Furthermore, the students learned that the researcher would conduct the first two classes and that the regular teacher would present the rest. The aforementioned method for exposing all classes to an equal number of films was developed in order to help equalize any effect on achievement that might be created by differential treatment. All groups were informed that they would be asked to give their opinions about some of the lessons later in the term.

Presentation of Lessons

The two lessons, one on staystitching and one on darts, were presented in the same manner. First, the pretest was administered. In the experimental groups, the lesson information on the package label was read to the class, and the filmloop was then projected and allowed to run through twice. The students were asked to observe the film once without comment. During the second running, they were permitted to ask questions at will. Due to the darkness of the room,[74] it was not possible to identify the questioners or to keep accurate record of the number or nature of the questions asked. Following the second projection of the filmloops, the appropriate post test was administered.

In the control groups, following the pretests, a teacher demonstration was given using materials identical to those shown in the film. A verbal explanation presented the information that the experimental groups had received through the film captions and the lesson information on the package label. During a review of the lesson, questions were permitted. Each presentation, whether filmloop or teacher demonstration, lasted eight minutes; and each complete lesson used one forty-five minute period.

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[74] Rear screen projection unit generally used in self-paced instruction was not available. Thus, conventional super 8mm filmloop projectors and screens were used and lights were turned off.

Performance Tests

Individual performance testing of twelve subjects per class was conducted during the researcher's non-teaching periods over a span of fifteen school days following the completion of the written tests. To help eliminate observer bias, names and grades were not recorded on scoresheets until the end of the tests. As much as possible, students were scheduled to provide sampling from each group each day in order to equalize the effects of lapse of time between the lessons and the performer tests.

The performance tests consisted of doing a sample of staystitching and making a dart. At the beginning of the session, the purpose of the process and product scoresheets was explained, and the machine was threaded with the thread color of the student's choice selected from a range of darker, matching, lighter and contrasting colors. The operation of the stitch length regulator, the needle thread tension control and the speed control was reviewed, and the student was permitted several minutes' practice with the sewing machine in order to become familiar with its operation. All students used the same sewing machine for their performance tests.

Half of the candidates were given sample back sections of a child's A-line dress and sample bodice darts. The remaining students were given sample back sections of an A-line skirt. The latter garment sections had one waistline dart traced. The pattern tissues from which the sections were cut were available for inspection. The fabric for all samples was 100% cotton poplin in a 1/16 inch polka dot print design.

The instructions given to each student were:

1. for staystitching, "Staystitch all edges which require staystitching."

2. for darts, "Make a dart."

3. for both technqiues, "If you make a mistake or want to change your work in any way, stop and tell me. You may correct your work or start over at any time."

Retention Test

The retention test was given early in June 1971 about five weeks after the completion of the written tests. The arrival of an unscheduled and unsupervised class at the lecture room reserved for the research group caused considerable disruption of procedure and atmosphere as well as loss of time. All subjects, however, claimed that there was sufficient time for completion of the Student Experience Questionnaire, the Retention Test and the Student Reactionnaire.

Methods of Analysis

The data collected in the development and execution of this research project were analyzed as follows:

1. Information from the pilot study aided in the development of alternate forms of tests and in refinement ment of all evaluation devices prepared for the study.

2. One-way analysis of variance of IQ scores, experience indices, and of two pretest scores was used to determine the initial equivalence of the four classes. Since, at the .05 level, no significant differences existed among the four classes for the four variables mentioned, the four classes were treated as two groups, control group and experimental group, for most calculations.
3. Two-way analysis of variance by treatment and IQ was performed using gain scores for each lesson, total gain scores and retention test scores. Since the control group high IQ section contained two more students than did each other section, upon the advice of the Office of Research Consultation, two observations at random were dropped from the control group high IQ cell for these four calculations. This permitted using standard analysis of variance methods rather than the less precise unweighted means analysis techniques. The .05 level of significance was used as reference standard in the analysis.
4. For the forty-eight students who completed performance tests as well as written tests, one-way analysis of variance of IQ scores, experience indices and of two pretests was used to determine the initial equivalence of the four groups. Since, at the .05 level, no significant differences existed among the four

classes, they were treated as two groups, control group and experimental group, for most calculations.

5. Using the performance test data, two-way analysis of variance by treatment and IQ was performed for six variables: staystitching process score, staystitching product score, dart process score and dart product score, average process score and average product score. The .05 level of significance was used as reference standard in the analysis.
6. To examine the relationship between grades for written tests and skill performance tests and to determine the extent to which product score averages might be predicted from gain score totals, retention test scores, and process score averages, correlation coefficients and coefficients of determination were computed for film and teacher demonstration groups as wholes and for each ability level within the groups.

Some of the calculations were performed with the assistance of the IBM Call/360 computer service. Scoring of the written tests was performed by the Opscan 100, Office of Evaluation Services. Item analysis of the pilot study and of the final test items was produced by the Michigan State University Data Processing Department using an IBM 360 computer.

CHAPTER IV

ANALYSIS OF DATA

The purpose of this study is to investigate the effectiveness of filmloop in teaching certain clothing construction techniques by analyzing written test scores and performance test scores and by summarizing students' and teachers' opinions.

For each student in the four groups, the following data were obtained:[75]

1. IQ score (usually Otis-Lennon form B) from school records
2. experience index as determined by the self-rating Student Experience Questionnaire
3. staystitching pretest score
4. staystitching post test score
5. staystitching gain score
6. darts pretest score
7. darts post test score
8. darts gain score

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[75] See Appendix IV.

9. total post test score
10. total gain score
11. retention test score

For the forty-eight students who completed performance tests, these additional data were recorded:[76]

1. staystitching process score
2. staystitching product score
3. darts process score
4. darts product score
5. average process score
6. average product score

Equivalence of Groups

One way analysis of variance of IQ scores, experience indices, the staystitching pretest scores and the darts pretest scores was performed for each class and for the sample of twelve students from each class who completed practical tests. Table 5 summarizes the IQ score data from Appendix IV.

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[76]See Appendix IV.

TABLE 5.--Mean, standard deviation, maximum and minimum values and range for IQ scores of individual and combined classes and of performance test samples.

Total Class

Class	$\bar{X}$	sd	Max.	Min.	Range
8A	104.69	12.32	122	84	38
8B	101.40	10.97	166	79	37
8C	108.94	11.75	134	92	42
8D	104.75	10.41	125	82	43
8A & 8D	104.72	11.13	125	82	43
8B & 8C	104.97	11.82	134	79	55

Performance Test Sample

Class	$\bar{X}$	sd	Max.	Min.	Range
8A	107.5	12.70	122	84	38
8B	101.58	10.52	116	86	30
8C	109.25	11.55	128	92	36
8D	105.83	8.38	125	95	30
8A & 8D	106.67	10.56	125	84	41
8B & 8C	105.42	11.49	128	86	42

Table 6 gives F ratios and t-values for the IQ score data. Table 6 shows that, at the .05 level of probability, there was no significant difference among the total groups or among the samples of twelve students per class who completed performance tests. T-tests of the means of combined classes, 8A and 8D, and 8B and 8C, confirmed this finding. On the basis of IQ data, the four classes and their performance

TABLE 6.--Computed F ratios and t-values compared to critical values for IQ scores of total groups and performance test samples.

	Total Group	Sample
computed F ratio	0.83	1.09
critical F ratio (.05 level)	2.74	2.82
computed t-value	0.09	0.27
critical t-value (.05 level)	1.96	1.96

test samples could be treated as two comparable groups.

Table 7 summarizes the experience index data from Appendix IV. Table 8 gives F ratios and t-values for the experience index data. Table 8 shows that, at the .05 level of probability, there was no significant difference among the total groups or among the samples of twelve students per class who completed performance tests. T-tests of the means of combined classes, 8A and 8D, and 8B and 8C, confirmed this finding. On the basis of experience indices, the four classes and their performance test samples could be treated as two comparable groups.

TABLE 7.--Mean, standard deviation, maximum and minimum values and range for experience index scores of individual and combined classes and performance test samples.

Total Class					
Class	X	sd	Max.	Min.	Range
8A	0.82	0.63	2.1	0.1	2.
8B	0.81	0.66	2.2	0.2	2.
8C	0.82	0.63	2.4	0.2	2.2
8D	0.80	0.67	2.2	0.0	2.2
8A & 8D	0.81	0.64	2.2	0.0	2.2
8B & 8C	0.82	0.64	2.4	0.2	2.2

Performance Test Sample					
Class	X	sd	Max.	Min.	Range
8A	1.01	0.61	2.1	0.2	1.9
8B	0.98	0.79	2.2	0.2	2.0
8C	0.91	0.69	2.4	0.2	2.2
8D	1.02	0.75	2.2.	0.0	2.2
8A & 8D	1.01	0.67	2.2	0.0	2.2
8B & 8C	0.94	0.73	2.4	0.2	2.2

TABLE 8.--Computed F ratios and t-values compared to critical values for experience indices of total groups and performance test samples.

	Total Group	Sample
Computed F ratio	1.63	0.06
Critical ratio (.05 level)	2.74	2.82
Computed t-value	0.05	0.35
Critical t-value (.05 level)	1.96	1.96

Table 9 summarizes the staystitching pretest data from Appendix IV. Table 10 gives computed F ratios and t-values for the staystitching pretest data. Table 10 shows that, at the .05 level of probability, there was no significant difference among the total groups or among the samples of twelve students who completed performance tests. T-tests of the means of combined classes, 8A and 8D, and 8B and 8C, confirmed this finding. On the basis of the staystitching pretest scores, the four classes and their performance test samples could each be treated as two comparable groups.

TABLE 9.--Mean, standard deviation, maximum and minimum values and range for staystitching pretest scores of individual and combined classes and performance test groups.

Total Class					
Class	$\bar{X}$	sd	Max.	Min.	Range
8A	5.37	1.96	9	2	7
8B	6.15	1.53	10	4	6
8C	4.78	1.73	9	2	7
8D	6.15	2.13	10	2	8
8A & 8D	5.81	2.07	10	2	8
8B & 8C	5.50	1.75	10	2	8

Performance Test Sample					
Class	$\bar{X}$	sd	Max.	Min.	Range
8A	4.92	1.88	7	2	5
8B	6.50	1.73	10	4	6
8C	5.17	1.85	9	3	6
8D	5.25	1.82	8	2	6
8A & 8D	5.08	1.82	8	2	6
8B & 8C	5.83	1.88	10	3	7

TABLE 10.--Computed F ratios and t-values compared to critical ratios for staystitching pretest of total groups and performance test samples.

	Total Group	Sample
Computed F ratio	2.42	1.82
Critical F ratio(.05 level)	2.74	2.82
Computed t-value	0.68	1.38
Critical t-value(.05 level)	1.96	1.96

Table 11 summarizes the darts pretest data. Table 12 gives the computed F ratios and t-values for the darts pretest data. Table 12 shows that, at the .05 level of probability, there was no significant difference among the total groups or among the samples of twelve students per class who completed performance tests. T-tests of the means of combined class, 8A and 8D, and 8B and 8C, confirmed this finding. On the basis of the darts pretest scores, the four classes and their performance test samples could each be treated as two comparable groups.

TABLE 11.--Mean, standard deviation, maximum and minimum values and range for darts pretest scores of individual and combined classes and performance test groups.

Total Class

Class	$\bar{X}$	sd	Max.	Min.	Range
8A	6.00	1.79	10	3	7
8B	5.45	2.06	9	0	9
8C	6.56	2.04	10	3	7
8D	6.05	2.56	11	2	9
8A & 8D	6.03	2.22	11	2	9
8B & 8C	5.97	2.10	10	0	10

Peformance Test Sample

Class	$\bar{X}$	sd	Max.	Min.	Range
8A	5.58	1.51	8	3	5
8B	5.58	2.35	9	0	9
8C	6.83	2.25	10	3	7
8D	6.67	2.39	11	3	8
8A & 8D	6.13	2.03	11	3	8
8B & 8C	6.21	2.34	10	0	10

TABLE 12.--Computed F ratios and t-values compared to critical values for darts pretest of total groups and performance test samples.

	Total Group	Sample
Computed F ratio	0.83	1.16
Critical F ratio (.05 level)	2.74	2.82
Computed t-value	0.11	0.13
critical t-value (.05 level)	1.96	1.96

Tests of Understanding

To determine whether method of instruction or interaction of teaching method and IQ affected written test results, four sets of test scores were examined. These were:

1. staystitching gain score
2. darts gain score
3. total gain score
4. retention test gain score

Staystitching Gain Scores

Table 13 summarizes the staystitching gain score data from Appendix IV. The t-value for difference between means is 0.01 indicating no significant effect of method of teaching for these classes of mixed levels of ability. Two-way analysis of variance for treatment and IQ shows no significant interaction between ability group and method of instruction.

TABLE 13.--Mean, standard deviation, maximum and minimum values, range and t-value for difference between means for staystitching gain scores.

Class	$\bar{X}$	sd	Max.	Min.	Range	t-value
8A & 8D	3.67	3.21	10	-2	12	0.01 #
8B & 8C	3.66	3.10	10	-4	14	

non-significant at the .05 level

TABLE 14.--Two-way analysis of variance for staystitching gain scores

Source	SS	df	MS	Computed F-ratio	Critical F ratio (.05 level)
IQ	67.75	2	33.88	3.77	3.15
Treatment	1.13	1	1.13	0.12 #	4.00
Interaction	1.58	2	0.76	0.84 #	3.15
Error	594.42	66	8.99		
Total	663.88	71			

non-significant at the .05 level

Darts Gain Scores

Table 15 summarizes the darts gain score data from Appendix IV. The t-value for difference between means is 1.52 indicating no significant effect of method of teaching for these classes of mixed levels of ability. Two-way analysis of variance for treatment and IQ shows no significant interaction between ability group and method of lesson presentation.

TABLE 15.--Mean, standard deviation, maximum and minimum values, range and t-value for difference between means for darts gain scores.

Class	$\bar{X}$	sd	Max.	Min.	Range	t-value
8A & 8D	2.94	2.69	7	-3	10	1.52 #
8B & 8C	1.95	2.88	7	-5	21	

non-significant at the .05 level

TABLE 16.--Two-way analysis of variance for darts gain scores.

Source	SS	df	Ms	Computed F ratio	Critical F ratio (.05 level)
IQ	26.94	2	13.47	1.99	3.15
Treatment	8.68	1	8.68	1.28 #	4
Interaction	12.78	2	6.39	.94 #	3.15
Error	444.92	66	6.74		
Total	493.32	71			

non-significant at the .05 level

Total Gain Scores

Table 17 summarizes total gain score data from Appendix IV. The t-value for differences between means is 0.94. Two-way analysis of variance by treatment and IQ shows no significant interaction between ability group and method of teaching.

TABLE 17.--Mean, standard deviation, maximum and minimum values, range and t-value for difference between means for total gain scores.

Class	$\bar{X}$	sd	Max.	Min.	Range	t-value
8A & 8D	6.61	4.23	14	-3	17	0.94 #
8B & 8C	5.61	4.78	14	-8	22	

non-significant at the .05 level

TABLE 18.--Two-way analysis of variance for total gain scores.

Source	SS	df	MS	Computed F ratio	Critical F ratio (.05 level)
IQ	157.03	2	78.52	4.97	3.15
Treatment	3.56	1	3.56	.22 #	4.
Interaction	18.36	2	9.18	.58 #	3.15
Error	1042.17	66	15.79		
Total	1221.12	71			

non-significant at the .05 level

Retention Test Scores

Table 19 summarizes the retention test data from Appendix IV. The t-value for the difference between means is 2.00 which is significant beyond the .05 level (1.96). This figure indicates that the experimental group retained a significantly greater amount of learning than did the control group. Two-way analysis of variance of retention test scores shows that method of teaching was a significant factor in retention of learning. Interaction between ability groups and method of instruction was not significant.

TABLE 19.--Mean, standard deviation, maximum and minimum values, range and t-value for difference between means for retention test scores.

Class	$\bar{X}$	sd	Max.	Min.	Range	t-value
8A & 8D	13.39	3.57	21	6	15	2.00 *
8B & 8C	11.82	3.10	20	7	13	

* significant beyond the .05 level

TABLE 20.--Two-way analysis of variance for retention test scores.

Source	SS	df	MS	Computed F ratio	Critical F ratio (.05 level)
IQ	144.08	2	72.04	7.15	3.15
Treatment	45.13	1	45.13	4.48 *	4.
Interaction	28.58	2	14.29	1.42	3.15
Error	665.09	66	10.07		
Total	882.88	71			

* significant beyond the .05 level

Table 21 gives a summary of students' retention test scores by ability groups. For the middle group, the computed t-value of 2.89 for difference between means was significant beyond the .05 level (t=2.07) and beyond the .01 level (t=2.81). Although, at all levels, mean scores for experimental classes were higher than for control classes, film presentation was associated with significantly greater retention for middle ability students only.

TABLE 21.--Mean, standard deviation, maximum and minimum values, range and t-values for differences between means by ability level for experimental and control groups retention test scores.

Group	$\bar{X}$	sd	Max.	Min.	Range	t-value
High						
Exp.	15.25	4.06	21	8	13	.98 #
Con.	13.78	2.88	20	8	12	
Mid.						
Exp.	14.16	2.64	19	10	9	2.89 **
Con.	11.00	2.45	13	8	5	
Low						
Exp.	11.08	2.88	14	6	8	.65 #
Con.	11.00	2.92	16	7	9	

** significant beyond the .01 level
# non-significant at the .05 level

Performance Tests

Performance tests were included in the study for three reasons. First, it was deemed necessary to ascertain that, should filmloop demonstration prove comparable to teacher demonstration as measured by written tests of understanding, students would be able also to produce comparable products when attempting to use their learning. Secondly, several problems traditionally have arisen when evaluating students' performance skills. In everyday practice in secondary schools, the researcher has found that teacher-given grades for practical work tend to be higher and show a narrower range of values than do written test results. This suggests the common error of central tendancy in judgments by graders. The phenomenon of higher and less variable scores for practical work is so widespread that it has become accepted and expected as a natural and correct relationship of skill performance marks to written test results. This study provides experience in using product scoresheets designed with this problem in mind, and it contains data for investigation of relationships between grades for written tests versus skill performance tests.

A third difficulty encountered in the classroom is that careful evaluation of practical work is very time-consuming and increases the workload of the conscientious teacher far beyond a normal maximum level. Finding an effective predictor of product quality is beyond the scope of this study; however, gain scores and retention test scores can be examined in this regard. Thus, in addition to determining whether the process and product scores of the experimental group were comparable to those of the control group, scores were analyzed to find the correlations of total gain scores, retention test scores and average process scores with average product scores. Table 22 shows that correlations between written tests of understanding as represented by gain scores and by retention test scores were too low to be of any predictive value in forecasting the quality of products. The best overall predictors[77] of average product scores were the average process scores, i.e. measures of the extent to which the student copied the techniques demonstrated. This study gives no evidence that, for beginning students, spending increased time on teaching for understanding as opposed to demonstrating techniques is beneficial when the quality of the immediate product is of importance to the student.

TABLE 22.--Correlations coefficients of total gain scores, retention test scores and average process scores with average product scores.

	Total	High	Mid.	Low
Gain Scores				
Exp.	.55	.4	.59	.6
Con.	.59	.59	.43	.93
Retention Test Scores				
Exp.	.29	.65	-.01	.24
Con.	.13	-.23	.35	.06
Av. Process Scores				
Exp.	.76	.69	.7	.93
Con.	.81	.64	.27	.96

[77]Coefficients of determination for average process scores of experimental and control groups are 57.76 and 65.61.

Staystitching Process Scores

Table 23 summarizes the staystitching process score data from Appendix IV. Two-way analysis of variance by treatment and IQ produced the results shown in Table 24. At the .95 level of confidence, only treatment, i.e. method of instruction, had a significant effect on the students' ability to copy the processes demonstrated.

TABLE 23.--Mean, standard deviation, maximum and minimum values, range and t-value for difference between means for staystitching process scores.

Class	$\bar{X}$	sd	Max.	Min.	Range	t-value
8A & 8D	79.13	8.96	93	59	34	4.14 **
8B & 8C	67.08	11.07	83	48	35	

** significant beyond the .01 level.

TABLE 24.--Two-way analysis of variance for staystitching process scores.

Source	SS	df	MS	Computed F ratio	Critical F ratio (.05 level)
IQ	232.97	2	116.40	1.17	3.23
Treatment	1925.33	1	1925.33	19.33 **	4.08
Interaction	133.79	2	66.90	0.67	3.23
Error	4184.00	42	99.62		
Total	6476.09	47			

** significant beyond the .01 level

Table 25 gives a summary of the students' staystitching process scores by ability groups. Mean scores for film classes showed unexpected stability varying only $1\frac{1}{2}\%$ across levels. The control classes showed a broader range of $8\frac{1}{4}$ percentage points. At all levels, the experimental group showed superior achievement to their equivalent control groups, and the best control group mean score (middle level) was 9.13 percentage points below the poorest experimental group mean score (low level). The low ability groups showed the greatest difference in mean scores (17.38 percentage points). The computed t-values for the differences between means are significant beyond the .05 level for the high ability group and beyond the .01 level for the low ability group (critical values 2.13 and 2.95 respectively). A comparison of total group means yields a t-value of 4.14 compared to critical ratios of 2.02 at the .05 level of significance and 2.7 at the .01 level. (See Table 23.)

TABLE 25.--Mean, standard deviation, maximum and minimum values, range and t-values for differences between means by ability levels for experimental and control groups' staystitching process scores.

Group	$\bar{X}$	sd	Max.	Min.	Range	t-value
High						
Exp.	79.13	4.75	87	70	17	2.18 *
Con.	69.13	11.17	81	56	25	
Mid.						
Exp.	79.88	9.02	91	66	25	2.02
Con.	69.25	10.60	83	48	35	
Low						
Exp.	78.38	11.10	59	93	34	3.43 **
Con.	61.00	7.45	74	52	22	

* significant beyond the .05 level
** significant beyond the .01 level

Staystitching Product Scores

Table 26 summarizes the staystitching product score data from Appendix IV. Two-way analysis of variance by treatment and IQ produced the results shown in Table 27. At the .95 level of confidence, only the method of treatment may be considered to have had a significant effect on the quality of test sample staystitching done by students.

TABLE 26.--Mean, standard deviation, maximum and minimum value, range and t-value for difference between means for staystitching product scores.

Class	$\bar{X}$	sd	Max.	Min.	Range	t-value
8A & 8D	77.83	12.41	97	53	44	
8B & 8C						3.27 **
8B & 8C	65.29	14.08	91	35	56	

** significant beyond the .01 level

TABLE 27.--Two-way analysis of variance for staystitching product scores.

Source	SS	df	MS	Computed F ratio	Critical F ratio (.05 level)
IQ	547.04	2	273.52	1.54	3.23
Treatment	1518.75	1	1518.75	8.56**	4.08
Interaction	151.13	2	75.56	0.43	3.23
Error	7449.00	42			
Total	9665.91	47			

** significant beyond the .01 level

Table 28 shows a summary of students' scores by levels of ability. Mean scores of experimental groups showed a range of 10.63 percentage points while the control groups exhibited a range of 5.37 points. At all ability levels, the experimental groups were superior in achievement to their parallel control groups. The mean score for the control group having the highest achievement (the high ability group) was 5.25

points lower than the mean score for the experimental group having the lowest achievement (the low ability group). At every level of ability, the control group showed a wider range of scores than did the experimental group. The greatest difference between means was found at the high IQ level where the difference was 15.88 percentage points. The computed t-values for the difference between means are significant beyond the .05 level for the high ability group (critical value is 2.13 at the .05 level of significance.). A comparison of total group means yields a t-value of 3.27 compared to critical ratios of 2.02 at the .05 level and 2.7 at the .01 level of significance.(see Table 23.)

TABLE 28.--Mean, standard deviation, maximum amd minimum values, range and t-values for differences between means by ability levels for experimental and control groups' staystitching product scores.

Group	$\bar{X}$	sd	Max.	Min.	Range	t-value
High						
Exp.	84.75	10.2	95	71	24	2.57 *
Con.	68.87	12.72	88	53	35	
Mid.						
Exp.	74.62	10.3	91	59	32	1.08
Con.	67.37	14.53	77	35	42	
Low						
Exp.	74.12	12.75	89	50	39	1.43
Con.	63.5	14.81	91	44	47	

* significant beyond the .05 level

Darts Process Scores

Table 29 summarizes the darts process scores data from Appendix IV. Two-way analysis of variance by treatment and IQ are given in Table 30. At the .95 level of confidence, only treatment may be considered to have a significant effect on students' ability to copy the process of making a dart.

TABLE 29.--Mean, standard deviation, maximum and minimum values, range and t-value for difference between means for darts process scores.

Class	X	sd	Max.	Min.	Range	t-value
8A & 8D	79.25	9.07	47	56	41	3.27 **
8B & 8C	68.63	13.10	89	36	53	

** significant beyond the .01 level

TABLE 30.--Two-way analysis of variance for darts process scores.

Source	SS	df	MS	Computed F value	Critical F value (.05 level)
IQ	563.17	2	281.59	2.30	3.23
Treatment	1408.33	1	1408.33	11.49 **	4.08
Interaction	197.17	2	98.58	0.81	3.23
Error	5149.97	42	122.62		
Total	7318.66	47			

** significant beyond the .01 level

Table 31 gives a summary of students' scores by ability groups. The experimental group showed a range of 11.75 percentage points in mean score across IQ levels while the control group exhibited a range of 7 points. At all levels of ability, the experimental groups were superior to the control groups, and the mean score for the control group showing highest achievement (the high ability group) was .75 percentage points lower than the experimental group having the lowest achievement. The high ability level showed the greatest difference in mean scores between treatment groups, i.e. 12.5 points. The computed t-values for the differences between means by treatment groups are significant beyond the .01 level for the high ability group (critical ratios 2.13 and 2.95 for

TABLE 31.--Mean, standard deviation, maximum and minimum values, range and t-values for differences between means by ability levels for experimental and control groups' darts process scores.

Group	$\bar{X}$	sd	Max.	Min.	Range	t-value
High						
Exp.	84.75	6.04	97	77	20	3.10 **
Con.	72.25	8.74	89	59	30	
Mid.						
Exp.	80.13	5.35	93	72	21	1.04
Con.	65.25	15.37	79	44	35	
Low						
Exp.	73.00	8.97	87	56	31	0.46
Con.	70.25	12.81	87	50	37	

** significant beyond the .01 level

the .05 level and .01 level of significance respectively). A comparison of total groups (see Table 29) yields a t-value of 3.27 compared to a critical ratio of 2.02 at the .05 level and 2.7 at the .01 level of significance.

Darts Product Scores

Table 32 summarizes the darts product scores data from Appendix IV. Two-way analysis of variance by treatment and IQ produced the results given in Table 33.

TABLE 32.--Mean, standard deviation, maximum and minimum values, range and t-value for difference between means for darts product scores.

Class	$\bar{X}$	sd	Max.	Min.	Range	t-value
8A & 8D	78.42	9.64	92	47	45	2.27 *
8B & 8C	70.00	15.39	95	37	58	

* significant beyond the .05 level

TABLE 33.--Two-way analysis of variance for darts product scores.

Source	SS	df	Ms	Computed F-value	Critical F value (.05 level)
IQ	355.29	2	177.65	1.04	3.23
Treatment	792.12	1	792.19	4.62 *	4.08
Interaction	96.13	2	48.06	0.28	3.23
Error	7209.38	42	171.65		
Total	8452.98	47			

* significant beyond the .05 level

At the .95 level of confidence, only treatment may be considered to have a significant effect on the quality of test sample darts made by the students.

Table 34 gives a summary of the subjects' scores by level of ability. Mean scores of the experimental and control classes showed ranges of 6.88 and 6.75 percentage points respectively. At all ability levels, the experimental group showed achievement superior to that of the control group; and the mean score for the control group having highest achievement (the high ability level) was 3.12 points lower than the mean score for the experimental group having lowest achievement (the middle ability level). The greatest difference between means occurred at the high IQ level where the difference was ten percentage points. The computed t-values for the differences between means are significant beyond the .05 level for the high ability group (critical ratio 2.13 at the .05 level of significance). A comparison of total classes (see Table 32) yields a t-value of 2.27 compared to a critical value of 2.02 at the .05 level.

TABLE 34.--Mean, standard deviation, maximum and minimum values, range and t-values for differences between means by levels of ability for experimental and control groups' darts product scores.

Group	$\bar{X}$	sd	Max.	Min.	Range	t-value
High						
Exp.	82.88	8.69	92	66	26	2.3 *
Con.	72.88	7.75	87	60	27	
Mid.						
Exp.	76.00	11.65	85	47	38	0.69
Con.	71.88	16.98	95	39	56	
Low						
Exp.	76.38	5.00	87	70	17	1.47
Con.	66.13	17.70	84	37	47	

* significant beyond the .05 level.

Average Process and Product Scores

By the same methods of analysis used above, the data in Table 35 may be obtained from information in Appendix IV.

Average Process and Product Scores

By the same methods of analysis used above, the data in Table 35 may be obtained from information in Appendix IV.

TABLE 35.--T-values and critical values at the .05 and .01 levels of significance for average process scores and average product scores.

	T-values			
	Average Process Score	Average Product Score	Computed t-value (.05 level)	Computed t-value (.01 level)
High	3.4 **	3.47 **	2.13	2.95
Mid.	2.94 *	0.91	2.13	2.95
Low	2.43 *	1.5	2.13	2.95
Total	4.88 **	3.55 **	2.02	2.70

* significant beyond the .05 level
** significant beyond the .01 level.

CHAPTER V

REACTIONS OF STUDENTS TO TEACHING METHODS

The Student Reactionnaire[78] was used to gather students' ideas and feelings about film demonstration compared to teacher demonstration of clothing construction techniques. The form asked students to state their likes and dislikes of film demonstration in general and of teacher demonstration in general and then to give comments about each of the four lessons. Space was also provided at the end for other comments and suggestions. Specific opinions of the lessons on making a facing and applying a facing have been omitted from this summary as these topics comprised part of the study only insofar as film presentations were used to balance the number of teacher demonstrations for the control group.

More opinions were stated about the lessons in general than about specific lessons. Table 36 gives the number of positive and negative comments for the lessons in general. The staystitching lesson elicited twenty-two positive and two negative comments while, for the dart lesson, twenty-two positive and four negative statements were recorded. Tabulation of the nature and frequency of each reply is given in

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[78]See Appendix II.

Appendix V.

TABLE 36.--Number of positive and negative comments about method of lesson presentation.

	No. of Comments
Film	
Positive	70
Negative	19
Teacher	
Positive	17
Negative	34

While the students gave a great variety of reasons for their likes and dislikes, the most common advantages listed for the film presentation were that they were able to see clearly (ten responses), that films saved time (nine responses), that they liked seeing the detail of close-up shots (seven responses) and that they were easy to understand (seven responses) and thorough (five responses). Other comments included that the films were fun, that students felt that they learned more than from other lessons, that they would be able to see lessons more than once if they needed to and that they could still ask questions.

The main criticisms of the film lessons were the lack of audio (nine responses), that students felt that they could not ask questions during the films (three responses) that processes were not well enough explained (two responses), and that there was less personal attention (two responses).

The positive statements about the teacher demonstrations included that the students liked explanations (six responses), that they could stop the teacher to ask questions (six responses), and that they liked looking at samples. Negative comments about teacher demonstrations included that students could not see (fourteen responses), that they were uncomfortable (four responses), that explanations were boring (three responses), not as clear (two responses), longer (two responses) and seemed complicated.

Comments recorded about specific lessons tended to follow the pattern of the general comments. In order to reduce the amount of repetition, only those statements that particularly mentioned teaching method were tabulated. Since the film demonstration was novel, the control group tended to mention its advantages and disadvantages only in the two lessons on making and applying a facing - topics essentially outside the scope of this study. The experimental group mentioned teaching method only for the film lessons in most cases. Thus this summary tends to reflect almost entirely the opinions of the experimental group. The general pattern of responses of the control group to their film lessons, however, was very similar to that for the two films tested in this study.

The main positive statements made about the staystitching film were that it was easy to do after seeing the film (three responses), that the film made learning easier (three responses), saved time (four responses), and made the test easy (one response). Some mentioned that they liked the film method (two responses) and enjoyed seeing the lessons twice (two responses). Some students also found that staystitching was hard to remember (one response) and not enough explanation was given (two responses).

The main positive comments made about the dart film were that they were easy to do after seeing the film (five responses), that it was a faster way of teaching (four responses), and that students liked being able to see lessons more than once (three responses). Film was thought to be a good method for teaching darts because they were found harder than staystitching, students could see clearly and they learned that they had to be accurate. Negative comments were that darts seemed hard to remember and to do (one response) and that sound would improve the film (one response).

In summary, 88% of all comments about film lessons were positive. The students saw their main advantages to be that they were able to see clearly and understand more easily. They liked the fact that film lessons were much less time-consuming than teacher demonstrations and that they would be readily available whenever needed.

The use of captions instead of sound track was considered a weakness, and some students disliked the discipline of not being able to stop a group lesson to ask a question until the second showing of the filmloop. It should be noted that, since the films were designed for individual as well as group use, sound was purposely rejected in favor of captions in order to allow a number to be used simultaneously in one class as needed. Also, during the study, students were not allowed free access to the films. In order to simulate teacher demonstration methods, they were shown only as planned parts of class lessons. Had the full potential of the film-loop format been permitted, noticeable differences may have occurred both in students' achievements and opinions of the method of instruction. The conditions of this study represent a minimum level of utilization of the filmloop medium.

CHAPTER VI

EXPERIENCE OF TEACHERS USING FILMLOOPS

Evaluation of the effectiveness of filmloops in presenting clothing construction techniques includes examination of the use of time and of money, and consideration of the reactions of teachers as well as documentation of students' test results and opinions. Both concomittant with and subsequent to the controlled study of the effectiveness of the two filmloops, Staystitching and Darts, several home economists in other schools and three colleagues teaching clothing courses at Howard S. Billings Regional High School made frequent and varied use of the twenty-eight Sewing Techniques Series filmloops with both beginning and advanced classes. Among the information and impressions gathered informally by the researcher in working with these teachers, the following observations concerning use of time, use of school budget and reactions of teachers are pertinent to the evaluation of the filmloop method of demonstrating clothing construction techniques.

Use of Time

The filmloop method of teaching has resulted in greatly reducing both preparation time and minutes spent in repetition of standard demonstrations. On the basis of eleven years of experience teaching clothing, the researcher estimates that, for the simpler construction techniques, she had to allow at least fifteen minutes to prepare, cut, mark and organize materials for each technique demonstrated. This did not include time and effort spent shopping for supplies. Filmloop lesson preparation requires less than one minute to find, select and insert in the projector the cassette for the required film. During class, the minutes formerly spent in manipulating tools and fabrics can now be spent helping students. This fact, plus the positive student attitude[79] engendered by having many demonstrations always available as needed, resulted in frequent expression of teacher satisfaction and in the acceptance by teachers of filmloops as an aide to the improved utilization of teacher time.

Use of Home Economics Department Budget

During 1971-72, the average cost of a four-minute color filmloop (before educational and quantity order discounts) was twenty dollars. The expected life of a filmloop given normal handling is in excess of five thousand showings - less than $0.004 per lesson. For teacher demonstration, if the cost of fabric and supplies could be restricted to ten cents

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[79] See Chapter V.

per demonstration sample, this is a figure twenty-five times the cost of the filmloop demonstration method even before the use of the teacher's time is considered.

Since most distributors sell filmloops individually as well as in sets, tailoring purchases to fit home economics department budgets does not seem to present a major problem. On several occasions, teachers expressed satisfaction that each lesson was complete and independent in itself, and thus the filmloops did not require that an entire series be purchased if only part of the set would fit the needs and/or financial resources of their programs.

Attitudes Toward Lessons

The last observation which bears comment as part of the experience of teachers who use filmloop presentations in teaching clothing construction is that the researcher has noted a subtle but definite change in the attitudes of some students and teachers since the introduction of filmloop as one step towards self-paced instruction. This shift in outlook might best be described as an increase in self-esteem and in regard for the courses in which they are involved. Although myriad factors could contribute towards explaining this observation, one possible cause of the heightened regard for their work on the part of some teachers and students could be the increasing availability in home economics classes of the effective communications technology that mankind has developed and has harnessed to the tasks he considers important. Perhaps providing the means to accomplish a task efficiently is one way people show that they consider the activity to be worthwhile. In teaching clothing construction, the use of filmloops may be one of a number of events which help to create a positive attitude in the classroom.

CHAPTER VII

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

In education, the adaptability of curricula, materials and methods is a critical factor in the effective management of change. As home economics programs have grown and developed, the use of self-paced auto-instructional materials has emerged as one way of providing flexible yet guided instruction. A survey of the literature concerning techniques of teaching clothing construction indicated that there existed a need for repeatable and instantly available demonstrations of sewing techniques at low cost in order to help individualize the teaching of students in heterogeneous groups. Since the 8mm filmloop fulfilled these requirements, a series of twenty-eight films was produced. Two sample films were evaluated for their effectiveness with beginning students of high, middle and low IQ levels in terms of changes in students' understanding, ability to copy the processes demonstrated and the quality of the sample products created using the techniques demonstrated. A student reactionnaire gathered the opinions of the participants concerning the filmloop method of lesson presentation. The test data were analyzed for significant differences between comparable control and experimental groups using two-way analysis of variance by treatment and level of ability.

Conclusions

From the evidence presented in this study, the following conclusions may be drawn:

1. The filmloop method of presentation was as effective as the classroom demonstration method in promoting initial understanding of techniques taught.
2. Retention of learning was significantly greater for the groups having filmloop demonstrations than for those having classroom teacher presentations.
3. Ability to copy the techniques demonstrated and to produce good quality products was significantly greater in the experimental groups than in the control groups.
4. Interaction of levels of ability and method of presentation was not a significant factor in achievement for either written or performance tests.
5. Students accepted and preferred the filmloop method of lesson presentation because it provided increased visibility, made lessons easier to understand and saved time compared to teacher demonstrations. Students felt that the lack of sound and having to wait until the end of each film to ask questions were dis-

advantages.

6. The filmloop method of demonstrating sewing techniques helps improve the efficiency of use of students' class time and teachers' preparation and instructional hours by helping provide self-paced instruction which is not dependent on teacher participation.

Recommendations

This study was limited to evaluating the effectiveness of two filmloops, Staystitching and Darts, part of a series of twenty-eight films designed to present beginning clothing construction techniques. Recommendations for further study are:

1. that additional filmloops be produced to expand the number of clothing construction filmloops available. These films should include techniques for left-handed students.
2. that the instructional effectiveness of the remaining filmloops in the Sewing Techniques Series be evaluated.
3. that pretests, post tests and product rating scales be developed for use with other filmloops and that their use in self-instructional programs be investigated.
4. that self-instructional sound filmloops of clothing

construction techniques be developed and evaluated for instructional effectiveness.

5. that the relationship between grades earned on comprehension tests and on product rating scales be examined in order to determine the nature of possible mathematical relationships between such variables.

6. that the effectiveness of the filmloops method of instruction be examined under conditions of free access to the filmloop lessons whenever desired rather than under the restrictions imposed in this limited study.

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Appendix I

Summaries of Films and Film Package Label Information

SUMMARY OF FILM

Staystitching

The film has three main parts:

1. grain behavior and the function of staystitching
2. how to find the direction of grain for stitching
3. how to staystitch

Part 1

The opening shot shows a bodice front cut from a bright fabric having a fine line check printed (on grain) on it.

As hands enter,the shot cuts to a closeup of the neckline area. Fingers stretch the fabric lengthwise,

caption: lengthwise grain

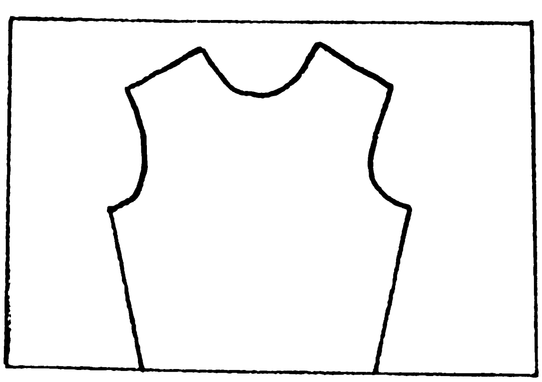
crosswise,
caption: crosswise grain

and in bias and true bias directions.
caption: bias

Repeating the bias pulling on a staystitched sample of the neck area shows almost no yarn movement or distortion.

Part 2

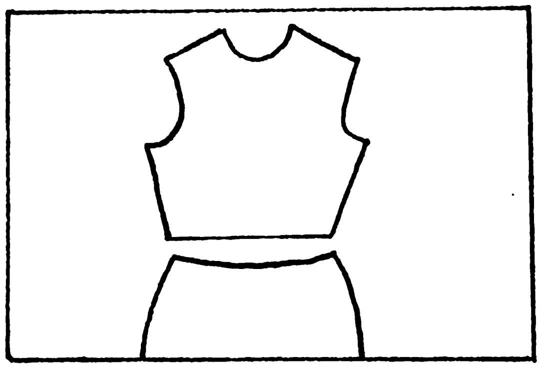
After an establishing shot,



hands enter and show checking of the direction of the grain by running a pin against,
caption: against the grain

and then with the grain of the cut edge.
caption: with the grain

Once the grain direction is established, the film cuts to



and arrows appear to indicate the direction of staystitching of the neckline curve.

caption: staystitching 

This sequence is repeated for the shoulder and armscye seams, the waistline seam, and the bodice and skirt side seams.

Part 3

After an establishing shot of the bodice front, the staystitching of the bodice at the neckline curve is shown in extreme closeup.
caption: almost 5/8" from cut edge

The stitching stops at the center front,
caption: stop at center

the fabric is turned face down, and the other side of the neckline is staystitched from the shoulder edge to the center front so that the stitching meets exactly in extreme closeup.
caption: staystitch with the grain

After thread tails are cut, the staystitched seam line is again pulled on the bias to review the fact that
caption: staystitching prevents stretching.

PACKAGE LABEL

Staystitching

Grain means the direction of yarns in a fabric. When fabric grain is straight, crosswise yarns are exactly at right angles to lengthwise yarns.

When fabric is handled, yarns move and edges may stretch out of shape.

A row of stitching a scant 5/8" from cut edges prevents stretching. Straight grain edges usually do not require staystitching; bias and curved edges do.

Hints on Method:

To determine in what direction to staystitch, run a pin along the cut edge of the seam allowance. Going one way, (against the grain), will push yarn ends out of place. Going the other way, (with the grain), will smoothe yarn ends into place. Always, staystitch, stitch and press with the grain.

Use regular length stitches, 12 - 15 stitches per inch.

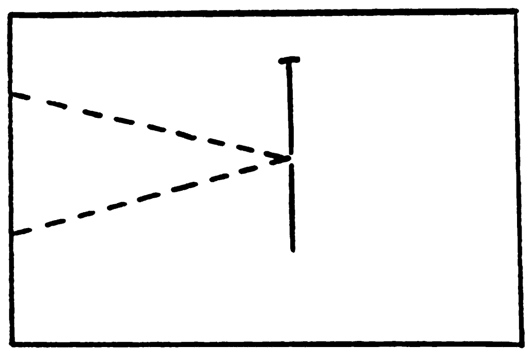
Use matching colored thread; for staystitching, unlike basting, remains in the garment.

SUMMARY OF FILM

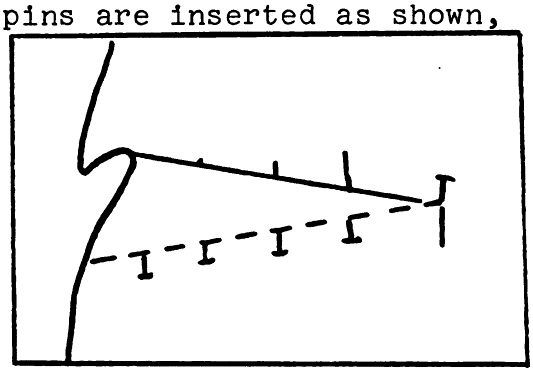
Darts

The opening shot shows a bodice front and cuts to a closer shot of the left side seam and a traced dart.

As hands enter, a pin is inserted through the point of the dart pointing toward the camera in extreme closeup.

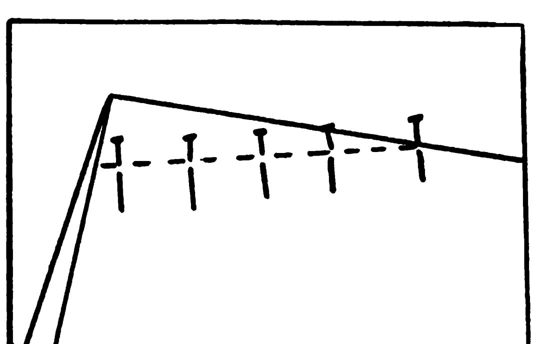


The remaining pins are inserted as shown,

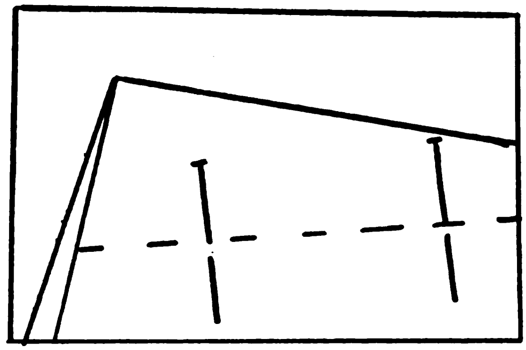


camera shot shows behind the shaded fold

and the fabric is held securely with traced lines and cross marks matching
caption: match cross marks



as pins are turned at right angles to the stitching line.



Fabric moves to the machine for an extreme closeup of inserting the needle in the fabric $\frac{1}{4}$" from the cut edge, reversing, and then stitching forward.

Stitching passes over the first two pins,
caption: stitch over pins...

while the remaining pins are removed.
caption: ...or remove pins

At the point of the dart, the film shows alternate endings, extreme closeup of tying a knot
caption: tie a knot...

and reversing.
caption: ...or reverse

The two end and two beginning thread tails are each cut.
caption: cut all threads

The shot cuts to the ironing board where the dart is first pressed without direction and then pressed toward the waist. Closeups show the exact iron positions on the stitching and near the fold.

The film ends with a shot of the finished outside appearance of the dart area.

PACKAGE LABEL

Darts

Purpose:

A dart takes in material and curves fabric into a rounded shape. For example, flat fabric must be curved in from the hips to the smaller waist. Darts starting about 1" above the fullest part of the hips take in the excess fabric and curve the garment. The long curved line over the bust has to be matched to the shorter line down the back. Darts starting about 1" from the fullest part of the bust take out the extra length so that the side seams match in length. Altering a dart changes the size and shape of a garment.

Hints on Method:

Hold the fabric with the point of the dart to your right. (Left-handed people must hold the fabric and place pins in the opposite direction to what is shown.)

Placing pins through the sewing lines exactly as shown will insure that sewing lines will match perfectly and that pins will always be on top when sewing. Take as little cloth as possible on the pins.

Once a dart is stitched, the fabric is no longer flat. Handle and press accordingly.

Vertical darts are pressed toward the center of the body. Horizontal darts are pressed down.

Appendix II

Test Tools

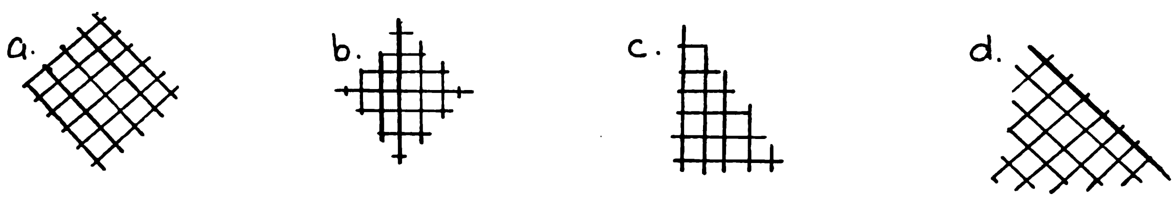
STAYSTITCHING PRETEST

1. The direction in which fabric has least stretch or "give" is:
   a. bias direction
   b. crosswise grain
   c. lengthwise grain
   d. stitching direction

2. The direction in which fabric has most stretch or "give" is:
   a. bias direction
   b. crosswise grain
   c. lengthwise grain
   d. staystitching direction

3. Crosswise grain has:
   a. no noticeable stretch
   b. more stretch than lengthwise direction
   c. less stretch than lengthwise direction
   d. more stretch than a bias direction

4. The diagrams below represent pieces of woven fabric. Which of the pieces has all its edges on straight grain?



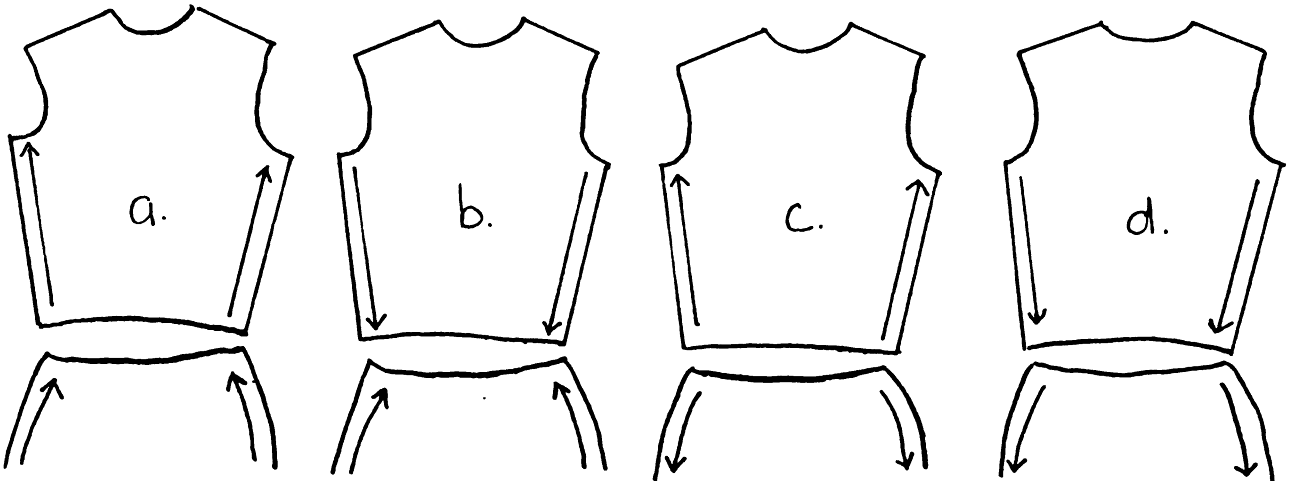
5. To tell crosswise direction from lengthwise direction:
   a. run a pin along the cut edge
   b. stretch the fabric in a bias direction
   c. find the straight grain direction that has the most stretch
   d. check the stretch of the staystitched curves

6. Edges which most need staystitching are:
   a. bias edges
   b. crosswise edges
   c. cut edges
   d. lengthwise edges

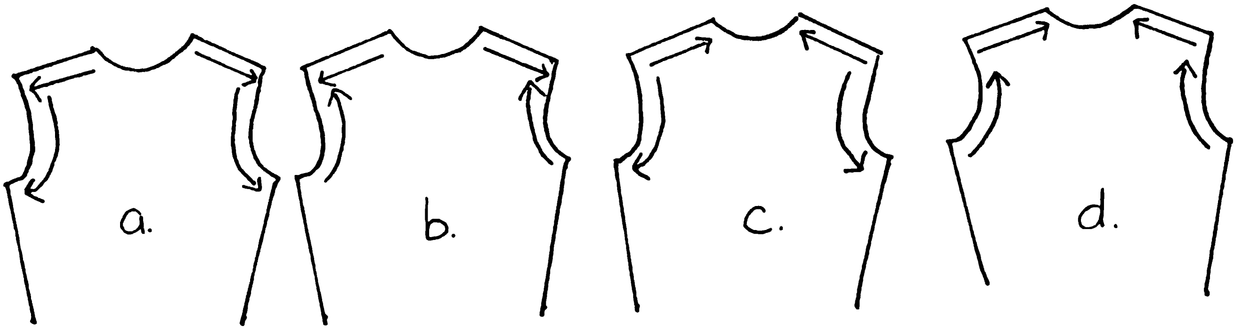
7. The main purpose of staystitching is to prevent:
   a. easing
   b. fraying
   c. shrinking
   d. stretching

8. To find the direction of a cut edge that runs "with the grain":
   a. stretch the fabric
   b. avoid stretching the fabric
   c. run a pin along the cut edge
   d. compare lengthwise and crosswise grain stretch

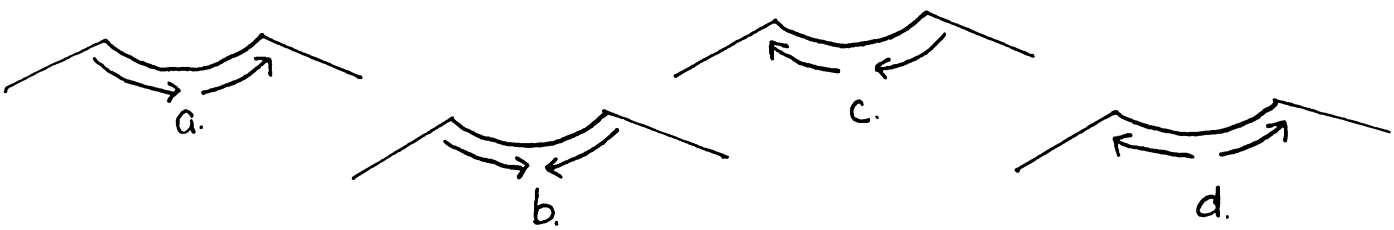
9. In which diagram do the arrows show the correct direction for staystitching side seams?



10. In which diagram do the arrows show the correct direction for staystitching the shoulder and armscye?



11. In which diagram do the arrows show the correct direction for staystitching the neckline?



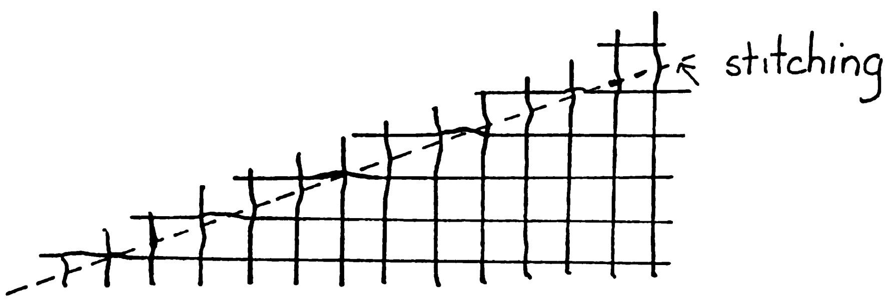
12. Staystitching is placed:
    a. one thread's width from the cut edge of the fabric
    b. one thread's width inside the sewing line in the seam allowance
    c. exactly on the sewing line 5/8" from the cut edge
    d. one thread's width outside the sewing line in the garment

13. Stitch length used for staystitching is usually:
    a. 6 - 8 stitches per inch
    b. 8 - 12 stitches per inch
    c. 12 - 15 stitches per inch
    d. 15 - 18 stitches per inch

14. For staystitching, use a thread color that:
    a. is one shade lighter than the fabric
    b. is noticeably darker than the fabric
    c. contrasts with the fabric
    d. matches the fabric

15. Thread ends of staystitching are:
    a. cut off without tying
    b. reversed and cut off
    c. tied in a knot and cut off
    d. reversed or tied in a knot and cut off

16. The distorted appearance of the fabric below is caused by:



    a. stretching during staystitching
    b. using very small stitches
    c. stitching against the grain
    d. stitching a bias edge

17. Select the statement that is always true:
    a. staystitching is done with the fabric face up
    b. staystitching is done with the fabric face down
    c. cut edges are staystitched
    d. staystitching is done with the grain

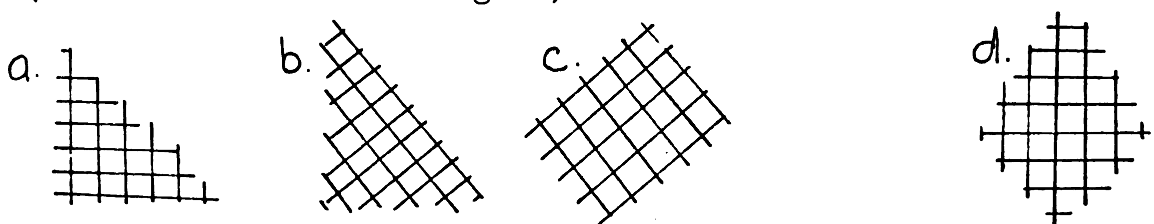
STAYSTITCHING POST TEST

1. Lengthwise grain has:
    a. less stretch than crosswise grain
    b. more stretch than crosswise grain
    c. more stretch than a bias direction
    d. more stretch than any other direction

2. Bias directions have:
    a. less stretch than lengthwise or crosswise grain
    b. more stretch than both lengthwise and crosswise grain
    c. less stretch than crosswise grain only
    d. more stretch than crosswise grain only

3. Crosswise grain has:
    a. more stretch than a bias direction
    b. more stretch than lengthwise grain
    c. less stretch than crosswise grain only
    d. no noticeable stretch

4. The diagrams below represent pieces of woven fabric. Which of the pieces has all its edges on straight grain? (It will have no bias edges.)



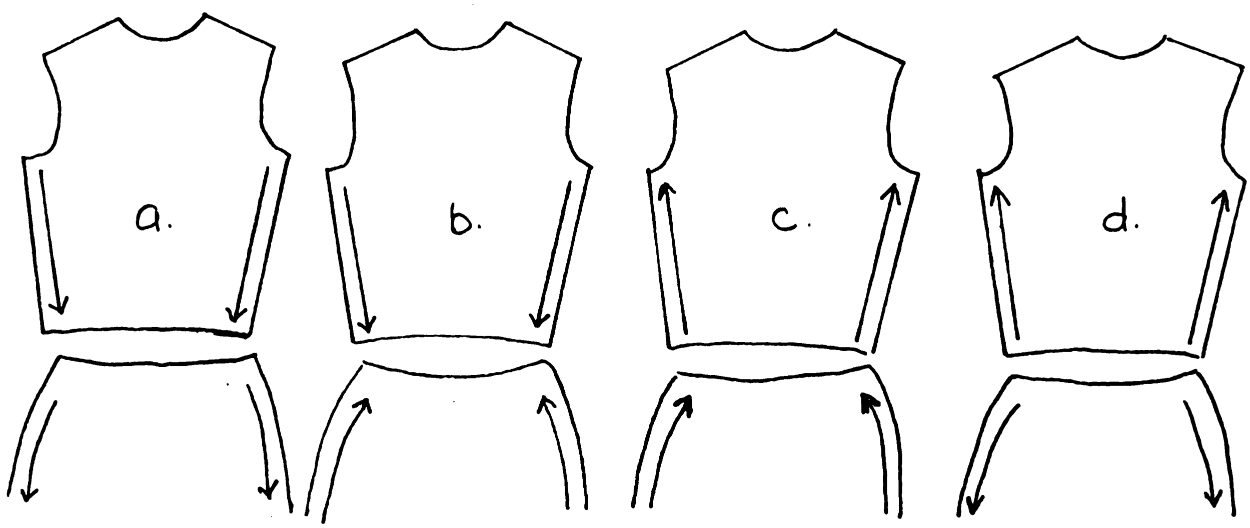
5. To tell lengthwise direction from crosswise direction:
    a. check the stretch of the staystitched curves
    b. find the straight grain direction that has least stretch
    c. run a pin along the cut edge
    d. stretch the fabric in a bias direction

6. Edges which least need staystitching are:
    a. bias edges
    b. crosswise edges
    c. cut edges
    d. lengthwise edges

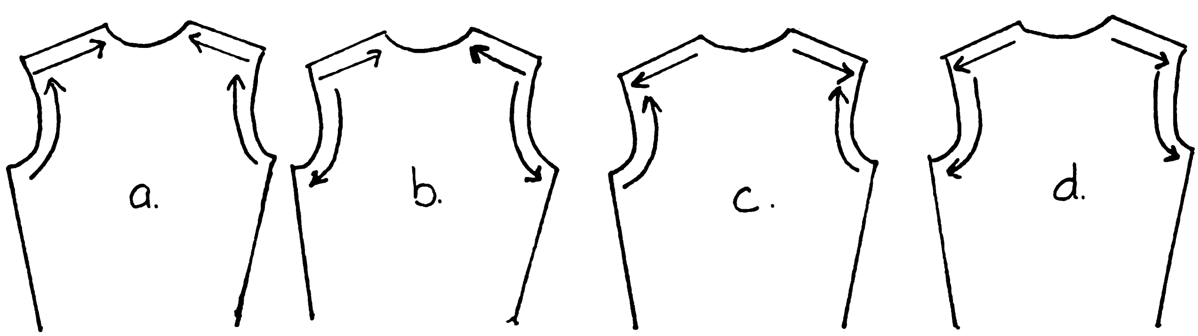
7. Staystitching is used mainly to help:
    a. seam lines keep their shape
    b. keep cut edges from fraying
    c. ease in fabric on curves
    d. keep fabrics from shrinking

8. The purpose of running a pin along the cut edge of a garment is to:
   a. find the direction of the grain
   b. tell crosswise from lengthwise grain
   c. tell where to staystitch
   d. tell how much stretch the fabric has

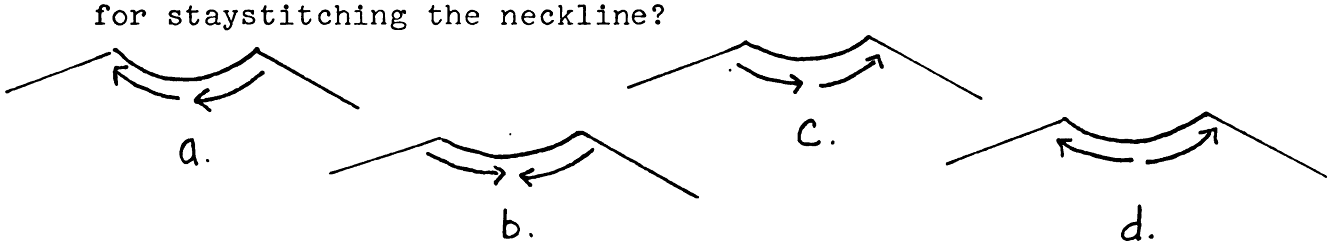
9. In which diagram do the arrows show the correct direction for staystitching side seams?



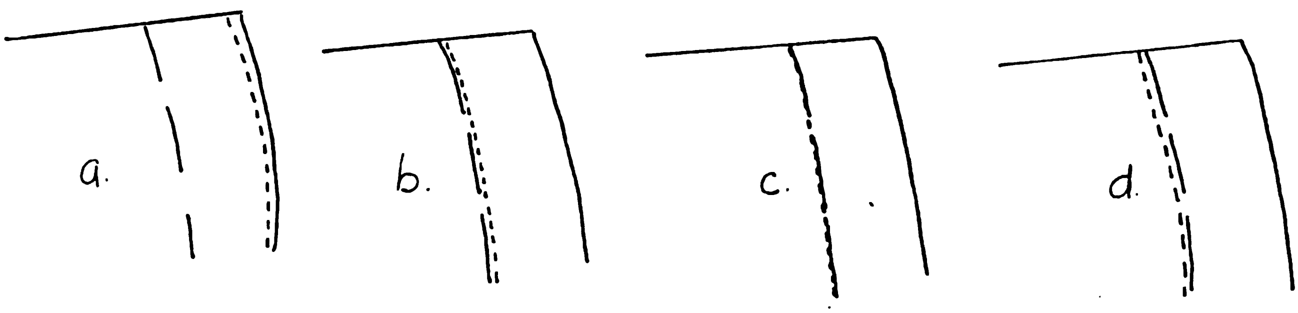
10. In which diagram to the arrows show the correct direction for staystitching the shoulder and armscye?



11. In which diagram to the arrows show the correct direction for staystitching the neckline?



12. In which diagram is the staystitching in the correct location? (The dots represent staystitching; the dashes mark the seam line.)

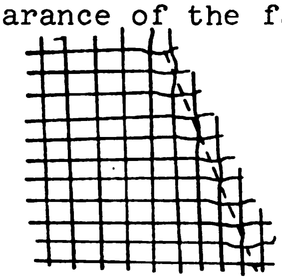


13. Which stitch length is most appropriate for staystitching?
    a. 18 stitches per inch
    b. 14 stitches per inch
    c. 10 stitches per inch
    d. 6 stitches per inch

14. To staystitch bright orange fabric, use:
    a. one shade lighter orange thread
    b. matching orange thread
    c. several shades darker bright orange thread
    d. any color thread except bright orange

15. Thread ends of staystitching are:
    a. cut off without tying
    b. reversed and cut off
    c. reversed or tied in a knot and cut off
    d. tied in a knot and cut off

16. The distorted appearance of the fabric shown below is caused by:



    a. stitching against the grain
    b. stitching a bias edge
    c. stretching during stitching
    d. using very small stitches

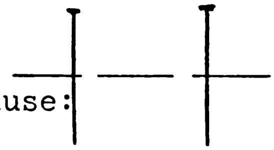
17. Select the statement that is always true:

    If staystitching is done with the grain:

    a. the fabric is face up during stitching
    b. the fabric is face down during stitching
    c. the fabric has right sides together during stitching
    d. it does not matter which side of the fabric is up during stitching

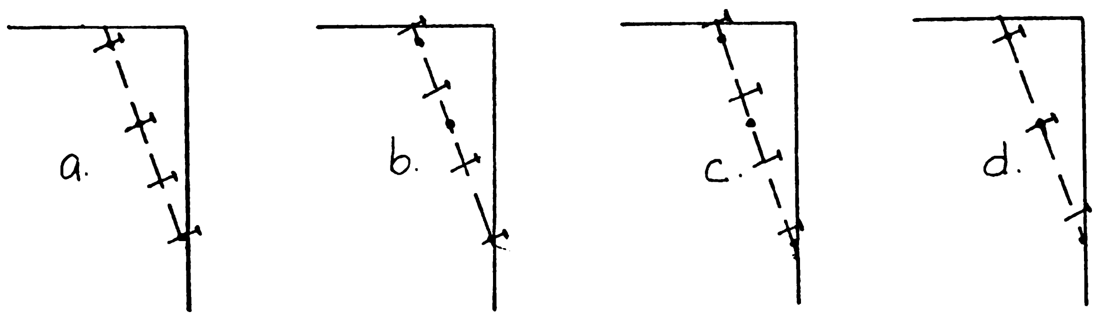
DARTS PRETEST

1. The first pin in a dart is placed:
   a. through the point of the dart
   b. matching cross marks on the dart
   c. through the fold line of the dart
   d. across the wide end of the dart

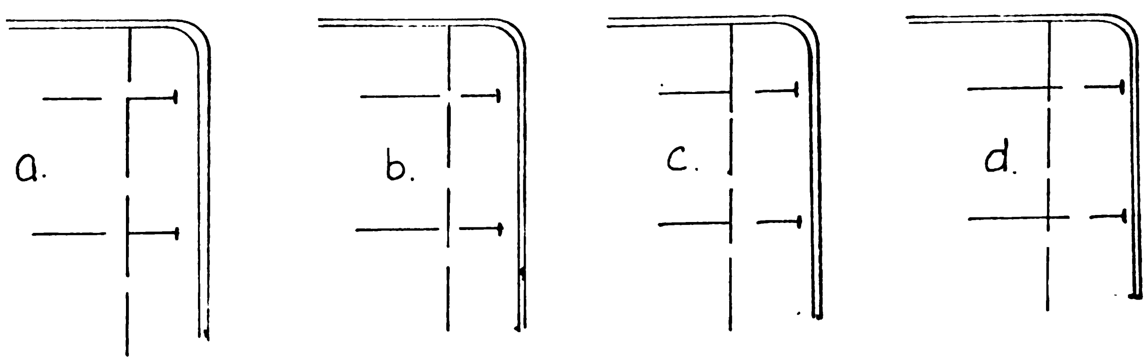
2. Pins are placed across sewing lines,  not along sewing lines,  because:
   a. the fabric will stretch less
   b. the sewing lines will match better
   c. the pins are easier to remove
   d. the pins will hold the fabric more securely

3. In pinning darts, pins are placed at right angles to the:
   a. lengthwise grain of fabric
   b. dart fold line
   c. dart stitching line
   d. dart pressing direction

4. Which dart is pinned most accurately? (Pins are not shown through the cloth to prevent giving clues to other answers.)



5. The diagrams below show two layers of cloth pinned together. Which pinning method would best match the sewing lines with the least handling of the cloth?



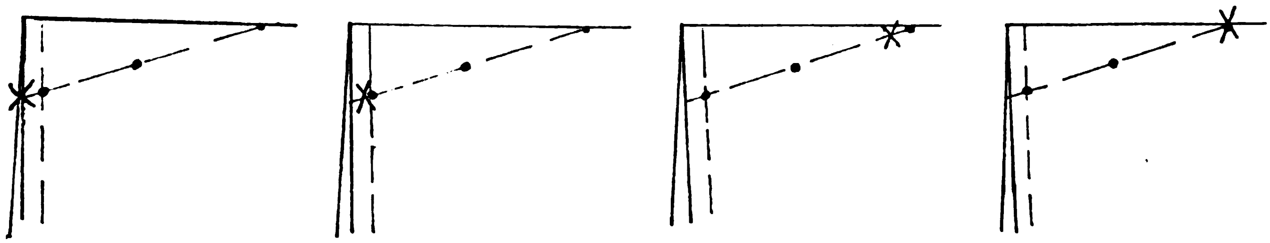
6. Select the <u>false</u> statement:
    a. Pins may be removed while a dart is being stitched.
    b. Pins must not be removed from fabric while the sewing machine is running.
    c. It is possible to stitch over pins.
    d. It is not necessary to remove pins to sew a dart.

7. Which construction step follows pinning?
    a. pressing the fold with the fingers
    b. pressing the stitching area with the iron
    c. stitching
    d. removing pins

8. Why are pins which are first placed through dart sewing lines directed <u>away</u> from oneself?
    a. to help prevent personal injury
    b. to help prevent fabric damage
    c. to have pin heads visible when stitching
    d. to hold the sewing lines together most firmly and most accurately

9. If darts are pinned accurately, which statement is true?
    a. the dart will be stitched the correct length
    b. the dart will be stitched the correct width
    c. the sewing lines will be matched
    d. the stitching line will be straight

10. In which diagram does the X indicate the location to begin stitching the dart? (Pinning is not included in this diagram to avoid giving hints about other answers.)



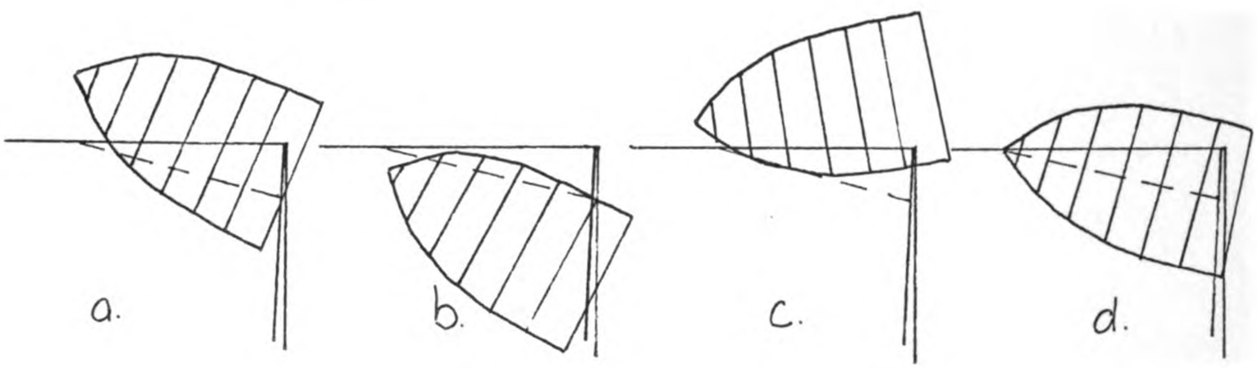
11. In preparing to stitch a dart, thread ends are:
    a. tied together out of the way of the stitching
    b. held together in front of the needle
    c. moved out of the way to prevent knotting
    d. held in the right or left hand during stitching

12. The first step in stitching a dart is:
    a. lower the needle into the cloth
    b. lower the presser foot
    c. remove the pins
    d. hold the thread ends

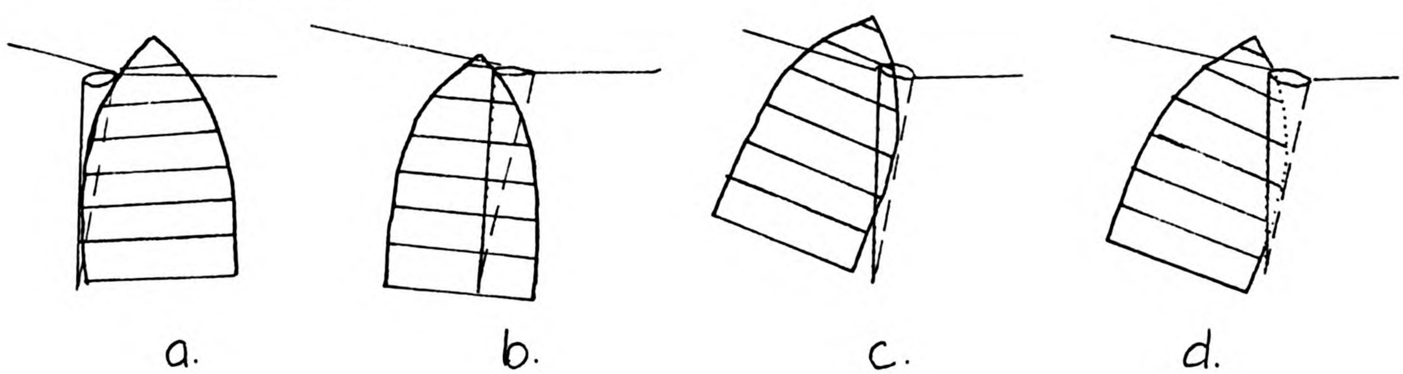
13. In sewing a dart, what method would you use to prevent the beginning stitches from coming undone?
    a. tying a knot, because generally a firm knot is necessary to prevent stitching from coming undone
    b. tying a knot, because hand work improves the quality of a garment
    c. reversing, because two rows of stitching are needed at points of strain
    d. reversing, because it generally saves handling time

14. Select the <u>false</u> statement:
    When using reverse stitching to fasten off the threads at the point of a dart, the stitching may acceptably be placed:
    a. along the fold line
    b. beside the original stitching inside the dart
    c. beside the original stitching outside the dart
    d. exactly on top of the original stitching

15. Which diagram shows the first step in pressing a dart to press only the area that needs pressing?



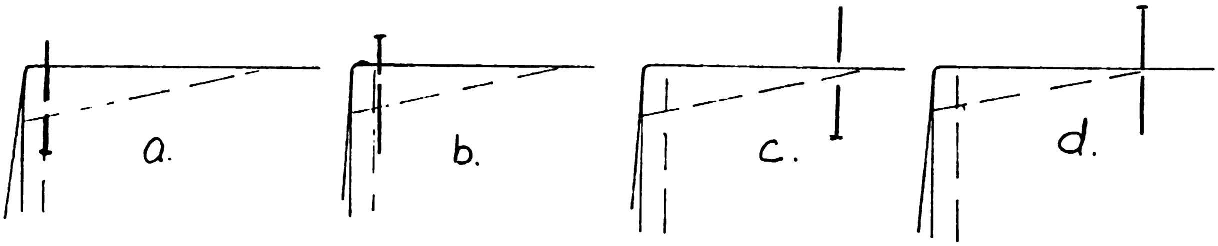
16. Which diagram shows the best method of pressing a dart to the left?

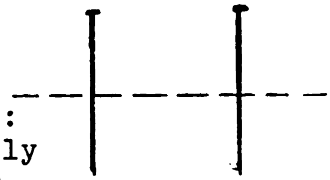


17. Which statement about pressing a dart is <u>false</u>?
    a. all dart stitching is prssed
    b. darts are pressed flat
    c. fabric near the dart is pressed
    d. the fold of the dart is not pressed

DARTS POST TEST

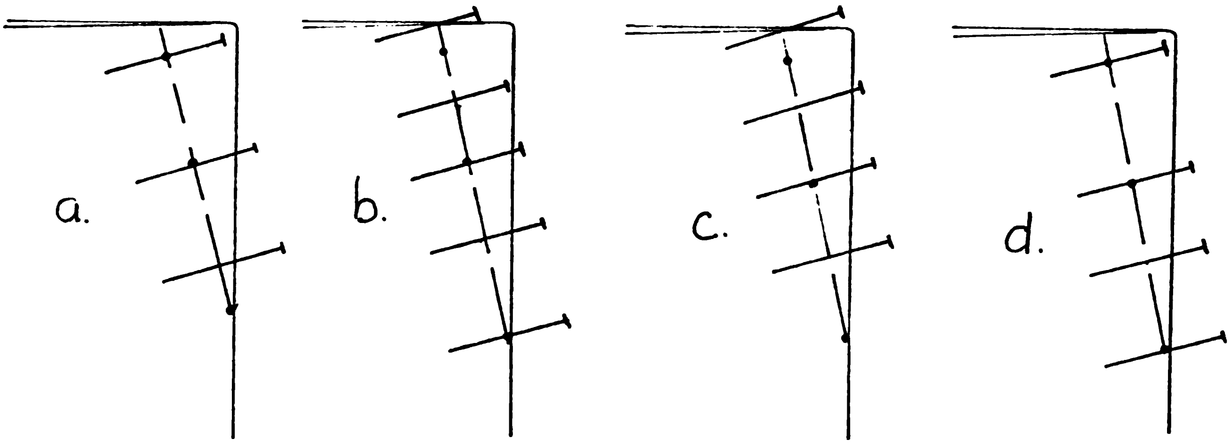
1. Which diagram correctly shows starting to pin a dart?



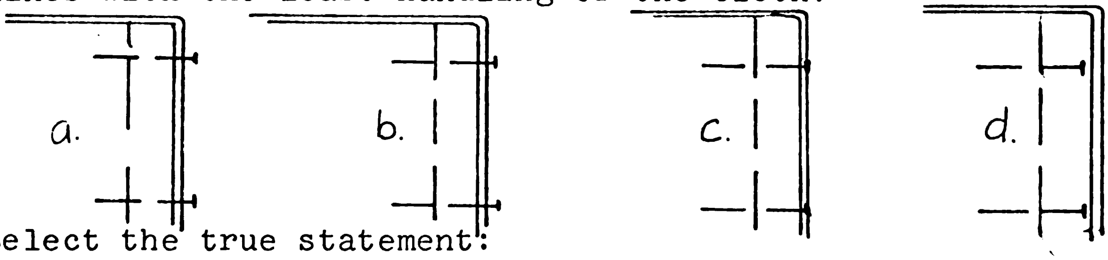
2. Select the true statement:
   Pinning across sewing lines,  not along sewing lines,  :
   a. holds fabric more securely
   b. makes pin removal easier
   c. makes sewing lines match better
   d. prevents fabric from stretching

3. In pinning darts, pins are placed at right angles to the:
   a. dart stitching line
   b. lengthwise grain of fabric
   c. dart pressing direction
   d. dart fold line

4. Which dart is pinned most accurately? (Pins are not shown through the cloth to prevent giving clues to other answers.)



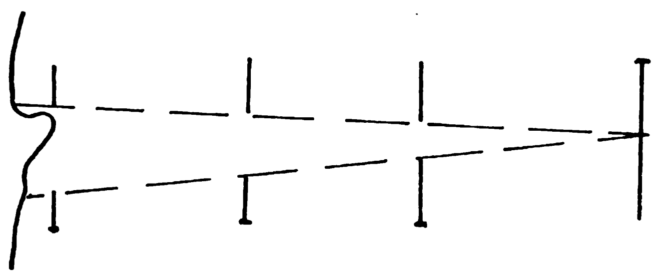
5. The diagram below shows two layers of cloth pinned together. Which pinning method would best match the sewing lines with the least handling of the cloth?



6. Select the true statement:
   a. it is necessary to remove pins to sew a dart
   b. stitching over pins will break the sewing machine needle
   c. pins may be removed from fabric while the sewing machine is running
   d. pins may not be removed from a dart until stitching is finished

7. Which construction step follows pinning?
   a. the fold is pressed with the fingers
   b. the stitching area is ironed to remove wrinkles
   c. the dart is sewn without previous pressing
   d. all the pins are removed for stitching

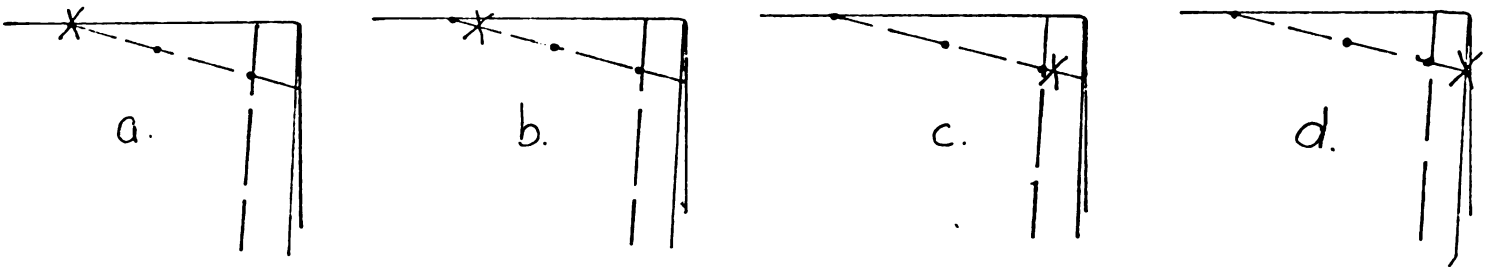
8. In the diagram below, why are all the pins in the dart sewing lines except the pin at the point of the dart directed <u>away</u> from oneself?



   a. to have pin heads visible when stitching
   b. to help prevent fabric damage
   c. to help prevent personal injury
   d. to hold sewing lines together most firmly and most accurately

9. Dart sewing lines will be correctly matched if:
   a. the stitching is straight
   b. the dart is sewn the correct length
   c. the dart is accurately pinned
   d. the dart is sewn the correct width

10. In which diagram does the X indicate the location to begin stitching the dart? (Pinning is not included in this diagram to prevent giving hints about other answers.)



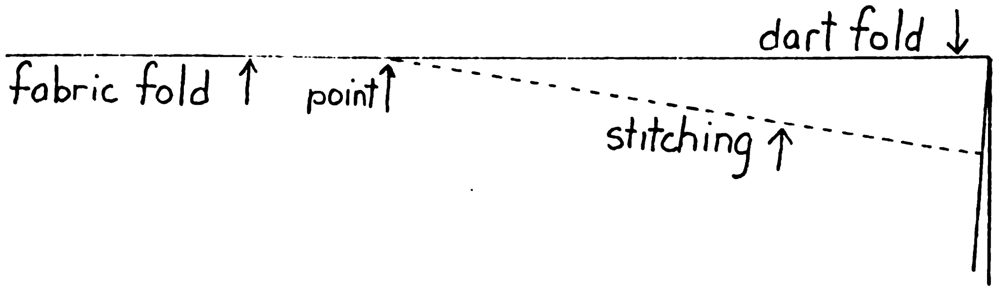
11. Moving the beginning threads out of the way of the needle means:
    a. the threads won't tangle under the stitching
    b. the top thread will not break
    c. the needle will not become unthreaded
    d. reversing will not be needed

12. Lowering the machine needle into the cloth to stitch a dart is done:
    a. after lowering the presser foot so that the cloth will stay still
    b. before lowering the presser foot so that the cloth can be moved as needed
    c. after lowering the presser foot so that pins can be removed
    d. before lowering the presser foot so that the threads will not tangle

13. Select the <u>true</u> statement about preventing the beginning stitches of a dart from coming undone:
    a. tying a knot is faster than reversing
    b. tying a knot is firmer than reversing
    c. reversing is needed for strength
    d. reversing is faster than tying a knot

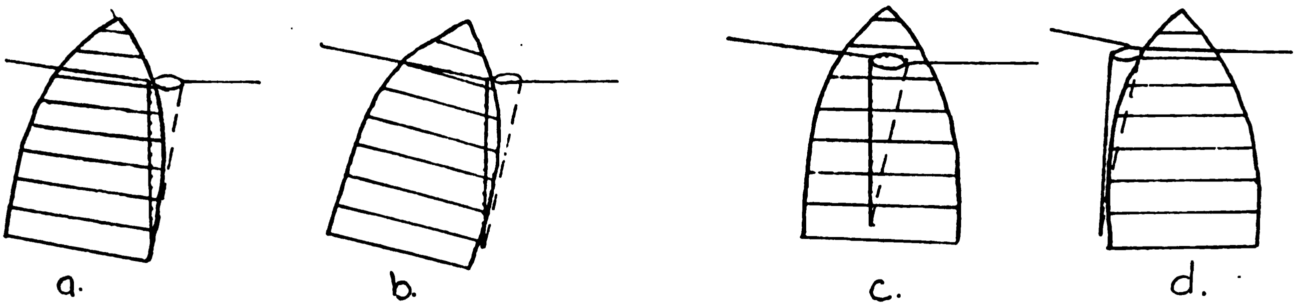
14. When reversing to fasten off threads at the point of a dart, the reverse stitching:
    a. may be placed on top of the original stitching
    b. must fall entirely outside the dart
    c. may fall inside or outside the dart
    d. must not fall on top of the original stitching

15. Examine the diagram below:



To begin pressing the dart area, the iron is first placed to press:
 a. the point only
 b. the stitching only
 c. the stitching and the dart fold only
 d. the stitching, point area and fabric fold

16. Which diagram shows the best method of pressing a dart to the left?



17. Which direction about pressing darts is wrong?
 a. press all stitching
 b. press darts flat
 c. press fabric near the dart
 d. do not press the dart fold

Name________________________

Grade______ Date___________

Process Scoresheet: Staystitching

Pieces observed: bodice skirt

A. Stitch length

checks setting	1
changes incorrect setting	1
accepts incorrect setting	0
changes correct setting	0
accepts correct setting	1
does not check setting	0

B. Tension

changes incorrect tension	1
accepts incorrect tension	0
changes correct tension	0
accepts correct tension	1

C. Bodice

neckline	
stitched with the grain	2
stitched against the grain	1
not staystitched	0
main fabric left of needle	1
main fabric right of needle	0
armscye	
stitched with the grain	2
stitched against the grain	1
not staystitched	0
main fabric left of needle	1
main fabric right of needle	0
shoulder seam	
stitched with the grain	2
stitched against the grain	1
not staystitched	0
main fabric left of needle	1
main fabric right of needle	0
side seam	
stitched with the grain	2
stitched against the grain	1
not staystitched	0
main fabric left of needle	1
main fabric right of needle	0

other (specify)________________

how done________________

D. Skirt

waistline	
stitched with the grain	4
stitched against the grain	2
not staystitched	0
main fabric left of needle	2
main fabric right of needle	0
side seam	
stitched with the grain	4
stitched against the grain	2
not staystitched	0
main fabric left of needle	2
main fabric right of needle	0
other (specify)________________	
how done_________________	

E. Stitching

method	
lowers needle, moves threads, lowers foot	3
lowers needle, lowers foot, forgets threads	2
lowers foot, lowers needle, moves threads	2
lowers foot, lowers needle, forgets threads	1
lowers foot, forgets threads and/or needle	0
lowers needle, forgets foot and/or threads	0
speed	
very quickly, affects control	0
moderate speed in relation to skill	2
extremely slowly	1
thread ends	
cuts all threads as soon as stitching is done	3
cuts end threads; later cuts beginning threads	2
cuts only ending threads	1
breaks threads; cuts later	1
does not cut threads	0

TOTAL SCORE % score_____

Name________________________

Grade_____ Date____________

Product Scoresheet: Staystitching

Piece of garment graded: bodice skirt

A. Stitch length	
very small (over 20 per inch)	0
slightly too small for fabric (usually 15-20 per inch)	2
regular length (usually 12-15 per inch)	4
slightly too large for fabric (usually 8-12 per inch)	2
very large (6-8 per inch)	0
B. Thread color	
selected closest match available	1
selected contrasting color	0
C. Tension	
balanced	2
almost balanced; thread from reverse side may show between stitches	1
unbalanced; one thread lies along surface of fabric	0
D. Location of stitching	
more than ¼" from seam line	0
1/8" - ¼" from seam line	1
1/16"-1/8" from seam line	3
one thread to 1/16" from seam line	5
on seam line	2
E. Evenness of stitching	
stitching follows intended line exactly	4
stitching shows minor wavers from intended line	3
stitching wavers up to 1/8" from intended line	2
stitching wavers 1/8" to ¼" from intended line	1
stitching wavers more than ¼" from intended line	0
F. Endings of stitching	
location	
starts and ends at cut edges (1/8" tolerance)	4
starts and ends 1/8"-¼" from cut edges	2
starts and ends more than ¼" from cut edges	1
thread ends	
all ends cut at end of fabric (¼" tolerance)	4
knotted or reversed and cut (¼" tolerance)	2
thread ends cut leaving ¼"-½"	2
thread ends longer than ½" left	1
knotted or reversed and cut leaving ¼"-½"	1
knotted or reversed and cut leaving ½" or more	0

G. Completeness

completed all required staystitching	4
completed most of required staystitching	3
completed half of required staystitching	2
omitted the majority of required staystitching	1
does not staystitch straight grain edges	2
staystitches straight grain edges	0

H. Grain

fabric matches pattern exactly; no distortion at seam line	4
seam line and/or edges slightly distorted; threads at seam line shifted slightly	2
seam line and/or edges distorted; shape of fabric no longer matches pattern; threads at seam line shifted	0

TOTAL ______

% SCORE ______

Name________________________

Grade_______Date___________

Process Scoresheet: Darts

A. Stitch length	
checks setting	1
changes incorrect setting	1
accepts incorrect setting	0
changes correct setting	1
accepts correct setting	1
does not check setting	0
B. Tension	
changes incorrect tension	1
accepts incorrect tension	0
changes correct tension	0
accepts correct tension	1
C. Pinning	
places first pin through point	2
places pin through point eventually	1
does not place pin at point	0
uses pin to match traced lines	3
folds fabric to match traced lines; checks both layers during pinning	2
folds fabric; pins following top layer traced lines	1
ignores traced lines in pinning	0
does not pin dart	0
pins through all cross marks	2
pins through some cross marks	1
does not pin cross marks	0
turns pins perpendicular to stitching, heads to right	2
turns pins generally crosswise, heads to right	1
turns pins another direction	0
score adjustment for left handed students accept as demonstrated or reversal	
takes adequate fabric on pins	1
takes excess fabric on pins	0
uses too many pins (more than one per inch)	0
uses sufficient pins	1
uses too few pins (less than one per two inches)	0

Stitching	
beginning location	
wide end of dart	1
point of dart	0
method	
lowers needle, moves threads, lowers foot	3
lowers needle, lowers foot, forgets threads	2
lowers foot, lowers needle, moves threads	2
lowers foot, lowers needle, forgets threads	1
lowers needle, forgets foot and/or threads	0
lowers foot, forgets needle position and threads	0
fabric placement	
main fabric left of needle	1
main fabric right of needle	0
pins	
on top	2
changed to top before stitching	1
underneath	0
stitching direction	
reverses	2
double reverses or reverses and ties knot	1
stitches forward; later ties knot	1
stitches forward; does not fasten threads	0
speed	
very quickly, affects control	0
moderate speed in relation to skill	2
extremely slowly	1
ending	
reverses or ties knot	2
double reverses or reverses and ties knot	1
does not fasten thread ends	0
thread ends	
cuts all thread ends at one time	3
cuts end threads; later cuts beginning threads	2
cuts only ending threads	1
breaks threads; cuts later	1
does not cut threads	0
Pressing	
Step 1	
presses stitching and fold	2
presses stitching only	1
presses fold only	1
avoids pressing crease beyond point of dart	1
presses crease beyond point of dart	0
minimum handling and motion; correct pressure	1
excess handline or motion; incorrect pressure	0
omits step 1	0

Pressing (continued)

step 2	
presses dart into place, avoids fold	2
presses dart into place, presses over fold	1
avoids creasing fabric	2
flattens or creases fabric; removes creases	1
flattens or creases fabric; leaves creases	0
minimum handling and motion; correct pressure	1
excess handling or motion; incorrect pressure	0
omits step 2	0
step 3	
checks outside appearance	1
does not check outside appearance	0

TOTAL SCORE ______

% score ______

Name______________________________

Grade______ Date_____________

Product Scoresheet: Darts

A. Stitch length	
very small (over 20 per inch)	0
slightly too small for fabric (usually 15-20 per inch)	2
regular length (usually 12-15 per inch)	4
slightly too large for fabric (usually 8-12 per inch)	2
very large (6-8 per inch)	0
B. Thread color	
selected closest match available	1
selected contrasting color	0
C. Tension	
balanced	2
almost balanced; thread from reverse side may show between stitches	1
unbalanced; one thread lies along surface of fabric	0
D. Accuracy of pinning	
traced lines match exactly	4
traced lines match within 1/8"	2
traced lines mismatched by more than 1/8"	0
E. Accuracy of stitching	
exactly on traced line	4
wavers not more than 1/16" from traced line	3
wavers 1/16"-1/8" from traced line	2
wavers 1/8" -1/4" from traced line	1
wavers more than ¼" from traced line	0
F. Dart Length	
wide end	
stitched to the cut edge	3
stitched to within 1/8" of the cut edge	2
stitched to within 1/8"-1/4" of the cut edge	1
stitching ends more than ¼" from the end mark	0
point	
stitched exactly to the end mark	3
stitched to within 1/8" of the end mark	2
stitched to within 1/8"-1/4" of the end mark	1
stitching ends more than ¼" from the end mark	0
G. Endings	
wide end	
neat, firm knot or reversed 3-6 stitches	2
loose or lumpy knot; bobbin thread tangled; reversed less than 3 or more than 6 stitches	1
double reversed or reversed and knotted	1
thread ends not fastened	0

point	
neat, firm knot or reversed 3-6 stitches	2
loose or lumpy knot; reversed less than 3 or more than 6 stitches	2
double reversed or reversed and knotted	1
thread ends not fastened	0
reversing	
falls on stitching line	2
falls inside dart	1
falls outside dart	0
H. Thread ends	
wide end	
cut at end of stitching ($\frac{1}{4}$" tolerance)	2
cut leaving $\frac{1}{4}$"-$\frac{1}{2}$"	1
ends left longer than $\frac{1}{2}$"	0
point	
cut at end of stitching	2
cut leaving $\frac{1}{4}$"-$\frac{1}{2}$"	1
ends left longer than $\frac{1}{2}$"	0
I. Pressing	
fold	
fold well pressed	2
fold pressed, results mediocre	1
fold not pressed	0
creases or pleats in dart fabric	0
direction	
pressed down or to center of body	2
pressed up or to outside of body	1
not pressed to either side	0
outside appearance	
smooth, well pressed	2
not smooth, fabric appears handled	1
creases near fold or beyond dart point	0
no press mark of dart, iron marks or shine	1
shows press mark of dart, iron marks or shine	0
TOTAL SCORE	______

% score ______

Name____________________Grade_____

The purpose of this questionnaire is to find out what experience you may have had in sewing <u>before</u> you started this course. This information will greatly help your teachers in planning lessons for you; so please answer each question as carefully as you can.

<u>Directions</u>:

Put an X before one answer in each group that best describes you.

1. I have used a sewing machine:
   ____ never
   ____ two or three times
   ____ quite often
   ____ many times

2. I understand how to adjust and operate a sewing machine:
   ____ not at all
   ____ a little
   ____ quite well
   ____ very well

3. Have you ever made articles of clothing or home furnishings?
   ____ no yes, ____ one
   ____ two or three
   ____ four or more

4. Considering your previous experience, in which sewing class do you think you would fit best?
   ____ beginner
   ____ junior
   ____ intermediate
   ____ expert

5. Have you ever had sewing lessons before? (You may have more than one answer to this question.)
   ____ no yes, ____ at home
   ____ grade 6
   ____ grade 7
   ____ grade 8
   ____ Girl Guides
   ____ C.G.I.T.
   ____ 4 H Club
   ____ church group
   ____ other ________________________

Student Reactionnaire

During the past few weeks, you have observed several demonstrations of clothing construction techniques. Some lessons were presented on film, and others were regular demonstrations by your teacher.

We are very interested in finding out how well you liked the film demonstrations in comparison to the classroom demonstrations. This is not a test, and it cannot affect your marks in any way. There are no right or wrong answers. However, please answer the questions below as completely as you can. Your opinions are important to your teachers because knowing what you think will help us in planning lessons for you.

Name ______________________________ Grade ________

1. For each technique, check which kind of demonstration you saw.

   Staystitching
   - a. film demonstration
   - b. class demonstration
   - c. absent from class

   Darts
   - a. film demonstration
   - b. class demonstration
   - c. absent from class

   Preparing a Facing
   - a. film demonstration
   - b. class demonstration
   - c. absent from class

   Applying a Facing
   - a. film demonstration
   - b. class demonstration
   - c. absent from class

2. Thinking about your <u>film</u> demonstrations in general, explain what you <u>did</u> like and what you <u>did</u> <u>not</u> like about this method of having a lesson presented.

   Things I liked:

   ____

   ____

   ____

   Things I did not like:

   ____

   ____

   ____

3. Thinking about your <u>classroom</u> demonstrations in general, explain what you <u>did</u> like and what you <u>did</u> <u>not</u> like about this method of having a lesson presented.

   Things I liked:

   ____

   ____

   ____

Things I did not like:

___

___

___

The spaces below are provided for your comments and opinions about each particular lesson.

Staystitching

___

___

___

Darts

___

___

___

Preparing a Facing

___

___

___

Applying a Facing

___

___

___

Other comments or suggestions:

___

___

___

Appendix III

Item Analysis of

Pilot Study Test Questions

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS

Staystitching Test Items

ITEM 1

	1	2	3*	4	OMIT	NO.	63
U	0	18	82	0	0	DIFF.	37
L	47	0	41	6	6	DISC.	41

ITEM 2

	1*	2	3	4	OMIT	NO.	63
U	100	0	0	0	0	DIFF.	25
L	29	35	12	12	12	DISC.	71

ITEM 3

	1	2*	3	4	OMIT	NO.	63
U	0	76	18	6	0	DIFF.	43
L	35	35	24	0	6	DISC.	41

ITEM 4

	1*	2	3	4	OMIT	NO.	63
U	47	6	47	0	0	DIFF.	56
L	35	12	47	0	6	DISC.	12

ITEM 5

	1	2	3*	4	OMIT	NO.	63
U	18	6	71	6	0	DIFF.	56
L	53	0	35	6	6	DISC.	36

ITEM 6

	1*	2	3	4	OMIT	NO.	63
U	88	0	0	12	0	DIFF.	44
L	24	0	12	59	6	DISC.	64

ITEM 7

	1	2	3	4*	OMIT	NO.	63
U	0	0	0	94	6	DIFF.	32
L	0	0	53	35	12	DISC.	59

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS (Continued)

ITEM 8

	1	2	3*	4	OMIT	NO.	63
U	0	0	100	0	0	DIFF.	30
L	0	71	18	6	6	DISC.	82

ITEM 9

	1	2*	3	4	OMIT	NO.	63
U	6	71	6	12	6	DIFF.	54
L	35	6	35	18	6	DISC.	65

ITEM 10

	1*	2	3	4	OMIT	NO.	63
U	76	6	6	6	6	DIFF.	62
L	0	59	12	12	12	DISC.	76

ITEM 11

	1	2*	3	4	OMIT	NO.	63
U	6	82	0	12	0	DIFF.	37
L	0	24	47	24	6	DISC.	58

ITEM 12

	1	2*	3	4	OMIT	NO.	63
U	0	65	18	12	6	DIFF.	56
L	12	18	65	0	6	DISC.	47

ITEM 13

	1	2	3*	4	OMIT	NO.	63
U	0	0	100	0	0	DIFF.	37
L	12	6	6	71	6	DISC.	94

ITEM 14

	1	2	3	4*	OMIT	NO.	63
U	0	0	0	100	0	DIFF.	48
L	59	24	12	0	6	DISC.	100

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS (Continued)

ITEM 15

	1*	2	3	4	OMIT		
						NO.	63
U	100	0	0	0	0	DIFF.	38
L	12	12	53	6	18	DISC.	88

ITEM 16

	1	2	3*	4	OMIT		
						NO.	63
U	24	0	65	12	0	DIFF.	62
L	24	0	24	47	6	DISC.	41

ITEM 17

	1	2	3	4*	OMIT		
						NO.	63
U	0	0	12	88	0	DIFF.	51
L	59	12	18	0	12	DISC.	88

ITEM 18

	1*	2	3	4	OMIT		
						NO.	63
U	82	18	0	0	0	DIFF.	44
L	12	59	24	0	6	DISC.	70

ITEM 19

	1	2*	3	4	OMIT		
						NO.	63
U	6	94	0	0	0	DIFF.	30
L	18	18	41	18	6	DISC.	76

ITEM 20

	1	2*	3	4	OMIT		
						NO.	63
U	6	71	18	6	0	DIFF.	46
L	18	47	18	12	6	DISC.	24

ITEM 21

	1	2	3*	4	OMIT		
						NO.	63
U	24	6	53	18	0	DIFF.	59
L	29	12	18	29	12	DISC.	35

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS (Continued)

ITEM 22

	1	2*	3	4	OMIT		
						NO.	63
U	0	82	6	12	0	DIFF.	59
L	24	18	29	24	6	DISC.	64

ITEM 23

	1	2	3	4*	OMIT		
						NO.	63
U	12	18	0	71	0	DIFF.	60
L	53	12	6	18	12	DISC.	53

ITEM 24

	1*	2	3	4	OMIT		
						NO.	63
U	100	0	0	0	0	DIFF.	32
L	47	29	6	12	6	DISC.	53

ITEM 25

	1*	2	3	4	OMIT		
						NO.	63
U	88	0	12	0	0	DIFF.	38
L	18	29	18	24	12	DISC.	70

ITEM 26

	1	2*	3	4	OMIT		
						NO.	63
U	12	88	0	0	0	DIFF.	35
L	12	35	12	18	24	DISC.	53

ITEM 27

	1	2	3	4*	OMIT		
						NO.	63
U	12	18	18	53	0	DIFF.	67
L	6	65	6	6	18	DISC.	47

ITEM 28

	1	2*	3	4	OMIT		
						NO.	63
U	0	94	0	6	0	DIFF.	27
L	12	65	6	6	12	DISC.	29

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS (Continued)

ITEM 29

	1	2*	3	4	OMIT		
						NO.	63
U	0	88	6	6	0	DIFF.	32
L	6	59	24	0	12	DISC.	29

ITEM 30

	1	2*	3	4	OMIT		
						NO.	63
U	0	88	12	0	0	DIFF.	30
L	12	53	12	12	12	DISC.	35

ITEM 31

	1	2*	3	4	OMIT		
						NO.	63
U	0	94	0	0	6	DIFF.	46
L	47	6	12	12	24	DISC.	88

ITEM 32

	1*	2	3	4	OMIT		
						NO.	63
U	94	0	6	0	0	DIFF.	33
L	47	12	18	12	12	DISC.	47

ITEM 33

	1*	2	3	4	OMIT		
						NO.	63
U	59	0	35	0	6	DIFF.	51
L	41	6	12	29	12	DISC.	18

ITEM 34

	1	2	3	4*	OMIT		
						NO.	63
U	0	0	12	76	12	DIFF.	52
L	18	24	12	18	29	DISC.	58

Items 18-34 are alternate forms of items 1-17.

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS (Continued)

Darts Test Items

ITEM 1

	1*	2	3	4	OMIT	NO.	63
U	88	12	0	0	0	DIFF.	27
L	53	24	6	12	6	DISC.	35

ITEM 2

	1	2	3*	4	OMIT	NO.	63
U	0	41	41	18	0	DIFF.	57
L	0	24	47	29	0	DISC.	-6

ITEM 3

	1	2	3*	4	OMIT	NO.	63
U	6	18	65	0	12	DIFF.	48
L	18	12	47	0	24	DISC.	18

ITEM 4

	1*	2	3	4	OMIT	NO.	63
U	76	0	6	12	6	DIFF.	48
L	41	6	35	12	6	DISC.	35

ITEM 5

	1*	2	3	4	OMIT	NO.	63
U	29	41	6	18	6	DIFF.	73
L	35	29	12	18	6	DISC.	-6

ITEM 6

	1	2*	3	4	OMIT	NO.	63
U	6	88	0	6	0	DIFF.	19
L	6	71	12	0	12	DISC.	17

ITEM 7

	1	2	3*	4	OMIT	NO.	63
U	18	0	76	6	0	DIFF.	32
L	24	0	71	6	0	DISC.	5

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS (Continued)

ITEM 8

	1	2	3*	4	OMIT	NO.	63
U	12	0	82	6	0	DIFF.	49
L	24	6	24	41	6	DISC.	58

ITEM 9

	1	2	3*	4	OMIT	NO.	63
U	6	6	82	6	0	DIFF.	30
L	12	12	59	18	0	DISC.	23

ITEM 10

	1	2*	3	4	OMIT	NO.	63
U	24	76	0	0	0	DIFF.	54
L	41	12	35	12	0	DISC.	64

ITEM 11

	1	2	3*	4	OMIT	NO.	63
U	12	0	65	6	18	DIFF.	37
L	35	0	53	6	6	DISC.	12

ITEM 12

	1*	2	3	4	OMIT	NO.	63
U	76	12	6	6	0	DIFF.	46
L	35	6	0	53	6	DISC.	41

ITEM 13

	1	2	3	4*	OMIT	NO.	63
U	0	0	59	35	6	DIFF.	56
L	35	6	29	29	0	DISC.	6

ITEM 14

	1	2	3*	4	OMIT	NO.	63
U	6	0	41	41	12	DIFF.	75
L	29	12	12	24	24	DISC.	29

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS (Continued)

ITEM 15

	1	2	3	4*	OMIT	NO.	63
U	41	18	0	41	0	DIFF.	73
L	41	24	6	24	6	DISC.	17

ITEM 16

	1*	2	3	4	OMIT	NO.	63
U	76	6	12	6	0	DIFF.	35
L	29	29	18	24	0	DISC.	47

ITEM 17

	1	2	3	4*	OMIT	NO.	63
U	0	18	0	82	0	DIFF.	52
L	18	35	18	29	0	DISC.	53

ITEM 18

	1	2	3	4*	OMIT	NO.	63
U	0	18	18	65	0	DIFF.	62
L	29	18	12	35	6	DISC.	30

ITEM 19

	1	2*	3	4	OMIT	NO.	63
U	18	47	24	0	12	DIFF.	59
L	6	35	18	24	18	DISC.	12

ITEM 20

	1*	2	3	4	OMIT	NO.	63
U	59	12	6	18	6	DIFF.	44
L	41	18	6	24	12	DISC.	18

ITEM 21

	1	2	3	4*	OMIT	NO.	63
U	0	12	0	88	0	DIFF.	30
L	12	24	18	47	0	DISC.	41

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS (Continued)

ITEM 22

	1	2	3	4*	ITEM		
U	6	12	24	47	12	NO.	63
L	29	12	35	0	24	DIFF.	81
						DISC.	47

ITEM 23

	1	2	3*	4	OMIT	NO.	63
U	0	6	88	6	0	DIFF.	25
L	6	12	47	18	18	DISC.	41

ITEM 24

	1	2	3*	4	OMIT	NO.	63
U	18	0	82	0	0	DIFF.	35
L	29	18	41	6	6	DISC.	41

ITEM 25

	1*	2	3	4	OMIT	NO.	63
U	65	0	18	18	0	DIFF.	57
L	18	12	24	41	6	DISC.	47

ITEM 26

	1	2	3*	4	OMIT	NO.	63
U	0	0	88	0	12	DIFF.	16
L	18	6	59	12	6	DISC.	29

ITEM 27

	1	2	3*	4	OMIT	NO.	63
U	0	6	71	24	0	DIFF.	62
L	12	6	29	35	18	DISC.	42

ITEM 28

	1*	2	3	4	OMIT	NO.	63
U	88	6	6	0	0	DIFF.	27
L	59	6	12	0	24	DISC.	29

ITEM ANALYSIS OF PILOT STUDY TEST QUESTIONS (Continued)

ITEM 29

	1	2*	3	4	OMIT	NO.	63
U	29	59	6	0	6	DIFF.	52
L	24	35	18	18	6	DISC.	24

ITEM 30

	1	2	3	4*	OMIT	NO.	63
U	0	0	41	53	6	DIFF.	65
L	12	6	24	29	29	DISC.	24

ITEM 31

	1*	2	3	4	OMIT	NO.	63
U	88	0	0	6	6	DIFF.	32
L	41	12	24	12	12	DISC.	47

ITEM 32

	1	2	3*	4	OMIT	NO.	63
U	6	0	71	24	0	DIFF.	65
L	12	24	18	47	0	DISC.	53

ITEM 33

	1	2	3	4*	OMIT	NO.	63
U	6	18	12	65	0	DIFF.	33
L	12	29	12	47	0	DISC.	18

ITEM 34

	1	2	3	4*	OMIT	NO.	63
U	0	24	18	59	0	DIFF.	60
L	18	41	18	18	6	DISC.	41

Items 18-34 are alternate forms of items 1-17.

Appendix IV

IQ Scores, Experience Indices, Written Test Scores and Performance Test Scores

8A IQ SCORES, EXPERIENCE INDICES AND TEST SCORES

Student Number	IQ Score	Exp. Index	Stay. Pretest	Stay. Post Test	Stay. Gain Score	Dart Pretest	Dart Post Test	Dart Gain Score	Total Post Test	Total Gain Score	Retention Test	Stay.Proc. Score	Stay. Prod. Score	Dart Proc. Score	Dart Prod. Score	Av. Proc. Score	Av. Prod. Score
101	105	1.2	7	6	-1	5	12	7	18	6	12	66	69	93	83	79.5	76
102	113	.2	3	9	6	6	11	5	20	11	11	87	82	85	87	86	84.5
103	105	.6	6	17	1	6	11	5	18	6	14	91	68	74	79	82.5	73.5
104	87	.5	5	9	4	8	12	4	21	8	14	91	85	79	87	85	86
105	122	1.7	7	14	7	5	11	6	25	13	21	81	82	79	89	80	85.5
106	103	.9	4	8	4	4	10	6	18	10	19	74	82	85	79	79.5	80.5
107	120	1.5	7	12	5	5	11	6	23	11	18	81	97	77	71	79	84
108	116	2.1	7	14	7	8	6	-2	20	5	17	81	91	87	89	84	90
109	84	1.7	5	3	-2	5	7	2	10	0	8	93	82	77	79	85	80.5

8A IQ SCORES, EXPERIENCE INDICES AND TEST SCORES (Continued)

Student No.	IQ Score	Exp. Index	Stay. Pretest	Stay. Post Test	Stay. Gain Score	Dart Pretest	Dart Post Test	Dart Gain Score	Total Post Test	Total Gain Score	Retention Test	Stay. Proc. Score	Stay. Prod. Score	Dart Proc. Score	Dart Prod. Score	Av. Proc. Score	Av. Prod. Score
110	95	.1	5	10	5	5	7	2	17	7	15	..	..	..	..	....	....
111	99	.3	9	9	0	10	12	2	21	2	10	..	..	..	..	....	....
112	88	.4	6	10	4	6	4	-2	14	2	11	..	..	..	..	....	....
113	116	.5	2	8	6	7	9	2	17	8	16	78	71	87	92	82.5	81.5
114	99	.6	3	10	7	3	5	2	15	9	11	85	80	87	80	86	80
115	120	.6	3	7	4	5	7	2	14	6	9	74	68	79	66	76.5	67
116	103	.2	7	10	3	8	12	4	22	7	15	..	..	..	..	....	....

8B IQ SCORES, EXPERIENCE INDICES AND TEST SCORES

Student No.	IQ Score	Exp. Index	Stay. Pretest	Stay. Post Test	Stay. Gain	Dart Pretest	Dart Post Test	Dart Gain Score	Total Post Test	Total Gain Score	Retention Test	Stay. Proc. Score	Stay. Prod. Score	Dart Proc. Score	Dart Prod. Score	Av. Proc. Score	Av. Prod. Score
201	109	2.1	7	13	6	6	9	3	22	9	13	83	74	72	95	77.5	84.5
202	116	.3	8	11	3	6	8	2	19	5	16	58	76	59	60	58.5	68
203	105	.4	6	10	4	8	5	-3	15	1	12	48	35	44	39	46	37
204	86	.2	7	3	-4	0	3	3	6	-1	8	56	53	54	37	55	45
205	88	.2	6	12	6	8	12	4	24	10	16	52	62	78	84	65	73
206	106	1.1	5	4	-1	5	8	3	12	2	8	67	74	72	64	69.5	69
207	79	.6	6	13	7	5	5	0	18	7	11	..	..	..	..	....	....
208	97	2.2	4	7	3	6	9	3	16	6	12	59	62	76	84	67.5	73
209	101	.4	4	3	-1	5	7	2	10	1	8	63	59	78	64	70.5	61.5
210	112	1.8	10	13	3	9	7	-2	20	1	20	78	71	77	87	77.5	79
211	91	1.1	6	10	4	4	10	6	20	10	13	52	47	87	70	69.5	58.5

8B IQ SCORES, EXPERIENCE INDICES AND TEST SCORES (Continued)

Student No.	IQ Score	Exp. Index	Stay. Pretest	Stay. Post Test	Stay. Gain Score	Dart Pretest	Dart Post Test	Dart Gain Score	Total Post Test	Total Gain Score	Retention Test	Stay. Proc. Score	Stay. Prod. Score	Dart Proc. Score	Dart Prod. Score	Av. Proc. Score	Av. Prod. Score
212	115	.2	8	11	3	4	5	1	16	4	11	59	56	79	87	69	71.5
213	93	1.7	7	6	-1	6	8	2	14	1	7	62	44	50	40	56	42
214	112	.7	5	10	5	7	12	5	22	10	8	..	..	..	..	....	....
215	105	1.0	5	11	6	3	7	4	18	10	9	..	..	..	..	....	....
216	105	.4	7	10	3	4	8	4	18	7	13	..	..	..	..	....	....
217	104	.7	6	13	7	4	11	7	24	14	13	..	..	..	..	....	....
218	87	.7	4	6	2	6	6	0	12	2	8	..	..	..	..	....	....
219	116	.2	7	12	5	5	6	1	18	6	15	..	..	..	..	....	....
220	101	.2	5	6	1	8	6	-2	12	-1	10	..	..	..	..	....	....

8C IQ SCORES, EXPERIENCE INDICES AND TEST SCORES

Student No.	IQ Score	Exp. Index	Stay. Pretest	Stay. Post test	Stay. Gain Score	Dart Pretest	Dart Post Test	Dart Gain Score	Total Post Test	Total Gain Score	Retention Test	Stay. Proc. Score	Stay. Prod. Score	Dart Proc. Score	Dart Prod. Score	Av. Proc. Score	Av. Prod. Score
301	104	1.4	5	8	3	5	10	5	18	8	13	..	..	..	..	....	....
302	108	1.7	6	3	-3	7	2	-5	5	-8	8	78	56	64	67	71	61.5
303	99	2.4	7	12	5	10	10	0	22	5	16	63	77	79	83	71	80
304	118	.2	4	11	7	6	11	5	22	12	12	59	59	69	78	64	68.5
305	128	1.8	6	11	5	10	10	0	21	5	17	78	74	89	71	83.5	72.5
306	119	.4	4	9	5	5	11	6	20	11	12	81	89	75	79	78	84
307	116	.7	5	6	1	8	5	-3	11	-2	13	56	50	69	71	62.5	60.5
308	119	.6	4	9	5	6	8	2	17	7	15	81	65	64	66	72.5	65.5
309	92	.2	9	8	-1	6	9	3	17	2	13	70	62	79	79	74.5	70.5
310	103	.7	3	10	7	8	8	0	18	7	8	78	74	64	82	71	78
311	103	1.0	3	11	8	4	10	6	21	14	12	74	75	36	61	55	68

8C IQ SCORES, EXPERIENCE INDICES AND TEST SCORES (Continued)

Student No.	IQ Score	Exp. Index	Stay. Pretest	Stay. Post Test	Stay. Gain Score	Dart Pretest	Dart Post Test	Dart Gain Score	Total Post Test	Total Gain Score	Retention Test	Stay. Proc. Score	Stay. Prod. Score	Dart Proc. Score	Dart Prod. Score	Av. Proc. Score	Av. Prod. Score
312	92	.6	7	11	4	3	6	3	17	7	9	74	91	59	61	66.5	76
313	134	1.1	5	15	10	8	11	3	26	13	16	..	..	..	..	....	....
314	110	.2	2	9	7	5	5	0	14	7	12	..	..	..	..	....	....
315	114	.6	4	8	4	9	11	2	19	6	13	81	82	74	71	77.5	76.5
316	98	.2	5	9	4	5	8	3	17	7	9	..	..	..	..	....	....
317	104	.6	3	5	2	5	9	4	14	6	10	..	..	..	..	....	....
318	100	.4	4	9	5	8	5	-3	14	2	10	..	..	..	..	....	....

8D IQ SCORES, EXPERIENCE INDICES AND TEST SCORES

Student No.	IQ Score	Exp. Index	Stay. Pretest	Stay. Post Test	Stay. Gain Score	Dart Pretest	Dart Post Test	Dart Gain Score	Total Post Test	Total Gain Score	Retention Test	Stay. Proc. Score	Stay. Prod. Score	Dart Proc. Score	Dart Prod. Score	Av. Proc. Score	Av. Prod. Score
401	108	1.8	3	13	10	9	13	4	26	14	15	89	84	85	82	87	83
402	100	1.6	7	9	2	5	7	2	16	4	14	76	88	70	70	80	78
403	99	.7	2	12	10	8	6	-2	18	8	14	83	82	77	74	80	78
404	101	0.0	4	9	5	7	9	2	18	7	15	66	67	64	72	65	69.5
405	108	1.7	7	14	7	9	15	6	29	13	18	82	59	82	82	82	70.5
406	109	.8	6	7	1	5	4	-1	11	0	8	85	79	72	85	78.5	82
407	107	1.5	4	9	5	11	8	-3	17	2	15	85	91	77	71	81	81
408	95	.6	8	6	-2	5	4	-1	10	-3	7	74	56	56	75	65	65.5
409	97	.2	5	6	1	3	5	2	11	3	10	59	53	74	74	66.5	63.5
410	111	.5	8	7	-1	8	11	3	18	2	14	..	..	..	..	....	....
411	92	.2	5	9	4	7	11	4	20	8	13	..	..	..	..	....	....

8D IQ SCORES, EXPERIENCE INDICES AND TEST SCORES (Continued)

Student No.	IQ Score	Exp. Index	Stay. Pretest	Stay. Post Test	Stay. Gain Score	Dart Pretest	Dart Post Test	Dart Gain Score	Total Post Test	Total Gain Score	Retention Test	Stay. Proc. Score	Stay. Prod. Score	Dart Proc. Score	Dart Prod. Score	Av. Proc. Score	Av. Prod. Score
412	125	1.1	5	11	6	6	11	5	22	11	17	70	95	97	84	83.5	84.5
413	125	1.0	9	13	4	2	8	6	21	10	14	..	..	..	..	....	....
414	82	1.1	5	3	-2	2	5	3	8	1	6	..	..	..	..	....	....
415	104	.2	6	10	4	5	7	2	17	6	10	..	..	..	..	....	....
416	115	2.2	5	13	8	8	13	5	26	13	18	81	92	87	85	84	89
417	101	.2	9	12	3	3	9	6	21	9	10	..	..	..	..	....	....
418	97	.2	10	10	0	5	7	2	17	2	14	..	..	..	..	....	....
419	113	.4	8	12	4	9	14	5	26	9	16	..	..	..	..	....	....
420	106	0.0	7	10	3	4	9	5	19	8	13	67	65	72	47	69.5	56

Appendix V

Summary of Responses to

Student Reactionnaire

SUMMARY OF STUDENT REACTIONNAIRE

Comment	Number of Responses
Film Demonstration	
Positive comments	
was able to see	70
saved time	9
liked close-up view of details	7
were easy to understand	7
were more interesting (not boring)	5
were thorough	5
learned more using film	3
answered all questions	3
do not hear the same teacher's voice all the time	2
should always have film demonstrations	2
should have more films	2
were clear	2
paid more attention	1
liked films	1
films are better	1
can see films more than once	1
saves teacher's voice	1
were fun	1
went slowly	1
liked reference tips on the package	1
were precise	1
were fast	1
were short	1
can still answer questions	1
were well-explained	1
Total	70
Negative comments	
should have sound	9
can't ask questions	3
were too fast	2
were not explained well enough	2
was less personal attention	2
were too short	1
Total	19

Comment	Number of Responses
Teacher Demonstration	
Positive comments	
can stop to ask questions	6
was explained (verbally)	6
were okay	3
liked seeing samples	2
Total	17
Negative comments	
could not see (too crowded)	14
was uncomfortable	4
was not as interesting (boring)	3
teacher is too busy to finish off most things	2
teacher lacks time to demonstrate most things	2
did not explain as clearly as film	2
were longer	2
were impersonal	1
teacher gets tired answering questions	1
seemed complicated	1
were harder to understand	1
were terrible	1
Total	34
Staystitching Filmloop	
Positive comments	
was quick (saves time)	4
was easy to do after seeing the film	3
was easier to learn	3
learned as much as possible could	2
liked film	2
could see clearly	2
was able to see it twice	2
was well-done	1
was less trouble to staystitch	1
film made the test easy	1
was interesting	1
Total	22

Comment	Number of Responses
Staystitching Filmloop (cont'd.)	
Negative comments	
was not enough explanation	2
was hard to remember	1
Total	3
Dart Filmloop	
Positive comments	
was easy to do after seeing film	5
was faster way of learning	4
liked seeing film twice	3
could see clearly	2
liked film	2
was well-done	1
was change from classroom demonstration	1
was better	1
film was good because darts are harder than staystitching	1
was enjoyable	1
learned one has to be accurate	1
Total	22
Negative comments	
was hard to do at first	1
was hard to remember	1
would like sound	1
was hard	1
Total	4