Implications for self instructional methods in clothing construction classes
by Helen Boller Clark

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE in Home Economics
Montana State University

Abstract:
This study was to determine procedural demonstration clothing teachers give and their frequency. Additional concerns were which demonstrations would be most useful if filmed and the type of audiovisual equipment available.

The sample included sixty-five clothing teachers in vocationally reimbursed schools of Montana.

Fifty-three demonstrations were said to be given as either to the class or individually. Many were repeated individually although not by each teacher, 'there was some relationship between the demonstrations repeated individually, and those repeated most frequently. In general, the time required for the demonstrations ranged from 6 to 22 minutes; with an average time of 12 minutes.

The ten demonstrations preferred on film by the participants were: zipper application, pressing, buttonholes, set-in sleeves, pattern alterations, methods of hemming, applying facings, linings, waistband application, and sewing equipment use and care.

Over one-half of the participants used 8mm audiovisual equipment Nearly one-third used single-concept cartridge projectors.

IMPLICATIONS FOR SELF INSTRUCTIONAL METHODS IN CLOTHING CONSTRUCTION CLASSES

by

Helen Boller Clark

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree

of

MASTER OF SCIENCE

in

Home Economics

Approved:

Marjorie Kerner
Head, Major Department

Ruth E Orbon
Chairman, Examining Committee

K Goering
Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

June, 1969

ACKNOWLEDGMENT

Without the interest, advice, cooperation and encouragement of many people, this study would not have been possible. The writer wishes to express her sincere thanks to all those who assisted in the project. Particular thanks are extended to Miss Ruth Osborn, Chairman of her Advisory Committee, and Dr. Marjorie Keiser, Head of the Home Economics Department at Montana State University, for their counsel and advice in planning the study and encouragement in writing of the manuscript; to Dr. Gordon Simpson for his enthusiastic support and helpful criticism; and to Dr. Albert Suvak who was responsible for the programs and services of the Sigma 7 Computer.

A special word of thanks is due her husband Ralph, who encouraged and supported this program, and her sons, Jack and Lee, for the patience with which they endured many inconveniences.

Helen Clark

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Figure

ABSTRACT

This study was to determine procedural demonstrations clothing teachers give and their frequency. Additional concerns were which demonstrations would be most useful if filmed and the type of audiovisual equipment available.

The sample included sixty-five clothing teachers in vocationally reimbursed schools of Montana.

Fifty-three demonstrations were said to be given as either to the class or individually. Many were repeated individually although not by each teacher. There was some relationship between the demonstrations repeated individually, and those repeated most frequently. In general, the time required for the demonstrations ranged from 6 to 22 minutes; with an average time of 12 minutes.

The ten demonstrations preferred on film by the participants were: zipper application, pressing, buttonholes, set-in sleeves, pattern alterations, methods of hemming, applying facings, linings, waistband application, and sewing equipment use and care.

Over one-half of the participants used 8mm audiovisual equipment. Nearly one-third used single-concept cartridge projectors.

CHAPTER I

INTRODUCTION

Due to expanding frontiers of knowledge as well as increasing numbers of students, the crowded curricula are facing a re-evaluation of teaching methods. Traditionally, the teacher lectured while the students listened and learned. Over the centuries methods of instruction have been adapted to the content of the courses and such practices as individual or group discussion, experimentation, field trips, demonstrations and perceptualizing the content, have come into being. As Trow has pointed out: "More students are crowding into the school than ever before, each one of whom deserves individual attention, but they find themselves in larger and larger classes...the pressure for excellence demands...taking advantage of the present interest and concern, introduce the necessary innovation."[1] Instruction can be adapted to meet the requirements of the content being taught and Trow suggests it can be "more effectively handled in appropriate ways."[2]

Appropriate media and procedures are those which enrich the student's perceptual experiences, his understanding of the meaning of new concepts and their relationship. Each student needs and deserves individual attention but increased numbers require larger and larger classes.

---

[1] William Clark Trow, Teacher and Technology New Designs for Learning (New York: Appleton-Century-Crofts, Inc., 1963), pp. 170-1.

[2] Ibid., 178.

The innovative teacher needs to take advantage of the student's prime requirements—"the pressure for excellence", and introduce the necessary innovations to encourage learning.

Innovations making use of the senses of sight, sound, smell, taste, and touch can be creative. The teacher's role of simplifying learning concepts to facilitate the student's comprehension can be accomplished by using pictures, the universal language. Using mechanical projectors can broaden the background, engage the interest, motivate and provide information for students.[3]

Providing information for students through motion pictures is beneficial in developing motor coordination. It is the action in motion pictures that counts, especially when the viewer is performing an identical activity. Relating the perceptual information to action and providing a means for its application in a learning situation is important.

One of the newer motion picture developments is the 8mm film loop encased in a plastic cartridge. This cartridge film lends itself to teaching-learning single concepts. It is used in a small compact projector which takes cartridges up to four minutes in length. The single concept film seems very appropriate to the discipline of textiles and clothing. Some films have been commercially produced for use in this area, although there are only a limited number available.

---

[3]Frances B. Taconic and Ann S. Rice, "Make Effective Use of Visual Aids," What's New in Home Economics, 33 (March, 1969) 9-10.

Need for the Study

Audiovisual devices are among the most effective innovations of our technological age. Through them the student can be lead to observe and listen while a teacher charts the path to learning. With proper programming, audiovisual aids can be self-instructing for the student, releasing valuable teacher time and energy.

Much of the skill-learning, which is a necessary part of the Home Economics curriculum, requires frequent demonstrations by the teacher, and then repeated by the student. Teachers often are required to make demonstrations first to the class and then repeat this information individually for the student who could not see well, or grasp the basic concept as quickly as the average. It is not known how much time is spent in such activity or which demonstrations are the most often repeated.

Audiovisual materials are expensive. There is little value in making an excellent aid if it is not one that meets the needs of the teacher. There is also lack of knowledge regarding instruments available to teachers in the high schools. Obviously, if excellent aids of the most often used demonstrations are produced, and the teacher has no means of showing them, little value is gained.

Purpose of the Study

The purpose of this study was to determine what demonstrations the clothing and textiles teacher must repeat most often, and to how many students. Supplementary knowledge concerning the availability of audiovisual aids was also obtained.

Hypothesis

Teachers do not give more than one demonstration of a perceptual-motor skill to students in Home Economics clothing classes.

Teachers do not give individual or small group demonstrations in Home Economics clothing classes.

Teachers do not need to give frequent repeat-demonstrations of perceptual-motor skills to students in Home Economics clothing classes.

No correlation is found between the demonstrations teachers repeat frequently and the demonstrations teachers would like to have on film.

Definition of Terms

To prevent any misunderstanding of terms used in this paper, the writer has included those used most frequently in relation to audio-visual aids and classification of schools in Appendix A.

CHAPTER II

REVIEW OF LITERATURE

Traditionally the development of manipulative skills in clothing construction has had an important place in the home economics curriculum. In recent years, however, more emphasis has been placed on the understanding of basic concepts in garment construction, as well as the development of creative activity. These philosophical considerations have been intensified by increase in students, limited laboratory space and lack of qualified personnel. Under these conditions it becomes impossible for the instructor to provide as much opportunity as necessary for the students to learn through practice. Methods which can help the student meet the practice requirement will need to be developed.

Self-Learning Devices

Audio Aids

Whether at home or in school, the earliest medium of instruction was the spoken word. The work of the schoolmaster was once comparatively simple; formalized lectures were the common method of passing information from teacher to student. However, a rapidly growing technology has produced striking changes. Inventions make the possibility of oral communication limitless. Audiovisual aids enrich classroom experiences.

Explanations to pictures can be provided by audio devices coordinated with slides and filmstrips. This is supported by Trow when he

suggests that audio devices can be used with pictures and filmstrips to teach skills, thus bringing "the pupil to a higher level of performance".[4] Those used in the classroom include pre-recorded tapes and records, transcriptions, educational radio and tape recorders. When the student is concentrating on the speaker and trying to visualize the explanation, she needs an effective listening environment.[5]

Visual Aids

"The goal of all learning," according to Dale, "is to develop the independent learner..."[6] This is supported by Bloom who says: "when the student encounters a new problem or situation, he will select an appropriate technique for attacking it..."[7]

Dale emphasized that:

> Perceptual-motor skills require overt practice for their achievement. Pupils do not learn to play basketball, to prepare meals, to do handwriting, or to operate a typewriter by just reading about these activities or the skills involved in learning them, and the more complicated the skill, the more varied the practice and supervision which it will require. Instructional materials must, therefore, be developed to meet these practice-requirements and, whenever possible, be made self-teaching.[8]

---

[4]William Clark Trow, Teacher and Technology, New Designs for Learning (New York: Appleton, Century-Croft Co., 1963), p. 65.

[5]Edgar Dale, Audio-Visual Methods in Teaching, rev. ed.; (New York: Dryden Press, 1954), p. 294.

[6]Edgar Dale, "Instructional Resources," The Changing American School, Sixty-fifth Yearbook of the National Society for the Study of Education, Part II (Chicago, Ill.: Univ. of Chicago Press, 1966), p. 108.

[7]Benjamin S. Bloom, ed., Taxonomy of Educational Objectives Handbook I: Cognitive Domain (New York: Longmans, Green & Co., 1956), p. 38.

[8]Dale, "Instructional Resources", Op. Cit., p. 93.

Many instructional aids promote self-teaching. As early as Socrates, the value of textbooks was discovered. Today, textbooks are widely used in home economics classes. They enable students to study individually at their own rate of speed. Books present facts and ideas at a nominal cost. However, not all students grasp concepts from just reading them in printed words. Students are narrowly bound by their reading experience, and forget much of what they read. Textbooks are frequently uncritical, inflexible, and soon out of date.[9]

Workbooks are an instructional resource that guide personal activities. Advantages of workbook activities are students can individually amplify and integrate other related materials; and they also help students to organize facts and concepts in the written or sketched form. When using a workbook, the student gives individual thought to learning. One disadvantage of workbooks, as in textbooks, is that they deal only with abstractions. Frequently textbooks and workbooks need supplemental explanations or a demonstration to make the point "come alive" for a class.[10]

Another tool of learning is programmed instruction. Programmed instruction is a method of arranging content-structure so it is self-correcting, self-instructing, and can be used where elements of learning are basic, systematic, and predictable. The student checks the accuracy of his replies and moves forward step by step. At present programmed

---

[9] Dale, "A-V Methods in Teaching", Op. Cit., p. 58.

[10] Frow, Op. Cit., p. 59.

learning chiefly involves reading and is used individually as a self-pacing instruction.

"Learning in some classrooms stops with knowledge. Learning acquired by the use of some self-instructional programs also stops with knowledge."[11] Johnson, Clawson and Shaffner concluded it was possible to program self-instructional materials to guide students through the sequence of learning experiences, to an understanding of the sewing machine, commercial patterns, and the completion of a garment (blouse). Students were also guided to an awareness of garment appearance when procedures were followed completely. This research indicated it is possible that programs which guide students to develop motor skills can be written. However, in this research additional visuals and tactile aids were used when it seemed necessary for students to see, feel, or evaluate realistic examples.

The Armed Forces have used programmed instruction because of the necessity of training great numbers of technical people in the shortest possible time at minimal expense. Briggs states the Air Force has successfully used programmed self-instructional materials with a reduction in training time of 25 to 50 percent and up to 33 percent to an increase in level of achievement.[12]

---

[11] Hildegarde Johnson, Barbara Clawson, and Sarah Shaffner, "Using Programmed Instruction to Teach a Skill for Transfer," Journal of Home Economics, 61 (January 1969), 36.

[12] James E. Briggs, Lt. Gen. USAF (Ret.), "Programmed Breakthrough in Air Force Training," Trends in Programmed Instruction, ed. Gabriel D. Afresh and Wesley C. Meierhenry, (Washington, D.C.: Dept. of Audiovisual Instruction National Education Assoc. of U.S. 1964), pp. 132-133.

Programmed instructions can motivate learning where other methods have failed. The Draper Project illustrated this in the Alabama correctional center. Individuals with a history of failure in the normal class room found gratification when their answers were correct 90 percent of the time. In this institution boys using programmed self-instructional materials registered a gain of three grade levels in five and one-half months.[13]

Most programmed instructional materials are verbal and results can have the same superficial learning as textbooks which emphasize uncritical memorizing. Some students are bored by this mechanized, rote-approach to learning.

Disadvantages can also become advantages since problems that require rote-and drill-learning are easily accomplished by this method of instruction. Actual problems can be transferred to learning situations through the programmed method. Students can go through the programmed materials, each at his own optimum pace and achieve his own maximum quality performance, in the shortest possible time with minimum assistance needed from an instructor.

One kind of programmed instruction is the film, proven to be a successful method of stimulating the desire to learn. Several types of film are available in 16mm, 8mm, and film strips. Classroom teachers are

---

[13]John M. McKee, "The Draper Experiment: A Programmed Learning Project," Trends in Programmed Instruction, ed. Gabriel D. Afresh and Wesley C. Meierhenry, (Washington, D.C.: Department of Audiovisual Instruction National Education Assoc. of U.S. 1964), pp. 132-133.

limited by availability of equipment to them or an inadequate budget with which to purchase film and equipment. A study by NEA in 1967 showed that 84.5% of the teachers had access to 16mm motion picture projectors, while 3 in 10 had 8mm projectors; 92.3% had silent filmstrip projectors and 54.5% had sound filmstrip projectors. This study showed that 81% of the teachers use the silent filmstrip projector and 3 out of 4 teachers used the 16mm motion picture projector while 43.9% used the sound film strip. In the secondary classroom, 16.1% of the teachers were using the 8mm projector, as compared to 15.4% of the elementary teachers.[14]

Audio Visual

The students usually desire "to see" motor-skill methods. Techniques in which the instructor shows the learner in groups or individually the "how to" activities seem more successful. Dale suggests success depends on focusing attention on important basic steps so all can observe the activity and then provide practice for students to emulate the demonstration.

Demonstrations help to socialize learning experiences of the students when they allow for exchange of ideas, observations and comments.[15] The disadvantage of demonstrations can be noted when the group is too large or the distance too great between the observer and demonstrator. Repeated individual demonstrations may be costly in both time and money

---

[14] "Instructional Resources in the Classroom," NEA Research Bulletin 45 (October, 1967), 75-6.

[15] James W. Brown, Richard B. Lewis, Fred F. Harcleroad, A-V Instruction Materials and Methods. (New York: McGraw-Hill Co., 1959), p. 184.

spent for materials. By presenting demonstrations on film, the time in performance and the expense of materials can be eliminated after the original demonstration is filmed. One of the most common uses of film is to record demonstrations.

Finn[16] suggests that films are useful because not all students can communicate with high level abstractions; not all students learn through the same sequence of symbolic manipulations; and students even vary within their listening ability. This concurs with Zornow,[17] who states that:

> Students learn at different rates. The 8mm concept teaching allows individuals to learn at their personal individual rate of learning. Further that the student can go over and over the information until he personally absorbs the lesson.

In an address given at the National Visual Aid Workshop in 1949, Parks stated "visual aids can develop interest in learning. He further reported, "we increase the possibility of retention by using what we have learned; also, an understanding of what we are trying to learn increases retention." In studies with the Armed Forces, Parks pointed out that "visual aid enrichment materials increased learning 35 percent and retention 55 percent."[18]

---

[16]James D. Finn, "A Possible Model for Considering the Use of Media in Higher Education," AV Communications Review, 15 (Summer 1967), 153.

[17]Gerald B. Zornow, "The $1000-A-Minute Complex. Some Observations on the Pitfalls and Promises Surrounding Super-8 Film Systems," Address at the Calvin Workshop, Kansas City, Mo., February 6, '67. Published.

[18]Joe Parks, "Seeing is Indeed Believing," The Place of Audio-Visual Aids in the Learning Process, ed. by Nell B. Leonard (Ithaca, N.Y.: Cornell University Press, 1949), pp. 36-37.

One of the most common uses of the film is to demonstrate a skill. A serious limitation of this, however, is what is termed "delayed imitation". Lumsdaine[19] pointed out that most demonstration films are limited by this factor and suggested a need for shortening the time between demonstration and performance.

By using television in the classroom, lectures and demonstrations or other illustrative material can be presented very effectively.[20] Television, however, has the disadvantages that materials can not be "prejudged" in advance of the program; there is the possibility of inconveniently scheduled materials, and there is no chance for a replay later to clarify any segments of the program.

Classroom projected films can be viewed and restudied. If a film deals with a complex skill, one showing may be insufficient. By showing the film in the practice area, the student can refer to the film model as often as necessary. The 8mm film in the classroom for individual or small group use can minimize the time between viewing and actual practice of an experience.

The standard 8mm film has undergone recent improvement through the development of a new format. Kodak's "Super 8" and "Format M', designed by John Maurer of J. M. Developments, Inc., New York, both show promise for the future of 8mm film. A clearer and enlarged image has

---

[19] A. A. Lumsdaine, "Instruments and Media of Instruction," Handbook of Research on Teaching, ed. by N. L. Gage, Project of American Educational Research Assoc., Dept. of NEA (Chicago, Rand McNally Co., 1963), p. 649.

[20] Trow, Op. cit., p. 82.

been created by reducing the size of the sprocket holes.[21] These new formats also lend themselves to improvement in the sound track. It is now possible to use magnetic sound-stripping next to the picture frame rather than on the edge of the film, thereby reducing damage to the sound track.[22]

The demand for "Super 8" is rapidly expanding. Behrens and Harmon[23] suggest the choice between standard 8mm and Super 8 was agonizing, with the final choice favoring the Super 8, because the Super 8 format is well adapted to original productions and has advantages over the standard 8mm in size of image and quality of projection. Even though the Super 8 is taking a larger share of the market, the standard 8 is not dead nor is it likely to die for a long time to come. There are millions of 8mm cameras and projectors in use in educational systems.[24]

Recent developments in technology have made possible a cartridge-type film with sound strips that can be operated by students. Two systems account for the greatest part of 8mm's educational use today: Technicolor Corporation's Magi-Cartridge and Fairchild's Instrument Corporation's Movie-Pak. Fairchild projectors are designed for sound or silent

---

[21]Louis and Jean Forsdale, "The New 8mm Format," Audiovisual Instruction, 11 (January, 1966), 11.

[22]Herbert Scuorzo, "The Big Boom in Film Loops," Grade Teacher, 83 (February, 1966), 83.

[23]John H. Behrens and Bud G. Harmon, "Economical and Efficient Autotutorial References," Audiovisual Instruction, 12 (May, 1967), 450.

[24]Joyce Sullivan, "The Single-Concept Film." Unpublished Research Paper (prepared Spring, 1968), p. 6.

projection up to 30 minutes in length. Technicolor cartridge systems have a maximum running time of four minutes per reel. Both have rear-screen projection, television screen-type models, as well as front projection. The two systems are not interchangeable.[25]

The cartridge film may be shown anytime by inserting it into the slot in the projector and turning the switch on. It is held in looped form, thus the projectionist never touches the film. Films encased in plastic cartridges can be inserted into the projector in ten seconds; and it is impossible to project an up-side-down image.[26] When finished, the projector may be turned off, and the cartridge pulled out, ready for storage and future projection. If desired, the switch may be left on for continuous showing. While the film is being projected, it may be stopped on any frame for still picture examination or instruction. It may be turned off during any part of the movie, leaving the film at that point until further projection is desired. Another advantage is the protection provided by the plastic case, which protects it from dirt, scratches, and fingerprints during use.[27]

This technical advance has revised thinking concerning material included in filmed demonstrations. Attention is being directed to the application of the single-concept film in the school curricula as an aid

---

[25]Herbert Scuorzo, "The Big Boom in Film Loops," Grade Teacher (February, 1966), p. 83.

[26]Herbert Scuorzo, "Single Concept Film," Grade Teacher, LXXXI (May, 1964), 76.

[27]Lester B. Sands, Audio-Visual Procedures in Teaching, (New York: Ronald Press Co., 1956), p. 292.

to independent study and learning. The single-concept film is an educational movie which focuses all attention on one specific idea. A type of single-concept is the skill film, which presents a model to observe and imitate in developing a skill. De Kieffer[28] and Thieme[29] agree that single concept films can change students' attitudes and opinions, and motivate the students to try new methods and learn new skills.

The 8mm single-concept film time-length ranges between two minutes and thirty minutes. The majority of films currently available are in the two to four minute range. Originally, the single-concept was introduced as a silent film. Sound-on-film, however, has been made possible with magnetic stripping or optical track methods. Color productions are also currently possible in single-concept films. The introduction of sound and color has created a surge of interest in the educational uses of 8mm film.[30]

The advantages in using the single-concept film and projector as teaching aids are numerous. One of the most important advantage is being able to present identical materials to all groups of students in different sections of the same classes. Lengthy explanations by the instructor are eliminated. These aids allow a class, either individually or in small groups, to see intricate details not readily seen in a demonstration

---

[28]Robert E. DeKieffer, Audiovisual Introduction, (New York: Center for Applied Research in Education, Inc., 1965), p. 3.

[29]Eberhard Thieme, "Single Concept Films Provide Continuous Instruction," What's New in Home Economics, 31 (April, 1967), 46.

[30]Joyce Sullivan, op. cit., p. 3.

by the instructor.[31] In the study conducted at Syracuse University, Short[32] reported that students who are absent can make up work easily by using the cartridge tape. It is also a quick way for students to review.

Grey and Brumback[33] concluded that repeated viewing did reinforce the learning, and that day-light viewing did not detract from the effectiveness of the single-concept film loop projection. To summarize Kinder[34] the automatic 8mm projector should be welcome in any program emphasizing individual study; it is simple, inexpensive, lightweight, and can be used anywhere there is current available.

Criteria for Motor-Learning Devices

To date, educators and audiovisual specialists have been unable to find a blueprint for making educationally significant teaching materials for motor-learning. Dale[35] suggests that the best technique for making an effective aid is to base it on important elements in the learning process itself. He proposes that the three elements basic to creating designs for exposition are: amplification, simplification, and

---

[31] Judith Lindner Shriver, "An Exploratory Study in the Use of Visual Aids to Supplement the Beginning Clothing and Textiles Program at Regional Campuses" (Unpublished Master's thesis, Purdue, 1966), pp. 57-58.

[32] Sarah Short, Personal Correspondence (July, 1968).

[33] Charles A. Grey, Wayne B. Brumback, "Effect of Daylight Projection of Film Loops on Learning Badminton," Research Quarterly 20, (Spring, 1957) 569.

[34] James A. Kinder and Dean F. McClusky, The Audio-Visual Reader, (Dubuque, Iowa: Wm. C. Brown Co., 1954), pp. 59-60.

[35] Dale, A-V Methods in Teaching, Op. cit., pp. 13-19.

organization.

Very few students can learn how to do a complex act from written or spoken directions; it is through emulation that learners most easily acquire their ability. If a learner cannot actually see the act being done, it is important that he be given a substitute experience in which he is able to emulate a correct model. These substitute visual aids should not only be "authentic, accurate, truthful and significant but also they should be simple in organization and construction. The simpler the visual, the better."[36]

Complex pictures tend to distract attention, thus weakening the value of a picture. Kinder maintains that visual aids in themselves are not always instructive. "People do not always see the significant features of a picture...interpretation is always a keynote."[37]

The following criteria for the selection of visual aids and other illustrative material were established by Hogan in 1948; she proposed that all aids must:

1) Contribute directly to the unit being studied and to the goals of the class.
2) Be based on the interests and needs of the students for which it is intended.
3) Contribute to the individual growth of the student.
4) Assist in clarifying a point.
5) Emphasize application of the principles being taught.
6) Stimulate and maintain interest on the part of the student.
7) Set commonly accepted standards for the particular level.
8) Be easily interpreted by the group.

---

[36] Paul T. Williams, "Building Mental Images." The Nation's Schools XLII, (December 1948), 54-55.

[37] James A. Kinder and Dean F. McClusky, The Audio-Visual Reader. (Dubuque, Iowa: Wm. C. Brown Co., 1954), p. 81.

9) Be easily heard by the group.
10) Attract attention by its artistic appeal.
11) Contain information which is up to date.
12) Allow the student to visualize the finished product.
13) Be adaptable for different uses.
14) Be durable.
15) Be easily stored.[38]

In 1966, standards were developed. These might also serve as guides for the selection of all types of audiovisual aids.

1) Truth and authenticity—are the facts true and well vouched for?
2) Relevancy—does it illustrate the particular topic under discussion?
3) Concentration—does it direct attention toward significant facts, or are they obscured by unimportant details?
4) Technical qualities—is there clear definition or focus?[39]

Kinder cautions that although a large amount of learning comes through the sense of sight, other sense organs must not be neglected for they too play an important role in learning. Research has indicated that verbal as well as non-verbal clues are used in most thinking processes; "on the one hand, we use audiovisual materials to make the meaning of words clear, and, on the other hand, we use words...to make pupils' experiences based on audiovisual presentations clear, meaningful, and useful."[40]

---

[38]Catherine Hogan, "Research in Preparation of Illustrative Materials for Advanced Dressmaking Courses," (Unpublished Master's thesis, Cornell University, 1948), p. 22.

[39]Gwendolyn Lucille Daley, "The Development and Use of Slides to Illustrate the Principles of Clothing Construction as Applied to Fitting and Pattern Alterations," (Unpublished Master's thesis, Michigan State University 1966), p. 15.

[40]Carlton W. H. Erickson, Fundamentals of Teaching with Audio-Visual Technology, (New York: The MacMillan Co., 1965), p. 6.

Kinder suggests that audiovisual materials, when properly selected and used in the learning experience, have the following practical values because they:

1) Overcome the limitations of restricted personal experiences of pupils.
2) Overcome the limitations of the walls of the classroom.
3) Provide for the direct interaction of the pupils with the realities of the social and physical environment.
4) Provide uniformity of precepts.
5) Awaken new desires and interests.
6) Give initial concepts which are correct, real, and complete.
7) Provide motivation and stimulation.
8) Provide for economical learning.
9) Provide integrated experiences which vary from concrete to an abstract.[41]

In a study designed to ascertain the differences in learning between groups viewing colored versions and groups viewing black-and-white versions of five training films, VanderMeer found that there was very little immediate difference in learning. The 500 ninth and tenth grade students in the study retained the same amount of information immediately after viewing the two types of films, but after six weeks those who had seen the color version of the same film had forgotten less than those who had seen the black-and-white version. The viewers also preferred the colored films over the black-and-white films.[42]

Color appears to be a factor in making a picture more aesthetically satisfying and less tedious to interpret. Tests have shown that

---

[41] James A. Kinder and Dean F. McClusky, The Audio-Visual Reader, (Dubuque, Iowa: Wm. C. Brown Co., 1954), pp. 60-65.

[42] M. A. VanderMeer, "Color vs. Black and White in Instructional Films," Audiovisual Communications Review, 11 (1954), 121-134.

colors vary in both their memory value and attention value. The hues with the greatest memory and attention value were found to be red, green, and yellow. Blue does not have as high a memory value as the first-named colors.[43]

Self Instructive Aids in Home Economics

Only a few self instructional visual aids are commercially available in the Home Economics discipline. In each case, one of the motivating forces behind the development was to keep abreast with the technological revolution as the number of classroom students increased.

Programmed Instruction

In 1967 Ginn & Company published a programmed kit "Sewing Step-by-Step." The information for this kit was developed by Hildegarde Johnson, Barbara Clawson, Sarah M. Shiffner. The complete kit includes programmed instruction on the sewing machine; understanding and using patterns (2 parts); construction techniques (2 parts); a student test booklet, teacher's manual; materials for the teacher to make sample panels for tactile use; and charts on stitching, cutting, and measurements.

8mm Films

While the single-concept 8mm films have been used effectively in other disciplines, its use has been limited in the field of Home

---

[43] "A Review of Literature Pertinent to the Design and Effective Use of Graphic Training Aids," Technical Report SDC 404-08-1 (U.S. Office of Naval Research, Port Washington, New York: Special Devices Center, 1956), p. 121.

Economics. This may be due to lack of availability of films from normal published channels; one of the first films was that of the Consumer Education Department of J. C. Penney. Four 8mm single-concept films on clothing techniques titled "Sewing on a Pierced Button", "Making an Invisible Hem", "Making a Chain Loop", and "Lapped Application of a Zipper" are available.[44] These are common motor skills required in clothing construction. Whether or not they are successful is yet to be determined.

The Home Economics department at Rochester, New York,[45] has developed four single-concept films titled "Liquid Measurements", "Dry Measurements", "Threading the Bobbin", and "Threading the Sewing Machine". These were developed for the department's own use and are not available commercially. The success of these films has not been evaluated.

The most extensive research in the use of single-concept films has been at Syracuse University.[46] The wide variation of knowledge and skill which freshmen students brought to the food-preparation classes make it inappropriate for all to complete the same laboratory pattern. The increasing number of students, and the need to reduce the actual time in the laboratory were also a concern to the department.

---

[44]Esther Meacham, personal correspondence (November, 1968).

[45]Eberhard Thieme, What's New in Home Economics, XXXI, Op. cit., pp 46-48.

[46]Sarah H. Short, et. al., "Development and Utilization of a Self-Instruction Laboratory," Journal of Home Economics, 61 (January, 1969), 40-44.

Eighteen single-concept, 8mm film loops in color were developed to meet their needs. Two units for which films were produced were batters and doughs because motion pictures would depict the manipulative techniques. The films are from two to four minutes in length, and now are available for purchase.

A self-instruction laboratory was developed for the use in conjunction with the beginning food course. The laboratory was equipped with carrells. Each was equipped with an 8mm cartridge, tape Technicolor motion picture projector, and other audiovisual aids.

Results have been very gratifying with less than 3 percent of the students having to repeat the self-instructional, laboratory experiences before going to the foods-laboratory to make the product or whatever experience was expected of them. The instructor states that the students watch and listen quietly, and make products without asking many questions.

Other advantages are: less confusion in the foods-laboratory; the same information in each laboratory section (which was not always the case with three different laboratory instructors); the students proceed at their individual pace; easy make-up of the absentee periods; and self-instructional laboratory for review.

CHAPTER III

PROCEDURE

The purpose of this study was to determine those demonstrations the clothing and textile teacher must repeat most often, and to how many students. Supplementary knowledge concerning audiovisual aid availability would also be obtained.

Selection of Sample

The sample used in this study were teachers whose program received reimbursement in Montana during the 1968-69 school year; this included 78 high school teachers in 66 high schools, and 10 junior high school teachers in 5 schools. The teachers were chosen because of the similarity in their teaching programs. All Home Economic departments were based on the state requirements for reimbursement.

Collection of Data

Each teacher was sent a questionnaire designed to obtain information concerning the number, need and type of demonstrations in clothing construction. The questions concerned the following:

1) Approximate length of time for giving demonstrations.
2) Which demonstrations were given individually.
3) Which demonstrations were repeated individually.
4) Which demonstrations were repeated most frequently.
5) Which ten demonstrations teachers would prefer on film for individual or small group use.
6) Which type of projectors were available.

This questionnaire was pre-tested by two high school teachers,

four faculty members, and nine graduate students in the Home Economics department at Montana State University, to determine its clarity and answerability. Changes in the wording and format were made which clarified the questions, and therefore reduced the length of time necessary to complete the questionnaire. A copy of the final instrument and the letter which accompanied it can be found in Appendix B. In order to obtain as high a response as possible, a follow-up reminder was sent to those who had not answered by a specific date.

CHAPTER IV

RESULTS

The purpose of this study was to determine what procedural demonstrations the clothing teachers give and with what frequency they have to be repeated to the students. This in turn might aid in the development of instructional single concept films.

Sample

The population for this study was composed of the home economics teachers of vocationally reimbursed schools in Montana; 88 questionnaires were sent to 78 high schools and 10 junior high schools; 69 or 78% were returned. Of these, four had to be eliminated. One high school respondent replied that she did not teach clothing. Three junior high school respondents were first year teachers who had not taught clothing at the time the questionnaire was received. After these four questionnaires were omitted from the study the sample totaled 65 or 71.59% of the total population. These were received from 52 high schools and 5 junior high schools making a total of 57 schools or 80.28% of the vocationally reimbursed schools from the State of Montana. (See Table I).

Class Description

In order to understand the daily problems of these teachers, it is necessary to know how many clothing construction classes are included

TABLE I

DISTRIBUTION OF RESPONDENTS BY TYPE AND NUMBER OF SCHOOLS

Type of School	Total Returns				Total Returns			
	Schools		Respondents		Schools		Respondents	
	No.	%	No.	%	No.	%	No.	%
High School	66	92.96	78	88.64	52	78.78	60	76.92
Junior high school	5	7.04	10	11.36	5	100	5	50
Total	71	100%	88	100%	57		65	

in their curriculum, the number of students and the approximate class size.

Home Economics I was listed with the greatest frequency by all respondents. There were 52 high school teachers and 5 junior high school teachers, a total of 57 teachers, or 87.69% of the sample, who had such responsibilities.

A total of 1,417 high school students were enrolled in Home Economics I and 327 junior high students. Classes ranged in size from 7 to 33 students when the teacher was located in a high school and from 12 to 26 when the class was part of the junior high school curriculum. The average, however, was 19 students enrolled in Home Economics I classes. (See Table II).

The courses taught least often were advanced classes in high school and "special" classes in junior high. Included in the former was pattern alteration which is considered an advanced clothing construction technique. "Special" denotes students who need extra attention. There

TABLE II

DESCRIPTION OF CLASS TYPE AND SIZE TAUGHT BY RESPONDENTS

	7th	8th	I	II	III	IV	Sp.	Adv.
Teachers								
HS*	6	9	52	50	33	18	2	1
JHS**	1	1	5				2	
Total	7	10	57	50	33	18	4	1
Total Classes								
HS	7	14	84	63	37	18	2	1
JHS	8	8	16				2	
Total	15	22	100	63	37	18	4	1
Total Students								
HS	116	242	1417	969	597	152	32	14
JHS	152	140	327				13	
Total	268	382	1744	969	597	152	45	14
Average Class Size								
HS	16	21	19	15	15	11	16	14
JHS	19	18	20				6	
Total	35	39	39	15	15	11	22	14
Range of Class Size								
HS	6-30	8-35	7-33	4-33	5-30	3-25	15-17	14
JHS	19	17-18	12-26				5-8	
Total	6-30	8-35	7-33	4-33	5-30	3-25	5-17	14

*HS - High School
**JHS - Junior High School

were some of these classes in the high school as well. (See Table II).

Some high school teachers had classes at junior high level. When this occurred the average class size was smaller and a class could have as few as 8 students in it. This could indicate a consolidated school in

a sparsely populated area. (See Table II).

Generally, about 40.3% of the students enrolled in Home Economics in high school and 51.64% of the students enrolled in Home Economics in the junior high school or an average of 45.97% of the students were registered in Home Economics I. High schools in Montana sometimes include grades 7 and 8 and junior high schools encompass grades 7, 8, and 9 (all junior high respondents reported teaching Home Economics I which is normally classified at the 9th grade level). Figures 1 and 2 show the type of classes and percent of students taught in each.

Clothing Demonstrations

The main objective of this study was to determine the type of demonstrations, approximate time required, and number of repetitions necessary when teaching clothing construction techniques. This should be helpful to anyone considering the development of programmed learning devices. Each step of making a garment was considered in developing the questionnaire.

Type of Demonstrations Given Individually

Garments made by junior high school and high school girls are usually simple, because most of them are executing these techniques for the first time and a limited time is allotted for the construction of a garment. Fifty-three possible demonstrations were listed on the questionnaire. Each one was said to be demonstrated individually, although not by each teacher. The four that were said to be demonstrated individually by

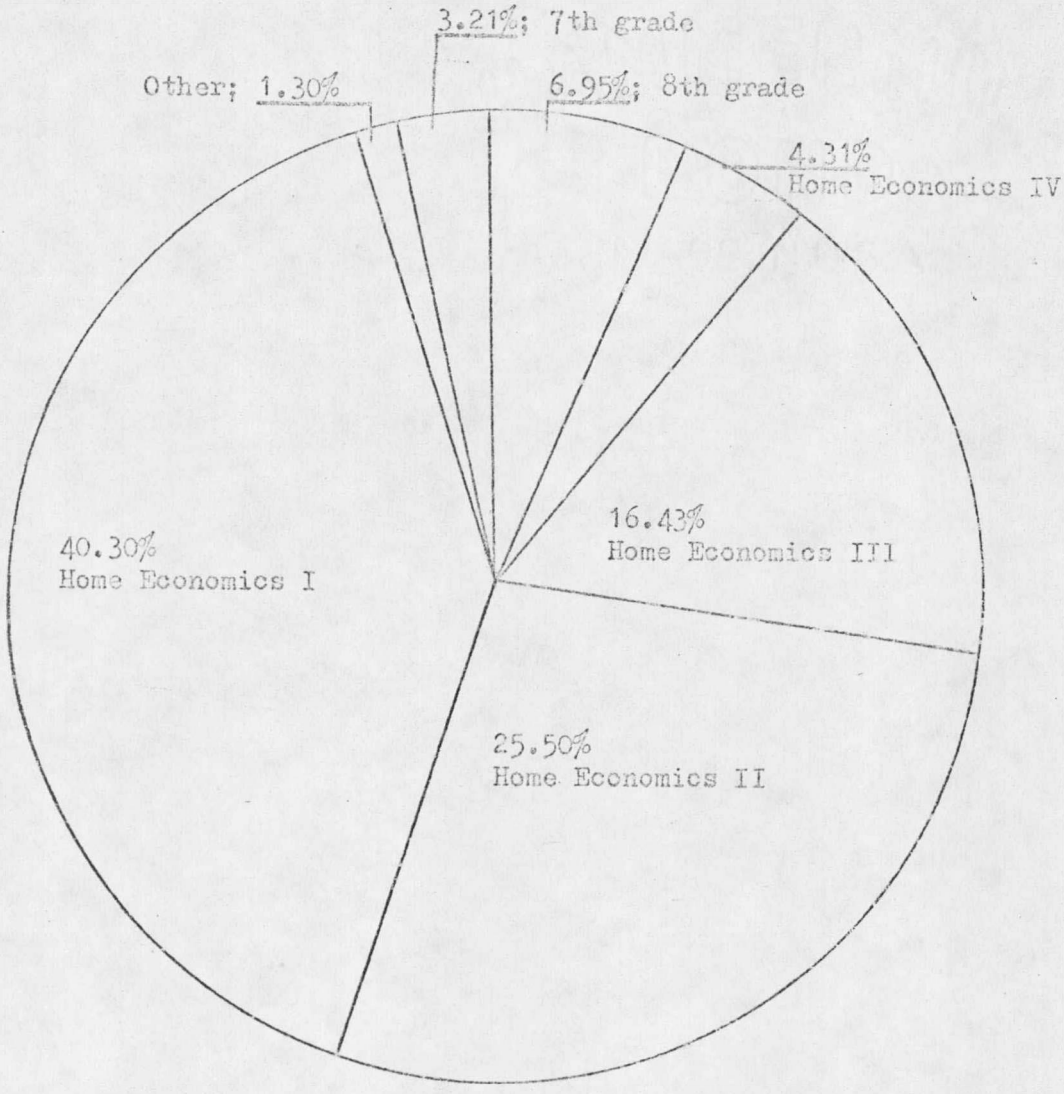
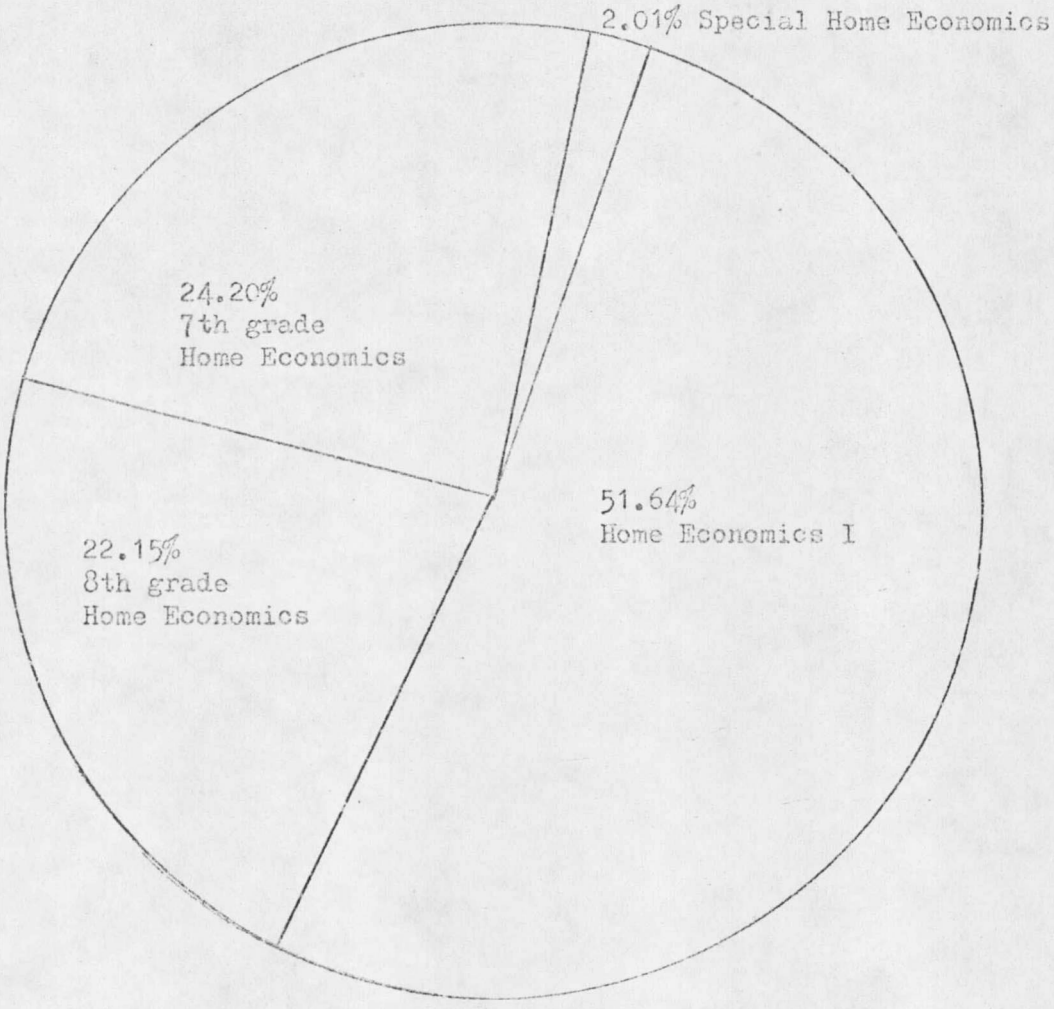


FIGURE 1. TYPE OF HOME ECONOMICS CLASSES TAUGHT IN HIGH SCHOOL; PERCENT OF STUDENTS ENROLLED IN EACH TYPE OF CLASS



Junior High School

FIGURE 2. TYPE OF HOME ECONOMICS CLASSES TAUGHT IN JUNIOR HIGH SCHOOL: PERCENT OF STUDENTS ENROLLED IN EACH TYPE OF CLASS.

the greatest number of participants were pattern alterations, simple pockets, bias bindings, and bound plackets. These as expressed by the percent of respondents ranged from 32.30% to 35.38% or 33.84%, 32.30%, 32.30%, and 35.38% respectively. Most of these are techniques found on more complicated patterns and may be needed by a relatively small number of students. It may be that teachers believe these demonstrations are not required by each student and therefore eliminate them from their class demonstrations. Pattern alterations, on the other hand, are essential for the entire group and are difficult to comprehend from written instructions.

The demonstration given least often was use and care of sewing equipment. This is a relatively lengthy demonstration and teachers may believe it is not a profitable use of time to give this demonstration individually. (See Figure 3).

Repeated Demonstrations

Demonstrations may be repeated for several reasons: the technique may be complicated, and the student cannot comprehend the entire procedure; the demonstrations are too lengthy, and the attention of the student is lost; or it was a poor demonstration. Such demonstrations may be given initially to the entire class or individually.

The largest number of teachers, 7 or 10.76%, indicated that threading the sewing machine was repeated more frequently than any other demonstration. This is a basic technique requiring several steps and any of the needs cited above could apply. (Table I, Appendix C).

DEMONSTRATION	RANK	PERCENT
Bound plackets	1	35.38%
Pattern alterations	2	33.84%
Pockets: patch, set-in; bias binding, facings; lining jacket	3	32.3 %
Lining dress	4	30.76%
Bias facings; invisible zipper; fitted placket; lining coat	5	29.23%
Waistband application; lining skirt	6	27.69%
Machine buttonholes; set-in sleeves; fitted facing	7	26.15%
Easing and Gathering; bound buttonholes; belt carriers	8	24.62%
Pressing special fabrics; understitching facings; waistline seams; slot-seam zipper, hooks and eyes; loops	9	23.07%
Putting on collar	10	21.53%
Applying interfacings; shank buttons; zig-zag finished hems, belts	11	20. %
Straighten fabric; pressing synthetics; tailor tacks; snaps; stitching dart; handworked buttonholes	12	18.46%
Cutting out garment; seams and seam finishes; gusset construction; tape and clean finished hems; marking with tracing paper	13	16.46%
Stay stitching; pressing wool; lapped zipper; plain edge turned under hem	14	15.38%
Body measurements	15	13.84%
Pinning on pattern; pressing cotton; pierced buttons	16	12.31%
Threading sewing machine; transferring markings by pins	17	10.76%
Sewing equipment use and care	18	6.15%

FIGURE 3. DEMONSTRATIONS GIVEN INDIVIDUALLY BY RESPONDENTS IN RANK ORDER AS EXPRESSED BY PERCENT OF RESPONDENTS

There were several demonstrations that were not indicated in this category. These were seams and seam finishes, pressing special fabrics, handworked buttonholes, bias facings, bias bindings, lining a jacket and lining a coat. Most of them, however, are not commonly used at the high school level. (Table I, Appendix C).

Many demonstrations given to an entire class may need to be repeated. When this occurs, it is often because the student may not comprehend rapidly or because she is inattentive. Teachers may believe it is not a beneficial use of classtime to repeat the procedure. Individual demonstrations may be given to clarify techniques thus enabling the student to proceed.

Participants of the study (20%) rated lining skirts or dresses as the demonstration that generally had to be repeated to individual students. (See Figure 4). It seems reasonable that this might occur as some of the technique demonstrations in this procedure involve different parts of the garment.

It is interesting that the one demonstration--threading the sewing machine--that was said to be repeated most frequently ranked high in the list of those that had to be repeated individually.

There was no demonstration which was not repeated to some student. The one that ranked lowest was set-in pockets. The selection of a pattern with set-in pockets would probably be discouraged by teachers of all but experienced seamstresses in high school, so only a few girls would be using this procedure. Others that ranked low were: transferring markings by pins; bound plackets; plain edge turned under and hemmed, fitted

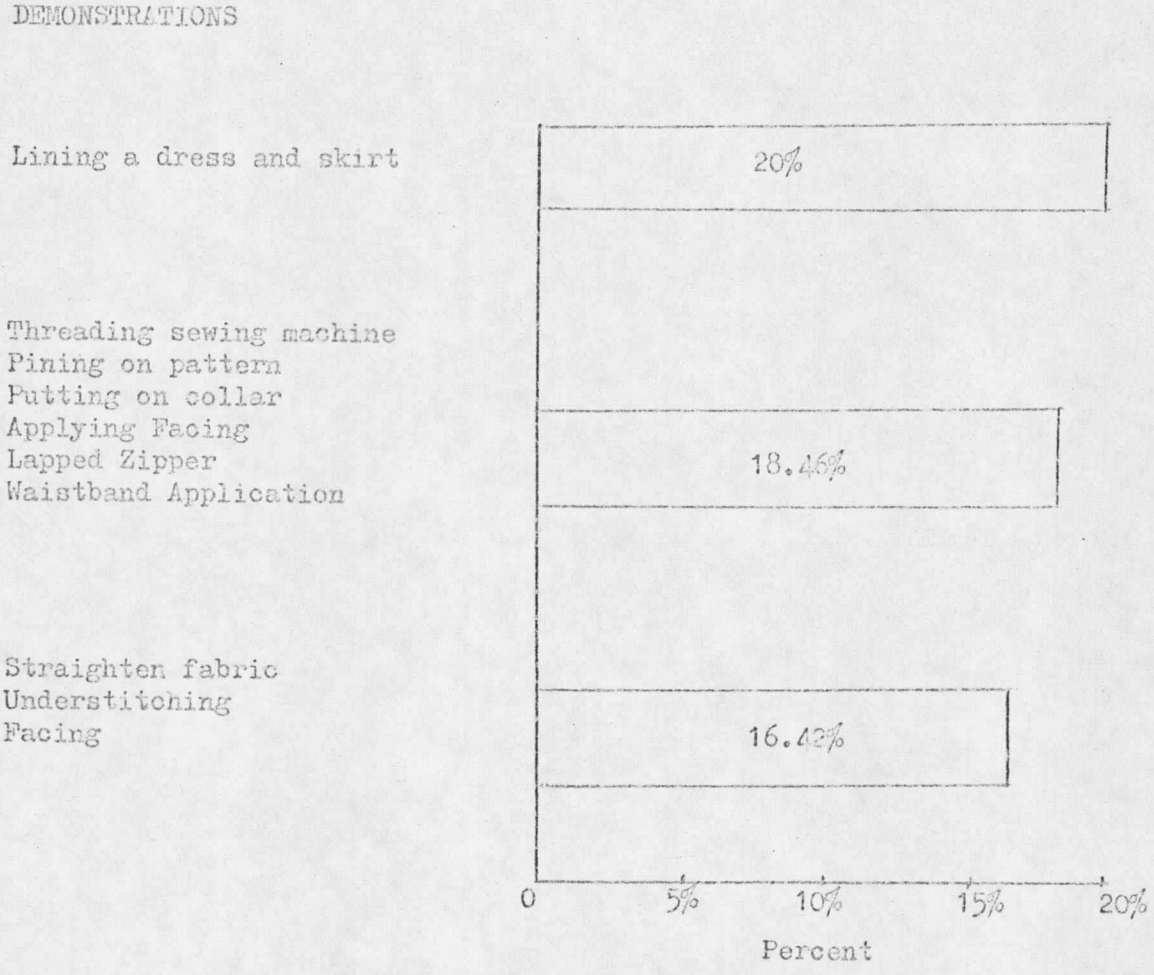


FIGURE 4. RANK ORDER OF DEMONSTRATIONS REPEATED TO INDIVIDUAL STUDENTS

plackets; pressing cotton, synthetics and special fabrics; and lining a coat. These are in the same general category. (Table I, Appendix C).

When participants were asked to list individual demonstrations that had to be repeated individually, a marked reduction can be observed. The bound placket demonstration which ranked first as an individual demonstration, was seldom repeated. This seems reasonable because the teacher could help the student individually until the technique was understood. Pattern alterations, which ranked number two as an individual demonstration, was ranked as the demonstration that required review. Some pattern alterations are extreme and different style patterns require different types of alterations. It does seem that a student may not retain all the information given in one explanation.

There were 23 demonstrations that were listed as requiring no repetition after they had been repeated individually. These were either very simple procedures and easier to comprehend or very complex and used by very few students.

There seemed to be some correlation between these demonstrations that had to be repeated individually and the ones repeated most frequently. (See Figure 5). In general these were initially given as class demonstrations and repeated individually. These were demonstrations of lapped zipper construction, threading the sewing machine, machine buttonholes, and putting on a collar. Setting in sleeves, a demonstration given individually and repeated individually, on the other hand, was ranked number two as the demonstration that was repeated individually and most frequently. (Table I, Appendix C).

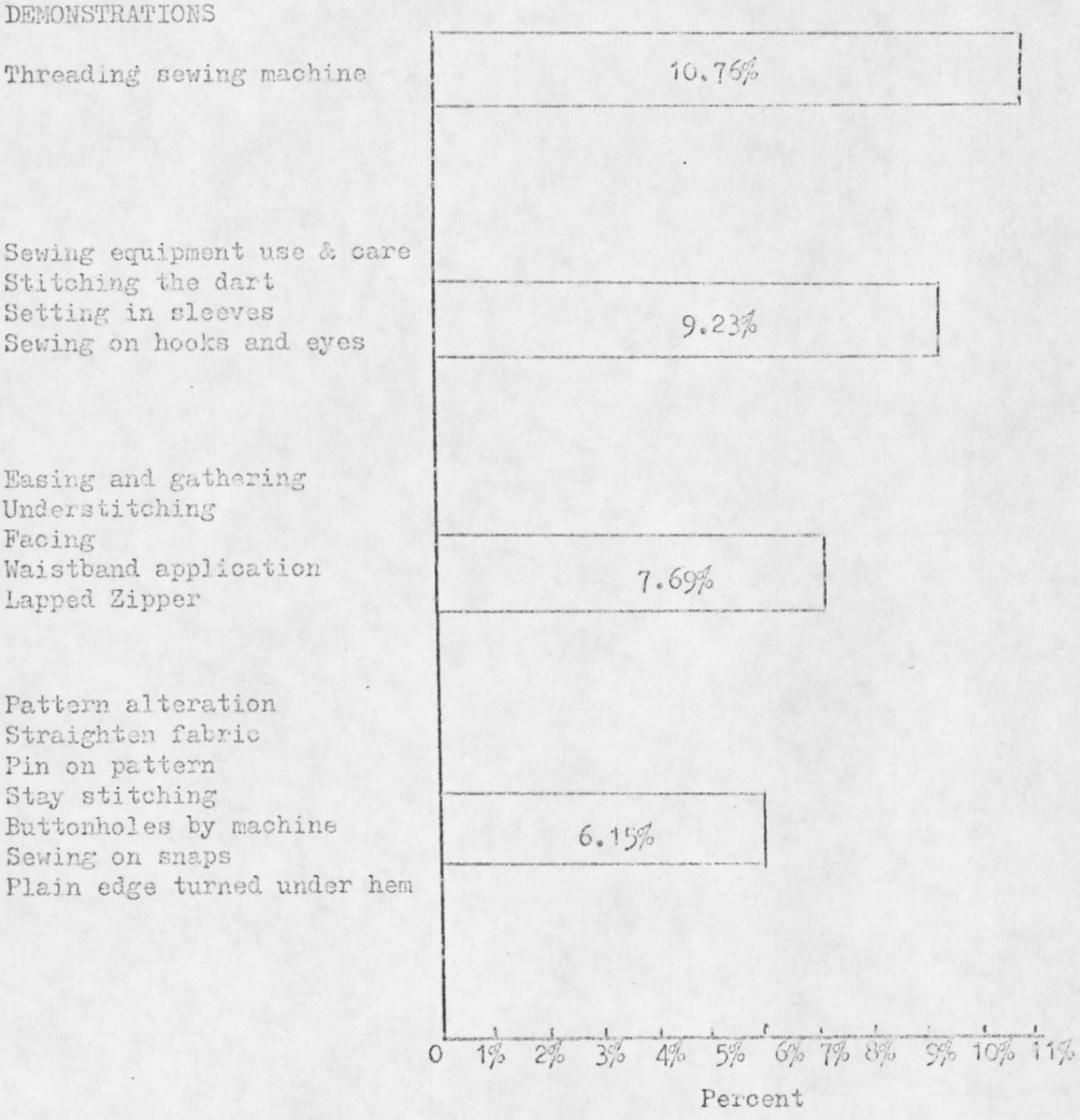


FIGURE 5. RANK ORDER OF DEMONSTRATIONS THE PARTICIPANTS REPEAT MOST FREQUENTLY

There seemed to be no correlation on the other hand, with initial individual demonstrations and demonstrations given individually, repeated individually and repeated most frequently. (See Figure 6). Those that rated high as demonstrations repeated most frequently were threading the sewing machine and lapped zipper construction; however, they ranked low 17 and 14 out of 18 as initial individual demonstrations. Those that rated low in the most frequently repeated category--pattern alteration and bound plackets (1.53%)--ranked one and two as an initial individual demonstration. (Table I, Appendix C).

In all, there were three possible combinations in which participants could check the need for a demonstration to be given individually, repeated individually, or repeated most frequently. The categories were combined to determine the ten demonstrations indicated most frequently and expressed in percent of respondents as show in Figure 7.

For the most part these were complicated procedures or techniques that would require individual coaching for slow or inattentive students. Others might result because initial demonstrations were poor. Several of the participants said "they felt they gave too many individual demonstrations but it seemed like it had to be done." Beginning teachers expressed a lack of experience in demonstrating which might be one reason they have to repeat so many demonstrations individually. One high school teacher remarked "basic foundations should be drilled in junior high." Teachers in small classes rather than large classes believed it was easier to repeat the demonstrations to individuals. There seemed to be a

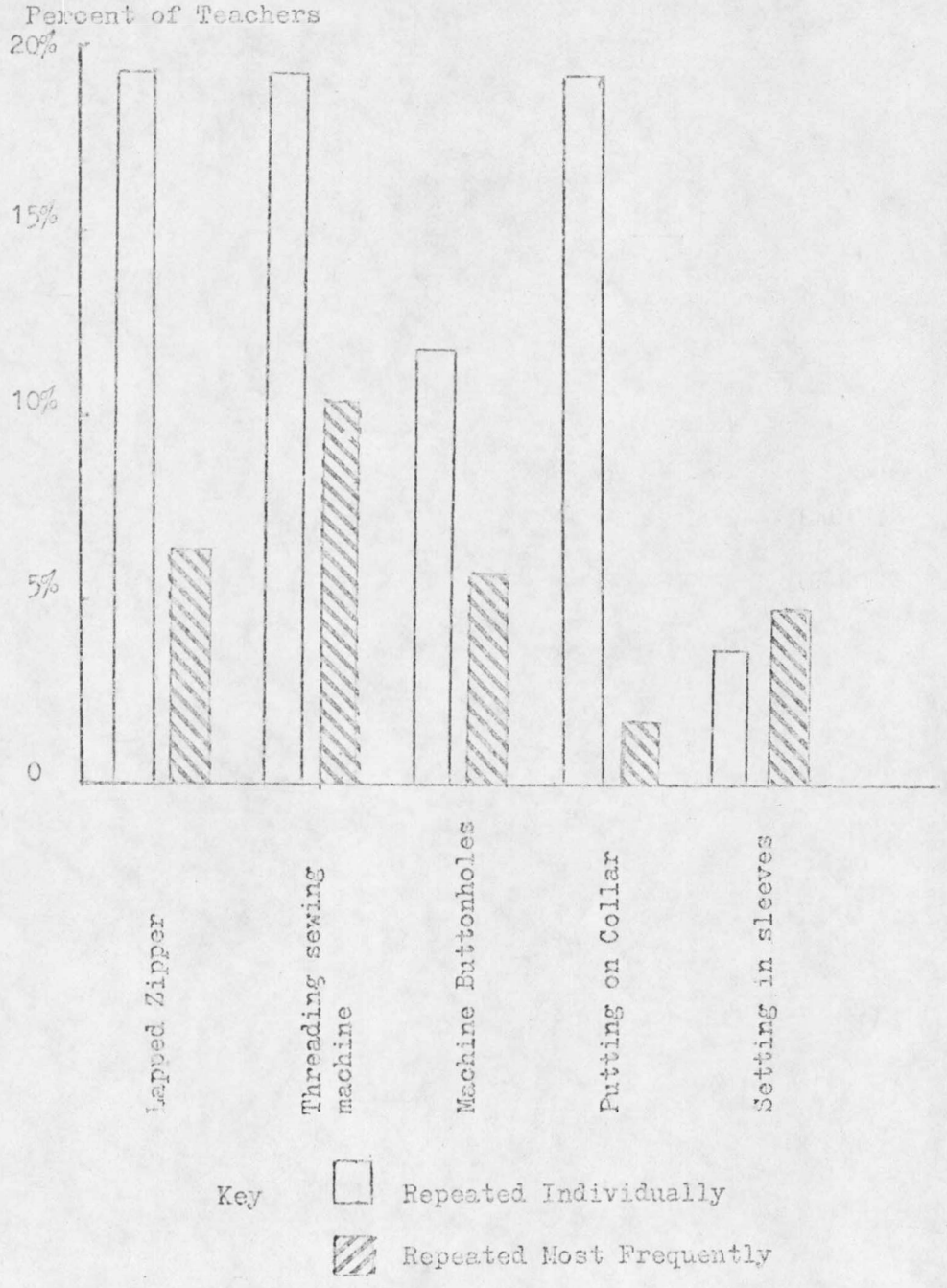


FIGURE 6. RELATIONSHIP BETWEEN THE FIVE HIGHEST RANKING DEMONSTRATIONS REPEATED INDIVIDUALLY AND REPEATED MOST FREQUENTLY: EXPRESSED IN PERCENT OF RESPONDENTS

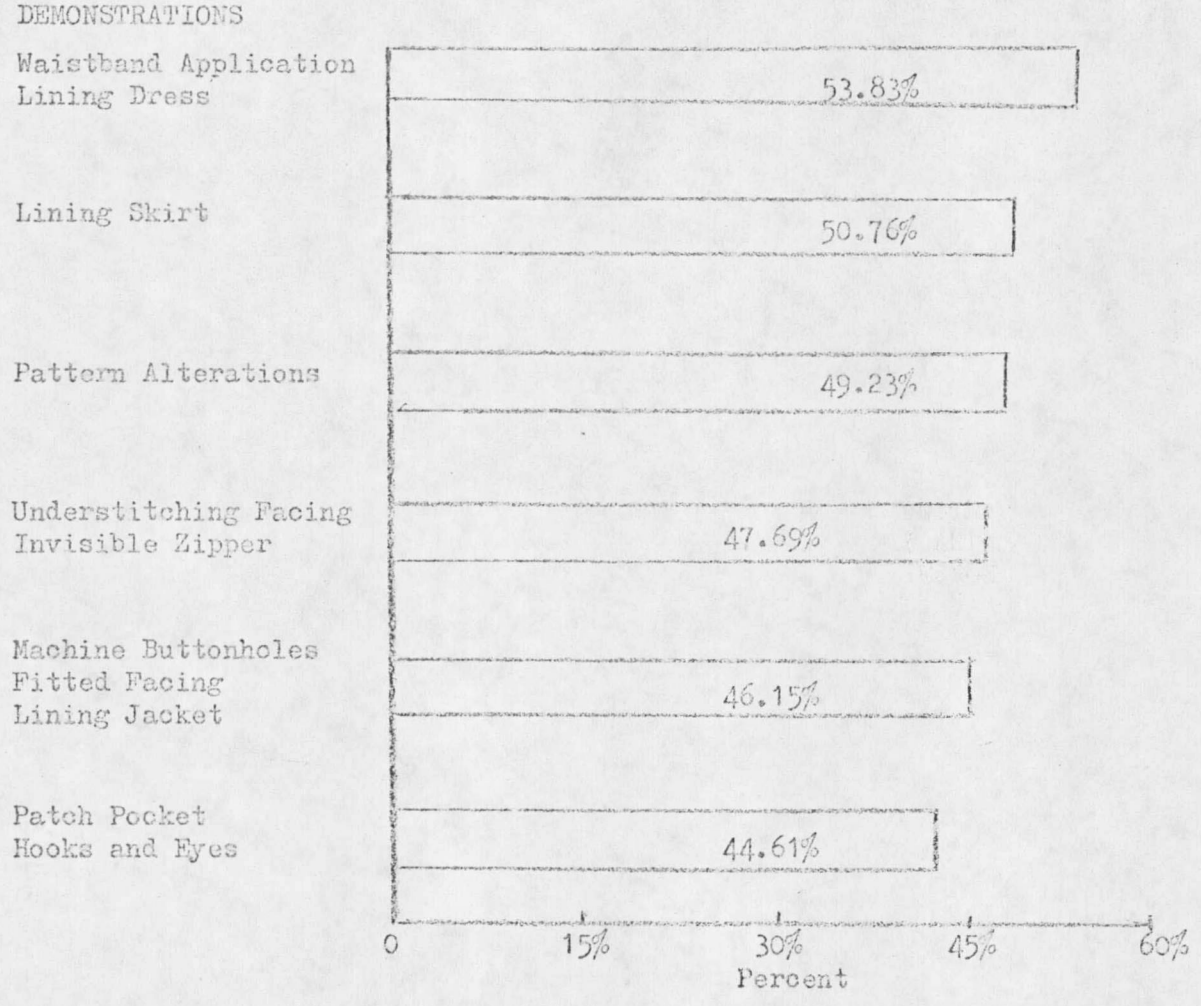


FIGURE 7. RANK ORDER OF COMBINED CATEGORIES OF DEMONSTRATIONS: GIVEN INDIVIDUALLY, REPEATED INDIVIDUALLY AND REPEATED MOST FREQUENTLY EXPRESSED AS PERCENT OF RESPONDENTS

general belief that beginners seemed to forget class demonstrations thus necessitating individual demonstration as the need arose.

Threading the sewing machine, pinning on pattern, fitted facings, understitching facings, and lapped zipper construction were demonstrations given by all participants. These are basic sewing techniques. Teachers in junior high and high school are concerned with basic procedures in clothing construction; therefore, they would not necessarily give all the demonstrations listed on the questionnaire. From 1 to 32 teachers, or 1.53% to 49.23%, indicated they never gave this demonstration. The demonstration mentioned most frequently (by 32 teachers) as never given was gusset construction. Sewing equipment use and care, pattern alterations, straightening fabric, pressing cotton, and sewing on hooks and eyes were each never given by one participant. The rank order of the demonstrations never given is shown in Figure 8.

Time

The time required for demonstration can vary from teacher to teacher. Some of this variation is due to the dexterity and experience of the teacher, some to the organization of the demonstration, and some to the students watching the demonstration.

It is important to know how long each demonstration requires. This would give some indication of the amount of time a teacher spent individually with students giving instructions that might be self instructing if the teacher were supplied with a satisfactory substitute.

Of the 53 demonstrations, all were said to be given individually

DEMONSTRATION	TEACHERS	PERCENT	RANK
Gusset Construction	32	49.23	1
Handworked Buttonholes	28	43.07	2
Set-in pockets	25	38.46	3
Fitted plackets	23	35.38	4
Bound plackets and belts	21	32.30	5
Waistline seams	19	29.23	6
Lining a coat	17	26.15	7
Slot-seam zipper & belt carriers	14	21.53	8
Attaching pierced buttons, loops	13	20.00	9
Transferring markings by pins, patch pockets	12	18.46	10
Hems plain edge turned under	11	16.92	11
Pressing special fabric	10	15.38	12
Bias and bias binding facings	8	12.30	13
Tailor tacks, zig-zag hem finish	7	10.76	14
Stay-stitching, pressing synthetics, Invisible zipper construction, lining a dress and jacket, tape finishing hems	6	9.23	15
Bound buttonholes, lining a skirt	5	7.69	16
Seams and seam finishes, sewing on shank buttons, clean finish hemming	4	6.15	17
Transferring markings with tracing paper, pressing wool, putting on collar	3	4.62	18
Body measurements, cutting out garment, stitching darts, easing and gathering, machine buttonholes, setting in sleeves, applying interfacing, waist-band application, application of snaps	2	3.07	19
Sewing equipment use and care, pattern alterations, straightening fabric, pressing cotton, securing hooks and eyes	1	1.53	20

FIGURE 8. RANK ORDER OF DEMONSTRATIONS NOT GIVEN BY PARTICIPANTS

by one or more of the teachers and all were repeated individually by the majority of the teachers; however, there were 48 demonstrations that one or more teachers stated they never gave.

The only 30 minute demonstration not checked by any teacher was transferring markings by pins. All other 52 demonstrations required approximately 30 minutes to give by one or more teachers.

On the other hand, 44 demonstrations were said to require only three minutes by at least one teacher.

Unless a teacher has actually timed her demonstrations it is difficult to approximate time lapses. In general, people tend to believe much more time has elapsed than has been used. A general failing of student teachers is not to plan sufficient material for a class period. It is also known that the more often a demonstration is given the more efficient the demonstrator becomes. Therefore, it is doubtful if the demonstrations listed required as much time as indicated by the participants of the study. One obtains a much more accurate picture by determining the average length of time required by each demonstration.

In general, the length of time required by the 53 demonstrations was from 22 to 6 minutes. One of the demonstrations required more than 20 minutes, 10 between 15 and 20 minutes, 19 between 10 and 15 minutes, 23 between 5 and 10 minutes, and no demonstration averaged less than 5 minutes to give. (Table III).

Most of the demonstrations, therefore, were between 5 and 10 minutes which is within the attention span generally attributed to students in grades 7-12. The average demonstration required approximately