DOCUMENT RESUME

ED 166 407 08 CE 019 496

TITLE Expanding and Updating the Knowledge and Skills in Clothing-Related Services of Home Economics Trained Persons by Means of Inservice Training Utilizing Community Resources. Final Report.

INSTITUTION Pittsburgh Univ., Pa. School of Education.

SPONS AGENCY Office of Education (DHEW), Washington, D.C.; Pennsylvania State Dept. of Education, Harrisburg. Bureau of Vocational, Technical, and Continuing Education.

PUB DATE 30 Jun 78

NOTE 106p.; Not available in hard copy due to light and broken type throughout the original document.

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.

DESCRIPTORS Clothing Instruction; Disadvantaged Youth; *Employment Opportunities; Equipment Maintenance; *Equipment Utilization; Handicapped Students; History; Home Economics Education; Industrial Training; *Inservice Teacher Education; Job Analysis; Job Skills; *Occupational Home Economics; Occupational Surveys; Postsecondary Education; *Program Development; Program Evaluation; Safety Education; Secondary Education; *Sewing Instruction; Sewing Machine Operators; Student Needs; Teacher Evaluation; Teacher Workshops; Textiles Instruction; Vocational Education

ABSTRACT

The project was designed to acquaint home economics teachers with the textile and power sewing industry's history, job possibilities, and student (including disadvantaged and handicapped) needs and interests. Teachers were taught industrial machine operation, basic maintenance, and safety tips. Four objectives related to gainful clothing services programs were formulated and attained: (1) to provide hands-on training in equipment use and care, (2) to improve home economics personnel the knowledge needed to initiate and conduct programs, (3) to provide guidelines for using teaching methods, materials, and resources, and (4) to provide guidelines for accommodating disadvantaged and handicapped student program needs. To accomplish the goals, inservice hands-on clothing services workshops were planned and conducted for forty home economics teachers. Teaching materials were developed or procured by the project director and instructor. Instruction included job survey and analysis techniques. Classroom discussion covered twelve topics, including the history of power sewing and job possibilities. Teachers were involved in individual hands-on projects and three field trips to expose them to career opportunities in the sewing industry. (Appendixes contain a list of machines operated, teacher's pre-test, competency evaluation sheet, evaluation summary, projects completed, sites visited, bibliography, specific analysis of operation, and a power sewing course outline.) (CSS)

FINAL REPORT

EXPANDING AND UPDATING THE KNOWLEDGE AND SKILLS IN CLOTHING - RELATED SERVICES OF HOME ECONOMICS TRAINED PERSONS BY MEANS OF INSERVICE TRAINING UTILIZING COMMUNITY RESOURCES

Prepared by

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Division of Teacher Development

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For a Project Funded by

Pennsylvania Department of Education

Bureau of Vocational, Technical and Continuing Education

July 1, 1977 to June 30, 1978

Project No. 5-39988

June 30, 1978

The activity which is the subject of this report was supported in whole or in part by the U. S. Office of Education, Department of Health, Education and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education, and no official endorsement by the U. S. Office of Education should be inferred.

This project meets the following 1977-78 Pennsylvania Department of Education, Bureau of Vocational Education priority:

(3) USE OF COMMUNITY-BASED RESOURCES AND OTHER ALTERNATE DELIVERY SYSTEMS IN THE PLANNING AND DIRECTING OF HIGHER EDUCATION AND BASIC EDUCATION LEARNING EXPERIENCES.

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PROJECT CONSULTANTS

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Project Consultant	Lolene M. Favor

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CHAPTER I

A. NEED:

In the past, home economics programs have basically emphasized the preparation of teachers to assist youth and adults in the responsibilities of homemaking. The 1963 Vocational Education Act and subsequent legislation requires an additional focus on education for wage-earning and on preparing teachers for these expanding programs. Home economics teachers who are to teach courses designed to prepare persons for gainful occupations need to develop skills in using the equipment of the occupational cluster as well as skills in making surveys and job analyses. Planning work experience for students and utilizing relevant curriculum materials are also competencies needed by these teachers. As area vocational and comprehensive high schools expand their wage-earning programs, the need for knowledgeable and skillful gainful home economics teachers increases and thus the need for hands-on inservice training for home economics trained personnel.

A need for updating knowledge and acquiring skills in using equipment in the gainful home economics clothing services cluster had been expressed by two-thirds of the students enrolled in the gainful home economics classes at the University of Pittsburgh during the past year. Similar needs had been expressed to the city supervisor of home economics. This prompted the University of Pittsburgh Vocational Education Program to identify the scope of the needs, objectives to be met, and the procedure for meeting the objectives to provide home economists with hands-on inservice training

focusing on the use and care of industrial sewing equipment. The project was funded in December 1977 and the first workshop series started on January 12, 1978.

B. PURPOSE OF THE PROJECT:

The project was designed to acquaint home economics teachers with the history of the textile and power sewing industry, job possibilities and the needs and interests of our students including disadvantaged and handicapped. The teachers were taught the operation of a variety of industrial machines, including basic maintenance and many safety tips.

C. OBJECTIVES OF THE PROJECT

The objectives outlined in the proposal submitted to the Bureau of Vocational and Technical Education were met by the Industrial Sewing Workshop sessions held at the University of Pittsburgh, Forbes Road East A.V.T.S., Monroeville and at Connelley Skills Learning Center, Pittsburgh, PA.

Objectives	Objectives Attainment
1. To provide hands-on training in the use and care of equipment used in teaching gainful home economics courses in the clothing services cluster.	1. Each teacher was taught how to operate industrial machinery (electric and manual) and also how to care for the equipment. (See Appendix A.)
2. To update and extend the knowledge of home economics trained personnel needed to initiate and conduct gainful clothing services programs including the techniques of job surveys.	2. Each teacher was taught job possibilities, analysis of operations, safety, cleaning and minor adjustments of machinery. Methods used in factory production such as production control, the ticket system, factory flo and the (M T M) technique were also taught.

cont.

Objectives cont.

3. To provide guidelines for using a wide variety of teaching methods, materials and resources for teaching courses in gainful clothing services.

4. To provide guidelines for accommodating the needs of disadvantaged and handicapped students in gainful clothing services.

Objectives Attainment cont.

3. Each teacher was taught methods used in industry dealing with quality control and tolerance level and how the tolerance level with quality could be reached.

4. The teachers were exposed to the different areas in each department of the sewing industry where these students would fit in depending on their handicap. Subjects that are beneficial to the student in rehabilitation including adjustments were discussed.

D. PROCEDURE:

1. The project director, the Pittsburgh schools home economics supervisor, and the Pittsburgh director of OVT, planned an inservice hands-on clothing services workshops for home economics teachers in Western Pennsylvania.

2. The project director and the instructor developed the 45 clockhour workshops and secured consultants qualified and certified to instruct the hands-on workshop participants in the care and use of industrial sewing equipment. Appropriate facilities for the workshops were secured at Forbes Road A.V.T.S., Monroeville and Connelley Skills Learning Center, Pittsburgh, PA.

3. Inservice workshops were conducted for forty home economics trained persons to update skills and knowledge for teaching clothing-related gainful courses by utilizing school facilities equipped with up-to-date

cont.

industrial power sewing equipment. Community clothing fabrication shops were also used as resources to provide meaningful learning experiences for the workshop participants. Appropriate teaching materials were developed or procured by the project director and the instructor. Participants had the option of enrolling for non-credit or for enrolling at their own expense for three graduate or undergraduate credits in Vocational Education at the University of Pittsburgh in either the Winter Term, 1978 or the Summer Term, 1978.

4. Instruction to update knowledge needed to initiate and develop clothing services programs included job survey and job analyses techniques.

5. Evaluation sheets were developed to pre-test the knowledge that workshop participants posses prior to participation in the workshops and a post-test was developed to assess the knowledge and skills gained during the workshop experiences. Self-evaluation sheets were also completed by the workshop participants. The results of the Pre-Tests showed that the workshop participants had little background or experience in the use of industrial sewing equipment.

In the post-test it was found that the participant learned to operate all machinery mentioned in Appendix A. On the self-evaluation sheets, the participants indicated that they felt that the field-trips taken after learning how to operate the machinery were more valuable as a meaningful learning experience than were the field trips taken prior

to learning the operation of the machines. They could relate better through their hands-on experiences with the world of work.

6. A final report was developed and disseminated to the BVE (Board of Vocational Education, Harrisburg, PA.) at the conclusion of the project. Two copies of this project report will be sent to ERIC and VEIN for the vocational information network.

E. IDENTIFICATION OF PARTICIPANTS:

The following lists of names identifies the workshop participants and their occupations.

VOC. ED. - 295 WINTER 1978

Name	Address & Tele. No.	Employment
Elaine Amos	640 E. Beau Street Washington, PA 15301 225-9463	J.C. Penney Company Washington, PA 15301 (Alterationist)
Cherri Banks	1031 Finley Drive #8 Pittsburgh, PA 15221 243-4716	Herron Hill Middle School Centre Ave. & Avalon Pittsburgh, PA (Teacher)
Lisa Barber	1778 Harbor Drive Pittsburgh, PA 15221 341-6475	Latimer Middle School Tripoli and N. James Pittsburgh, PA 15212 (Teacher)
Lorraine Caruso	17 Moyer Avenue Charleroi, PA 15022 483-8817	Fallowfield Twp. Municipality Fallowfield Township (Clerk)
Lolene Favor	6823 Kelly Street Pittsburgh, PA 15208 441-3632	Sears & Roebuck Company Highland Avenue (Microwave demonstrations)

Barbara A. Heller	1217 Freeport Road Natrona Heights, PA 15065 224-7235	Fashion Academy of Pgh. Pittsburgh, PA 15222 (Teacher)
Susan Holowchak	2191 Lynnbrook Avenue Pittsburgh, PA 15226	S. Side Educ. Center 1704 E. Carson Street Pittsburgh, PA (Teacher)
Kathleen Kasper	2209 Imperial Street Pittsburgh, PA 15217 422-8959	S. Side Ed. Center 1704 E. Carson Street Pittsburgh, PA (Teacher)
Gayle Marco	207 E. Florida Avenue Connellsville, PA 15425 628-5064	Teaching Fellow at University of Pgh. Pittsburgh, PA. 15213
Mary McCornley	865 School Street Clairton, PA 15025 233-9695	Teaching Fellow - HERO University of Pgh. Pittsburgh, PA 15213
Lynell Ramsey	514 Goldsmith Road Pittsburgh, PA 15237 486-0167	Cornell Educational Center 1099 Maple Street Coraopolis, PA 15106 (Teacher)
Gail Slesinski	1544 Alverado Avenue Pittsburgh, PA 15216 665-1436	Prospect Middle School Prospect & Southern Pittsburgh, PA (Teacher)
Patricia West	Box 139, 616 N. Highland Ave. Pittsburgh Theological Seminars 665-1436	Sears & Roebuck Company Highland Avenue Pittsburgh, PA (Sales)

WORKSHOP PARTICIPANTS - SUMMER - 1978

NAME	ADDRESS AND TELEPHONE NUMBER	EMPLOYMENT
Barber, Lisa.	1778 Harbor Drive Pittsburgh, PA 15221 341-6475	Latimer Middle School Tripoli and N. James Pittsburgh, PA 15212 (Teacher)
Brown, Evelie	428 Grove Road Verona, PA 15147 243-2542	Greenway Middle School 1400 Crucible Pittsburgh, PA (Teacher) 928-2800
Campbell, Barbara	630 Ossipee Street Pittsburgh, PA 15219 682-4062	Arsenal Middle School 40th & Butler Pittsburgh, PA (Teacher)
Cullens, Betty J.	713 Armandale Street Pittsburgh, PA 15212	Schenley High School Bigelow Blvd. & Centre Avenue Pittsburgh, PA 15213 (Sub. Teacher)
Czopek, Marilyn	3532 Lebanon Church Rd. Pittsburgh, PA 15122	Bethel Park Senior High School 309 Church Road Bethel Park, PA 15102 (Teacher)
Dick, Debbie	457 Woodland Hills Dr. Pittsburgh, PA 15235 824-1222	Forbes Road East AVTS Beatty & Cooper Rds. Monroeville, PA 15146 Student - Reisenstine Community College (Sub. Teacher)
D'Oraxio, Lynn A.	3348 Jameson Pittsburgh, PA 15227 885-3029	Clairton Jr. High School Fifth Street Clairton, PA 15025 (Teacher)
Duessel, Ruth	5081 W. Haribson Road Pittsburgh, PA 15205 787-2993	South High School 10th & East Carson Pittsburgh, PA (Teacher)

NAME	ADDRESS AND TELEPHONE NUMBER	EMPLOYMENT
Emeterio, Joyce	Box 485-403 Wayne St. Claysville, PA 15323 663-5149	McGuffey High School Claysville, PA 15323 (Teacher)
Freeman, Gertrude	1321 Justine Street Pittsburgh, PA 15204 921-3548	Langley High School Sheraden Blvd. Pittsburgh, PA (Teacher)
Gordon, Patricia	7910 Dollman Road	Schenley High School Bigelow Blvd. & Centre Avenue Pittsburgh, PA 15213 (Teacher)
Heindrich, Edith	432 Lee Street Pittsburgh, PA 15212 322-3679 or 321-3377	Conroy Educational Center Grades 7-12 (Handicapped) Page & Fulton Street Pittsburgh, PA 15212 (Teacher)
Kocay, Cheryl	1497 Daleland Avenue Pittsburgh, PA 15220 922-0335	Greenway Middle School 1400 Crucible Pittsburgh, PA 15060 (Teacher)
Kuyat, Francis	310 West Burgess Street Pittsburgh, PA 15214 321-2845	Clarissa School of Fashion Design 6th Street Pittsburgh, PA 15222 (Teacher)
Mitchell, Franzelle	4452 Sweetboy Street New Homestead, PA 15120 462-9212	Carrick High School 125 Parkfield Street Pittsburgh, PA 15210 (Teacher)
Narcisi, Gretchen	282 Silver Lane McKees Rocks, PA 15136 859-3563	Mercyhurst College Erie, PA 16501 (Student) Clarissa Fashion School of Designing (Student & Part-time teacher)

NAME	ADDRESS AND TELEPHONE NUMBER	EMPLOYMENT
O'Neill, Mary Jane	442 Oneeda Street Pittsburgh, PA 15221 431-4618	Oliver High School Pittsburgh, PA 15472 (Sub. Teacher)
Owens, Karen E.	1507 Richard Drive Pittsburgh, PA 15234 884-3376	Washington Junior High School Washington, PA 15301 (Teacher)
Royall, Wanda	1715 McNary Boulevard Pittsburgh, PA 15221 371-3176	Washington Ed.Center 169 Fortieth Street Pittsburgh, PA 15201 (Teacher)
Sciullo, Jane	1529 Hawthorne Ave. Pittsburgh, PA 15201 781-0931	Schenley High School Bigelow Boulevard & Centre Avenue Pittsburgh, PA 15213 (Teacher)
Scott Jean	5601 Penn Avenue Pittsburgh, PA 15206 441-0384	Peabody High School 515 North Highland Ave. Pittsburgh, PA 15206 (Teacher)
Thompson, Adele	43 Sunnyhill Drive Pittsburgh, PA 15228 563-4467	Washington Education Center 169 Fortieth Street Pittsburgh, PA 15201 682-6445 (Teacher)
Whisner, Jane	103 Kenyon Street Turtle Creek, PA 15145	Clarissa School of Fashion Designing (Teacher)

CHAPTER II

A. CLASSROOM DISCUSSION TOPICS:

1. History of Power Sewing
2. Job Possibilities
3. The Needs and Interests of All Students
4. Comparing Power Sewing to Home Sewing
5. Analysis of Operation
6. Safety
7. Basic Cleaning, Oiling and Maintenance of The Machinery
8. Plant Orientation
9. Methods Used In Factory Production
10. The Ticket System
11. Method, Time, Management (M T M) Technique
12. Specific Analysis of Operation

B. INDIVIDUAL PROJECTS - HANDS-ON:

Each teacher brought fabric to class and worked on an individual project while learning how to operate the power machines. The participants usually appeared at the workshop ten to fifteen minutes apart allowing for the instructor to get them started on a new machine. Instead of waiting, the teachers would work on their own projects. The first machine that they were taught to operate was the basic lockstitch machine that is used in straight sewing. Proper positioning of hands, feet and body were taught. Speed exercises were taught to some participants who have intentions of

seeking employment in the sewing industry for the summer months in order to gain more experience. For individual projects that were completed during the workshops turn to appendix E.

C. FIELD TRIPS:

Three field trips were planned to expose the teachers to career opportunities in the sewing industry. They talked with the tour guide or owner of the factories and observed the different departments and the workers at their jobs. The following departments were observed in the factories visited.

a. Office Personnel
b. Factory Personnel
c. Fabric Dept.
d. Cutting Dept.
e. Sewing Dept.
f. Pressing Dept.
g. Cleaning Dept.
h. Upholstering Dept.
i. Inspection Dept.
j. Repair Dept.
k. Trimming Dept.
l. Shipping Dept.

For a list of the sites visited by participating teachers on field trips (see appendix F)

D. FACILITIES:

The hands-on workshops were conducted at the Forbes Road East Area Vocational Technical School located in Monroeville and at Connelley Skills Learning Center, Pittsburgh, PA.

Field trips took place at selected field sites listed in appendix F. Library facilities included - Hillman on the University of Pittsburgh campus and Carnegie Library - Oakland, were available to the participants. Resource

materials were also purchased with project funds. A listing of resources used is included in appendix G.

E. COURSE OUTLINE AND ADVANCED WORKSHOP EXPERIENCE:

The course outline that was developed, tested and revised during the Winter Term, 1978 is included in Appendix I. Input was utilized from three sewing factory supervisors and from six experienced industrial sewing employees in addition to the input of the project director and the consultants.

Additional experiences for more advanced workshop participants was developed in Summer 1978 for use in the second workshop series. The experiences can be found in Appendix I.

F. LIST OF APPENDICES:

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MACHINERY OPERATED - WINTER, 1978

Lockstitch, Single Needle (Singer - Model 281-1)

Blind-stitch (U.S. - Model 99-PR)

Serger (Singer - Model 990E)

Bar-Tack (Singer - Model 269-W126)

Button (Singer - Model)

Button hole (Singer - Model 271K11)

Chain-stitch (Singer - Model 553B101)

Eyelet (Manual)

Buck-press (Floor Model) LU48C-L040

Steam-Jenny (Cissell-Form)

MACHINERY OPERATED - SUMMER, 1978

Blindstitch, Singer T1128

Buttonhole, Singer 271W

Serger, Brother Co.

Double Needle Lockstitch, Singer 212G140

Lockstitch by Chandler

Lockstitch Singer 331K4

Lockstitch Singer 251-2

Pinking Machine

PRE-TEST

NAME _____ COURSE CODE NO: _____

Have you operated any of these machines that are listed below? PLEASE CIRCLE those that you have operated.

1. Lockstitch (basic) - 1 needle
2. Lockstitch - 2 needle
3. Chainstitch
4. Serger
5. Bartack
6. Blindstitch
7. Buttonhole
8. Button
9. Zig zag
10. Die cut
11. Cutting Machine
12. Snap
13. Eyelet
14. Buck-press
15. Steam jenny
16. Spotting board

Have you operated any machines that are not listed above? Please list below:

1.

2.

3.

If teaching, what power machines do you have in your shop?

1.

2.

3.

4.

5.

6.

INDUSTRIAL SEWING COMPETENCY EVALUATION SHEET

DIRECTIONS:

Students are to ask the instructors to initial in the appropriate column as they complete the threading and operating competencies.

The objectives of the hands-on experiences in the Industrial Clothing Workshop are:

The student will thread and operate the following industrial sewing machines:

MACHINE	THREADING	OPERATING
281 Singer Lock-stitch Machine	_____	_____
U.S. Blind Stitch Machine	_____	_____
980E Serging Machine	_____	_____
268-W126 Bar Tack Machine	_____	_____
Button Sewing Machine	_____	_____
553-B101 Chain Stitch Machine	_____	_____
Buck Press		
Steam Jenny		
Eyelet		
Cutter		

Appendix D

SUMMARY OF EVALUATIONS BY WORKSHOP MEMBERS - WINTER, 1978

WORKSHOP MEMBERS

Question 1 What did you gain from this workshop that will benefit you professionally in teaching or in your clothing-related profession?

Answers Participants gained experience with power sewing machinery, exposure to the commercial sewing industry and appreciation for what it would be like to work in a power sewing factory. The field trips were helpful to the understanding of the operations in sewing factories. More information on the history of power sewing was requested. The safety aspects of operating industrial sewing machines was adequately stressed. The variety of power sewing jobs available in industry were explained in depth. Effective methods for use with handicapped students and workers were stressed. One workshop member took a set of slides to use in teaching career education with her seventh grade students. Student worksheets were also constructed on such topics as the production steps and jobs in the factory.

Question 2 How will you use the industrial sewing skills that you have learned in your future teaching or clothing-related work experiences?

Answers The skills gained in operating the power machines will enable me to use these machines with my students

rather than to just let them sit in the classrooms unused. Several members expressed that they plan to enter summer work in the power-sewing industry and one expressed the desire to open her own drapery shop in the future. The knowledge and skills gained in this workshop will be useful in teaching pre-vocational courses in introducing students to industrial sewing. One member plans to use the information gained in information lessons for the Merchandising classes she is teaching at the Community College. A general reply of all workshops respondents was that the skills and knowledge gained by them were new to them and would greatly enhance their skills in occupational home economics.

Question 3 What suggestions do you have for additions or deletions to the content of this industrial sewing workshop?

Answers The content was found to be acceptable in amount and depth of subject matter and hands-on experiences. Some asked for an increase in the number of demonstrations and that greater emphasis be placed on the use of the machinery in relationship to the ready-made garment. There was a consensus of opinion that the hands-on sewing experiences were the most valuable portions of the workshop, both for their personal growth and the contributions that it would make to expand their effectiveness on their job both in teaching and in the

industrial sewing industry. The field trips were a problem for some working students to attend. The possibility of attendance on an individual basis rather than as a group was suggested as a solution by one member. The majority of the workshop participants liked the set-up of the overall workshop presentation and stated that they were satisfied and hoped more hands-on workshops would be presented in other areas of gainful home economics and that this industrial clothing workshop would be presented again for others who have the need to develop these skills.

Question 4 Would you have preferred to have the theory and hands-on sewing experiences combined in a shop location rather than the separate classroom and shop experiences that were used in this workshop.

Answers Those who liked the separation of theory and hands-on experience stated that it allowed for a basic understanding of industrial machines before they actually used them. Those who favored having both the theory and hands-on practice taught in a commercial sewing shop stated that it would be easier to explain a type of machinery or an operation when you had the machines in the shop to use to demonstrate. This would be particularly true for students with limited knowledge of industrial sewing equipment and factory procedures.

SUMMARY OF EVALUATIONS BY WORKSHOP MEMBERS - SUMMER, 1978

WORKSHOP MEMBERS

Question 1 What did you gain from this workshop that will benefit you professionally in teaching or in your clothing-related profession?

Answers Participants gained a broader understanding of the sewing industry and the job possibilities within the factory as they were explained in depth. The safety aspects of the entire industry was also adequately stressed through the study of the factory layout and quality control. Guidelines for the hiring of the handicapped along with the departments best suited for them was also studied. The participants gained a basic knowledge of the power machines and what would fit best into their particular classroom while others who had machinery in their classrooms but could now go back to their students and train them. Some felt that more hands-on experience would benefit them.

Question 2 How will you use the industrial sewing skills that you have learned in your future teaching or clothing-related work experience?

Answers The skills gained in operating the machines will enable the teachers to use them with students now in their classrooms. Some workshop participants have applied for work in the sewing industry to better understand the operation of industrial sewing. Training in basic machine care and maintenance will enable the student to take better care of

equipment. Advantages of speed and production through time-study dealing with a specific job analysis will also be incorporated into the higher grade levels. Many teachers are planning field trips to industrial sewing factories so that students can see factory flo and production processes. Mini trial runs will be used to demonstrate production and factory flo. Safety will be built into the course of study.

Question 3 What suggestions do you have for additions or deletions to the content of this industrial sewing workshop?

Answers The course should run longer in order to teach more about minor machinery repairs and tips in threading. More time to study machines would have been beneficial but all material was covered well. The majority of the participants liked the overall presentation of the lectures and considered the handouts to be very instructional. They were well satisfied with the hands-on experience. A list of job possibilities in the district was suggested to further motivate the students.

Question 4 Would you have preferred to have the theory and hands-on sewing experiences combined in a shop location rather than the separate classroom and shop experiences that were used in this workshop?

Answers The outline was well presented with no difficulty in the students carrying out the objectives. The instructor

showed enthusiasm from work experience in describing job possibilities with pride. All questions were adequately answered using a well organized outline. Most of the material presented was new to the students and was competently presented to the workshop participants by the instructor. Several machine projects were completed by the students and may be on display sometime in the future. Machine attachments had been ordered but had not arrived in time to use them. A workshop where both theory and hands-on could be combined in one classroom would be more beneficial to the students. Live demonstrations of factory-flo instead of chalkboard demonstrations would save on time and students could experience the actual learning experience.

PROJECTS COMPLETED

Individual Projects that were completed with the utilizing of the power machinery are as follows:

a. Shorts - infants, ladies

b. Pants - infants, pants suits, men's trousers

c. Coveralls - infants, toddlers

d. Shirts - infants, ladies

e. Dresses and Two Piece Outfits

f. Quilts - patches for a patch quilt for double bed, childs bed

g. Uphostering - couch covers, pillow slipcovers, pleated attachments for couch and chair bottoms

SITES VISITED

Instructions including Maps were available for the participants.

Site	Address	Date Visited
Penn Needle Art Company	6945 Lynn Way Pittsburgh, PA. 15208	March 28, 1978 1-P.M. - 3:30 P.M.
Joseph Rogow & Sons	4701 Liberty Ave. Pittsburgh, PA.	April 11, 1978 1-P.M. - 3:30 P.M.
Bobbie Brooks	Washington, PA.	April 20, 1978 1:30 P.M.-3:30 P.M.

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McDermott, Norris, Opportunities In Clothing, Peoria, Illinois: Bennett Publishing Co., 1976

New Jersey Division of Vocational Education, Power Sewing, Language Workbook, 1975.

Oaklahoma State Department of Vocational and Technical Education, Power Sewing Machine Training Manual, For The Special Schools Division For Industry Training, January 1973.

Pennsylvania Department of Education, Bureau of Vocational Education, Safety and Health Guide for Vocational Educators, An Instructional Guide With Emphasis in Cooperative Education and Work-study, Volume 15, No. 1, Harrisburg, Pa., 1977.

Pivnick, Ester Kaplan, Fundamentals of Pattermaking For Women's Apparel, 3rd Ed. Cold Spring Harbor, N.Y., 1958

Stevenson, Isabelle, The Complete Book of Sewing, Greystone Press, 1949

Trimble, Paul C., The Spotting Manual: National Cleaners and Dyers, 1945.

SPECIFIC ANALYSIS OF OPERATION

JOB NUMBER 824 SPECIAL 24-32 OPERATOR'S NO. 150 DEPT. 4

OPERATION-Supply operators (5) with work and remove from station

ARTICLE-Jacket SUPPLY-thread, needles, snaps, & locate mechanic

MACHINE NO.	SNAP SIZE	THREAD SIZE	THREAD COLOR	MACHINE	BREAKDOWN
281 990 252		50 cone	BLACK		

OPER.	JOB DESCRIPTION	SERVICE STATION
1.	Place bundles at work station	No. 1
2.	Tie finished bundles	No. 1
3.	Check ticket (remove) own ticket	No. 1
4.	Carry to next work station	No. 2
5.	Tie finished bundles	No. 2
6.	Check ticket (remove own stub)	No. 2
7.	Carry to next work	No. 2
8.	Replenish thread, snaps, etc.	
9.	Proceed as in first 2 work stations until finished	
10.	Remove to next job	

$3.50 per 100

Production per 8 hr. - 850
850 jackets

This production listed is average for a service person who does the job well. Checking ticket to assure no mistakes in orders, correct thread, etc., overall will be to the person's advantage making less repairs.

APPENDIX I

COURSE OUTLINE

FOR

POWER SEWING

COURSE OUTLINE

Vocational Education 295

EXPANDING AND UPDATING SKILLS IN INDUSTRIAL SEWING FOR HOME ECONOMISTS

COURSE OUTLINE

Vocational Education 295

EXPANDING AND UPDATING SKILLS
IN INDUSTRIAL SEWING FOR HOME ECONOMISTS

COURSE DESCRIPTION

The purpose of this course is to update and expand the knowledge and skills in clothing related services of Home Economics trained persons by means of "hands on" experiences with basic power sewing machinery. Safe usage and care of industrial sewing equipment and machines will be emphasized.

INTRODUCTION

This course is designed to give our students hands on training on the machinery used in the stitching industry. It is designed to teach proper care and safety precautions when working on industrial sewing machines. The student will be taught how the sewing industry operates from the planning stages through the pattern drafting to the stage where the finished garment is shipped out into the market. Meeting the needs and interests of all industrial clothing students will be explored including the disadvantaged and/or handicapped.

OBJECTIVES

1. The student will operate the basic machinery in the lockstitch and chainstitch family.
2. To provide teachers with guidelines for the training of students on the operations of the industrial sewing machinery and equipment.
3. The student will gain knowledge of the realistic working conditions in a garment factory of today, including environmental and safety factors.

THE HISTORY OF THE TEXTILE AND POWER SEWING INDUSTRY

The sewing industry did not begin here in the United States but came into being during the Industrial Revolution in England in the middle of the 17th century where cotton textiles was the key industry. Inventions such as John Kay's flying shuttle (1733), James Hargraves' spinning jenny (patented 1770), Richard Arkwrights' spinning frame (1769), and Edmund Cartwrights' power loom (patented 1783) began the increase in output in this industry. Lancaster and Yorkshire became transformed into the greatest textile center in the world. Factories and industrial towns sprang up in the surrounding areas.

France lagged behind in the early years. At one time they had kept pace with their rival, England. The British, victorious in their long standing commercial rivalry, kept markets away from France. The transition of the United States to the textile and industrial sewing industry took place after the Civil War. They patterned themselves after England. The textile mills of New England had long been in existence but did not begin to boom until the industrial organization which took place from 1860 to 1890. Because of the many immigrants that came to our shores with skills in the needle trades, many small factories were started as a means of a livelihood for them. Sailors returning from voyages and in need of new clothing in a hurry started these people to realize a need for a faster way to produce clothing. These factories soon became known as "sweat shops" where child labor was used on an apprenticeship basis where they received only their room and board for the work that they performed. Working conditions were very poor.

Industrial unions began to spring up as these people started to search for their identity and demanded recognition. Today our factories are no longer known as "sweat shops". Many are air-conditioned and are well lighted and ventilated. Our demand for ready made clothing makes this industry one of the largest in the United States today.

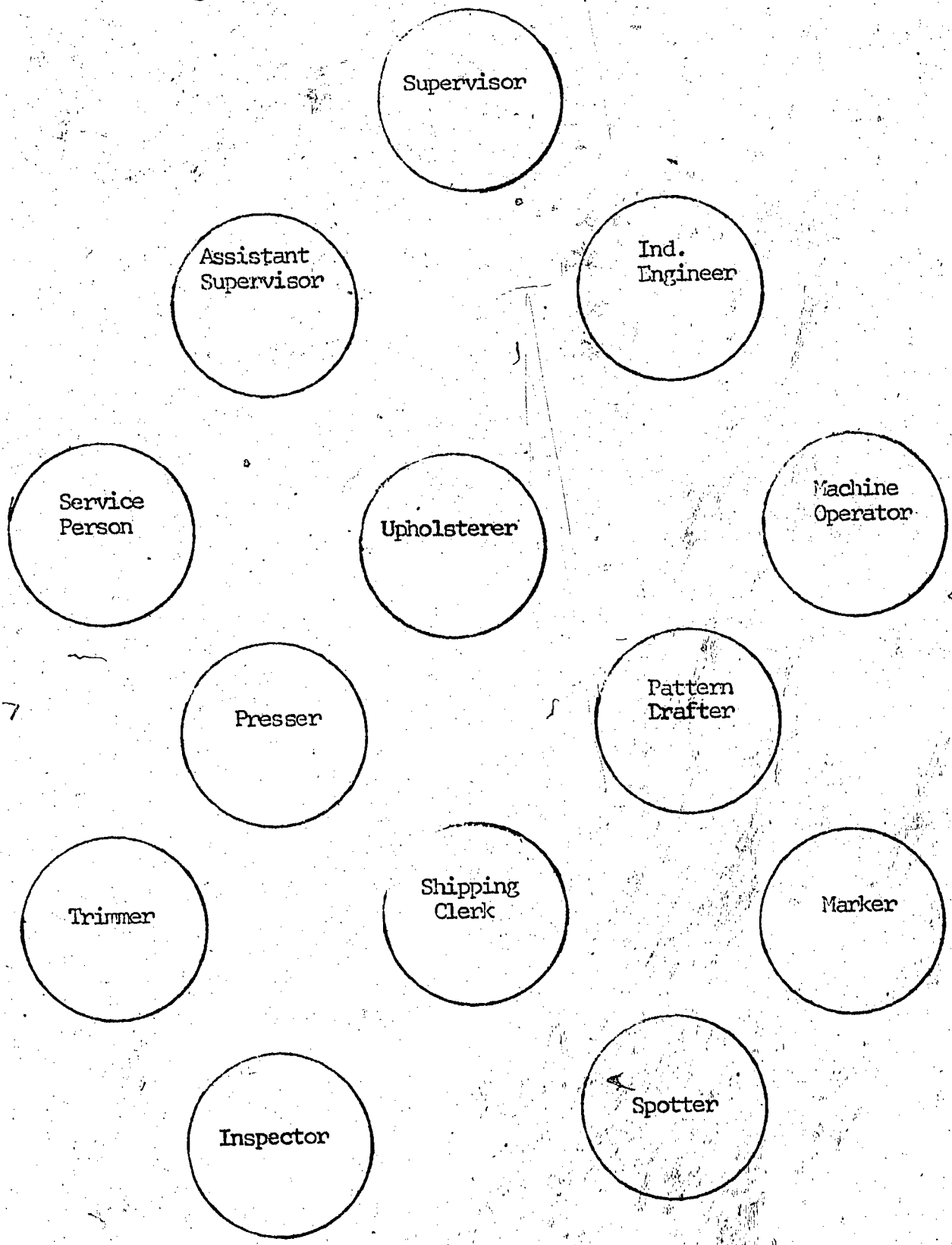
The vocational schools in New York have had power sewing for many years, Chicago ranking second. These two cities became known as the melting pot and the immigrants who settled there had many persons trained in industrial sewing. It was only natural for them to pursue a life style that they were accustomed to.

A study has shown that the young graduate adapts much better to the working conditions than do the more mature older persons because of their versatility. This would be an excellent field for a student who is interested in industrial sewing as there are many clusters to choose from.

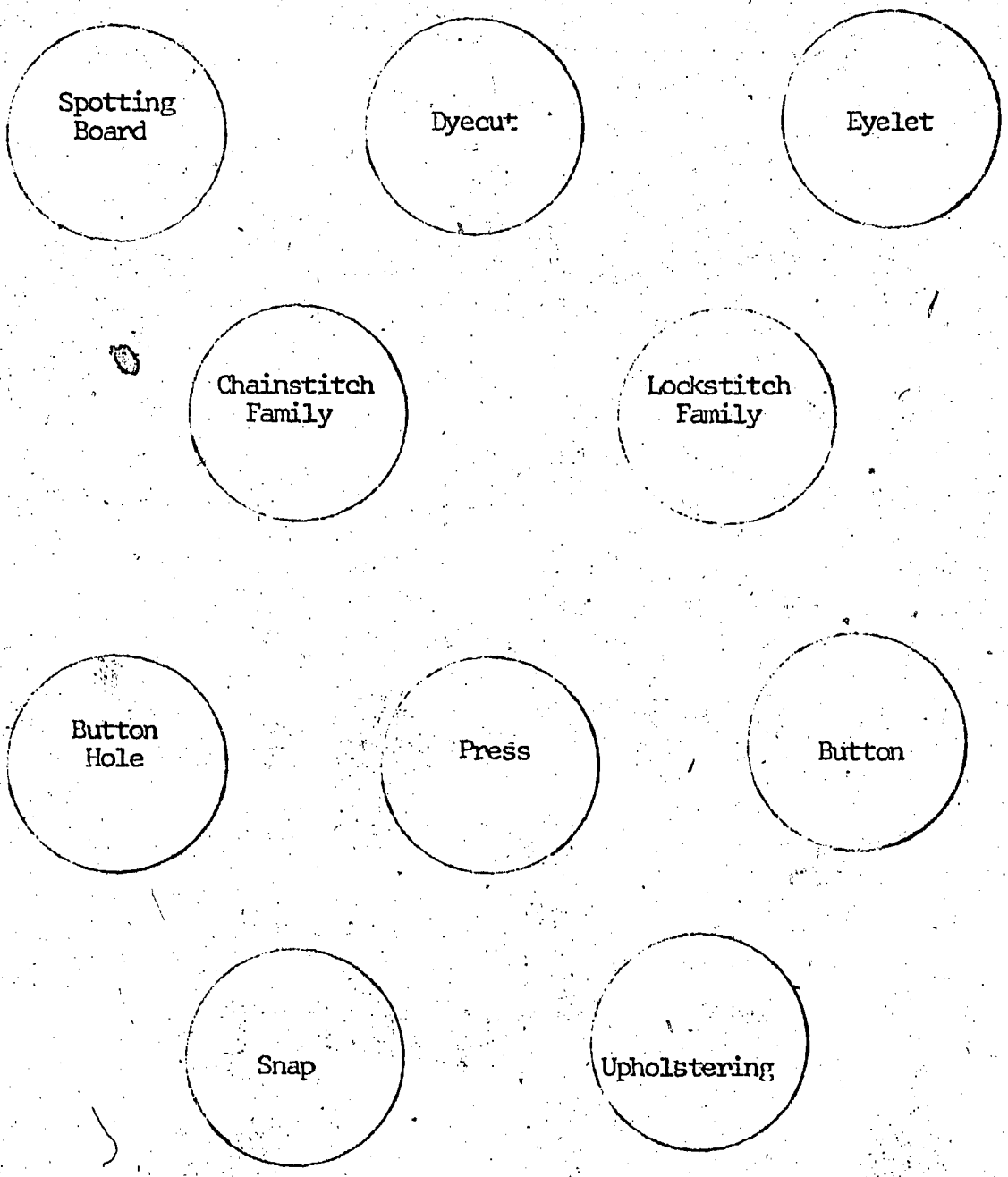
JOB POSSIBILITIES IN THE INDUSTRIAL SEWING INDUSTRY

DEPARTMENT	JOB POSSIBILITIES
Office Personnel	Sales representatives, plant manager, pattern maker, office staff
Factory Personnel	Supervisor, industrial engineer
Fabric Dept.	Inspector, stock person, clerk
Cutting Dept.	Spreader, pattern placer, cutter, service person, marker
Sewing Dept.	Hand sewing, machine operator, service person, inspector
Pressing Dept.	Hand presser, automatic buck presser, service person, steam jenny operator
Cleaning Dept.	Spotter, service person
Upholstering Dept.	Upholsterer, service helper, finisher
Inspection Dept.	Inspector, service person
Repair Dept.	Repair operator, service person, hand repair operator
Trimming Dept.	Trimmer
Shipping Dept.	Packing and bagging operator; shipping clerk, master inspector, order filling clerk.

JOB POSSIBILITIES



INDUSTRIAL SEWING MACHINERY



EMPLOYMENT CLUSTERS AND JOB

POSSIBILITIES IN INDUSTRIAL CLOTHING

OFFICE PERSONNEL

1. Sales representative - (in charge of sales)
2. Plant manager - in (overall) charge of entire factory
3. Pattern maker - design and develop pattern through sketches or what is necessary to produce creation.

   (Tailor, seamstress, dressmaker, designer)
4. Office staff - handles correspondence, quality, production, gum sheets, bundle sheets, etc. where records are required.

FACTORY PERSONNEL

1. Supervisor - in charge of production
2. Asst. supervisor - under supervision of supervisor
3. Industrial engineer - in charge of problems related to production, wage rate, motion through time study

FABRIC DEPARTMENT

1. Inspector - determines correct fabric in meeting specifications required by law and the customer as to irregularity of fabric.
2. Stock person - files fabric as to color, weight, bolt numbers, weave, cleaning process, etc.
3. Clerk - keeps records on fabric, stamps, order forms, etc.

CUTTING DEPARTMENT

1. Spreader - in charge of spreading fabric for pattern cutting.
2. Pattern placer - places pattern on material.
3. Cutter - cuts pattern
4. Service person - sorts and ties pattern parts into bundles.
5. Marker - tags bundles with correct bundle tickets.

SEWING DEPARTMENT

1. Hand Sewer - does all hand sewing on garment assembly.
2. Machine Operator - performs a specific task.
3. Service person - Services the operator.
4. Inspector - checks for flaws, and mistakes.

PRESSING DEPARTMENT

1. Hand presser - presses with hand iron
2. Automatic Buck presser - presses flat apparel.
3. Steam Jenny presser - presses finished garments.
4. Service person - services the pressers.

CLEANING DEPARTMENT

1. Spotter - removes soil marks
2. Service person - services the spotter

UPHOLSTERING DEPARTMENT

1. Upholsterer - strips, mends and upholsters
2. Service helper - assists the head upholsterer
3. Finisher - refinishes all wood trimming

INSPECTION DEPARTMENT

1. Inspector - official or master examiner of item being produced.
2. Service person - returns all rejects to proper department

REPAIR DEPARTMENT

1. Machine Operator - repairs seams, zippers, button holes, etc.
2. Hand Repair - sews in areas where machines are not used.
3. Service person - services repair operators.

TRIMMING DEPARTMENT

1. Trimmer - cuts all excess threads from finished apparel

FINAL INSPECTION DEPARTMENT

1. Inspector - checks complete final construction of garments, checks for correct tags, and shipping address.
2. Service Person - Folding and boxing garments for shipping

SHIPPING DEPARTMENT

1. Packing and Bagging operator - must wrap, bag or box merchandise according to distribution functions.
2. Shipping Clerk - required to ship merchandise in the least expensive method, smallest possible size in packing.
3. Order filling clerk - checks order forms as to customer, date to be shipped, destination, total cost per order and other pertinent information.

Clusters and job possibilities may differ according to the number of employees and the type of merchandise being manufactured. Smaller shops may have one employee doing many tasks. A larger shop would have these tasks divided again depending on the type of product being manufactured.

The departments in the industrial clothing factory with their job possibilities and working conditions are as follows:

PATTERN DEPARTMENT

The purpose of this department is to draft, alter and complete a specific pattern. The deciding factors must be considered in coming as near as it is possible to the wishes of the customer. The tolerance level must be acceptable. Each customer differs as what is considered to be the acceptable tolerance level.

The basic pattern is not considered finished until it has been cut in muslin and checked either on a dress form or individual. All problems must be corrected before the pattern is finsihed and sent to the cutting room. Sometimes as many as 5,000 garments from one specific pattern are ordered. Mistakes in this department could be very costly to the manufacturer.

Job opportunities in this department require employees to be dedicated and conscientous in their work. Basic math is necessary. Most employees are trained on the job. Basic education and attendance at a pattern-making school is usually preferred.

The wages are good. Lighting, ventilation, and usually air conditioning during summer months contributes to favorable working conditions.

CUTTING DEPARTMENT

The purpose of this department is to place, cut, mark and bundle pattern parts. The knowledge of reading and understanding pattern instructions is necessary. Pattern parts must be placed correctly on fabric. The spreader must line up fabric correctly to be cut depending on the number of pattern cuttings to be cut in one setting. The cutter may penetrate through 30 to 50 thicknesses depending on customers order

and type of cutter used. The pattern parts are then sorted, labeled and bundled and sent to the sewing department.

Job opportunities in this department require thorough knowledge in pattern reading. The cutter must be very conscientous as this is a dangerous job if adherence to safety becomes lax. Skill in basic math is necessary. The service person bundles, tags and delivers work to the operators. There are many service jobs such as pinning, bundling, spreading, tagging, etc. This area is not as noisy as others but because of the lint from the spreading of fabric, it is very dust oriented, even with the ventilation.

Wages are higher in this department than in some of the others because a higher degree of responsibility is required. We cut in quantities and a mistake will ruin more than one garment. If we make a mistake in the sewing department, it can usually be repaired. After a pattern is cut incorrectly, it cannot be repaired. Working conditions are good in this department.

FABRIC DEPARTMENT

The purpose of this department is to be able to select the correct fabric to be used in creating a garment to the customers' satisfaction. The difference between pleasing or not pleasing a customer often depends on the knowledge base dealing with fabric that employees in this area have. They should be able to see if a bolt of fabric is shaded, off the grain, has flaws or any other characteristics that has or will damage the fabric in time. These bolts are rejected to be used where the tolerance level is low or not required at all. Characteristics important to the consumer are strength, water absorbency, elasticity, washability, etc. In this department there isn't the tension of a production line which makes the working conditions very good. The wages are good and home economists fit into this area well because of their

knowledge of fabrics.

SEWING DEPARTMENT

This area has many machines where the assemblin of garments is accomplished. At one time, there was no air-conditioning, safety was not enforced and employers set up their own rules that were not always for the welfare of the employee. Most of the workers were uneducated immigrants who could not speak our language well. Many were widows and the sole supporter of their families. They usually were persons who took these jobs as a last resort in order to make a living. The production in these factories left much to be desired. The pressure from the demands of production, unhealthy quarters, poor safety conditions, unsanitary restrooms and factory locations that were usually in dark, damp cellars made this field of employment degrading to the employee and also affected their social status in the community. Society often did not accept their workers as assets to the community.

This is not so today. The operators are paid adequate wages. Their working stations are farther apart than in previous years and therefore not as crowded. The lighting, ventilation, air conditioning along with their benefits makes this job more inviting than in the past.

INSPECTION DEPARTMENT

The purpose of this department is to check completely finished garments before the final pressing. This is known as a mini inspection station where any problens involving a garment may be sent back to the repair department before pressing and final inspection. It saves time by doing this rather than letting the apparel be completed and then rejected. Garments may be rejected for wrong thread, faulty stitching, shaded fabric, uneven lapels, pockets, buttonholes, and any flaws that may be spotted in the fabric. The lining in a garment is also checked for these mistakes when the garment is laid on a flat surface and examined at the inspection

station.

Job opportunities in this department are not as great as in other departments. There are not many inspectors. They are probably the highest paid in the entire plant. Therefore they generally work on this job until retirement. The service person deserves much of the credit for a smooth operation in this area. The lighting must be good. Ventilation and air conditioning are usually provided. This department is usually near the outside doors where fresh air and natural lighting are available.

PRESSING DEPARTMENT

Workers who specialize in this area may work throughout the plant, depending upon the type of garment to be assembled. The steam iron is used to press open seams on sleeves, linings, collars and other parts depending on what is being sewed. Other methods of pressing are with the flat buck press and steam jenny. Drapes and other garments both in the construction stages and the finished product are pressed on these machines. Pressing is completed sometimes before and sometimes after the buttons are placed on the garment. This depends on the characteristics of the button. They are usually made of wood or plastic. Some are shaped irregular. If they melt, crack or warp the garment may be ruined.

Working conditions have improved in recent years. Under our new laws, air conditioning, proper ventilation, and lighting have improved making work much more enjoyable. However, the operators must be able to adjust to the heat as this still is one of the warmest parts of the plant.

The wages are at the top level because it is in an area where work usually flows at a steady pace and a good service person plays an important part by servicing the operator so that they will be able to make top wages.

TRIMMING DEPARTMENT

The garments are trimmed of excess thread inside and out. This operator also must be on the alert to be able to identify mistakes on linings, labels, etc. since the entire garment will be inspected. This is a standing job usually where few employees work, due to the fact that space allowances for the finished garments requires more space especially if they are working with winter clothing such as ski jackets. The working conditions are more relaxing than in many other departments as there is less noise. This department has very little machinery. Music is usually allowed, and most operators carry their own radios. Having less employees than the sewing area is ideal for the employee who would rather work away from the noise and the fast production. This area never has too many workers. There is always work to be done. Many machine operators who may run out of work are usually sent to this area.

FINAL INSPECTION DEPARTMENT

Completely finished garments are pressed and then inspected. The employee must be able to identify the following:

a. Shaded fabric - panels in fabric differ in color enough to make them into seconds or are passable as first class.

b. Buttonhole - evenly spaced, correct color thread, correct buttonhole, good sewing stitch.

c. Button - correct button (shank, flat), color, sewed on firmly, evenly spaced.

d. Flaw - identify dirt marks (grease, oil, blood, chocolate), holes caused sometimes from careless operators using nippers or flaws in the fabric.

e. Snaps - evenly spaced, when snapped together, the garment hangs properly. Check snaps for faulty ones and for sufficient tightness.

f. Mismatch - the entire garment is checked for mismatch where plaids and other noticeable designs cause unbalance in the most noticeable areas such as the collars, labels, joining seams, etc.

g. Sewing - identify a seam within the tolerance level, good construction stitching.

An overall inspection is made from the top to the bottom, from the inside to the outside of the garment. When customers are pleased with an order, they will continue to do business. When they receive an order with missing buttons, faulty stitching, low quality fabric, etc., it is not only bad for the company, but shows carelessness on the part of the inspector. Garments which are rejected are sent back to the various departments depending on the reason for the rejection and repairs. If it isn't possible to repair, it is tagged as a second, reduced in price, and sent on into the market.

This department is located away from the sewing area. The job opportunities in this area are comparable to the regular hiring of employees in other parts of the industry. Good eyesight is an asset. Most have pleasant working conditions, not crowded, leaving more space to move around for employees who prefer this type of activity to sitting. The wages are acceptable.

SPOTTING DEPARTMENT

This work station is usually situated toward the end of the production line. Any marks such as blood, grease, chocolate, gum, etc.,

are removed here. Some garments need freshened up before going into market as a result of handling. This is done through the use of the spotting board. The operator must know the basic chemical mixtures, be able to identify the mark, know the correct application to use on a particular fabric to repair the garment to make it presentable to be sent into the market as a "first class" garment. This is a necessary department. With proper training, an employee has a chance to seek employment in not only the industrial factories dealing in Textile Fabrication/Production, but also in the dry cleaning area. This area must be well ventilated as there is a certain amount of odor from the chemicals, solvent action, etc. This occupation is considered an art and the wages are very good. This is a good position for an employee who prefers to work in a quiet area and is also a good department for handicapped workers.

UPHOLSTERING DEPARTMENT

An employee must be able to prepare the piece of furniture for the job of upholstering. The employee must know how to recondition the frame, install the webbing, tie springs, cut and identify fabric and know the tools and how to properly use them. This area of job possibilities is useful both in industry and for a person confined to a specific area where he prefers to work alone or in his or her home. Proper ventilation is necessary as in this particular area of work, the worker comes in contact with old stuffing, webbing, and fabric filled with dust and lint, sometimes gathering over a period of years, causing slight irritation in the nose and throat until becoming adapted to the conditions.

SHIPPING DEPARTMENT

This area is a combination of several departments. The employees in this area must be on the alert for anything that may have gotten past

the inspectors, in addition to their regular duties. These employees must have basic math. They must be able to check orders regarding garment colors, sizes, fabric, the number of garments ordered, customer, time of shipping preferred, correct customers' addresses and many other requirements. A good shipping department giving 100% at all times is another asset in the growing of the industry and benefiting the employee with more orders, meaning more work for the employee.

This area is usually open to the outdoors at times when the actual shipping is done. The job involves walking, standing and sitting, and working in cold weather when actual shipping is done by truck. This job pays well, and there are job opportunities at a regular pace comparing it to the rest of the industry.

THE NEEDS AND INTERESTS OF OUR STUDENTS

A good course of study should be flexible and allow for individual differences, depending on the communities surrounding his or her area. Since we have many departments in this field such as power sewing, dry cleaning, sewing specialty, fashion designing, etc., a student should not get bored. Working conditions in the classroom should be as real to life as possible, providing conditions similar to the working world. Teachers should keep abreast of the latest methods of factory operations. Encouraging labor leaders and employees of different areas of the 'Needle Trades' to address the students will not only motivate them, but will help them keep up with the new methods.

An open climate is necessary in the classroom, and a relaxed, friendly atmosphere should prevail. Accidents are at a lower level when there is less 'horsing around.' The willingness to lend a helping hand is very important. The slower student must feel wanted and not be afraid to ask for assistance from a classmate or teacher.

Music at a moderate pitch is permissible, and often encourages a student to pick up speed due to keeping time and blending the music with the hum of the machine. Most operators carry their own radios. It is part of their everyday needs.

Good eyesight is necessary for a student to maintain interest in any class. Sewing can be fun, but straining the eyes can make a student uncomfortable and disinterested.

Our students need more exploratory means, such as field trips. Even though they may be working with 'hands on' assignments where they are operating machinery in the shop, that is not enough. Visits to sewing factories, small tailor shops and cleaning establishments should be a must. Depending on the make-up of a student, many would

not care to work in a sewing factory even though they may be fine machine operators. A student might not like the noise, all the people moving about, and the pressures that production lines bring about.

That same student (who may have been raised in the country or in a quiet neighborhood), could find working in a small shop or establishment an enjoyable experience. However, if the factory with all its noises and activity were introduced gradually to a student, he may fit into the picture.

THE DISADVANTAGED AND HANDICAPPED

In the stitching industry there are many different areas for employment not only for the average student, but also for the disadvantaged and handicapped. A few years ago, they were assigned factory jobs that most employees did not want, or they were the lowest paying jobs. One reason was that they were afraid of not being hired if they did not accept the first job given to them. Today, we still have some employers who discriminate. This is one reason why these students should be well trained and well versed as to what to look for and what to demand as an applicant. These people fit in very well with other workers, are conscientious about their work, and often become valuable employees in the garment industry.

In training these students, safety is stressed at all times as with the other students. The training procedures are basically the same as with the average student, depending on the handicap. More floor space is sometimes required, and the work station may have to be changed around to get the best results. Height of chair, easy access to the knee lift, and access to work fabric are of great importance. The slow or high strung student who is restless should not be expected to sit at a machine for too long at a time. Many operators hold down more than one job in the factory, one where they sit and one where they stand. Many adults tire as well as the student. Safety shields or safety glasses should be worn when operating machines that complete their own cycle.

GUIDELINES TO ACCOMMODATE DISADVANTAGED AND HANDICAPPED STUDENTS

1. Medical history, knowing the medical background of a student, is important such as diabetic, nervous condition, allergies to dust and lint, etc. These students work at their own speed, therefore pressure from production and speed tests are not for them. They will pick up speed with increased practice, but it takes more time. Allergies from dust will not always bother a student who is allergic, as fabrics will change constantly depending on what is being made. Good eyesight is a must in this business. If a student seems to be having an eye problem, see that the eyes are checked.

Working areas in industry that these students could be trained to fill are:

a. Spreading material and pinning patterns to the material. These jobs are done in the cutting room. They are not dangerous and the pay is good. A student who moves around well and who gets bored when sitting for any length of time would do well here. Basic math is needed in this area.

b. Tying bundles, hand ironing, turning cuffs or linings, trimming, packing boxes, etc., are all good jobs for an active person.

c. Servicing work stations requires good legs and quick movement.

d. Basic machines such as the lockstitch, chainstitch machines, eyelet and snap (manual) are a few of the many machines that can be successfully operated by many disadvantaged and handicapped students.

A teacher must show a genuine interest and encourage these students by giving them as much attention as is possible. It sometimes becomes

very difficult to do this because they demand more of a teacher's time and they become impatient much easier than most students. It is not advisable to spend more time with one student than with another. Moving clockwise, and helping each student who needs help, will help a teacher get to each workstation in a systematic way. These students should be able to gain skills and make choices between the various industrial sewing machines and manual machines, such as the press, spotting board, steam hemming, etc. This will open the possibilities of a job with good pay.

Choosing between the machines, press, spotting board, steam dummy, and other manual machines, these students should be able to become well enough acquainted with a generous amount of learning skills to earn them a well paying job.

In addition to the needs and interests of our students, we must also consider their all around attitude in accepting the working world. Many students are not exposed to the real thing until applying for a job. Many children have been "spoon fed" so to speak since it is natural for parents to spoil a disadvantaged or handicapped child. When entering industry, they must learn that they will not be favored in any way. They are there to do a job just the same as other employees. Students should be guided to understand that they must do their share of factory work on their own. They will not get along well with all of the workers, but neither do other employees. Some employers may enjoy working with the disadvantaged/handicapped, while others do not. What must be emphasized with these students is that they are on the same level as the others. They will not be able to do all of the jobs, but neither will anyone else. By the time a student is to go

into industry, they should have built up their confidence from what they have been taught in the classroom to where they can make a living on their own. This is done through teachers' guidance by being kind but firm. Parents may object at first, but if the teacher has good rapport with the parents, then the student's success is more likely. It requires effort put forth by all three parties involved, the student, parents and the teacher.

ADJUSTMENTS FOR DISADVANTAGED AND HANDICAPPED STUDENTS

Classes should include discussions in rehabilitation to prepare them for industry. Subjects that are beneficial to the handicapped student are as follows:

1. Physical Fitness - Students should have as much activity as the handicap of the student permits. It is the way of teaching them teamwork and becoming used to other individuals.
2. Money Management - Teaches money handling skills from counting money to establishing a budget, depending on the needs and interests of the student.
3. Health and Hygiene - Basic self care is taught along with the individual hygiene problems. Cleanliness is stressed as employers and employees demand it from all the workers. Neglect in this area has cost many handicapped workers their jobs. This must be emphasized in their training.
4. Communicating Ideas - Oral and written communication, listening, and using the telephone are emphasized. These are all things that will be used day after day in industry. It is important that they learn these in their classroom.
5. Public Speaking - They should be trained enough to speak before a group so as to encourage them to be able to represent themselves when necessary.
6. Earning a Living - Points of interest to help the handicapped become successful when applying for a job are: filling out applications correctly, proper dress and positive approach to the interview, obtaining social security cards, and the importance of being punctual.

7. Using Leisure Time - Students should be informed of the various programs in the community where they can learn valuable social and physical skills, along with others.

8. Understanding Oneself and Getting Along with Others - Helping students to know themselves better, and to understand their emotions is important. Positive thinking about oneself, along with developing social awareness and behavior that is considered acceptable is the foundation that makes the difference between success and failure in the business world. Although the "hands on" training is important, encouraging these students to believe in themselves and become adjusted to the world around them will make it less difficult for them to enter industry.

FACTORY POWER SEWING COMPARED TO HOME SEWING

Many times you may be asked the difference between the home sewing machine and the power sewing machine. They differ in the following ways:

SPEED AND OUTPUT

HOME MACHINE	POWER MACHINE
1500 stitches per minute	5000 to 7000 stitches per minute

ENDURANCE

A home machine going at top speeds for many hours at a time, day after day, would probably not last more than a year or two.	A power machine is built to last and therefore it can take much more usage than the home machine.

PERFORMANCE

Home machines go at a lower rate of speed and performance is limited as to what one can do in a given time.	Higher speed which increases the production is the difference between the power and the home machine.

MAINTENANCE

There is very little maintenance with the home machine because of its slower performance.	The power machine requires more maintenance because of rapid operation which produces heat and friction that can damage the machine if not cleaned and oiled properly.

SAFETY

Not dangerous with normal precautions	One can be injured but power machinery is not dangerous if safety rules are observed.

ANALYSIS OF OPERATION

This job analysis tells the operator and manager everything about the day's work. It gives the production average and shows if the operator is below or above it. After the operator has reached the production that is expected, all other work is based on an incentive rate. Sometimes it pays more than the regular wage, and sometimes the rates remain the same.

Machine care also has its benefits as the least time that the machine is down for repairs, the more production one can make. Nippers or small scissors held in the palm of the hand while sewing is a must. They are easy to handle and save time when a thread needs clipped.

SPECIFIC ANALYSIS OF OPERATION

SERVICE PERSON (NAME)

JOB NUMBER 824. SPECIAL 24-32 OPERATOR'S NO. 150

OPERATION - supply operators (5) with work, and remove from station

MACH. NO.-- SNAP--MED.	281 990 252 MAN.	ARTICLE ski jacket	THREAD size color	SNAP silver (med.)		SUPPLY-thread, needles, snaps, locate mechanic when needed

	DUTIES	SERVICE STATION	
1.	Place bundles at work-station	NO. 1	
2.	Tie finished bundles	NO. 1	
3.	Check ticket (remove own ticket	NO. 1	
4.	Carry to next workstation	NO. 2	
5.	Tie finished bundles	NO. 2	
6.	Check ticket (remove own stub)	NO. 2	
7.	Carry to next workstation	NO. 2	
8.	Replenish thread, snaps, etc.		
9.	Proceed as in first 2 work-stations until finished		
10.	Remove to next job		

Rate: $3.80 per 100

Production per 8 hours-850 jackets

This is average production. When the operator's production is higher, the service person who is paid according to their production, also is paid a bonus.

SPECIFIC ANALYSIS OF OPERATION

JOB NUMBER 824 SPECIAL 24-32 OPERATOR'S NO. 150 DEPT. 4

OPERATION--Supply operators (5) with work and remove from station

ARTICLE--Jacket SUPPLY--thread, needles, snaps, and locate mechanic

MACHINE NO.	SNAP SIZE	THREAD SIZE	THREAD COLOR	Machine	Breakdown
281 990 252 Snap-1		50 Cone	BLACK		

OPER.	JOB DESCRIPTION	SERVICE STATION
1.	Place bundles at work station	No. 1
2.	Tie finished bundles	No. 1
3.	Check ticket (remove) own ticket	No. 1
4.	Carry to next work station	No. 2
5.	Tie finished bundles	No. 2
6.	Check ticket (remove own stub)	No. 2
7.	Carry to next work station	No. 2
8.	Replenish thread, snaps, etc.	
9.	Proceed as in first 2 work stations until finished	
10.	Remove to next job	

$3.50 per 100 Production per 8 hours - 850 jackets

This production listed is average for a service person who does the job well. Checking ticket to assure no mistakes in orders, correct thread, etc., overall will be to the person's advantage, making less repairs.

DUTIES OF AN INSPECTOR

An inspector plays a vital part in production. A fast, yet alert eye means the difference between good and bad relations with their customers. If too many garments pass by the inspector with flaws, is not only bad for business, but gives the inspector a bad work record. Some of the things to look for are:

1. Crooked pockets, darts, buttonholes, lapels, hem, etc.
2. Shaded fabric, grain (against).
3. Wrong color, kind or size of button.
4. Wrong color thread on buttonholes, buttons, or entire sewing of garment.
5. Wrong kind of buttonholes.
6. Crooked hems, holes, machine oil or other marks on the fabric.

There are many more, depending on the type of garment being inspected.

SAFETY

Safety lessons should come early in teaching the operation of machinery to the students. It should be taught with each lesson until it becomes a habit. These machines can be very dangerous if safety is not stressed. It also can be very safe and rewarding work. This requires team work. A teacher must accomplish this through discipline by adherence to rules and instructions with the use of firmness, kindness, and justice. An open climate is required where there is friendliness and a willingness to lend a helping hand. These machines require a lot of concentration. The better the atmosphere, the less accidents and the more production.

SAFETY AND THE SEWING MACHINE

OBJECTIVES:

1. Develop knowledge and ability to operate machinery, using safety precautions.
2. To instill concentration by machine operators while operating machines.
3. Develop correct habits such as:
   a. No sharp objects near machine, belt or needle.
   b. Never tilt chair or throw empty thread cones on floor.
   c. Never place hand near feed rail.
   d. Use palm of hand only on handrail.
   e. Never leave machine on while you are not there.
   f. Never wear dangling jewelry around the neck.
   g. Having proper posture and wearing comfortable shoes helps avoid fatigue.
   h. Where safety shields are missing from machinery that require them, use safety glasses in place of the shields.

CLEANING AND CARE OF MACHINE

Dirt, lint, and other foreign matter may damage or cause safety hazards if the machine is not cleaned regularly. Many times problems with a machine are caused by neglect of such matters.

The ten minute cleanup should be part of everyday lessons. When working with flannel and other soft material, twice a day is necessary so that the lint buildup in the oil around machine parts does not damage the machine.

The most important parts of the machine to keep clean are:

1. Needle (check eye)
2. Bobbin case
3. Rotary hook
4. Feed dog
5. Throat plate (remove)
6. Tensions

Clean the machine with short bristled brush, tilt and clean bobbin case, etc., from underneath the same way. While tilted, clean the oil pump screen (any buildup of dirt) and also the magnet.

MAKING MINOR ADJUSTMENTS

Remember that in an industrial sewing machine, correcting of one part is a waste of time and may be costly, since all parts must relate to each other in order to operate correctly.

Adjustments that you may make yourself are:

1. Thread tensions (needle, bobbin)
2. Presser foot pressure
3. Stitch length
4. Chair - so you are comfortable and can operate machine in a relaxed manner.

Adjustments that you should not adjust by yourself are:

1. Lubrication problems
2. Electrical
3. Speed control
4. Unusual vibration
5. Needle bar height
6. Presser bar
7. Feed dog leveling
8. Motor, belt or pulley adjustments, and anything else that is questionable.

INSTRUCTIONS FOR OILING

Because these machines are costly and because of their speed, proper oiling is essential to their efficient operation. If not oiled properly, heat may build up and damage parts beyond repair. That is why oiling of these machines is a must.

Since most machines are self oiling and distribute oil to the needed areas through its automatic lubrication system, the oil reservoir must be checked periodically. To do this, the following is suggested:

1. Tilt the machine.
2. Fill reservoir to HIGH mark.
3. Do not operate machine if the oil is at LOW level.
4. Clean pump screen (any time machine is tilted, take a few seconds to clean the screen).

If in doubt that the machine may be low in oil, check oil window which is usually in upper side of machine that faces you. If oil is uneven or stops flowing, shut down the machine and correct the problem. Put presser foot down on throat plate with material under it after oiling to absorb any excess oil.

OPERATION OF POWER SEWING MACHINES

BASIC LOCKSTITCH MACHINE

There are hundreds of parts to these machines. The parts that one should be familiar with are listed below:

MAJOR PARTS ARE:

1. Table
2. Underbed
3. Stand
4. Head
5. Arm
6. Bed
7. Drive
8. Treadle
9. Needle bar
10. Presser foot
11. Feed dog
12. Throat plate
13. Bobbin case
14. Bobbin
15. Rotary hook
16. Thread guides
17. Pulley (hand wheel)
18. Knee lifter
19. Presser bar (Adjustment screw)
20. Seving lamp
21. Take up
22. Thread stands (holder)
23. Tension
24. Stitch length regulator
25. Oil flow window
26. Belt
27. Clutch brake motor
28. Bin

LOCKSTITCH FAMILY

In the power sewing field, there are many machines. The one most widely used is the lockstitch. This area has many of it's own clusters where many machines fall into this group. Below are a few that we hope to make familiar to you. Some may be more difficult than others but, after learning the basics on the straight lockstitch, the others should come very easily.

SINGLE NEEDLE-is the basic machine used in most training programs. It is the most widely used machine in the apparel industry.

DOUBLE NEEDLE-uses two needles along with as many bobbins. The multi-needle uses any number of needles. The two needles is the most commonly used. Most work clothes are sewed with the double needle.

BARTACK-is used to reinforce seams or stress points. It is also used for sewing and tacking linings, pockets, belts, loops, etc. It is "automatic".

BUTTONHOLE-is equipped to sew, cut and trim it's thread. It is also "automatic".

BUTTON-sews two or four hole buttons with high speed and is "automatic".

SINGLE NEEDLE UPHOLSTERING-is basic, very easy to operate and has one needle and bobbin. It is not "automatic", but operates the same as the basic lockstitch and sews at a much slower rate of speed.

CHAINSTITCH FAMILY

The chainstitch, after the lockstitch, is another area where much of the machinery is used in the working world of the "needle trades." Listed below are a few of them that we hope to familiarize you with.

SERGER-This machine finishes the edges of fabric such as pattern parts before it is sewed into a garment. It is used on material that unravels. Some sergers have more than one needle with several lead in threads and tension setters.

BLINDSTITCH-This machine is used in hemming of cuffs, skirts, etc., where an invisible stitch is required. It is very easy to operate and maintain.

CHAINSTITCH-This machine like the lockstitch, is the basic machine where the two thread chainstitch sews seams that are strong and flexible. The single chainstitch has seams that often unravel and skip. This machine is good for basting.

MANUAL MACHINES

In order to have a good shop set up, there are two machines that are good to have to produce an all around completion of any garment. They are safe and can be controlled by the operator. They are:

SNAP-is an upright machine that is operated manually by using the foot peddle. It requires very little maintenance and is very handy. Snaps are always in no matter how often the styles change. Since it is manual, it is very safe.

EYELET-this machine is operated similar to the snap machine and speed can be regulated by the operator as it too is manual.

Depending on the handicap, these machines usually are not recommended for beginning students in power sewing because they operate on what is called a 'hair trigger.' The least amount of pressure on the foot peddle could bring down the arm and place one snap on per second not only ruining the garment, but could also cause an accident. The operator would have to be highly skilled with years of expereience. This is the reason for recommending the manual machine as it is used also in industry.

SPOTTING BOARD-machine that is shaped like an ironing board with nozzles that are attached to steam, air, prespot, etc., with basic cleaning fluids, and digesters (powdered usually) are used in removing marks from garments. It is also operated by foot peddles and very easy to operate and maintain.

"HANDS ON" INSTRUCTIONS

LOCKSTITCH-CHAINSTITCH FAMILY

In order to enjoy sewing, one must be relaxed and comfortable. Our posture while operating power machinery is of utmost importance. A firm yet comfortable chair and shoes that fit comfortably are important in the student's attitude toward the machine. Sitting with the spine against the back of the chair helps avoid fatigue and chances of the chair slipping and tipping over. Never sit too far from the machine as this will cause you to slump over to reach the table top comfortably.

Identification of parts and operation procedure are as follows:

1. POWER SWITCH-- Turns the power (motor) on. It is located under the table to the left or to the right of the operator's legs. Get into the habit of reaching for the switch without having to look for it. It not only saves time, but is considered as a safety factor in case of an emergency. Turn power off when rethreading, changing a needle or any other attention you may want to give to the machine.
2. HANDWHEEL - Always turn wheel toward yourself, never away. Never grab for the wheel with the fingers or touch the belt. Use only the palm of the hand.
3. TREADLE - Machines differ as to the number of peddles. Most basic machines have only one treadle, other have a treadle and a peddle depending on how complex or if the machine is "Automatic". When uncertain as to what the foot peddles may do when pressing down on them, here is a safe way to find out without breaking the machine or causing an accident.

a. Do not turn the machine on.

b. Push down on the peddles.

If the machine has only a treadle, then we have to assume that in order to sew we must use this peddle or treadle. We then must use the knee lift to raide the presser foot and insert a piece of scrap. Never operate a machine without placing a piece of material scrap or paper under the presser foot.

c. Turn on the machine.

d. Press on the treadle to sew.

If a machine has more than one peddle, it is usually complex or automatic. It will not have a regular knee lift, but a foot peddle that will lift the presser foot.

a. Do not turn on machine.

b. Push down on the peddle until you find the presser foot lift. (Place scrap under presser foot).

c. If a machine does not have a safety shield, put on safety glasses.

d. Turn on the machine.

e. If the machine is 'automatic' such as the bar-tack, buttonhole, or button, push down on the 'start' peddle. Once the machine starts on its cycle, (3 or 4) seconds, remove the foot immediately. (DO NOT RIDE THE PEDDLE). Machine will complete its cycle before stopping. After the machine has stopped, push down on the other peddle to lift the presser foot. Sometimes if the machine is not regulated properly, a button or needle may break before the operator has a chance to stop the machine, causing particles to fly into space. This

is the reason for safety measures. Chairs remain stationary at the machines if the floor is carpeted. A low shine, non-skid wax is recommended on a floor other than carpeting. The peddles on an "automatic" machine are harder to press down on to start than the other machines and chairs with metal disks on the bottom have a tendency to slip away from the machine if the operator is light in weight. Another reason for placing scrap under the presser foot before turning on the machine is that if someone has stepped on the START peddle since the machine was used by the last operator the machine will go through a complete cycle before stopping. This could harm the operator or damage the fabric. When the machine has completed its specific tasks such as tacking or making a buttonhole, the other peddle is pushed to release the fabric from under the presser foot. (no knee lift.)

4. KNEE LIFT - another way of lifting the presser foot is by pressing the knee against the side of the stand where the knee lift is extended. In production, it is a faster more efficient way to sew than using the hands. The operator presses lightly on the knee lift which release the material. This is also used in backtacking. The presser foot is raised lightly while the machine is in motion. The knee lift is an important part of the machine in determining the efficiency and proper operation of the machine. Depending on our body makeup, some operators have long legs, while others have shorter legs. The knee lift is located under the machine table to the right knee.

It should rest against the knee comfortably as it is adjustable and can be raised for a taller person or lowered for a smaller one. A new operator may have difficulty by not realizing how a minor adjustment can correct the problem.

5. If the operator should have problems with the operation of the machine:

   a. Turn off the machine.

   b. Check for correct needle, position of needle, thread or bobbin turning the right way, same weight of thread on bobbin as on the machine, tension, etc.

PLANT ORIENTATION

In the stitching industry there is a shortage of workers. If a student can go into the field knowing what to expect by being prepared through prior training and factory visits, he or she has greater chance of success on the job.

There is a training program that even a trained operator will receive prior to working on a machine. This training is usually set up aside from the regular operators, but sometimes it is set up right on the floor, side by side with them. The supervisor may not always be able to give her undivided attention to new employees, because of noise, tension by the new employees who are nervous, etc. Many questions go without being asked or answered. There is usually an "orientation" where the new employees are informed, but not always. Questions that an operator should feel free to ask that do not pertain to machine operation are as follows:

1. How do I figure out my pay, deducations, taxes, insurances, etc.?
2. What is the dress code? (Safety)
3. Where are the restroom, cafeteria, etc.?
4. Where are important notices posted?
5. What are the actual working hours?
6. When and how long are breaks?
7. When are paydays, vacations, paid holidays?
8. How does the medical, dental, and sick leave operate?
9. Is there a discount allowed when purchasing garments?

The supervisor and co-workers can be very helpful, but sometimes information received is not correct. Stress that these questions be answered as soon as possible, not only for the worker's benefit, but also to avoid any misunderstandings later on with the employer.

METHODS USED IN FACTORY PRODUCTION

QUALITY

Quality plays a vital role in industry. A more expensive garment will have more strict regulations than a cheaper garment. If a seam is to be ½ inch from edge of the material, on expensive garments, it would have to be sewn as close as possible to the ½ inch line. On the cheaper garment, if a seam is to be ½ inch and would vary between ½ and 5/8 from the edge of the material, the work would be acceptable. This is called "tolerance" measurement. If an operator can stay within the "tolerance" area, the work is acceptable.

Many operators will stitch on the same garment. If the seam allowances differs too greatly, then the garment will not be of "tolerance" and the garments must either be repaired or tagged as "seconds" on the market. Many times an error like this is not detected until the garment reaches the inspection station. Inspectors may notice garments hanging improperly, lapels not lying flat, shoulder seams measuring too small or large. By this time hundreds of them may have been sewed the same way. In a case like this, the best of them would go into the markets as "seconds" and the rest would go to the repair department to be ripped out. In some factories the operator must rip out her own errors and therefore loses money. Other factories have a repair station. This is why operators should be more interested in quality when sewing. Speed will come with time and experience.

Quality control depends on how well understood the tolerance limits are, depending on the management. A manufacturer knows his customers and knows exactly how close to the tolerance level he must

stay in order to please the customer. When the manufacturer knows what will be acceptable or unacceptable according to the customer acceptance, only then will the tolerance level be reached.

CONTROL OF PRODUCTION

In all industries, there must be a system used to control production, not only to benefit the operator by accrediting them for the work performed, but also there must be a way to guard against an operator who does not produce but would like to retrieve unearned credit. The company must also have a way to be sure that all operations are completed on a garment before it is considered to be finished.

Garments must be matched according to size, color, style, as many are difficult to tell apart. There must be a sure-proof way of knowing what is contained in a bundle and how to locate it in the least possible time.

TICKET SYSTEM

The system used to control these areas is known as the "ticket system" or the "tag system". A ticket containing many squares with the job description, style number, sleeve length, color, etc., is tied to each bundle. When the operator has finished a bundle, the square which relates to the task performed is torn off by the operator. Bundle is tied with remaining ticket attached and passed on to the next operator. At the end of the day, these squares are placed on a production form, known as "Gum Sheet" and turned into the payroll office. The wages per day are determined from this. This system also benefits the company as the service person knows exactly what job has or has not been done by just inspecting the ticket.

One of the "rules of the industry" is that the parts must be handled in the same order that they were cut. If color would vary in a bolt of fabric, you would not end up with a shaded garment.

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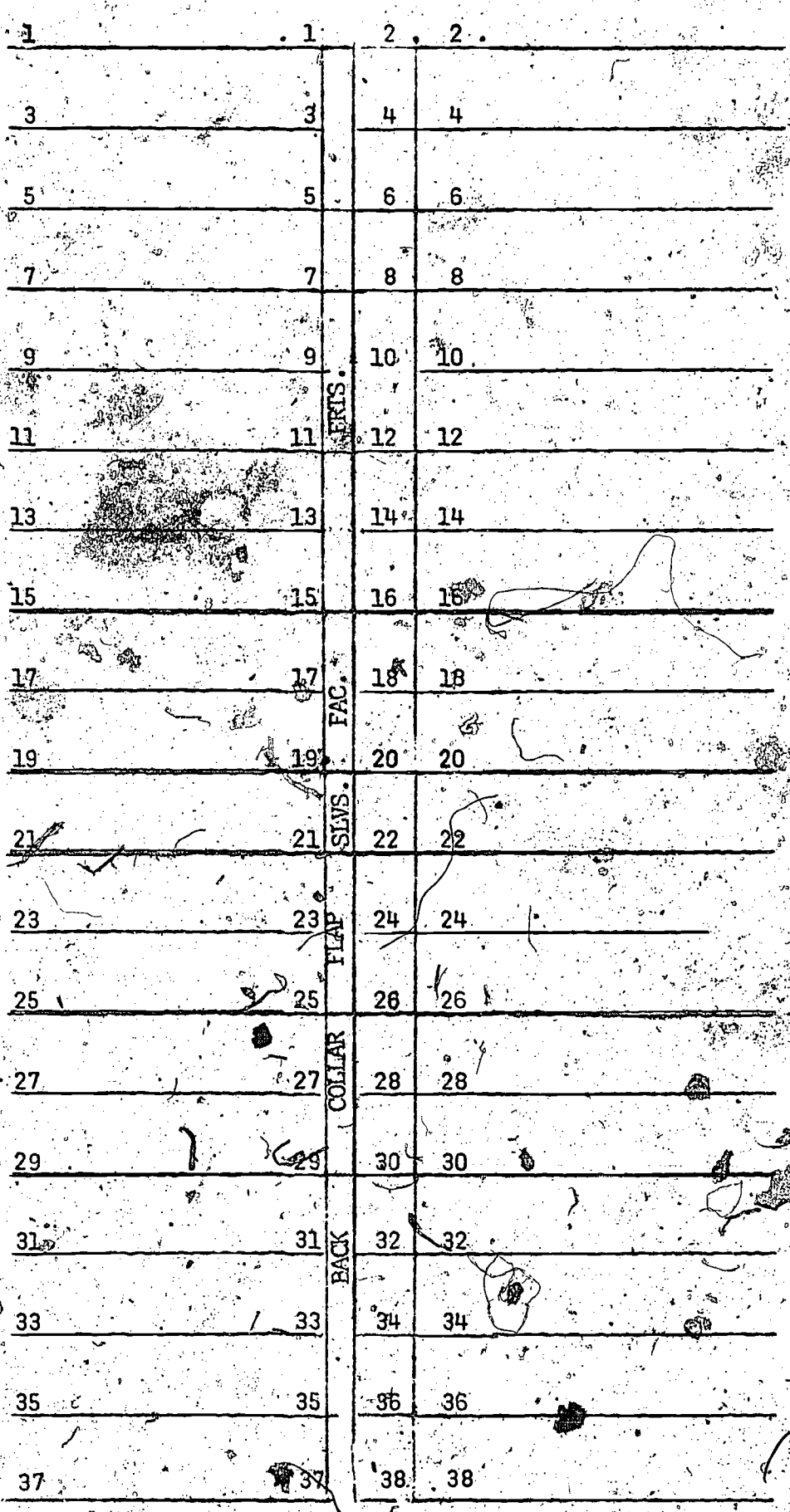
DUMMY SHEET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GUM SHEET

Name				No.	Week Ending				50
Kind of Work	Quan.	Rate	Total	Kind of Work	Quan.	Rate	Total	No. of Coupons	Piecework Total
									Time Work Hours @
									Total Earned
								Worker's Total	Deductions or Additions
									NET EARNINGS

INSTRUCTIONS

Paste one coupon in each space.
Keep each lot or kind together.
Write the quantity of coupons and price in space at right; then total.
Only coupons on sheet and recorded will be paid.

FOLD ON THIS LINE

DO NOT FOLD SHEET WHEN WET

Singer
Piecework Control Systems
3838 River Rd. Schiller Park, Ill.
Printed in U.S.A.

FACTORY FLOW

The methods used to keep work flowing through a manufacturing plant are complicated and can be very confusing if a worker lays down on the job, or has a high record of absenteeism. This need not be. Machine trouble, sickness and other problems that are unavoidable cannot be helped. Usually garments will be sent to other work stations if the task is possible to do there. Then they are brought back to the machine after the repairs have been completed.

The operators should be concerned about doing a good job of whatever their duties are with the garment. When the operator gets low on work they should have the service person bring more garments. When finished with the bundle, they move the garments ahead. The operator should not let them hamper the work flow by piling the garments around the machine, and hampering the work flow.

Engineers try to set up the best and least confusing methods possible when determining how garments are to flow to the work stations.

Some practical methods are:

STRAIGHT LINE SYSTEM - Operators' machines are in a straight line, with long counter running down along the side of the machine. After the operator performs his or her job, the garment is put on the counter, and slid down to the next operator who does the same. This system is fine if operators work at the same speed, or if they are working with light weight fabric. If one operator works at a faster speed than the others, the next operator would have a pileup of garments which would disrupt the whole system. This is particularly true with

heavy garments such as coats. This type of operation is not recommended for the slow or high strung student because it becomes very nerve racking.

THE BIN OR BUNDLE SYSTEM - This system is more widely used where there are workers in larger plants. Each machine or work station has large bins. When the operator finishes with a bundle, it is tied and placed in a bin directly in front of the machine where the next operator will do their task and then pass it on with the same procedure. This system allows the operator to work at his or her own speed, varying either way, but not to extremes. The bins benefit a fast operator because they are able to dispose of their finished work, and not reduce their production. Most of these operators who are faster, have more than one job. While waiting for work, they may put snaps on pockets, turn sleeves, or any other job that is used to fill in. The second job usually does not have enough work to keep a steady operator. Some operators who run out of work and have made what they consider a good day's wages, may go home if they wish. Many operators work only five hours per day and make good wages, and also reap the fringe benefits. Most of this depends upon the attitude and training one has toward his work.

This system depends heavily on a good service person whose job is to keep the operator in work and to service them. They place the bundles near the operator according to the order of production, and take them away. They call the repairman, get needles, thread and many more small tasks. This is so that the operator does not have to waste time hunting for a particular color thread, etc.

A disadvantage of this system is that when there is backup in production due to a new operator, machine trouble, or fabric problems, garments may become soiled from being knocked on the floor or stepped on. Although the operators are not permitted to snack at the machines, many do not move from the area during their break. Some drink coffee, pop, and eat fruit, and other things because of throat dryness caused by the lint. This causes many garments to be sent to the spotting area where these marks are removed. Some can be removed and some cannot.

CART SYSTEM - Bundles are loaded onto a cart, usually enough to complete 25 garments. There is everything on the cart, including thread, snaps, buttons, zippers, etc., whatever the garment takes to be completed.

Each operator takes their bundle, performs the task, places them back on the cart, and the cart is then pulled to the next work station where the operator performs whatever task is expected of them, etc., until it reaches the shipping department where it is sent into the market.

The advantages of this system is that the bundles are less handled and do not become soiled as easily. A disadvantage is that more space is required to move the carts around.

METHODS - TIME - MEASUREMENTS, MTM TECHNIQUE

The M.T.M. technique is used around the world. Its purpose is to increase efficiency yet cut the costs in performing an operation in the stitching industry. It is a step-by-step operation for each job needed to accomplish the task, with the least amount of time to achieve the best results. This is not only beneficial to manufacturers, but also to the operators because their earnings will likely increase. This is done by a "methods" engineer and expert. He judges by the weight of fabric being used, what is the best setup for a station, where fabric should be placed, how fabric can best be grabbed by the operator, ecc.

Sometimes by accident an improvement can be made by the operators. For an example, a left-handed operator can get more production from a right-handed setup. Unless beneficial, the operator should not change methods.

TIME STUDY

In 1975, this evaluator selected power sewing as an occupational cluster for an analysis. Alfred Vizza, Industrial Engineer of Connellsville, Pennsylvania was interviewed at the time. His 15 years of experience dealt with doing "time studies". At a seminar in Georgia, the workers in production and "time study" were the main agenda. It was found that workers adapt much faster to their tasks if they are put at ease by casual talk and joting before their "time study". The worker is motivated because of better relations between the observer and employee.

TRAINING PROGRAM TECHNIQUES

The importance of training an operator through the on the job training program not only benefits the employer but also the employee. Since we have no way of determining from an interview the abilities of a new employee, this program seems to be the most helpful and fair way in the selecting of new workers. The disadvantaged and/or handicapped applicants also have a better chance of becoming employed through the equal opportunity offered in this competency-based method of employment.

Another advantage of a training program is that the operator is properly trained and will develop good work habits such as proper positioning of the hands, feet, and entire body. This not only benefits the employee, but also the employer by increasing the marketable skills of the workers and resulting in higher profits.

Other characteristics that are considered when hiring sewing operators or other industrial sewing workers connected with the industry are as follows:

1. Cleanliness - many work areas in the sewing factory require working with co-workers in small work stations. A worker who is careless about personal cleanliness, neatness, etc. usuall does not work out well and often loses his or her job.
2. Finger dexterity - versatility is an asset to the industry. Just how much finger dexterity and body movement versatility a person has is shown by performance testing. There are many sewing performance tests that are used to access these qualities such as the diamond, heel-toe, back-tack, and [illegible] exercises.

After a few days of observing and timing the performance of the trainee, the supervisor has no problem in determining the abilities of the operator. Learning exercises that are used in the training of operators are instituted into the program usually the first four weeks of employee's encounter with the sewing industry. Charts are kept day to day recording test grades of the employee. These tests usually deal with speed. If for some reason a slow operator is kept on the job, they are shown their test chart, and counseled as to where they are and where they should be. Many times these people are placed in another work area rather than as a sewing machine operator. Their personality, neatness, etc., may be the reason for hiring them. Once the employee knows that the objectives of the program are quality and production, they will either work up to the required standards or will seek employment elsewhere. The industrial sewing field is not suitable for everyone. Although it is expensive to train workers on-the-job, it is cheaper in the long run. Many methods of training have been tried but the program we are describing has been used world wide for many years and has proven to be successful.

Incentive pay is not given during the training period. Many workers feel that they should be paid during this variable time span, but the manufacturers do not usually concur.

Sewing exercises that are used in testing new operators are as follows:

1. Heel-Toe - the heel-toe exercise is used to acquaint the operator with the pedals and the proper positioning of the feet in starting and stopping the machine in a specified area on the fabric.

2. Diamond - the diamond exercise is used to acquaint the operator with starting and stopping the machine in a specified area on the fabric and pivoting before continuing without treading.
3. Back-Tack - the back-tack exercise is used to acquaint the operator with stopping the machine in a specified area and going into reverse to reinforce edges of seams without treading.
4. Pocket lining (square) - the pocket lining exercise is used to acquaint the operator with production by sewing all three sides of lining with the start, stop, pivot and back-tacking without treading or cutting of thread. A continuous chain of lining pieces is then cut and pressed. A time study is usually conducted to test the competency of the operator.

SHIPPING DEPARTMENT

After checking orders as to size, color, number, destination, correct company, etc., a re-check is done and the merchandise is then ready to be bagged, boxed, or wrapped, depending on the garment, and prepared for shipment.

In explaining the working areas of the two departments, it is self-explanatory that the "Stitching Industry" and the "Dry Cleaning" do interlock. Dry cleaning shops use such power machine as the lockstitch, button, upholstering, eyelet and snap machines to repair garments. The pressing and spotting department are used constantly to turn out quality work. Clothing is constantly bagged, boxed or wrapped in both fields.

These departments are separate from the production departments, and don't have as many employees. There is a much larger work space, and it is not as noisy, or tedious as in the production area. A person who does not like to work with a lot of people, or those persons who work well alone, would find this area to their liking as it falls in between the two. This area is for workers who like to move around on a job. There are a few jobs in this department where one sits.

TEACHING METHODS USED IN FACTORY PRODUCTION ON THE ASSEMBLY LINE

While developing skills, we should begin to think about the procedure used in industry on our production lines, our problems and other situations we may come upon in an actual working day. Because of the changing in styles and fashions, there are basic changes going on all the time in the garment industry. A simple set-up in teaching the students the proper procedure in a production line are as follows:

1. Determine what is going to be produced. (Try something small and easy, just to get the feel of the procedure.)
2. Pick a few students as managers whose duties are to order the proper amount of supplies, thread, needles, etc., to complete an order.
3. Set up work stations and assign students to a specific job at each one.

Work station 1 - spread fabric, pin and cut pattern

Work station 2 - tie bundles, mark and tag with each station number.

Work station 3-6 - service person takes bundles to work stations where the operators assemble the garment parts into garments.

Work station 7 - garment receives finishing touches such as buttons, snaps, eyelets, etc.

Work station 8 - excess threads are trimmed, soiled garments are shipped to spotting department and any flaws such as color gone or shaded, incorrect sewing, bad buttonholes, crooked pockets, are sent to repairs.

Work station 9 - garments are pressed

Work station 10 - garments are bagged, boxed, depending on garments after quantity, prices, shipping charges and the correct amount ordered checks with invoice.

SPECIFICATION SHEET

Shell

Style No.

Lining

Date

ORDER NO.	OPERATION AND DESCRIPTION	QUOTA	RATE	COST RATE	COST RATE

PRE-TEST

NAME _____ COURSE CODE NO. _____

Have you operated any of these machines that are listed below? PLEASE CIRCLE those that you have operated.

1. Lockstitch (basic) - 1 needle
2. Lockstitch - 2 needle
3. Chainstitch
4. Serger
5. Bartack
6. Blindstitch
7. Buttonhole
8. Button
9. Zig-zag
10. Die cut
11. Cutting Machine
12. Snap
13. Eyelet
14. Buck-press
15. Steam jenny
16. Spotting board

Have you operated any machines that are not listed above? Please list below:

1.
2.
3.

If teaching, what power machines do you have in your shop?

1.
2.
3.
4.
5.
6.

INDUSTRIAL SEWING COMPETENCY EVALUATION SHEET - WINTER '78

DIRECTIONS:

Students are to ask the instructors to initial in the appropriate column as they complete the threading and operating competencies.

The objectives of the hands-on experience in the Industrial Clothing workshop are:

The student will thread and operate the following industrial sewing machines:

MACHINE	THREADING	OPERATING
281-1 Singer Lock-stitch Machine		
U.S. Blind Stitch Machine		
990E Serging Machine		
269-W126 Bar Tack Machine		
Button Sewing Machine		
553B101 Chain Stitch Machine		

MACHINE	OPERATING
Buck Press	
Steam Jenny	
Eyelet	

INDUSTRIAL SEWING COMPETENCY EVALUATION SHEET (used summer '78)

DIRECTIONS:

Students are to ask the instructor to initial in the appropriate column as they complete the threading and operating competencies.

The objectives of the hands-on experience in the Industrial Clothing Workshop are:

The student will thread and operate the following industrial sewing machines:

	MACHINE	THREADING	OPERATING
T 1128	Blindstitch		
271 W	Buttonhole		
212 G140	Double Needle Lockstitch		
	Serger by (Brother Co.)		
	Chandler Lockstitch		
331 K4	Lockstitch		
251-2	Lockstitch		
	Pinking Machine		
	Button Machine		

Industrial Sewing Final Course Evaluation Sheet

1. What did you gain in this course that will benefit you professionally in teaching or in your clothing-related occupation?

2. How will you use the industrial sewing skills that you have learned in your future teaching or clothing related work experience?

3. What suggestions do you have for additions or deletions to the content of this industrial sewing course?

4. How did you feel about the organization of the learning experience?

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