AN ABSTRACT OF THE THESIS OF

Myrna Beth Hale (Name) for the Master of Science (Degree) in Clothing, Textiles (Major)

and Related Arts

Date thesis is presented April 30, 1963

Title ANALYSIS OF THE 1960 AND 1961 OREGON STATE UNIVERSITY CLOTHING CONSTRUCTION PLACEMENT TEST

Abstract approved [redacted]
(Major professor)

The analysis of the most recent revision of the Clothing Construction Placement Test battery was undertaken for the purpose of evaluating the worth of the three parts of the test in placing students in the accelerated and regular sections of Clothing Construction, CT 210, and in determining exemptions from the course.

A review of literature related to pretesting in clothing construction on the college level was essential to the development of this study.

A group of 427 tests administered to incoming students in the fall of 1960 and 1961 determined the basic population for the analysis.

Simple correlations were run which showed the test battery measured a factor other than that evaluated by data previously available on the entering students.

The examination portion of the test battery gave a reliability

coefficient of .641 between the test and retest sample of 104 observations. The reliability of the Miller Survey of Object Visualization, which was the second test in the battery, was not computed for this study. An item analysis of the difficulty and discrimination values of the items for the 427 tests indicated weaknesses within the examination section.

The validity coefficient between the total score received on the test battery and the final grade in the course was .424 for 312 observations. Scrutiny of the curricular validity revealed that the test was inadequate in its present form as the only device for determining exemptions from the course.

The type of background experience as measured by the data background information sheet did not appear to be significant when correlated with the final grade in the course. This indicated that the sheet could be eliminated from the battery without any adverse effects.

The test battery was found to be useful and practical in sectioning students. However, there was a problem of scheduling its administration.

According to the results of the questionnaire given to the students at the time of the retest, they were not as well informed as to the purpose of the test and their placement as would have been desired.

It was recommended that the use of the test battery be continued after changes are made in the Clothing Construction Placement Examination portion to improve its reliability and validity.

ANALYSIS OF THE 1960 AND 1961 OREGON STATE UNIVERSITY CLOTHING CONSTRUCTION PLACEMENT TEST

by

MYRNA BETH HALE

A THESIS

submitted to

OREGON STATE UNIVERSITY

in partial fulfillment of
the requirements for the
degree of

MASTER OF SCIENCE

June 1963

APPROVED:

[redacted]

Associate Professor of Clothing, Textiles and Related Arts

In Charge of Major

[redacted]

Acting Chairman of Department of Clothing, Textiles and Related Arts

[redacted]

Dean of Graduate School

Date thesis is presented April 30, 1963

Typed by Muriel Davis

ACKNOWLEDGMENTS

The writer wishes to express her appreciation for the assistance, cooperation, and encouragement of the following people without which the completion of this study would not have been possible.

Miss Ruth Moser, Associate Professor of Clothing, Textiles and Related Arts, whose patience and personal interest were most helpful.

Dr. Elizabeth Brody, Assistant Professor of Psychology, for her guidance and encouragement throughout the development of the study.

Dr. Donald Jensen, Statistician for the Oregon State University Agricultural Experiment Station, for his help and advice on the statistical portions of this study.

TABLE OF CONTENTS

LIST OF TABLES

ANALYSIS OF THE 1960 AND 1961 OREGON STATE UNIVERSITY CLOTHING CONSTRUCTION PLACEMENT TEST

CHAPTER I

INTRODUCTION

This study was undertaken to determine the effectiveness of the Clothing Construction Placement Test given by the Clothing, Textiles and Related Arts Department of Oregon State University. This test was used as a pretesting instrument for sectioning students into accelerated and regular sections of the beginning clothing construction course and for exempting highly capable students.

The test battery was made up of three parts: a data information sheet on background experience in clothing construction, a Clothing Construction Placement Examination on the subject matter, and the Miller Survey of Object Visualization (20). The test was administered during the New Student Week preceding the fall quarter of both 1960 and 1961. All incoming freshmen and transfer students in the School of Home Economics as well as students from other schools who planned to register for the first course in clothing construction as an elective took the test. The test battery was administered again later in the fall quarter for those who were unable to take it at the originally scheduled time.

There were 432 tests given, of which 427 were retained for use in this study. The group represented the greater part of the total new enrollment in the School of Home Economics for 1960 and 1961 combined.

I. OBJECTIVES

Four objectives were set up to determine the effectiveness of the test battery and to better understand its basic purpose. The objectives were:

1. To determine the reliability, validity and usefulness of the three parts of the Clothing Construction Placement Test battery in sectioning the students according to their background experience and knowledge.
2. To determine the feasibility of exempting a greater number of students from the beginning clothing construction course, CT 210, on the basis of their placement test scores. This possibility was considered because a few individuals were found to be capable of work beyond the level of the introductory course after they had enrolled in the class.
3. To determine the students' awareness of being placed in sections according to their test scores and to determine their feelings regarding the "correctness" of their placement.

4. To formulate recommendations for any changes to facilitate the effective use of the test in the future. This objective was of great importance because of a change in the New Student Week Program in the fall of 1962 which prevented giving the test before mass registration as had been done previously.

II. BACKGROUND

A test written expressly for the purpose of pretesting for knowledge and background experience in clothing construction was not new to this institution with this particular test form. The first test was developed by the Clothing, Textiles and Related Arts Department in the early 1930's (10). Up to the fall of 1960, the main purpose of the test was to determine exemptions from the beginning clothing construction course. Those students who received a high score on the test were permitted to proceed directly into the second course in clothing construction. Revisions were made in the test almost yearly as the course changed in content and emphasis.

The present test was written in preparation for the 1960 school year. The introduction of the new core curriculum by the School of Home Economics was a major factor contributing to the latest revision of the test. The core curriculum required all new and transfer

students in the School of Home Economics to enroll in Clothing Construction, CT 210, with two exceptions. Either the student had entered with prior college level credit or she possessed exceptional ability to the point she could be exempt.

The Clothing Construction Placement Test introduced in the fall of 1960 was designed for purposes beyond just the determination of exemptions. The objectives of this revision were:

1. To determine the past experience and present knowledge of clothing construction facts and principles of the students in order to identify those students whose background was strong enough to warrant exemption from Clothing Construction, CT 210.
2. To determine the placement of the remaining students in two major ability groups which were arbitrarily labeled X (accelerated) and N (regular).
3. To give instructors a guide to the experience and capabilities of their students.

The students were assigned to sections according to their abilities as determined by the total score on the Clothing Construction Placement Examination and the Miller Survey of Object Visualization portions of the test battery. The sections were designated X and N and were defined in a statement given to the students at the time of

the administration of the test as follows:

> The X groups will include those students whose test results show they have had considerable sewing experience. Students in the N groups may have had some or no previous training or experience (Appendix, p. 78).

III. NEED FOR THE STUDY

Acceptance of the fact that the individual student needs help in defining her own purposes and abilities was basic to this study. The staff of the Clothing, Textiles and Related Arts Department recognized this fact to a greater degree in the fall of 1962. At that time, entering students were placed in their respective sections of the beginning clothing construction class through a combination of their University entrance test battery deciles, knowledge of the approximate number of garments they had constructed during the previous year, and opinion of the students regarding their own experience and ability. These criteria were used out of necessity because of changes in the New Student Week program which prevented the administration of the Clothing Construction Placement Test which had been used as the criteria for placement of students in 1960 and 1961. The fact that the students who enrolled in the accelerated section (X) did not come up to the standards previously set for that section while some students in the regular sections (N) did exceptionally well re-emphasized the need for evaluating the procedures and instruments used for the

guidance of these students. From this background it was determined that the Clothing Construction Placement Test which had been used in 1960 and 1961 for sectioning students was more useful than no pretest at all. The degree of effectiveness of the pretest had not been established, however.

> Obviously a student's interest in a particular curriculum is not in itself a sound basis for admission to it. Interest must be supported by certain capabilities, abilities, and habits of work if a student is to follow through successfully. Students learn differently, their backgrounds of experience differ, the skills and techniques they have acquired vary widely (28, p. 13).

Therefore, it was probable that the procedures and instruments used in the guidance of the students who planned to enroll in beginning clothing construction needed to be evaluated, keeping in mind the individual differences of students.

The case for the use of a pretest in clothing construction as an instrument for guidance was best presented through comments made by Arny.

> There is undoubtedly a definite need for a systematic evaluation of the competence of all entering students as a basis for placement within the curriculum of their choice (1, p. 44).

She also stated that:

> Unless present status is known, neither teachers nor students can see what changes need to be made or are able to plan what instruction should be given to bring about such changes. Tests planned for diagnostic

> purposes may provide information regarding specific gaps in knowledge, misconceptions held, fallacies in thinking, or the lack of aesthetic appreciation or skill in performing certain tasks (1, p. 26).

This background established the need for the Clothing Construction Placement Test.

IV. LIMITATIONS

The analysis of the data presented in this thesis was handicapped by the fact that the test was administered without the knowledge that a study would be made of the results. For that reason the variables were not as well controlled as might be desired. One variable which caused difficulty was the change in the entrance test battery required for admission to the University in the fall of 1961. Because of this change, the data from 1960 could not be combined with those from 1961 in the areas where the entrance test scores were involved.

A further limitation was that 32 percent of the students who enrolled in Clothing Construction, CT 210, did not take the Clothing Construction Placement Test. The fact that all students were not tested in the fall of 1961 was attributed to a breakdown in communications during New Student Week as to the time and location of the test. Another factor was that many of the students who enrolled in the course during the time of the study were not new students, but

were students who had entered school before the fall of 1960 and did not understand the necessity for taking the test.

The number of faculty members actively involved in teaching the various sections of the beginning clothing construction course could have been a limiting factor. Each instructor must be assumed to have evaluated her students on the same basis if the data of students in the various sections are to be compared.

A sample population was selected on whom to gather data on the retest and questionnaire. This group was made up of students registered in CT 210 spring term of 1962 and a number of volunteer students from other terms covered in the study. Because of the volunteer nature of part of the group the resulting data could have been somewhat biased. The growth of the students' knowledge of clothing construction as measured by the retest must be assumed to have taken place as a result of taking the beginning clothing construction course.

Within the framework of these limitations, there was considerable room for study and for gathering useful information regarding the effectiveness and the possible future use of the Clothing Construction Placement Test.

CHAPTER II

REVIEW OF LITERATURE

A considerable amount of literature has been written on evaluation and the many instruments and techniques used in measuring students' growth and progress. The problem was to select from the mass of information those materials which were particularly related to pretesting in clothing construction on the college level.

The materials available for examination in the areas of clothing construction knowledge and background experience were most often found among unpublished studies.

Logically the first step was to develop an understanding of the criteria of a good test and proper usage of a pretest and its results.

I. TESTING AND PRETESTING

Webster defined a test as "...a set of questions, problems or exercises for determining a person's knowledge, abilities, aptitude, or qualifications..." (31, p. 1506). Educators elaborate on this definition in many ways, but generally it must be concluded that a test is a means of evaluating or measuring a quantity of some particular quality.

Tests are used in three specific ways according to one author.

These are: (1) to predict performance under a specific treatment, (2) to decide what treatment is appropriate for an individual, as in diagnosis and placement, and (3) to describe performance in terms of general concepts (5, p. 1551). The first two uses were of importance here because a judgment was made on each student when she was placed in a particular section of the course which predicted that she would be more successful there than in another section.

Any test needs to possess certain qualities if it is to be judged a satisfactory measuring instrument. These qualities are: (1) validity, (2) reliability, and (3) usability (23, p. 106).

Validity was explained by Ross and Stanley as truthfulness or the degree to which the test measures what it is supposed to measure (23, p. 107). The same authors defined reliability as the consistency of the test or the degree to which the test agrees with itself (23, p. 120). These two qualities of a test may be examined statistically. The validity may also be examined in light of how well it represents the content of the course. While both validity and reliability are of importance in determining the value of a testing device, it is generally accepted that validity is of greater concern. A test may have a very high degree of reliability or be very consistent in its measurement, but it is possible for it to be consistent in making an error.

Usability refers to the practicability of the test. There are

several factors involved in this quality, including ease of administration, ease of scoring, ease of interpretation and application, low cost, and proper mechanical make-up (23, p. 127). In the end a decision to use an instrument or to modify or discard it must be based on its degree of usefulness.

The realization that the perfect test instrument has not been written explains the need of the fourth stage in the process of developing a test. The four steps of developing a test instrument are planning, preparing, trying out and evaluating (22, p. 140). Obviously the stage which was of most importance to this study was the evaluation step.

A pretest involves more elaborately defined functions than those of tests in general. A pretest may be used for any one or a combination of the following purposes:

1. To exempt students from a course because of exceptional knowledge and understanding (1, p. 44).
2. To classify students into categories with the probability that the individual student will be more successful in that particular category or group than elsewhere (11, p. 1039).
3. To tailor instruction of the course to fit the needs of the group (1, p. 11). The group may be homogeneous because of the classification which has taken place or it

may be heterogeneous because of other factors, but the needs of the individuals must be met.

4. To familiarize the student with the content and subject matter emphasis of the course she is about to take. This factor could be instrumental in motivating student participation in the course.

The possible advantages brought about by the use of a pretest as an instrument for determining placement of all entering students would be many if a truly effective instrument were developed. One possibility which could result from the use of such a pretest would be that fewer good students would drop out of the home economics curriculum in college (1, p. 45).

The problem arose as to what type of test would be the best for pretesting purposes in clothing construction. This question was complicated by the fact that skills were involved as well as knowledge and understanding. The study of individual tests used in the field proved to be the best source of information. Evaluation of these tests was tempered by the following statement: "...evidence indicates that pencil-and-paper tests may be as valid as, or more valid than, performance tests" (19, p. 61).

Another thought to consider was whether a battery of tests would best serve the purpose or whether one expanded instrument

would serve when pretesting for clothing construction ability and aptitude. The fact remained that if the score on one test in a battery could be used to predict the score on another section, the value of the second test could be questioned (30, p. 111). The use of statistical correlations to determine such predictions was the basis of many decisions to dismiss or accept a test form or individual sections within a test battery.

Many different clothing construction pretests have been developed but a pretest should be drawn up to follow the course work offered at the individual institution if it is to fulfill the criteria for a satisfactory evaluation device. A contributing factor to the knowledge that clothing construction pretests have not been standardized for general use is the fact that course content varies between institutions.

> Instruments of measurement, whether used in pretesting or in measuring achievement in a course, should deal with all the goals considered important in a course. Otherwise, the results will give an incomplete picture of what a student knows or is able to do (29, p. 49).

When interpreted in light of the specific goals of courses offered at individual institutions, the previous comments would indicate that a pretest such as the Clothing Construction Placement Test would be unique in total content when developed to complement the course work of Clothing Construction, CT 210 at Oregon State University.

II. PRETESTING IN CLOTHING CONSTRUCTION

Many institutions throughout the United States have developed their own instruments for pretesting in the area of clothing construction. These evaluation instruments were devised to suit the goals and desired outcomes of the courses at the individual schools. A survey of literature was of importance to determine what these colleges and universities had found to be successful or, perhaps of even greater importance, what was found to be unsatisfactory as a pretesting technique.

A review of work done at 11 institutions is presented here. The majority of the studies involved the development of a pretest or the analysis of such an instrument. Two of the studies examined the relationship of background experience in construction with the degree of achievement in a college course in clothing construction.

Iowa State University was a pioneer in clothing construction pre-testing. Information about that institution's program took on considerable meaning when it was discovered that the format of the 1960 revision of the Oregon State University Clothing Construction Placement Test was based largely on their findings.

It was at Iowa State University that Saddler developed her placement test in 1945 (25). Saddler stated that the purpose of her study

was

> ...to develop a reliable and valid test which could be used as a basis for predicting students' ability in elementary clothing construction at Iowa State College (25, p. 1).

The pretest which was developed and analyzed included a paper-and-pencil section to determine the acquisition of information and a practical section to test sewing ability. A check list on sewing habits which was to be administered by a checker during the practical test was discontinued when it was found to be too difficult to administer (25, p. 13). An experience score was determined by the number of garments made previously by each student. The test itself was administered and adjusted over three terms and the data of 125 girls were gathered for the analysis (25, p. 38). The criterion used for determining the validity of the tests as placement instruments was the opinion of the student's clothing construction instructor as to the correctness of placement at the end of three weeks in the term (25, p. 19). Regression equations utilizing the test scores were developed and suggested for sectioning the groups in the future. From an analysis of the data Saddler concluded:

1. Both sections of the placement test were sufficiently reliable for use in helping to place students in sections of elementary clothing construction.
2. A different kind of behavior may have been measured by each section of the placement test.
3. Better prediction may be made by using the paper-and-pencil section of the placement test and the practical section of the placement test together

than by using either section alone.

4. The addition of an experience score, as it was determined in this study, was of insufficient value to be useful for prediction (25, p. 44).

The evidence against using an experience score which indicated the number of garments made by the student came early as shown by the preceding findings.

Use of the Saddler test and its regression equation as a prediction device indicated that a substitute for the practical section should be found in order to simplify administration. Evans did a study in 1947 to locate a possible replacement (9). She substituted the score on the final examination for the instructor's opinion of placement as her criterion. Variables selected for study were: high school averages, and scores from the Minnesota Paper Form Board Test, the O'Connor Finger and Tweezer Dexterity Tests, the American Council on Education Psychological Examination for College Freshmen, and the Saddler Construction Test (9, p. 29). Combinations of the scores of 110 students were studied through basic correlations, regression equations and an analysis of variance (9, p. 29). Two of her important findings were that: (1) the combination of the Saddler paper-and-pencil sub-test and the O'Connor Finger Dexterity Test seemed to give the best prediction and (2) the practical sub-test could be eliminated without serious loss (9, p. 30).

Scholtes continued the search for a possible substitute for the Saddler practical sub-test in 1948 (26). She went more deeply into an analysis of the type of test that would be most satisfactory as a substitute for a practical test than did Evans. She made a study of the finger motions used in the test and selected a battery of mechanical aptitude tests which appeared to duplicate those finger motions. Included in the selection for study were the O'Connor Finger Dexterity Test, the Minnesota Spatial Relations Test (Speed and Error Sections), the Minnesota Rate of Manipulation Test (Placing and Turning Sections), and the Saddler Clothing Construction Test (26, p. 30). A second purpose of the Scholtes' study was to develop a questionnaire to determine any relationship between sewing achievement and experience in the use of the fingers (26, p. 30). The Finger Dexterity Background Questionnaire was designed to gain information on such things as experience in playing a musical instrument, typing, and years of sewing, crocheting and knitting experience (26, p. 31). Statistical analysis of resulting data brought about several conclusions; one of which was:

> A test battery composed of the Saddler paper-and-pencil sub-test, the Minnesota Spatial Relations Test (both Speed and Error Sections) and the Dexterity Background Questionnaire gave the best prediction (26, p. 32).

By 1952 the test battery in use at Iowa State University was

found to be reasonably effective as a prediction device but other factors, such as changing course content and the time and cost of administering the battery, were beginning to affect its use. The purpose of the Patson study which resulted from the desire to increase the effectiveness of the test battery was threefold:

> . . . to revise the Saddler Paper-and-Pencil test, to examine and review the weighting of the items in the Finger Dexterity Background Questionnaire, and to find a substitute for the Minnesota Spatial Relations Test (Speed and Error Section)(22, p. 35).

Patson did an item analysis of the test answers of 175 girls and after formulating criteria for judging the questions, she revised items in the Saddler test and the Finger Dexterity Background Questionnaire. At this point the following four tests were tried as substitutes for the Minnesota Spatial Relations test (Speed and Error Section): Case Survey of Space Relations Ability test, the Revised Minnesota Paper Form Board Test, the Bennet Space Relations test, and the Miller Survey of Object Visualization test (22, p. 37). The five tests and revised questionnaire were given to 142 elementary clothing construction students and the statistical analysis of the data proceeded using the final examination scores in the course as the criterion (22, p. 37). Linear discriminant functions were used this time to carry out the classification of students in place of the regression equations which had been used previously (22, p. 38). As a result of the study, the

Miller Survey of Object Visualization was recommended as a substitute for the Minnesota Space Relations test (Speed and Error Section) (22, p. 40b). Another recommendation resulting from the analysis of data was that the final grade in the course and the teacher's judgment of correctness of placement in the course at the end of the first three weeks of the term be studied as possible criteria for any further studies (22, p. 40a).

The most recent study on this topic at Iowa State University was done in 1961 by Nieman (21). This thesis was a follow-up study on the effectiveness of the test battery. Nieman used the scores on the Saddler Paper-and-Pencil test, the original Finger Dexterity Questionnaire, the Miller Survey of Object Visualization, the individual items on the Finger Dexterity Questionnaire and the number of years of sewing experience as the prediction variables. Her criteria for judging achievement were the final course grade, the instructor's opinion of best placement of the students, and the student's opinion of her own placement (21, p. 61). The data of 234 students enrolled in the X, Y, Z and experimental Y groups of elementary clothing construction were collected (21, p. 62). She found that the Miller and Saddler tests were operating effectively within the sections but not between sections in predicting course grades (21, p. 62). There was some agreement between the instructor's opinion and the student's opinion as to the correct placement of the student and also

agreement between the opinions and grade received in the course (21, p. 63). The overall findings indicated that the predictive instruments were valid and the resulting placements were sound, but some revisions might be made on the weighting of sections of the test battery and questionnaire to provide optimum prediction (21, p. 65). Intercorrelations indicated that the Miller and Saddler tests could be weighted more highly and the Finger Dexterity Questionnaire lower in their classification formulas (21, p. 62).

The continued use of the Finger Dexterity Questionnaire at Iowa State University suggested an area of possible further investigation into instruments to determine the background experience of individual students.

During these years Purdue University was conducting studies along the same lines. In 1949 Wright did a thesis study to determine the effect of students' previous experience on achievement in clothing construction at the college level (34). Further knowledge of the investigation at Purdue University was found in an article published in 1951 (35). Achievement in construction in her study was based on three measures: (1) knowledge as measured by an objective pretest and retest, (2) skills measured in actual construction, and (3) attitudes as measured by a questionnaire and attitude scale (35, p. 626). A pretest of 139 objective questions and a two-hour practical test had been developed and given. Students were selected for the advanced

and intermediate sections on the basis of the practical pretest (35, p. 626). There was a bigger difference between the beginning group and the other two groups than between the advanced and intermediate groups which was of great interest. The influences of junior high school instruction, senior high school instruction, 4-H club work, and home sewing were examined. Wright found that previous experience in clothing construction did affect attitudes and achievement in the university course but that the amount of experience was of more importance than the type of experience (35, p. 628). Students with a great deal of former work did better in freshman clothing than those without much former training. Those who were most interested in clothing construction did not always get the best scores. Basically she felt that the sectioning by experience was advisable.

During 1951 Henkel and Seronsy also contributed to the continuing curriculum study at Purdue University with their findings on the results of sectioning the beginning clothing and textiles course to care for the varied levels of training (14). They found that organizing the course into varied levels could produce positive attitudes toward the course itself. While achievement as measured by a subject-matter test and ability as measured by a psychological test showed a strong relation to achievement as measured by the course grade, these two measures were not adequate to predict course grades

(14, p. 197). The reason for this was that the other factors such as interest and effort influenced the grades received. Of particular interest was the finding that previous training as measured by a checklist bore no relation to achievement as measured by course grades (14, p. 197).

Correspondence with Jean H. Davis indicated that Purdue University no longer uses a pretest to section the beginning clothing class (6). The test was discontinued due to scarcity of time. Now the student fills out a questionnaire concerning her previous experience as an aid to the instructor after she has registered for the class. Apparently this is the only device being used at the time of this writing.

A study on placement in clothing construction classes at MacDonald Institute in Guelph, Ontario was conducted by Bray in 1949 (2). The purpose was to find a means of separating the students so that those with more ability and training could move on to more advanced work during the course. A paper-and-pencil test of 150 items was developed and used for placing students for one year. It was revised and used again for a second year. The test took 80 minutes to administer. It was also given as a retest at the end of the course to measure achievement. The test proved to be a valid and reliable pretesting device for classifying students in the beginning classes

but it could be improved as a retest for measuring achievement (2, p. 31). Bray found that in these classes that had been divided as a result of the pretest scores, there was greater opportunity for teacher-student planning and as a result the students might have had a greater interest in the subject (2, p. 31). She also felt there should be a device used in addition to the paper-and-pencil test and suggested that while a practical test was time consuming and expensive it might be useful (2, p. 32).

Davis did an investigation in 1952 to determine the value of the clothing placement tests then in use at West Virginia University (7). The thesis involved data of 133 students including their test scores on the Cooperative Test in Textiles and Clothing from the Educational Testing Service and the Iowa State University placement test, their scholastic records, and their profile sheets of other entrance and scholastic tests (7, p. 18). She found several relationships of significance, one of which was the tendency of the placement test score to parallel the percentile rank of the ACE psychological examination (7, p. 34). She also found some, but not great, tendency for the placement test scores to coincide with the Clothing and Textile grades (7, p. 34). From her findings she recommended the continued use of their testing program and its expansion to include transfer students (7, p. 35). In light of the comments made earlier in this chapter on

the use of test scores, one might question her decision to continue the use of the tests when the scores paralleled the percentile ranking. However, the degree of correlation must have been a deciding factor in her decision.

In 1956 Collins developed her thesis through gathering information to establish the value of pretesting, studying what other institutions were doing in the area, and devising a pre-test in clothing construction for Southern Illinois University (4). Lack of time prevented the testing of the validity and reliability of her instrument. The test was intended for use in grouping students with others of similar background as an aid to instructors in knowing their students' needs rather than as a predictor of success in the course or as a measurement of innate ability. The test which was developed included a section of 60 multiple-choice items, an experience questionnaire, and a two-hour practical examination (4, p. 20-21). Her decision to include a practical test was no doubt based on the recommendations of other schools but it would be of great interest to know how successful this test has proved to be in fulfilling its purpose.

The effect of previous experience in clothing construction on the achievement in a course at the University of Colorado was the subject of a study done by Cannon in 1957 (3). She wished to determine the influence of high school homemaking experience on achievement

in the beginning clothing course (3, p. 521). Her study involved 711 students and included data on their years of high school homemaking, grades received, rank in high school, grade in college clothing and information regarding status as to whether the subject was a major or non-major in the area (3, p. 523). Cannon found a definite relationship between the amount of high school homemaking and achievement in college clothing (3, p. 530). There was an indication that total high school achievement, as shown by rank in class was as important a factor in the achievement in a college clothing course as was the achievement in high school homemaking courses (3, p. 530).

One of the latest studies was done by Semeniuk at South Dakota State College of Agriculture and Mechanic Arts in 1961 (27). The purposes of the resulting test and questionnaire were to aid instructors in tailoring course work to fulfill the needs of the students, to give students a preview of the course, and for possible sectioning of students (27, p. 39). A pretest of 116 true-false and multiple-choice questions on knowledge and application of principles and on facts was written and used for two terms (27, p. 42). Through the use of a questionnaire at the end of the term Semeniuk found that the students were helped in their acceptance of the course work through the use of the pretest (27, p. 44). She also found that the content of the course was little changed although the instructors were able to identify and

therefore help those students with less background (27, p. 39). The sections of the class were kept heterogeneous as to background experience. Semeniuk found that the pretest proved to have characteristics needed for use as a sectioning device in the future but she felt that it would need to be supplemented with other criteria such as a practical test and factual knowledge of past experience if it were to be used for classifying students (27, p. 44).

A doctoral study which included the revision of a written clothing placement test and the development of a practical test to assess clothing competencies was done by Witt at Oklahoma State University in 1961 (32). The written placement test under study covered the care, selection, and construction of clothing. After analyzing the data of 96 students, her major revision was the addition of a section on the application of principles (32, p. 80, 106). Witt found a lack of consistency between the scores on the four areas, as high or low ratings in one competency did not assure a comparable score on another area (32, p. 153). The practical test which she developed was a 40 minute station-to-station test involving manipulative and judgmental skills (32, p. 11, 13). The practical test involved seven individual stations within one room which were designed to give a range of tasks to perform. The reliability of the written test was considered satisfactory but the coefficient of reliability for the practical

test was questionable (32, p. 152). A questionnaire-check list was used to determine background experience and it was found that the scores on the written and practical tests were not consistent with the students' previous clothing experience (33, p. 229). This inconsistency of test scores with background experience was shown in several of the other studies in other ways and once again was worthy of note. After examining all of the statistical data available Witt considered the devices to have merit for use in evaluating the clothing competencies under study (32, p. 153).

The University of Tennessee began sectioning students in the introductory clothing course in 1947 by using a practical test and later through the use of a written pretest (13, p. 40). In 1962 Hendrickson undertook to develop a new pretest covering the subject matter to be used for efficient and effective sectioning of students. (13, p. 40). The placement test which resulted included an experience check sheet and a paper-and-pencil test of 165 items (13, p. 40). The test was lengthy to allow for cutting out ineffectual items after the trial run. The test was used as a part of the final examination in the course as its trial and the results were compared with the original pretest. The results indicated that the scores tended to parallel the former pretest results. Her reaction was that since the previous test had been considered suitable for sectioning students, the enlarged

and revised test would be suitable (13, p. 41). Since only 24 of the original trial group had complete test data available for use in the correlations, the validity of her findings could have been questioned. However, the results did indicate that the test was useful.

An extensive study by Rothgarn was done at Michigan State University in 1962 (24). This study involved the development of two equivalent evaluation instruments, Form A and Form B, which were developed to test student ability to understand and apply four selected principles of clothing construction before any formal college instruction was received in the area (24, p. 48). An attempt was made to make half of the items on application of principles and half on the understanding of principles of clothing construction (24, p. 27). An experience questionnaire was also developed. Rothgarn used a pilot group from Western Michigan University to try out the forms; and, after revising them, gave the two test forms to 82 enrollees in the introductory course at Michigan State University (24, p. 49). The final course grade was used as the criterion for checking the validity of the two forms (24, p. 50). Statistical analysis of the results indicated her tests were reliable and valid enough to be useful in establishing student abilities and understanding of clothing construction principles. The experience questionnaire indicated low correlation between the number of dresses made previously by a student and the

grade on the dress made in class. Also, the final course grade had low correlation with the student's opinion of her ability (24, p. 52).

Each of the tests mentioned so far was developed for use at a particular institution for sectioning, exemption, understanding student need or helping the student understand the course. In 1959 Hoskins attempted to develop a pretest for use in the colleges and universities of New Mexico (15). Her pretest was developed to determine the degree of understanding the incoming student had of the basic principles or generalizations involved in the beginning clothing construction course at five New Mexico institutions (15, p. v). She examined the goals of the course at the institutions carefully before developing her questions, just as some of the others had done in their studies for one school. Her population sample was made up of homemaking students in a group of New Mexico high schools who were as near like incoming freshmen as possible (15, p. v). An analysis of the results of 103 tests indicated that the written pretest she had developed was valid and reliable (15, p. 120). It was recommended that a practical test accompany the written pretest in order to measure level of skills, particularly if the instrument was to be used for exemptions (15, p. 120). Once again it would have been of great interest to know what occurred with the use of the instrument on the group for which it was intended.

III. SUMMARY

Several generalizations were drawn from the literature which was reported and from the correspondence received from other institutions which indicated similar practices.

1. Pretesting in the area of clothing construction was feasible.
2. A variety of instruments for pretesting in clothing construction had been developed, used and revised at many institutions to fulfill one or more of the functions of a pretest.
3. The most common instrument for use in pretesting for clothing construction knowledge was the objective paper-and-pencil test.
4. The use of a practical test was suggested for future use by some investigators, developed and tried by others, and discarded by a few. While considered a very helpful tool for a pretest battery in clothing construction, it was discovered that to find time to administer and score such a test was a difficult problem.
5. Background experience was deemed of great importance in the pretesting program, but the problem of how to get

data on background experience into a usable form for placement purposes was of considerable magnitude. The check-list of garments made prior to enrollment in the beginning clothing construction course was found to be less than helpful in several of the reported studies.

6. Each institution had to determine what was the most valid, reliable and useful instrument or device for its own situation.

CHAPTER III

METHODS OF PROCEDURE

This study was undertaken to analyze and interpret the results of data collected from the administration of the Oregon State University Clothing Construction Placement Test. This test was developed over a number of years for the purpose of exempting capable students from the beginning clothing construction course. The most recent revision was introduced in 1960 for use not only in determining exemptions but for sectioning students into accelerated and regular sections of Clothing Construction, CT 210.

The desired outcome of the study was to determine the effectiveness of the individual parts of the test and the test battery as a whole in placing students in homogeneous groups in terms of aptitude, knowledge, and background experience.

I. DESCRIPTION OF THE TEST

The Clothing Construction Placement Test was composed of three distinct parts. The two parts which were developed at Oregon State University are included in the Appendix of this thesis for inspection. The first section of the test was the Data Information Sheet. This sheet was made up of items designed to

ascertain the type and length of experience in clothing construction the student had received and to determine any awards that the student had received for her sewing skills.

The second section was labeled Clothing Construction Placement Examination and was composed of 48 objective questions on knowledge and application of clothing construction principles and facts. The questions were of the true-false, matching and multiple-choice types. Twenty-five minutes were given over to the administration of this section. The first time the test was administered in 1960, 40 minutes was allotted but this time was cut down the second year when it was found that almost all students finished by the end of 25 minutes.

The third part of the test battery was the Survey of Object Visualization which is a standardized test devised by Daniel R. Miller (20). This test is made up of 44 items designed to determine whether or not a student has the capacity to visualize objects of a flat surface as they would appear in three dimensions. The time allotted for this test was 25 minutes. This test was added to the test battery at the last revision in 1960 in hopes that it would contribute to the reliability of the total scores. The findings of Patson in her study of the Iowa State University clothing construction placement test were the main basis for its inclusion (22, p. 40b).

These three sections made up the pretesting battery that was

administered to the incoming students in the fall quarters of 1960 and 1961 for sectioning and exempting students for the beginning clothing construction course.

II. THE SAMPLE POPULATION

The population under study was the group of new and transfer students who entered Oregon State University in the fall terms of 1960 and 1961 and planned to take clothing construction. Since a beginning clothing construction course was required of all home economics majors at some time during their program, the majority of the students who planned to major in home economics took the test when they entered school. Also included in the groups tested were non-majors who planned to take a clothing construction course as an elective. There were 206 tests given in 1960 and 226 tests administered in 1961. Of these 432 tests, five were dropped because of being incomplete or taken by foreign students with a decided language barrier which made the five tests unrepresentative of the total group. This left a total basic population of 427 individual tests on which to collect and analyze data.

This basic group of 427 was broken down and recombined in several ways over the course of the study in order to obtain the greatest number of observations available with complete data on the

particular question under examination. The students with incomplete data were not eliminated from the study entirely because this group included large segments of the population which were considered of importance in other areas. Two sub-groups were: (1) all transfer students and (2) all students who did not take the course during their first or second year on campus.

The total sample population of 427 was examined more closely to reveal the following facts about the group. There were 40 sophomores, 23 juniors, three seniors and one graduate student in addition to the 360 freshmen. The group of freshmen included several with advanced standing as a result of their work at other institutions before coming to Oregon State University. The group included students from many areas of study on the campus. There were 383 home economics majors in the group. The remaining 44 were registered in the schools of Education, Business and Technology, Science, Humanities and Social Sciences, and Agriculture in descending order of occurrence.

A total of 312 of the original 427 took the course and received credit for their work during the two years covered by the study. However, eight of the group were considered to be in the incorrect section since their test scores did not fulfill the requirements for the definition of the section in which they registered.

The score which formed the basis for placement in a section was determined by doubling the raw score on the Clothing Construction Placement Examination and adding the raw score on the Miller Survey of Object Visualization. The resulting scores were grouped into the sections by putting all of those with total scores of 100 or more into the X or accelerated sections and those below 100 into the N or regular sections. A major change in that original policy was made to encourage those students with total scores between 90 and 99 to go into the X sections. This was done to insure full enrollment in those sections. The student with a 90 through 99 total score could then take her choice of a regular or accelerated section. Two of the sections were purposely mixed at registration to achieve an even enrollment in the sections.

III. THE DATA

Since this study was begun after the test was administered it was imperative to determine quickly what criteria would be used as the basis of analysis and what other data were needed in addition to the test papers themselves. Additional data had to be collected while the students were available for questioning and before they had taken additional course work in clothing construction which might have influenced their responses.

It was decided that the best criterion available for determining effectiveness of placement was the final grade in the course.

As part of their final examination in the course, all of the students enrolled spring term of 1962 took the Clothing Construction Placement Examination as a retest. Of these, 46 had taken the test originally and their test scores were used to help establish the reliability of the test. The same group filled out a questionnaire which had been developed to ascertain their awareness of their section placement (Appendix, p. 89).

During spring term of 1962 the aid of faculty members in the clothing construction area was enlisted to locate as many other students as possible from the total test group who had taken the course during the duration of the study. The students who were located were asked to come in at scheduled times near the end of the term. Fifty-eight students responded in taking the retest and filling out the questionnaire.

The faculty members involved in teaching Clothing Construction, CT 210 during spring term of 1962 also contributed an additional criterion for establishing the effectiveness of the placement of the students enrolled during that term. The criterion was their opinion at the end of the first three weeks of the term as to the correctness of placement of each individual in each of the course sections that term.

Additional data on each student was collected through the

registrar's office. In 1960, the aptitude test data consisted of the verbal and math deciles on the Minnesota Scholastic Aptitude Test. In 1961, the comparable deciles were obtained from the SAT scores in English Composition and Intermediate Mathematics. These decile rankings were not available for all students. The high school grade point average was added to the data when available. At this time the grade received in Clothing Construction, CT 210, was recorded for all those who took the placement test and had received credit for the course during the two year period.

When as much current data had been collected as was possible, the original body of test data was put into usable form. The data information sheets were tallied and each of the 427 tests was regraded to increase the accuracy of scores. At this time all data on each individual was transcribed on punch cards for the analysis.

IV. TREATMENT OF DATA

A review of literature related to the development and use of pre-tests in clothing construction was essential to the establishment of the plan for the analysis of data.

The first phase of the analysis of data was to determine the correlation coefficients between the test battery and other factors to

determine whether the placement test was unique or if it repeated a set of data already available on the students.

The second phase of the study was to determine the reliability of the test. For this portion of the analysis correlations involving the retest group were used along with an item analysis and an item difficulty index of all 427 tests to determine the internal consistency of the test.

The third phase of the study was to establish the degree of validity of the test. This part of the analysis utilized further correlations between the test data and other criteria. Chi-square tests of independence were used to indicate group differences and any trends in the data. In addition to the statistical analysis, an examination of the curricular validity was made by comparing the test with the course outline.

The final phase of the analysis involved an examination of the test battery by section and as a whole to determine its usefulness. The data collected from the questionnaire which had been administered along with the retest was useful in this portion of the analysis.

V. SUMMARY

The study was defined as an analysis of data to determine the effectiveness of the clothing construction pretest battery in sectioning

students into levels of the beginning clothing construction course. The population was examined in detail and the limitations of the population and the data were identified. The design for the analysis was drawn up to include as many of the students as possible within each area and to utilize the data to the fullest degree.

What remained to be done was the actual analysis of existing data and the interpretation of results.

CHAPTER IV

ANALYSIS OF DATA

The information which was available on the test was analyzed by statistical methods and through inspection to determine how effective it had been as a pretesting device and how successful it was in separating the total population into regular and accelerated sections of the beginning clothing construction course.

I. BASIC CORRELATIONS

The first phase of the analysis of data was to determine the correlation coefficients between the pretest battery and other factors. The purpose of these correlations was to ascertain whether the pretest battery gave a set of data that was important in its own right or whether it repeated a set of information which was already available on the student when she enrolled in the course. The sample used for these basic correlations excluded all students on whom entrance data and high school grade point averages were not available. The group from 1960 was kept separate from the 1961 group because of the change in the entrance test battery.

Table I and Table II represent the correlation coefficients for 1960 and 1961 respectively. One observation was that there was

Table I. Simple Correlation Coefficients from 160 Observations with Complete Data on the 1960 Clothing Construction Placement Test

Variable	Years of Homemaking Taken in School	Years of 4-H Clothing Experience	Other Training in Clothing (Commercial or Extension)	High School Grade Point Average	Verbal Decile	Math Decile	Construction Examination Score	Object Visualization Score	Total Adjusted Test Score
Years of Homemaking Taken in School	1.000	- .072	- .052	- .040	- .114	- .064	.204	.016	.158
Years of 4-H Clothing Experience		1.000	.073	.014	.098	.111	.184	.074	.169
Other Training in Clothing (Commercial or Extension)			1.000	- .046	.029	.000	.007	- .051	- .018
High School Grade Point Average				1.000	.448	.508	.216	.190	.245
Verbal Decile					1.000	.677	.368	.280	.397
Math Decile						1.000	.294	.426	.407
Construction Examination Score							1.000	.384	.912
Object Visualization Score								1.000	.729
Total Adjusted Test Score									1.000

NOTE: Any figure greater than .159 was considered significant at the 5% level of significance for 160 observations.

Table II. Simple Correlation Coefficients from 182 Observations with Complete Data on the 1961 Clothing Construction Placement Test

Variable	Years of Homemaking Taken in School	Years of 4-H Clothing Experience	Other Training in Clothing (Commercial or Extension)	High School Grade Point Average	SAT English Decile	SAT Math Decile	Construction Examination Score	Object Visualization Score	Total Adjusted Test Score
Years of Homemaking Taken in School	1.000	- .110	.109	- .157	- .152	- .075	.083	.002	.079
Years of 4-H Clothing Experience		1.000	.054	.268	- .015	.147	.256	.144	.258
Other Training in Clothing (Commercial or Extension)			1.000	.005	- .054	.015	.123	- .009	.050
High School Grade Point Average				1.000	.335	.388	.380	.300	.385
SAT English Decile					1.000	.716	.274	.356	.339
SAT Math Decile						1.000	.351	.430	.446
Construction Examination Score							1.000	.528	.881
Object Visualization Score								1.000	.820
Total Adjusted Test Score									1.000

NOTE: Any figure greater than .159 was considered significant at the 5% level of significance for 182 observations.

little significant relationship between background experience in homemaking classes, 4-H units or other sources such as commercial courses or extension classes, and any of the other variables. The exceptions were in the figures for the total adjusted test score and the score on the Clothing Construction Placement Examination portion of the test battery. The correlation values of . 184 and . 256 between the years of 4-H experience and the pretest score indicate some slight relationship. However, these figures were negligible when related to the figures in other areas for the same population.

There was a tendency for a progressively more marked relationship to appear when the high school grade point average and the entrance test decile rankings were compared with the total adjusted score on the test. The most significant relationship in this area was found between the SAT Math decile and the total adjusted score on the test battery in the 1961 figures where the . 446 correlation figure appeared. This figure indicated that there was a moderate correlation or substantial relationship between the two areas (12, p. 165). Careful consideration should be given to the fact that entrance test decile ratings or high school grade point averages were not available for 85 of the 427 students.

The correlation figures of . 384 and . 528 for the two years between the two portions of the test indicated that while there was

moderate correlation they probably were not testing the same area of ability or aptitude. The combination score between the construction section and the Survey of Object Visualization gave generally higher correlations with other variables than either of them gave separately.

Since the basic correlations of data available at entrance did not show any obvious relationship which would predict the scores on the placement pretest battery, it was concluded that the Clothing Construction Placement Test evaluated a factor other than those already measured. Hopefully, that factor was the ability to perform in Clothing Construction, CT 210.

II. RELIABILITY

The reliability of the test battery was determined through the use of a combination of methods. One indication of the reliability of the placement examination portion of the test was the correlation coefficient between the original scores and the scores on the same test given after completion of the course. As described earlier, the population for this group included all students enrolled in Spring term of 1962 who had taken the test previously and a group of volunteers who had completed the course in earlier terms. The total group of 104 observations gave a reliability coefficient of .641 between the test and retest scores. A breakdown of this figure indicated that the N

or regular sections had a correlation of .555 for 71 observations and the X or accelerated sections had a correlation of .502 for 33 observations. The lower figures for the smaller groups were to be expected because of the more homogeneous nature of the sub-groups. These figures were interpreted only after an examination of the resulting scores on the retest over the original scores. The figures indicated that the regular groups tended to have more consistent growth in knowledge as measured by this test than did the accelerated groups. As reliability coefficient figures, these correlations were quite low which indicated the need for further examination of the internal consistency of the test.

The item difficulty index and the item analysis for the Clothing Construction Placement Examination were the next phases of the analysis. The data from 1960 was kept separate from 1961 to enable an examination of the consistency over the two year period. All 427 tests were used for this portion of the study.

Table III indicated the item difficulty for the 1960 and 1961 populations. It was noted that those items which were answered correctly by over 85 percent of the population were too easy for the group and should be examined for change. This criteria affected items number 3, 8, 12 and 20 during both years. Other items were close to the division line either one or both years. Another group of

Table III. Item Difficulty for the Clothing Construction Placement Examination for 1960 and 1961

Item Number	1960 Correct Responses	1960 Percent of Total Group	1961 Correct Responses	1961 Percent of Total Group
1	82	40.0	79	35.6
2	173	84.4	185	83.3
3*	200	97.6	210	94.6
4	110	53.7	127	57.2
5**	28	13.7	40	18.0
6	114	55.6	134	60.4
7	99	48.3	68	30.6
8*	196	95.6	206	92.8
9	132	64.4	116	52.2
10	113	55.1	126	56.8
11	162	79.0	180	81.1
12*	182	88.8	201	90.5
13	170	82.9	175	78.8
14	127	61.9	136	61.3
15	163	79.5	176	79.3
16	182	88.8	188	84.7
17	148	72.2	154	69.4
18	98	47.8	111	50.0
19	98	47.8	104	46.6
20*	186	90.7	196	88.3
21	148	72.2	170	76.6
22	56	27.3	59	26.6
23	172	83.9	176	79.3
24	146	71.2	164	73.9
25	130	63.4	175	51.8
26	169	82.4	168	75.7
27	133	64.8	146	65.8
28	140	68.3	102	45.9
29	140	68.3	155	69.8
30	162	79.0	154	69.4
31	68	33.2	58	26.1
32	59	28.8	71	31.9
33	164	80.0	169	76.1
34**	33	16.1	37	16.7
35	105	51.2	86	38.7
36	108	52.7	110	49.6
37**	14	6.8	8	3.6
38	134	65.4	132	59.5
39	166	80.9	171	77.0
40	67	32.7	67	30.2
41	58	28.3	66	29.7
42	106	51.7	120	54.0
43	54	26.3	47	21.2
44	58	28.3	52	23.4
45	138	67.3	141	63.5
46	143	69.7	139	62.6
47	144	70.6	153	68.9
48	184	89.7	185	83.3

* Items considered too easy for the group

** Items considered too difficult for the group

items to be questioned were those which were answered correctly by less than 15 percent of the total population, indicating that they were too difficult for the group. This affected item number 37 both years. Items number 5 and 34 were very close to this arbitrary dividing line for being too difficult. These figures indicate that about 12 percent of the examination was not of useful value in the area of difficulty. The items of questionable value should be examined for changes in their wording, content or possibly the correctness of the accepted response in an attempt to improve their difficulty index

Table IV represents the item analysis for the placement examination section of the pretest battery. The method used for establishing the values shown in the table was adapted from the Kelley item technique and the Lawshe nomograph for establishing the validity of individual test items (17, p. 32, 34; 16, p. 846-849). It was noted that all items showed a positive relationship. This indicated that for each item the top 27 percent of the total group gave correct responses more frequently than the bottom 27 percent. However, an examination of the table revealed that items number 8, 20, 24, and 34 gave discrimination values which were not significant at the one percent level. There were a considerable number of items which were non-discriminating for one of the years. Since these items were not discriminating effectively between the high and low groups, they were

Table IV. Item Analysis for the 1960 and 1961 Clothing Construction Placement Examination

Item Number	1960 High Group[1] #	1960 High Group[1] %	1960 Low Group[2] #	1960 Low Group[2] %	1960 Discrimination Value	1961 High Group[3] #	1961 High Group[3] %	1961 Low Group[4] #	1961 Low Group[4] %	1961 Discrimination Value
1	36	63.16	13	24.5	.56*	32	53.3	15	25.0	.42**
2	55	96.49	35	66.03	.6 *	54	90.0	40	66.6	.41**
3	57	100.00	51	96.22	.27	60	100.00	53	88.3	.48**
4	38	66.6	25	47.16	.27	41	68.3	26	43.3	.36**
5	14	24.56	3	5.66	.38*	14	23.3	7	11.6	.21
6	45	78.94	18	33.96	.66*	41	68.3	27	45.0	.33
7	40	70.17	20	37.73	.47*	36	60.0	16	26.6	.48**
8	56	98.24	48	90.56	.25	58	96.6	53	88.3	.22
9	43	75.43	27	50.94	.36*	42	70.0	22	36.6	.48**
10	37	64.91	25	47.16	.24	45	75.0	28	46.6	.42**
11	56	98.24	27	50.94	.90*	55	91.6	37	61.6	.52**
12	53	92.98	40	74.57	.35	59	98.3	46	76.6	.52**
13	54	94.73	29	54.71	.70*	57	95.0	34	56.6	.68**
14	49	85.96	13	24.52	.94*	55	91.6	17	28.3	1.01**
15	53	92.98	37	69.81	.44*	56	93.3	40	66.6	.48**
16	56	98.24	39	73.58	.58*	58	96.6	42	70.0	.56**
17	51	89.47	27	50.94	.63*	56	93.3	30	50.0	.74**
18	35	61.4	11	20.75	.59*	38	63.3	20	33.3	.43**
19	40	70.17	22	41.5	.40*	42	70.0	17	28.3	.61**
20	54	94.73	42	79.24	.33	55	91.6	46	76.6	.29
21	50	87.71	33	62.26	.42*	55	91.6	38	63.3	.5 **
22	25	43.85	8	15.09	.46*	31	51.6	12	20.0	.48**
23	49	85.96	42	79.24	.12	56	93.3	39	65.0	.52**
24	41	71.92	36	67.92	.05	45	75.0	39	65.0	.16
25	46	80.7	19	35.84	.65*	42	70.0	21	35.0	.50**
26	54	94.73	35	66.03	.54*	58	96.6	28	46.6	.9 **
27	54	94.73	21	39.62	.93*	51	85.0	19	31.6	.82**
28	32	56.14	23	43.39	.18	36	60.0	21	35.0	.36**
29	51	89.47	22	41.5	.76*	55	91.6	24	40.0	.84**
30	53	92.98	32	60.37	.58*	57	95.0	21	35.0	1.00**
31	29	50.87	13	24.52	.38*	30	60.0	8	13.3	.58**
32	25	43.85	12	22.64	.32	31	51.6	14	23.3	.42**
33	52	91.22	34	64.15	.48*	57	95.0	36	60.0	.65**
34	12	21.05	10	18.86	.04	12	20.0	4	6.6	.28
35	39	68.42	21	39.62	.39*	36	60.0	12	20.0	.59**
36	45	78.94	17	32.07	.68*	46	76.6	15	25.0	.77**
37	7	12.28	0	0.0	.49*	5	8.3	0	0.0	.43**
38	46	80.7	27	50.94	.45*	50	83.3	28	46.6	.56**
39	53	92.98	36	67.92	.47*	57	95.0	30	50.0	.79**
40	25	43.85	10	18.86	.38*	29	48.3	12	20.0	.43**
41	30	52.63	2	3.77	.87*	35	58.3	3	5.0	.91**
42	29	50.87	23	43.39	.1	42	70.0	24	40.0	.43**
43	19	33.33	11	20.75	.2	21	35.0	6	10.0	.44**
44	32	56.14	3	5.66	.86*	34	56.6	4	6.6	.84**
45	51	89.47	28	52.83	.6 *	41	68.3	35	58.3	.14
46	43	75.43	32	60.37	.23	46	76.6	29	48.3	.42**
47	54	94.73	19	35.84	.98*	48	80.0	28	46.6	.5 **
48	54	94.73	42	79.24	.33	56	93.3	46	76.6	.35**

1 Group of 57 representing the top 27% of the scores for 1960.

2 Group of 53 representing the bottom 27% of the scores for 1960.

3 Group of 60 representing the top 27% of the scores for 1961.

4 Group of 60 representing the bottom 27% of the scores for 1961.

* Significant at the 1% level in 1960.

** Significant at the 1% level in 1961.

not contributing to the total effectiveness of the test and should be examined for changes to improve their discrimination values.

The determination of measures of central tendency and dispersion for the Clothing Construction Placement Examination was in order. The data for 1960 involved 205 observations with scores ranging from 13 through 43 out of a possible 48. The measures of central tendency for that year were as follows: mean 29.0, median 28.75, and mode 28. The 1961 data involved 222 observations with scores ranging from 12 through 45. The figures for central tendency were: mean 27.7, median 28.6, and mode 26 and 29. It would seem that the test was consistent in these perspectives over the two year period.

The reliability coefficient for the Miller Survey of Object Visualization was not computed for this population because of the nature of the test itself. This test consisted of 44 items considered to be unique in testing ability to perceive correct spatial relations of objects. The reliability coefficients for two populations were reported in the Manual which accompanied the test as .91 and .92 (20, p. 3). These figures indicated that the test was quite reliable and there was no reason to believe that it would be less reliable under the conditions at Oregon State University.

The reliability of the background information sheet could not be

determined by statistical methods.

III. VALIDITY

The validity of a test, or the degree to which the test measures the material which it is designed to measure, can be examined in several lights. The data from this study were analyzed both from the viewpoint of its statistical validity and from the angle of its curricular validity.

Statistical. Correlations between the final grade in the beginning clothing construction course, CT 210, and the other available variables were of importance in determining the statistical validity of the placement test battery.

Table V was drawn up to give an overall picture of the relationships which existed between the final grade and indexes representing the tests, data background information sheet and entrance data. The relationships between the number of years of experience in homemaking classes in school or the amount of experience in 4-H clothing units and the grade received in the course were not significant for the size of the group studied. This indicated that the amount of experience, as measured by this data, did not affect success in the course.

The high school grade point average gave the highest relationship to the grade in the course with a correlation of .451. This

Table V. Validity Coefficients for Grades Received in CT 210 Against the Clothing Construction Placement Test and Related Variables.

Grade in CT 210 against:	Number of Observations[1]	Correlation Coefficient
Years of Homemaking in School	283	.137
Years of 4-H Experience	312	.099
High School Grade Point Average	267	.451*
Score on Construction Placement Examination	312	.385*
Score on Miller Survey of Object Visualization	312	.334*
Total Adjusted Score[2]	312	.424*
Verbal Decile for 1960	124	.375*
Math Decile for 1960	124	.323*
English Decile for 1960	164	.247*
Math Decile for 1961	164	.292*

* Significant at the 1% level for the group size studied (8, p. 331).

1 Observations varied with total number of students with complete data in the area under examination.

2 Score used to determine actual section placement.

indicated a moderate relationship between the two variables. The relationship was probably influenced by the lack of data on all of the students.

The correlation between the grade in clothing construction and the total adjusted score which was used for placing the students in their respective sections was .424 which indicated a moderate degree of relationship between the two variables. Considering the low level of internal reliability of the Clothing Construction Placement Examination, this figure was higher than might have been expected. The combination of scores on the two portions of the test battery gave a higher correlation with the criterion than either score alone which indicated that they were both contributing to the overall validity of the test.

The entrance decile correlations for 1961 were quite low and gave lower correlations with the course grade than those for 1960. The logical conclusion was that this data could not be used to accurately predict success in the course as measured by the final grade. The mathematics decile apparently does not measure the same type of information as the pretest battery, even though they showed a moderate correlation when plotted against each other.

The chi-square test of independence was chosen as the method for further examination of the validity of the test battery since this

method would indicate whether there was a difference between the X and N sections of beginning clothing construction and also indicate what trends were present in the sections.

Table VI was designed to indicate the overall picture of the results of the chi-square tests of independence related to the validity of the test battery. The values of the chi-square test figures must be interpreted with flexibility due to the arbitrary nature of the grouping of observations necessary to fulfill the requirement of the analysis that each cell have some observations.

The extremely large values for the section placement versus scores on the test sections were to be expected due to the fact that the scores determined section placement. The figures were included to give an indication of the degree of importance which could be attached to the other figures.

The most significant chi-square sample other than the test scores versus section placement was in the figure representing the section placement versus the mathematics decile for 1961. The distribution showed a distinct tendency for a higher percent of higher deciles to be in the X groups or the N_2 group than in the N group. The X groups and the N_2 group were more alike in this respect than the N_2 group was like the N group, indicating that the score break near 90 was more effective in this area than the original breaking point of

Table VI. Chi-square Test of Independence Related to the Effectiveness of the Clothing Construction Placement Test

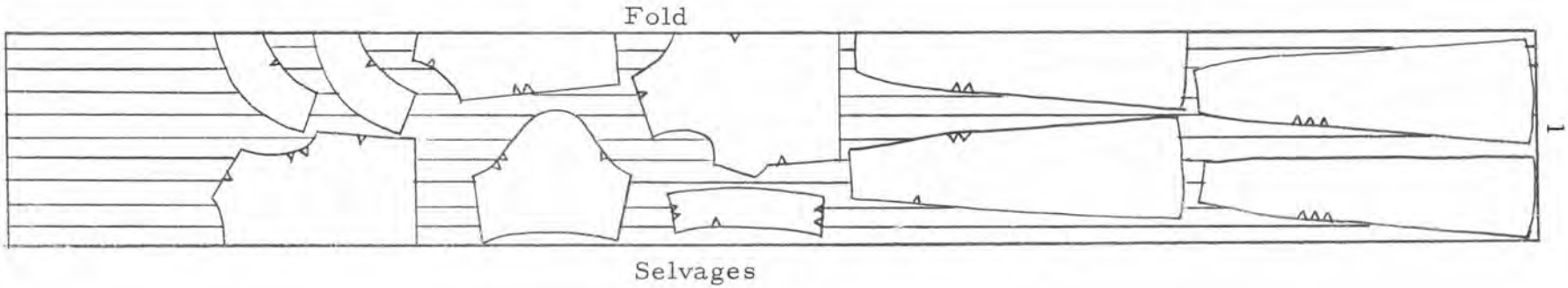
Variables	Degrees of Freedom	Sample Chi-square
Grade in course against Section Placement	8	43.140*
Grade in course against Clothing Construction Placement Examination Score	6	54.200*
Grade in course against Miller Survey of Object Visualization	8	37.853*
Grade in course against years of homemaking experience in school	12	5.898
Grade in course against years of 4-H training	10	16.182
Grade in course against Math decile (1960)	8	19.520
Grade in course against Verbal decile (1960)	9	22.555
Grade in course against Math decile (1961)	12	17.780
Grade in course against English decile (1961)	18	24.515
Section Placement against Clothing Construction Placement Examination Score	4	119.022*
Section Placement against Miller Survey of Object Visualization	8	136.123*
Section Placement against years of homemaking experience in school	8	10.164
Section Placement against years of 4-H training	9	17.294
Section Placement against other types of training	1	1.884
Section Placement against Math decile (1960)	8	27.447*
Section Placement against Verbal decile (1960)	6	22.745*
Section Placement against Math decile (1961)	12	63.580*
Section Placement against English decile (1961)	12	33.596*

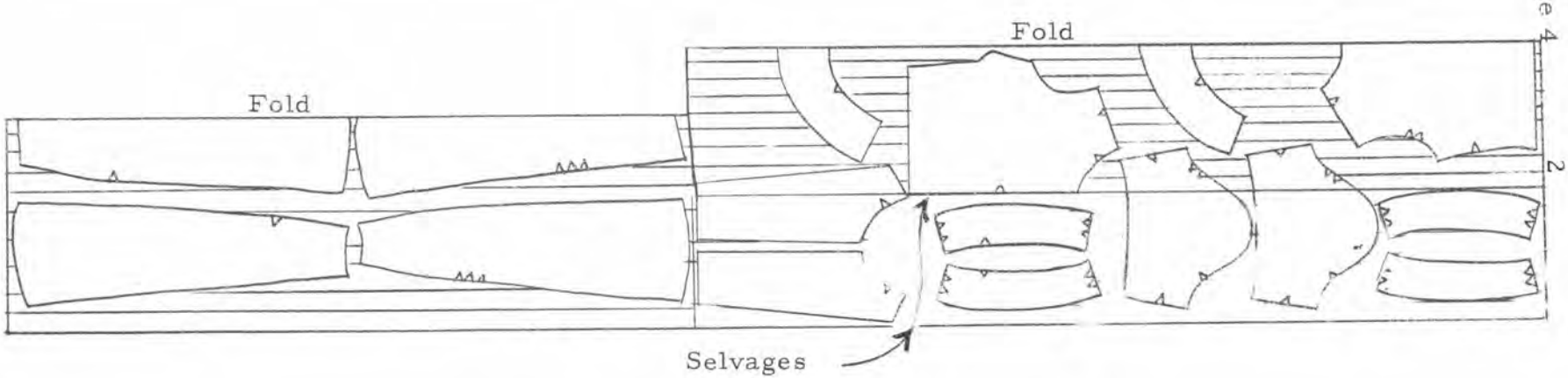
* Significant at the 1% level of significance (17, p. 518)

100. The results in this area were not too surprising in light of the results of the basic correlations which also indicated some significant positive relationship between the score on the test and the decile for mathematics for 1961.

Table VII represents what is probably the most interesting data from the chi-square tests. The X_2 and N_2 groups in the table represent those students who received scores from 90 through 99 on the test battery and made their choice to go into an X or an N section. The distribution of grades for CT 210 for those students who were correctly placed in sections indicated that the X or accelerated sections had a higher percent of A's and a smaller percent of C's and D's than did the N or regular sections. This indicated some degree of effectiveness of the test in sectioning by ability to perform. However, since the grade range was wide within each section there was an indication of a limit to the degree of effectiveness of the test. The fact that the grade range was diffuse in all sections was attributed to the differences in subject matter and methods of teaching the various sections.

An interesting side-light was the grade distribution between the X_2 and N_2 groups which indicated that those who went into the N sections had a greater chance of getting an A in the course than did those who went into the X sections.


Fold
1
Selvages


Fold
Fold
2
Selvages

Miller Survey of Object Visualization tended to add to the validity of the test battery as a whole although it tended to give lower indexes alone. The information gained through the background data information sheet did not appear to add to the validity of the test battery.

Curricular. If a placement test is to be considered valid in the curricular sense, it must by definition represent the content of the course (23, p. 111). This is particularly true if the test is to be used for identifying exemptions, who necessarily must be familiar with the entire scope of the course work if they are to succeed in the more advanced classes.

The course content outline was established as a criterion for determining the curricular validity of the Clothing Construction Placement Examination. The framework of this outline was given in Table VIII along with the numbers of the test items which related to each area of the course. The test itself was included in the Appendix for inspection.

A careful examination of Table VIII was needed to fully appreciate the meaning of the distribution. Area I on sewing and pressing equipment had four questions representing the area, but in no question was a piece of pressing equipment or a pressing technique mentioned. Area II on seams was represented fairly well in relation to the amount of time spent in the class on this phase. The items on

Table VIII. Course Outline and Distribution of Questions from the Clothing Construction Placement Examination

Area of Course	Questions Relating to the Area
I. Sewing and Pressing Equipment	2, 4, 6, 9
II. Seam Study	31, 32, 33, 34
III. Patterns and Alterations	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23*, 24, 25
IV. Fabrics	3, 26, 27, 28, 29, 30
V. Construction Problems	5, 8, 10, 35, 36*, 37*, 38, 39, 40, 41*, 42, 43, 44, 47
A. Shirtwaist dress	
1. Pattern with	
a. Applied collar	
b. Waistline seam	
c. Set-in sleeve	
2. Cotton fabric	
B. Skirt	7, 11, 48
1. Pattern with	
a. Zipper placket	
b. Side seams if straight skirt	
2. Wool or wool blend fabric	

* Questions related more to the lecture-demonstrations than to projects of the course.

NOTE: Questions numbered 1, 45, and 46 did not appear to fit the course outline

hem finishes might have been included within this area depending on the methods of instruction used by the individual instructor.

Area III on patterns and alterations appeared to be well represented considering the percentage of items which was given over to this area in relation to the total length of the test. The questions were all related to the pattern or its layout, however. There were no questions on the alteration of a pattern or a garment. Area IV on fabrics included questions on grain line in fabrics and the use of interfacings. Test item number 23 was listed in Area III above but it referred to the use of velveteen in a pattern layout and introduced the student to the problem of a nap in a fabric. The actual selection of fabrics was never mentioned in a question although the selection of the fabrics was considered of enough importance to be listed under one of the major objectives for the course (Appendix, p. 90). The question coverage on the area of findings for the projects was limited to a question on the size of thread.

The distribution of questions on the knowledge of clothing construction facts and principles appeared to be generous on first glance. An examination of the actual questions in Area V as related to the course projects revealed that there were no questions on the application of set-in sleeves, zipper applications, or waistbands although these areas were quite important to the course content.

Test item number 37 referred to the application of a fitted armhole facing which was normally a part of the lecture-demonstration portion of the course. This was also true of test items 39 and 41 on the construction of bound buttonholes.

Item number 1 refers to the construction of a wool collar which was not a part of the beginning course. Test items 45 and 46 refer to hem finishes which may be of questionable importance to the content of the course itself since these fabrics are not used.

An overall estimation of the curricular validity of the Clothing Construction Placement Examination when compared to the content of the course would have to take into account the weaknesses in the question content as mentioned above. If the validity of the test were to be based on this area alone the test would have to be considered as being of questionable value. The use of the test as a basis for exemption from the course could certainly be criticized.

The Miller Survey of Object Visualization appeared to fulfill one of the major curricular problems, namely being able to visualize how flat pattern pieces would go together into a three-dimensional garment. The emphasis on this sight factor was considered overweighted from the curricular standpoint when this test was combined with the coverage of the area in the other portion of the test battery.

In the area of curricular validity the only value which was established by examination of the background data information sheet

was that the questions indicated only the amount of exposure to clothing construction that the student had experienced. The degree of proficiency of the students could not be determined by a knowledge of how many years or what type of training they had received as they were measured by this instrument.

IV. USEFULNESS

The analysis of the internal workings of the test battery was followed by an examination of the usability of the test. Some factors contributing to the assessment of the practicality of the test were observed. Other factors were determined by asking those who were involved for their reactions.

The Clothing Construction Placement Test was relatively easy to administer. A large lecture hall was used and only one staff member was needed to give the verbal instructions, although several others were present as proctors.

The time for the administration of the test battery was slightly over one hour which allowed time for filling out the data sheet and giving directions in addition to the actual test periods of 25 minutes each. Ideally a total time of slightly under an hour would have been desirable because of the problems of scheduling time to administer the test during New Student Week. The problem could be alleviated by a more generous time allowance in the future.

The scoring of the test battery was a very real problem. The time was very limited between the administration of the test and the time when the scores were needed by advisers to counsel students on their class schedules. Processing the scores for the advisers required the services of the entire Clothing, Textiles and Related Arts Department staff to hand grade the tests. The answer sheet for the Clothing Construction Placement Examination was very compact and easily graded while the Miller Survey of Object Visualization was more time consuming since the answer sheet was not used. The data section could not be tallied in time for use in sectioning. The decision to leave out that portion of the battery at that time was quite sound according to the statistical findings of this study. The pressure to complete the grading in such a short time was probably responsible for some of the errors in computing the scores which were found during the regrading for this study. Fortunately, few of the errors were large enough to cause an incorrect placement in the sections.

The scores on the two test portions were easily used as the raw score on the Clothing Construction Placement Examination was doubled and added to the Miller Survey of Object Visualization raw score to obtain the total score used to determine the placement. The arbitrary cutting point at 100 for the X sections was found to be

reasonably workable from the standpoint of getting a balance of enrollment in the various sections. The change to allow those with scores from 90 to 99 to chose their sections improved the distribution.

The cost of this placement test battery was not prohibitive. Use of the answer sheets allowed the reuse of the test forms. The cost of these paper-and-pencil form tests was below what would have been incurred with the use of a practical test.

Within the Clothing Construction Placement Test the changes from true-false questions to multiple-choice items and back to true-false items necessitated several sets of directions within the test. Regrouping all items requiring the same directions would cut down on the amount of time the students must spend on adjusting to different types of responses.

Directions were apparently clear for there were few queries from students regarding how to respond to an item. However, should the test be revised it would be advisable to work for more consistency in the type of item and the types of responses required.

Another facet of the usefulness of a pretest is how the faculty members react to the resulting placements. Course instructors for spring term of 1962 were asked to determine the "correctness" of the placement of each student in their sections at the end of the first

three weeks of instruction. Out of the 46 students registered who had taken the pretest battery, the faculty felt that three were in the wrong section. Two of these had scores in the 90 to 99 score range with one registered in the X and one in the N section. The third student was in the regular section and the instructor felt that she was much behind the group. If these figures held true for the entire population, they would indicate that approximately 6. 5 percent of the students were in the incorrect sections. Revisions in the evaluation instrument could possibly give a more helpful division between the X and N sections which would eliminate these borderline score problems. The problem of the truly beginning student in a regular section was beyond the scope of this study.

The reactions of the students to the placement test and their own placement were very informative. The data for Table IX were gathered from the questionnaire filled out at the time of the retest. From this table and other information from the questionnaire it was concluded that the X group students were more aware of their placement than the N section students. The group in the table who indicated inaccurate knowledge of their placement was significantly large, especially in the N_2 group. The N_2 people had a choice of section and their lack of awareness was surprising.

Table IX. Students' Awareness of Section of CT 210 in Which They Were Placed

Student's Knowledge	Section X and X_2 n	%	N_2 n	%	N n	%
Correct	28	96.5	11	57.8	29	60.4
Incorrect or did not know	1	3.5	8	42.2	19	39.6
Total	29	100	19	100	48	100

A majority of students, 55 out of 96, responded that they felt all students who planned to take clothing construction should take the test. This response was encouraging considering their previous lack of awareness of the significance of the test.

An overall evaluation of the usability of the Clothing Construction Placement Test would indicate that time for its administration was the main problem. The mechanical make-up seemed adequate. Better understanding of the purpose of the test and awareness of the results was needed on the part of the students.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

An analysis of the most recent revision of the Oregon State University Clothing Construction Placement Test was needed to evaluate the effectiveness of the instrument and to determine its usefulness in exempting and placing students in the beginning clothing construction course.

I. SUMMARY

The basic population for this study included the 427 incoming freshmen and transfer students who took the test before registration in 1960 and 1961. In addition to the actual placement test data, background information on entrance test deciles and high school grades was collected for as many of the students as possible. The Clothing Construction Placement Examination portion of the test battery was given as a retest upon the completion of the course to a group of 104 of the original population. A questionnaire was developed to ascertain student awareness and opinion of their individual placement, and data was collected from 96 of the 104 in the retest group. The opinion of the instructors of CT 210 as to the "correctness" of placement of students enrolled in spring term of 1962 was gathered at the end

of the first three weeks of that term.

A review of literature related to pretesting in the area of clothing construction on the college level was essential to the determination of the methods of procedure for this study and to the analysis of the resulting data.

The analysis began with the determination of simple correlation coefficients to ascertain the uniqueness of the placement test components. The correlations indicated that the placement test sections did not duplicate a set of data already available on the students at the time of registration, although there was some relationship between the test scores and the mathematics deciles in 1961.

The second phase of the analysis was to reveal the reliability of the test. The reliability coefficient of the Clothing Construction Placement Examination was determined through the use of the test and retest scores. The correlation indicated this portion of the test was quite low in reliability. Further examination of the internal consistency of the test consisted of an item analysis of the entire group of 427 examinations to ascertain the difficulty and discrimination values for each item. Several individual items were found to be inadequate in these areas and were therefore not considered to be adding anything to the total reliability of the test battery.

The third phase of the study was the analysis of the statistical

and curricular validity of the test battery as a whole and by sections. The criterion selected for establishing the validity coefficient was the final grade received in the course. The correlation between the Clothing Construction Placement Test and the final grade showed a moderate degree of relationship. The use of the combination score from the Clothing Construction Placement Examination and the Miller Survey of Object Visualization gave a higher correlation figure than either of the tests gave when used alone. The study of the statistical validity continued with the use of chi-square tests of independence to determine if the accelerated (X) and regular (N) sections of the course varied in any way and if so, what trends were present. These tests also helped to interpret the findings of the simple correlations. The sections were found to vary in the proportion of grades received and in their mathematics decile ratings. Differences between the sections in the amount of background experience as measured by the data sheet were not significant.

Curricular validity was established through relating the individual test items from the Clothing Construction Placement Examination with the course content outline. Weaknesses were found in the test battery which would indicate that it should not be used to determine exemptions from the course until alterations are made.

The final phase of the study included a variety of observations evaluating the usability of the test. Student reactions on the

questionnaire given at the time of the retest indicated that they were not as aware of the significance of the test as might have been desired. Faculty opinions of correctness of placement revealed that the division into sections was working sufficiently well. The test was considered to be practical, but the problem of finding enough time for adequate administration was of considerable magnitude.

II. CONCLUSIONS

The generalizations drawn from the data analyzed in this study were affected by the differences in sample sizes and the limitations of the methods selected for the statistical analysis. Within the framework of these limitations several conclusions were reached which would affect the future use of the Clothing Construction Placement Test battery.

The analysis revealed that the examination portion of the battery had low reliability. Considering this low degree of reliability, the validity of the test was higher than might have been expected. The validity coefficient for the battery was only moderately significant but the figure was higher with the use of both portions of the test together than when either one was computed separately. Outside of the problem of having sufficient time to administer and grade it, the test battery was found to be useful. The background data information

sheet did not add anything of specific value to the test battery.

The placement of the students in the accelerated and regular sections of the course was working reasonably well based on the opinion of the instructors and on the results of the correlations and chi-square tests of independence. The actual division point between the X and N sections could have been more clearly defined.

Scrutiny of the curricular validity of the test revealed weaknesses which indicated that it was unacceptable in its present form as the only device for exempting students from Clothing Construction, CT 210.

The students were not as well aware of the test or its use in determining their placement in the course as would have been desired.

III. RECOMMENDATIONS

Because the test battery proved to be a more valid instrument than any other factor which was available for predicting success in the course, and since the test battery was found to be more useful in sectioning the students than any other available criteria, it is recommended that the use of the Clothing Construction Placement Test be continued with the following modifications:

1. Eliminate the background data information sheet in its present form.

2. Revise and lengthen the Clothing Construction Placement Examination in an attempt to increase its reliability and validity as a placement test instrument and as an instrument for determining exemptions.

3. Retain the Miller Survey of Object Visualization as a part of the test battery until changes are made in the Clothing Construction Placement Examination which prove to give an acceptable validity coefficient without the addition of the Miller test.

When these modifications have been achieved, consideration should be given to the possibility of eliminating the Miller Survey of Object Visualization in the interest of conserving time.

The statement given to the student at the time of the administration of the test should be revised or some other means should be devised to communicate the purpose and results of the placement test to the students involved.

Further study on the possibility of setting up a beginners section would seem warranted from the comments made by instructors and from the literature of other institutions which section their introductory clothing construction course.

It is recommended that a new instrument be developed to ascertain information on background experience in clothing construction

which could be utilized along with the test scores in placing the students. The work done on finger dexterity by Scholtes (26) at Iowa State University could possibly be used as a point of departure.

BIBLIOGRAPHY

1. Arny, Clara Brown. Evaluation in home economics. New York, Appelton-Century-Crofts, 1953. 378 p.

2. Bray, Edyth Louise. The development and use of a pencil and paper test for determining placement of college students in clothing courses and for measuring achievement after instruction. Master's thesis. St. Paul, University of Minnesota, 1949. 51 numb. leaves.

3. Cannon, Helen. The influence of high school homemaking on achievement in the beginning clothing course at the University of Colorado. Journal of Educational Research 50:521-531. March 1957.

4. Collins, Mildred Hart. A pre-test for placement in beginning clothing courses at Southern Illinois University. Master's research report. Carbondale, Southern Illinois University, 1956. 51 numb. leaves.

5. Cronbach, Lee J. Validity. In: Harris's Encyclopedia of education research. 3d ed. New York, Macmillan, 1960. p. 1551-1555.

6. Davis, Jean H., Associate Professor, School of Home Economics, Purdue University, Lafayette, Indiana. Privately held correspondence dated October 26, 1962.

7. Davis, Mildred Jean. Clothing placement tests for entering freshmen in the Division of Home Economics at West Virginia University 1948-1951, inclusive. Master's thesis. Morgantown, West Virginia University, 1952. 57 numb. leaves.

8. Edwards, Allen L. Statistical analysis for students in psychology and education. New York, Rinehart, 1946. 360 p.

9. Evans, Virginia. Prediction of college clothing construction achievement by means of mechanical aptitude tests and the Saddler clothing construction test. Master's thesis. Ames, Iowa State College, 1947. 50 numb. leaves.

10. Fritchoff, Alma C., Professor Emeritus and Former Head of Clothing, Textiles and Related Arts Department, Oregon State University. Privately held correspondence from Omaha, Nebraska dated October 13, 1962.

11. Gleser, Goldine C. Prediction. In: Harris's Encyclopedia of educational research. 3d ed. New York, Macmillan, 1960. p. 1038-1047.

12. Guilford, J. P. Fundamental statistics in psychology and education. 2d ed. New York, McGraw-Hill, 1950. 633 p.

13. Hendrickson, Patricia Ann. The development of a pretest for use in the Textiles and Clothing Department of the University of Tennessee. Master's thesis. Knoxville, University of Tennessee, 1962. 70 numb. leaves.

14. Henkel, Jean and Louise Baird Seronsy. First course in clothing and textiles. Journal of the American Home Economics Association 43:195-197. March 1951.

15. Hoskins, Mercedes Nelson. Construction of a basic clothing pretest for use in the colleges and universities in New Mexico. Master's thesis. University Park, New Mexico State University, 1959. 140 numb. leaves.

16. Lawshe, C. H., Jr. A nomograph for estimating the validity of test items. Journal of Applied Psychology 26:846-849. 1942.

17. Long, John A. et al. The validation of test items. Toronto, University of Toronto, 1935. 126 p. (Toronto, Canada. Dept. of Educational Research. Bulletin No. 3)

18. Li, Jerome C. R. Introduction to statistical inference. Ann Arbor, Edwards Brothers, 1957. 553 p.

19. Michael, William B. Aptitudes. In: Harris's Encyclopedia of educational research. 3d ed. New York, Macmillan, 1960. p. 59-62.

20. Miller, Daniel R. Survey of object visualization manual. Los Angeles, California Test Bureat, 1955. 12 p.

21. Nieman, Mary Read. Effectiveness of the placement test for sectioning students in the elementary clothing construction course. Master's thesis. Ames, Iowa State University, 1961. 77 numb. leaves.

22. Patson, Nellie Katherine. Prediction of construction achievement using Saddler Clothing Test, Dexterity Questionnaire and four spatial relations tests. Master's thesis. Ames, Iowa State College, 1952. 81 numb. leaves.

23. Ross, C. C. and Julian C. Stanley. Measurement in today's schools. 3d ed. New York, Prentice-Hall, 1954. 485 p.

24. Rothgarn, Mildred Marguerite. The development of a method of pretesting student ability to understand and apply principles of clothing construction. Master's thesis. East Lansing, Michigan State University, 1962. 99 numb. leaves.

25. Saddler, Jane. Placement test for college home economics students. I. Elementary clothing construction. Master's thesis. Ames, Iowa State College, 1945. 82a numb. leaves.

26. Scholtes, Mary Cleta. Selection of a test battery for the prediction of college clothing construction achievement. Master's thesis. Ames, Iowa State College, 1948. 40 numb. leaves.

27. Semeniuk, Alexandra O. A pretest and questionnaire to determine student levels of achievement prior to enrollment in a beginning clothing construction course at South Dakota State College of Agriculture and Mechanic Arts. Master's thesis. Brookings, South Dakota State College of Agriculture and Mechanic Arts, 1961. 76 numb. leaves.

28. Spafford, Ivol (ed.) Home economics in higher education. Washington, D. C., American Home Economics Association, 1949. 181 p.

29. Spafford , Ivol and Edna P. Amidon (eds.) Studies on the teaching of home economics in colleges and universities 1955-1956. Washington, 1959. 144 p. (U.S. Dept. of Health, Education and Welfare. Vocational Div. Bulletin no. 276, Home Economics Series no. 31)

30. Thorndike, Robert L. Personnel selection test and measurement techniques. New York, Wiley, 1949. 358 p.

31. Webster's new world dictionary of the American language. College ed. Cleveland, World, 1960. 1724 p.

32. Witt, Mildred Rea. The revision and development of selected evaluation devices for appraising certain clothing competencies of college freshmen. Ed. D. thesis. Stillwater, Oklahoma State University, 1961. 233 numb. leaves.

33. _____. The revision and development of selected evaluation devices for appraising certain clothing competencies of college freshmen. Ed. D. thesis. Stillwater, Oklahoma State University, 1961. 233 numb. leaves. (Abstracted in Journal of the American Home Economics Association 54:229. March 1962)

34. Wright, Janet Smith. The effect of student's previous experience on achievement in a university course in clothing construction. Master's thesis. Lafayette, Indiana, Purdue University, 1949. 67 numb. leaves.

35. Wright, Janet Smith and Jean Henkel. Achievement in clothing construction. Journal of the American Home Economics Association 43:626-628. Oct. 1951.

APPENDIX

STATEMENT GIVEN TO STUDENTS AT THE TIME OF THE TEST

PLEASE READ CAREFULLY THE FOLLOWING IMPORTANT ANNOUNCEMENT

The basic curriculum in home economics requires only one[1] course in clothing construction. It is the aim of the Clothing, Textiles and Related Arts Department to place each beginning student in clothing construction in the group best suited to her needs, whether she is a major in the School of Home Economics or interested in it as a service course. The placement is based in a large part on the results of the two tests you have just taken. These are intended to indicate your previous training and/or experience.

There are four sections of Clothing Construction CT 210 scheduled each term of this academic year with the X sections scheduled on Tuesday and Thursday and the N on Monday, Wednesday and Friday. The X groups will include those students whose test results presumably show they have had considerable sewing experience. Students in the N groups may have had some or no previous training or experience. The X groups are not to be construed as honor sections. While it is not absolutely mandatory that a student who is assigned to the X section so enroll, it should generally benefit her to be in such a group.

When you meet with your adviser to plan your schedule, she will have the results of the test and you will know for which section you should register. If for any reason you feel the results of the test have not placed you properly you should discuss this with your adviser. It is not necessary to take this course during your Freshman Year.

For more information please feel free to ask your adviser or a staff member who teaches clothing construction.

We wish you a happy and most profitable year.

The Clothing, Textiles and Related Arts Dept.

---

[1] Enrollment in any subsequent courses in clothing construction will be determined by the student's area of concentration and personal interests.

Oregon State College
School of Home Economics
CT & RA Department

Date _____

PLACEMENT TESTS FOR CLOTHING CONSTRUCTION, 210

Name _____ _____ _____
Last First Middle

Graduate of
High School _____ _____ _____ _____
Name City State Date, year

Check:

School you will be (or are) registered in:

____ Home Economics
____ Education
____ Business and Technology
____ Science
____ Humanities
____ Other _____

Year in College:

____ Freshman
____ Sophomore
____ Junior
____ Senior
____ Graduate

Have you had any sewing experience or training? Yes ____ No ____

If yes, answer the following questions:

Circle: Years in school in which you had homemaking 7 8 9 10 11 12
Semesters of clothing and construction work only 1 2 3 4 5 6
Years of clothing projects completed in 4-H club work
1 2 3 4 5 6 7 8 9 10

Check: Have you exhibited clothing articles at the state fair? Yes ____ No ____ Year(s) _____
Have you been a junior leader of a 4-H clothing club? Yes ____ No ____ Year(s) _____
Have you participated in the State Fair 4-H Style Review? Yes ____ No ____ Year(s) _____

Other training: Home _____ Adult Education _____
Self Taught _____ Commercial (Singer, etc.) _____
Specify type of commercial _____

Have you entered any clothing construction contests (other than
Yes ____ No ____ Specify _____ Award(s) _____

Test Results (Do not fill in)
Clothing Construction _____ Miller Obj. Visualization ____ Total ____
Placement in CT210..... Group X _____ Group N _____
Academic Adviser _____
Adviser's recommendations: _____

Page 1

CLOTHING CONSTRUCTION PLACEMENT EXAMINATION

Items 1 through 11 are statements on basic sewing practices and equipment. If the statement is true, check column 1 on the answer sheet, if false check column 2.

1. Trimming the enclosed seam to 1/4" on a rounded collar of wool flannel produces a smooth flat edge.

2. When starting the machine stitch, the bobbin thread is left under the bedslide.

3. Interfacing is used in certain areas of a garment to give shape and body.

4. Needle sizes 8 and 9 are used for general hand sewing.

5. A concave seam (inward curve) is notched to allow it to turn back on itself smoothly.

6. The thread take-up on a machine should be in the down position when starting to stitch.

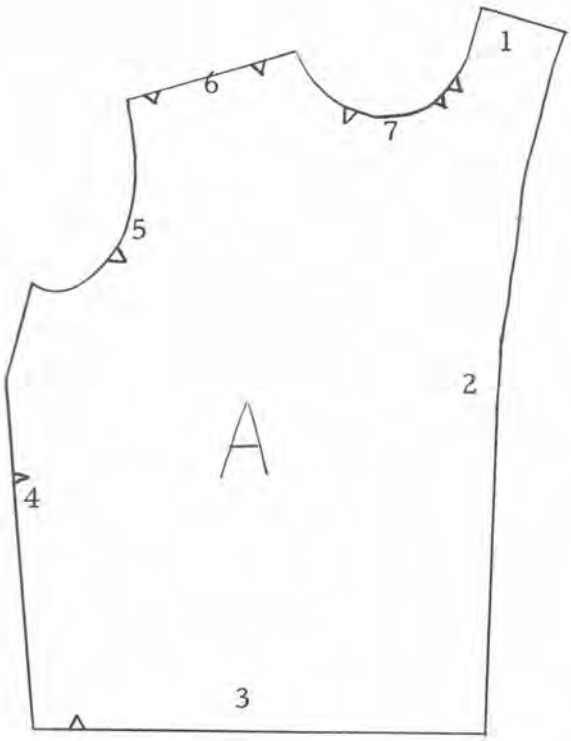
7. Seams on a 4-gored slightly flared skirt are stitched from waist to hem.

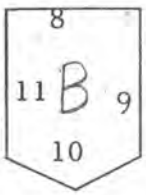
8. Stay-stitching is used to retain the shape of the garment while fitting and stitching.

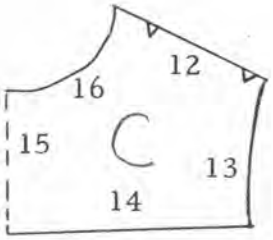
9. Mercerized cotton thread and 80 or 90 spool cotton thread are comparable to use for machine stitching an average weight cotton fabric.

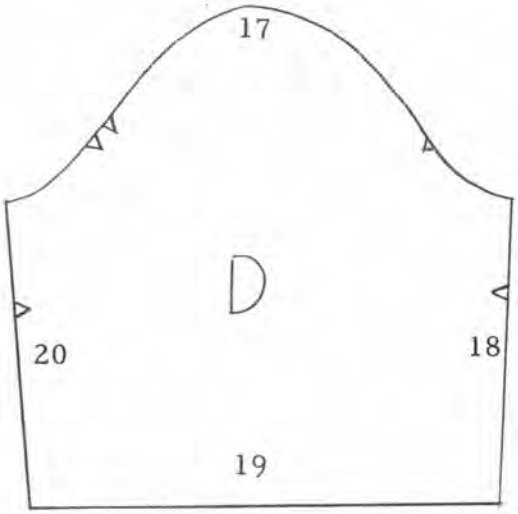
10. When pinning and basting a full gathered section to an ungathered section, hold the ungathered side towards you.

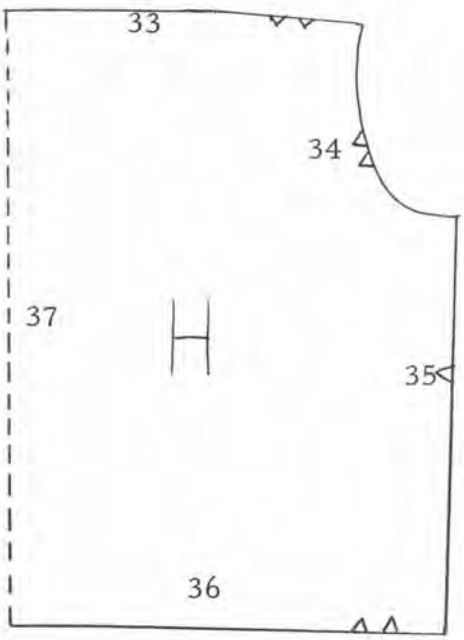
11. Grading of a seam refers to trimming the layers of an enclosed seam at different widths.

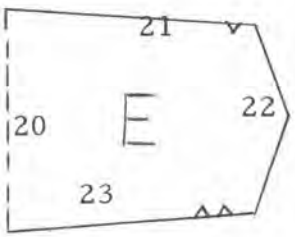

A
1
2
3
4
5
6
7


B
8
9
10
11


C
12
13
14
15
16


D
17
18
19
20


H
33
34
35
36
37


E
20
21
22
23


F
25
26
27
28


G
29
30
31
32

Page 3

PATTERN PARTS AND ASSEMBLING

Items 12 to 19 refer to the pieces of a blouse pattern on the opposite page. The illustration on this page shows the completed blouse.

The letters on the pattern pieces on the opposite page refer to certain parts of the blouse pattern. Identify each piece by placing the correct number in the appropriate space on the answer sheet.

12. Pattern piece A is the

1. blouse back
2. front-yoke section
3. blouse front
4. front facing

13. Pattern piece C is the

1. blouse back
2. front facing
3. blouse front
4. yoke back

14. Pattern piece E is the

1. band
2. collar
3. yoke back
4. pocket

15. Pattern piece F is the

1. band
2. front stay
3. sleeve facing
4. collar

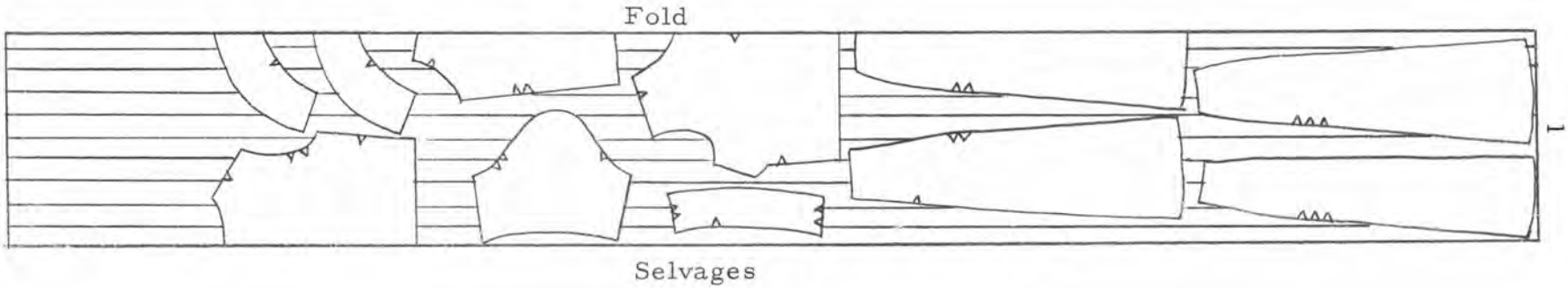
Which of the following edges should be stitched together? Place the correct number in the appropriate space on the answer sheet.

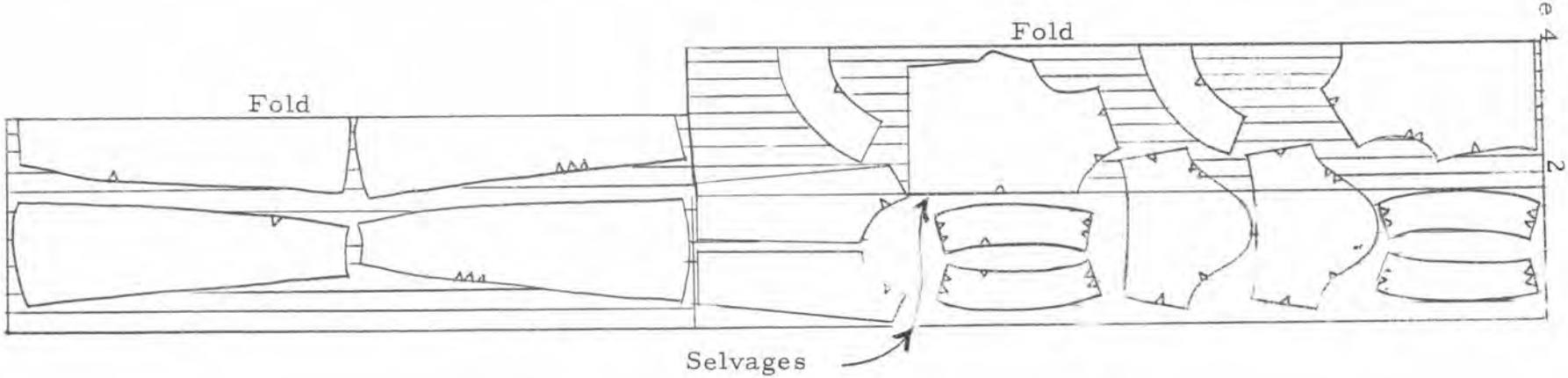
16.
1. 27 to 33
2. 14 to 33
3. 33 to 23
4. 14 to 23

17.
1. 25 and 27 to 7 and 16
2. 25 and 27 to 19
3. 20 and 31 to 3 and 36
4. 25 and 27 to 3 and 36

18.
1. 17 to 5
2. 17 to 34
3. 17 to 5, 13, 34
4. 17 to 5, 34

1. 23 to 7
2. 21 to 6
3. 21 and 23 to 7 and 16
4. 1 to 6


Fold
1
Selvages


Fold
Fold
2
Selvages

Page 5

PATTERN LAYOUT

Items 20 through 25

Below are statements about two pattern layouts on the opposite page.

Check on the answer sheet in Column 1 if the statement is true, Column 2 if the statement is false.

The illustration on this page shows how the garment appears when completed.

20. Layout 1 provides for a 6-gored skirt.

21. In layout 1 the pattern pieces are correctly placed for cutting.

22. Layout 1 provides for one cuff only.

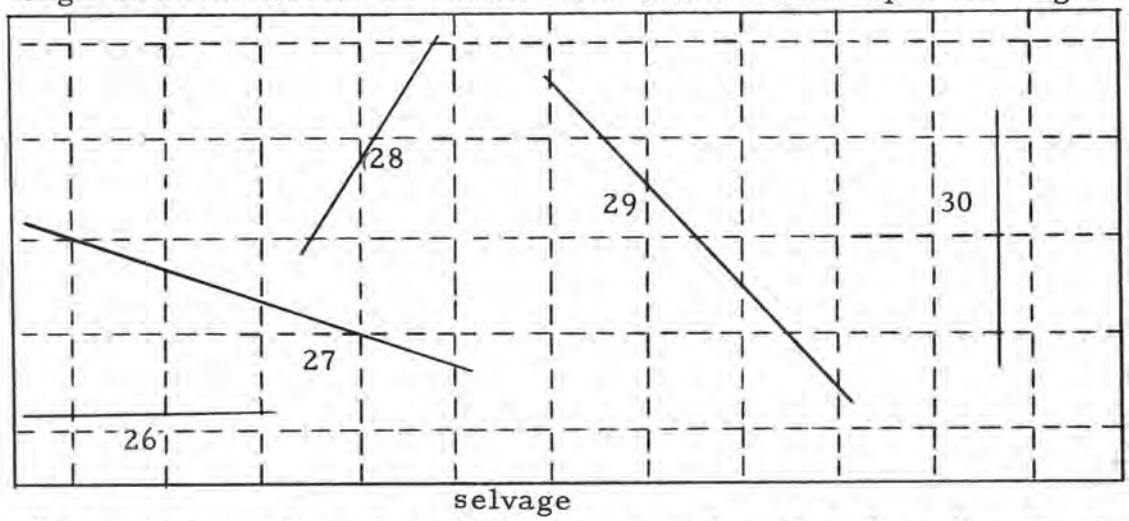
23. In layout 1 the skirt pieces are correctly placed for fabric having an up and down such as velveteen.

24. Layout 2 shows all pattern pieces placed on the straight grain.

25. The sleeves in layout 2 are correctly placed for a fabric having a wrong and right side.

GRAIN IN FABRIC 85

Items 26 through 30 refer to the diagram below which illustrates a length of woven fabric. The dotted lines indicate the warp and filling.

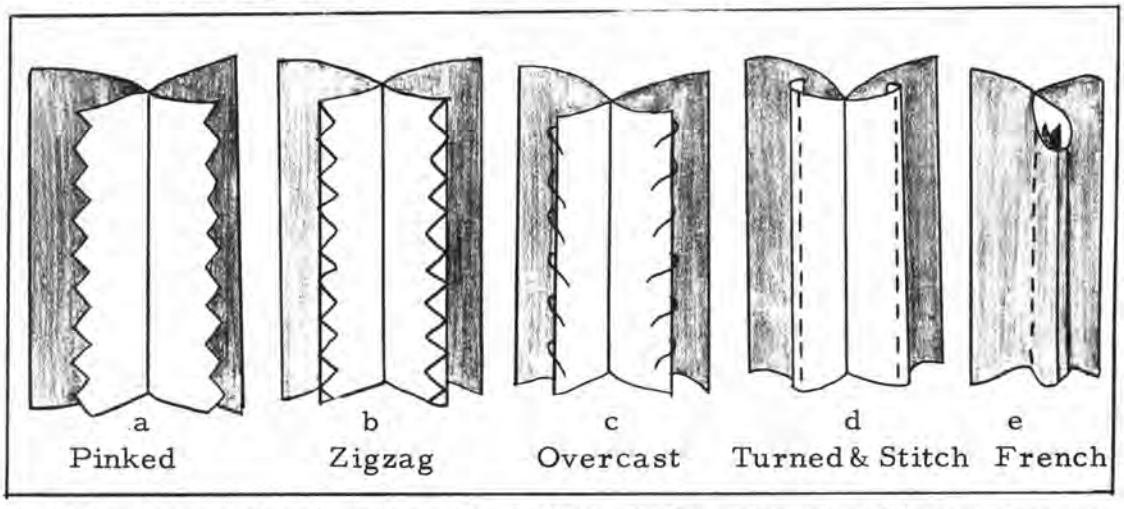


On the answer sheet place the correct number (1, 2, 3, or 4) indicating the grain position of each of the solid lines in the illustration above.

1. Crosswise grain
2. Lengthwise grain
3. Garment bias
4. True bias

SEAMS AND SEAM FINISHES

Items 31 through 34 refer to the use of some common seams and seam finishes



On the answer sheet, place the letter of the corresponding seam you would choose as most desirable to use on the following garments:

31. Child's organdy dress
32. Corduroy shorts (ravels easily)
33. Drip-dry cotton print dress
34. Light-weight acetate satin formal dress (ravels easily)

Page 7
ORDER OF WORK

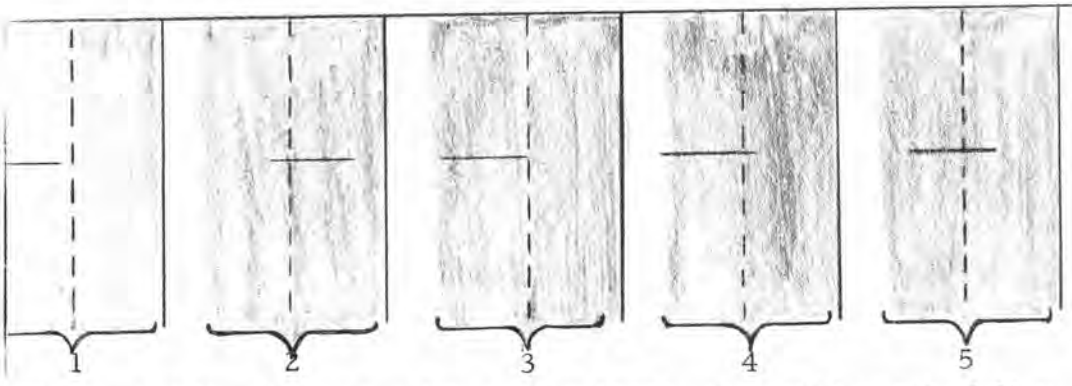
Items 35 through 43. It is usually desirable to perform certin construction processes before others, but sometimes it does not matter which order is followed.

If process A should be done before process B, check on answer sheet in Column 1. If process B should be done before process A, check on answer sheet in Column 2. If it makes no difference which process is done first, check in Column 3.

	Process A	Process B
35.	Attach collar	Set in sleeves
36.	Make bound buttonholes	Join bodice and skirt
37.	Apply fitted armhole facings	Stitch underarm seams
38.	Join bodice and skirt	Set in sleeves
39.	Sew hem in place	Allow skirt to hang a while
40.	Attach collar	Join underarm seams
41.	Make bound buttonholes	Join underarm seams
42.	Sew hem in place	Make worked buttonholes
43.	Make collar	Stitch shoulder seams

BUTTONHOLE PLACEMENT

Item 44
The diagram below shows the placement of buttonholes in relation to the center front of the blouse.



The dotted line indicates the center front, the solid vertical line the front edge of blouse.

Select the correct position of the buttonhole by placing the number 1, 2, 3, 4 or 5 on the answer sheet.

Page 8
HEM FINISHES

Items 45 through 48.

Directions: On the answer sheet place the number referring to one of the three types of hem finishes listed in the box below as the most desirable to use on the following garments:

45. Denim slacks
46. Pleated Arnel sharkskin skirt
47. Cotton print dress
48. Wool flannel dress with four-gored skirt

Three methods commonly used for finishing hems are described as follows:

1. Raw edge turned under, stitched by machine, then slip-stitched in place by hand.

2. Seam tape stitched to cover the raw edge, then tape is blind stitched in place by hand.

3. Raw edge turned under and then stitched in place by machine.

Name

Date

CLOTHING CONSTRUCTION PLACEMENT TEST
(Answer Sheet and Key)

Page 1
Items 1 - 11

	True	False
1.		X
2.		X
3.	X	
4.	X	
5.		X
6.		X
7.		X
8.	X	
9.		X
10.		X
11.	X	

Pages 2 & 3
Items 12-19

12.	3
13.	4
14.	2
15.	1
16.	2
17.	4
18.	3
19.	3

Pages 4 & 5
Items 20 - 25

20		X
21		X
22	X	
23.	X	
24.	X	
25.		X

Page 6
Items 26-34

26.	2
27.	3
28.	3
29.	4
30.	1
31.	E
32.	B
33.	A
34.	C

Page 7
Items 35 - 43

	1 A before B	2 B before A	3 Either Order
35.	X		
36.	X		
37.			X
38.		X	
39.		X	
40.	X		
41.	X		
42.			X
43.			X

Page 7
Item 44

44.	4

Page 8
Items 45-48

45.	3
46.	2
47.	1
48.	2

QUESTIONNAIRE WHICH ACCOMPANIED RETEST

BACKGROUND INFORMATION

DIRECTIONS: Check that answer which best fits your own situation.

1. Have you changed your school on this campus this year? _____
   If Yes, what is your school now? _____
2. Who was your instructor for CT 210?
   ___Miss Ingalls ___Mrs. Wells ____Mrs. Hanson____ Miss Moser
3. Have you taken any clothing classes since completeing CT 210?
   _____Yes _____No
   If Yes, which course? _____CT 212 _____Tailoring _____Draping
4. In which section of CT 210 were you placed?
   _____x section _____n section _____do not know
5. Were you aware that you were placed in a particular section of CT210 because of the score you received on the clothing placement test?
   _____Yes _____No
6. If yes, how did you find out in which section you were placed?
   _____Adviser told me
   _____CT 210 instructor told me
   _____Other students told me
   _____Other (please state) _____
7. Do you feel that you were placed in the correct section of CT 210in terms of your ability and background experience?
   _____Yes _____No _____Do not know
8. Do you feel that you should have been exempt from CT 210?
   _____Yes _____No _____Do not know
9. If yes, indicate why you feel you should have been exempt.
   _____Had the same learnings in high school
   _____Had the same learnings in 4-H
   _____Had the same learnings at home
   _____Other (please state) _____
10. Whom do you feel should take the clothing placement test?
    _____All home economic students
    _____All students who plan to take a clothing class
    _____Only those wishing exemption from CT 210
    _____Other (please state) _____

COURSE OBJECTIVES FOR CLOTHING CONSTRUCTION CT 210*

1. To develop an appreciation of the relationships between fabrics, findings and clothing design.
2. To develop an understanding of the fundamental principles of pattern selection and alteration, clothing construction and fitting.
3. To develop judgment in selecting methods of construction for personal and family needs.
4. To develop judgment in selecting methods of construction in relationship to fabric, design and type of garment.
5. To develop an appreciation of standards of workmanship in manufactured and custom made clothing.
6. To develop judgment in the management of time, energy and money.
7. To develop an appreciation of the contribution of clothing to personal satisfaction and creative expression.
8. To develop judgment in deciding between making a garment or buying a ready-made one.
9. To gain experience in the selection,use and care of equipment.
10. To gain experience in handling cotton and wool fabrics.

* These objectives are given to the student at the beginning of the term as a part of the course syllabus.