

ABSTRACT OF THESIS

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PUPIL PARTICIPATION IN THE  
CONSTRUCTION OF EVALUATION  
DEVICES

Submitted by  
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In partial fulfillment of the requirements  
for the Degree of Master of Education  
Colorado State College  
of  
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## ABSTRACT

Cooperative evaluation is one of many different procedures proposed by educators as a democratic classroom activity. A technique of cooperative evaluation that has received little attention in an experimental way is the participation of pupils in the construction of evaluation devices. In this investigation an attempt has been made to determine its value as a teaching device.

### Problem

The problem is: What is the value of pupil participation in constructing evaluation devices as a method of teaching clothing selection?

1. What gains in judgment are produced through pupil participation in constructing evaluation devices in clothing selection?

2. What changes in interests are produced through pupil participation in constructing evaluation devices in clothing selection?

This technique was tested in two first-year homemaking classes in each of the following schools: Festus, Missouri; Clio, Michigan; Beeville, Texas; Herculaneum, Missouri; and La Porte, Texas. The

investigation was made during the school year of 1942-43.

#### Methods and materials

The experimental method of research was used in this study. The 61 cases in the experimental group and the 61 cases in the control group were selected from the sample tested which included all the girls enrolled in homemaking in the five cooperating high schools. In the equating process, comparisons were made on the basis of the following factors: chronological age; year in school; sex; pre-test scores; previous scholastic standing; intelligence; economic status; and social status. Gains in judgment were measured by a revised form of Peyton's art-judgment test and changes in interests were measured by an interest check sheet. Each of these devices were administered to the pupils in both the experimental and control groups before and after the unit on clothing selection.

#### Analysis and interpretation of data

An analysis of the art-judgment test proved that it was satisfactory for the survey purposes of this study. The reliability coefficient was estimated by the split-half method to be .84 which is regarded as highly satisfactory for distinguishing reliably between the two groups tested. If the test could be doubled in length and the added items comparable in reliability

to the original items its reliability could be increased to .91 and it could also be used to differentiate between individuals. An item analysis of the art-judgment test showed discrimination between high and low groups on every item. Four items were considered easy and three items were considered difficult for the entire group. However, only one item was considered possibly too difficult for the group and since it was also low in discrimination it should probably be excluded in a revision of the test.

In the equating process only one significant difference was found between the experimental and the control groups, in that the economic status was higher for the experimental group. However, they were considered approximately equal for this study.

A comparison of mean gains made by the two groups on the art-judgment test showed no significant difference between the two groups. However, total gains were slightly in favor of the control group. This finding indicates that, as far as gains in judgment are concerned, pupil participation in constructing evaluation devices is of no value as a teaching method in clothing selection.

An examination of changes in interest revealed that only one significant change was made by the experimental group in that a larger percentage



was more interested in tests constructed by students rather than by the teachers after the unit was completed. Since this group had participated in the construction of evaluation devices as a classroom activity this evidence seems to indicate that more of the group did become more interested in tests made by students as a result of the experimental factor. Other changes made during the unit included increased interest in line in planning clothes by both groups, in planning clothes for others, and in selecting clothing as a special hobby by the experimental group.

Other advantages may have been obtained as a result of the experimental factor, but a measurement of these values was not possible with the devices used in this investigation. Further study might possibly reveal advantages in the use of this technique as a method of teaching.

In answering the questions raised in the problem, it has been shown that:

1. No gains in judgment were produced through pupil participation in constructing evaluation devices in clothing selection.

2. A change in the interest in tests made by students rather than those made by the teacher was made through pupil participation in constructing evaluation devices in clothing selection.

T H E S I S

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OF

AGRICULTURE AND MECHANIC ARTS

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July 23 1943

I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY HELEN M. MANLEY

ENTITLED PUPIL PARTICIPATION IN THE CONSTRUCTION OF EVALUATION DEVICES

BE ACCEPTED AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION

MAJORING IN HOME ECONOMICS EDUCATION

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Permission to publish this thesis or any part of it must be obtained from the Dean of the Graduate School.

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## Chapter I

### INTRODUCTION

At one time the classroom was a rigidly controlled situation in which the teacher played the dominant role while the pupil followed the instructions outlined by the teacher. Present philosophy of classroom procedures stresses the opposite point of view. Today a pupil is expected to play an active role not only in classroom recitation, but also in the planning of objectives, content, and activities of the course. Thus, has democracy finally entered the classroom.

Many different procedures have been proposed by various educators for initiating and conducting classroom activities in a democratic manner. Some of the major procedures are: "cooperative planning", "cooperative evaluation", "problem solving", "exploring real situations", "experimentation", "challenging discussions", and "group work". Participation of students in the construction of evaluation devices is one technique in "cooperative evaluation".

A number of the above procedures have been tested although the findings at present do not warrant the acceptance of the findings as final and complete.

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The use of "pupil participation in the construction of evaluation devices" is one of these techniques which has received the least attention in an experimental way. Therefore, the purpose of the present investigation is to provide objective data for determining its value as a teaching device.

### Problem

What is the value of pupil participation in constructing evaluation devices as a method of teaching clothing selection?

Problem analysis.--The problem has been analyzed and divided into the following questions:

1. What gains in judgment are produced through pupil participation in constructing evaluation devices in clothing selection?
2. What changes in interests are produced through pupil participation in constructing evaluation devices in clothing selection?

Delimitation.--This study was limited to two first-year homemaking classes in each of the following high schools: Festus, Missouri; Clio, Michigan; Beeville, Texas; Herculaneum, Missouri; and La Porte, Texas. It was made during the school year of 1942-43. One group from each school was used as the experimental group, and the other as the control.



Chapter II  
REVIEW OF LITERATURE

Various studies have been made dealing with comparisons, or evaluations, of different methods of teaching. Many of these methods, directly or indirectly followed the democratic ideal, in which there were cooperative planning and working within the classroom group. Some of these studies reported student participation in evaluation, along with the classroom procedures tested. Since this study considers participation in evaluation as a democratic classroom procedure, these related studies have been reviewed here.

In the school year, 1936-37, Reid Jackson (5) organized an experimental group, composed of the class in principles of high school teaching, at Talledgra College. His objective was "to develop functional principles of teaching as a result of the student's own inquiries" (5:103). The class shared a large responsibility in planning and carrying out the activities of the course, and students presented problems as observed by them in the teaching of a high school class. These problems were then arranged for discussion by the

students themselves who also assumed responsibility for the allotment of time. Each student worked in three different committees, serving as chairman of one and as a member of two others. Each committee arranged its report as a teaching project, and each individual member shared in the presentation of some phase of the topic and directed the learning activity incident to this aspect. An effort was made for each student to subject himself to constant self-evaluation. Committee reports were made into mimeographed bulletins, in which basic generalizations were formulated by the committees, to be used as flexible guides. Two phases of the experimental procedure were critically analyzed. The first, which appraised the quality of thinking of the pupils, was revealed in the basic principles included in the final committee reports. The other analyzed the effectiveness of the class activities on the part of the individual student, through questions given to the student. The experimental procedure proved to be an improvement over the traditional method of educational techniques of teaching which was brought out as a result of the committee activity. After carefully analyzing the objections registered against the experimental method, it was decided that the objections refer more to the degree of efficiency of technique involved in the

procedure than to the procedure itself.

In 1938, Emma Griesse (3) compared the individualized group method with the individual method of teaching ninth-grade clothing. In the individualized group method of teaching, the class was taught as a group, individual help being given when needed while in the individual method of teaching the pupil proceeded at her own rate and initiative and obtained help when needed.

The study by Griesse included a total of 194 pupils enrolled in ninth-grade clothing at the Junior High School at Wausau, Wisconsin. Seven classes, consisting of 25 to 32 students each, were used. Pupils in the experimental and control groups were paired as to intelligence and achievement. Forty five pupils from each group were paired and considered approximately equivalent. Scores from the survey, the informational unit test, the skill and judgment test, and the attitude and interest indicator were analyzed to determine the relative effectiveness of the two methods of teaching. No significant difference was found for any of these measures although results were in favor of the control group where the individualized group method was used. When comparing groups of high mental level the only significant difference found was in the attitude and interest scores for which the control

group showed higher development. No significant difference was found in the comparison of the groups of lower mental level.

The laboratory method and the demonstration-home-practice method were compared in the teaching of two units in homemaking classes in a study made by Gertrude Roskie (10) in 1938. In the demonstration-home-practice method in this study, a process was first demonstrated at school, and then the students practiced the processes at home. In the laboratory method, directions were given for performing a process, and then the students carried on the process in the school laboratory.

Meal preparation and clothing construction and selection were the units used in the above experiment. Eighty-five cases from seven homemaking classes in the high school at Helena, Montana, were used. Three classes used the demonstration method, and four classes the laboratory method. After the groups had been equated on the basis of chronological age, intelligence, and pre-test scores, there were 22 pairs taking the foods unit and 19 pairs the clothing unit. However, since the pupils were not rigidly paired, the comparison was made on a group basis, and the two methods were tested for achievement gains rather than for final knowledge. Final scores showed no significant



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difference between the two methods although there was a decided tendency toward superiority of the demonstration class for practical ability and, for the development of judgment in clothing, the results were in favor of the demonstration-home-practice method. A comparison of slow students showed no significant advantage for either method.

A study was reported by Clarice Watson (12) in 1940, on the growth of individuals in a classroom situation where there was cooperative thinking and action. The class studied was a group in the junior year in home economics education at Oklahoma Agricultural and Mechanical College. The class of 58 women was taught in two sections. Twenty-eight students were followed for this investigation. Evidences of growth were studied through records made by observers, personal progress charts, and interviews. The classroom techniques used were to encourage students to grow as persons, as members of a group, and as future leaders. Opportunity was given for participation in all class procedures, experimentation, and investigation. The teacher acted only as a guide in planning the classroom activities. Plans were made by students, and an attempt was made to solve problems with frankness, openmindedness, and honesty. Plans were revised, reconsidered, and adjusted to fit the



occasions. Individual and committee work on various phases led to an expression of opinions and clarification and defending of beliefs. There was some evaluation of personal growth.

Watson reported student growth as evidenced by increased interest, quality, and number of experiences; group consciousness; and contributions to class discussion. A third of the class reported regular reading. Exploration and experimentation were shown in 176 experiences. Many students developed in social graces. Students made one to nine interpretations of adolescent behavior. Needs of girls were recognized, and two thirds of the girls indicated that they were looking at themselves objectively. Many students evolved, accepted, or recognized various philosophies. Student growth, as shown through five case studies, was seen in increased self-confidence, cooperativeness, and initiative. There was growth in ability of students to evaluate themselves and to solve their problems. In the actual practice of democratic procedures, there was an increased understanding and appreciation of these policies.

A student planned program in the area of home economics at the college level was reported by Jean Trent (11) in a study completed at the University of Tennessee in 1940. Three home economics classes

at Lincoln Memorial University at Harrogate, Tennessee, were used in developing and promoting this program. The groups consisted of the following: 12 girls who registered for one unit in textiles and two units in clothing construction; five girls in units of house planning, interior house design, and home management; and four girls in nutrition. Three months were allowed for each unit, and three to four college credits were given for each unit.

The study by Trent included units on clothing, house planning, and nutrition. The title of the course selected determined the type of problems to be solved by each girl, or each group of girls. Type and range of possibilities were restricted by the time allowed for each unit as well as by the course chosen. In the clothing units, the girls selected their own problems and aims. Problems grew from individual experiences and the immediate needs of the girls. The students made plans and selected methods needed to accomplish the aims which they had formulated. They evaluated their own work and planned for future improvement.

A cooperative project was carried out by the group in house planning, interior design, and home management who worked on improving the appearance of the home economics building. This project continued

throughout the year with each group studying a different phase of the problem. An individual project was also completed by each girl which contributed to the major problem.

The nutrition class in the above study was partly teacher-controlled in that lectures were given by the teacher, and the basic fundamental knowledge to be covered was planned by the teacher. Rate of progress was more or less controlled by the teacher. This class developed into a student-planned program when each student was allowed to study and develop some phase that was interesting and helpful to her. In all cases problems were to be chosen to fit the real need of each girl and the responsibility for solving the problem was with each individual. The instructor advised, made suggestions, helped evaluate, and cooperated as the problems progressed, but served only as guide or counselor.

The results of the programs were studied, the work of the students was evaluated, the changes in student behavior were noted, and the evaluations made by the students were summarized by Trent. The evidence indicated that the program was suitable for home economics students at the college level and was flexible and realistic in that it met individual needs of each student at the time. Students stated that

the work was valuable in that it helped to develop a sense of responsibility, a more critical attitude and an increased ability to cooperate. Comments from students on reviewing the program revealed that they had learned to plan more effectively, had been able to work at a rate of speed which produced better and more quantitative results for individual students than if they had been working in a usual class group, had lost the feeling of competition, had planned work during vacations, and had made definite improvements in certain skills and abilities.

In 1940, Hazel Hatcher (4) completed an experimental study of the difference in achievement between pupils resulting from two methods of instruction in home economics. The control method was wholly directed by the teacher. She determined the objectives, planned the content and procedures for the unit, and evaluated student achievement. In the experimental method the teacher and pupils together determined the objectives and the methods to be used in attaining these goals, and, as the unit progressed, the students and the teacher together checked the accomplishments. Valuable self-evaluation devices were worked out for student use.

Eight hundred and eighty two students and 17 experienced teachers from eight St. Paul and four



Minneapolis High Schools participated in the study by Hatcher. Eleven of the teachers were from St. Paul, and six were from Minneapolis. The teachers were paired according to similar ability. The students were equated according to grade level, age, intelligence quotient, occupational status, and pre-test scores. One hundred and forty-one students were paired in foods classes and 138 in the consumer buying classes. The teachers themselves decided which method they would use. In some cases individual teachers used both. They then followed detailed instructions for each unit according to the method selected and used the teaching aids and measuring devices planned by the investigator. The study was carried through a 12-weeks unit on foods and a four-weeks unit in consumer buying.

Hatcher found that the achievement of the experimental group was significantly higher than that of the control group. This significance was based on scores made on a pencil and paper test for each of the units taught, scores or ratings on check lists, and records that were kept. In the foods unit, scores on the final written test were 4.61 points higher on the average, for the experimental group than for the control group, which difference was 5.36 times the standard error of the difference. The experimental group made a score 12.13 points higher than the control group made



for ability in meal preparation. This difference was 7.62 times the standard error of the difference. The experimental group ranked 8.06 points higher than the control group did on quality of food products. This was 3.66 times the standard error of the difference. On the pencil and paper test used in the consumer buying classes, the experimental group was 2.97 points higher than the control group, and this difference was 4.20 times the standard error of difference.

Florence McAlister (6) in 1940, compared growth developed in homemaking practices of pupils directed through teacher planning versus those directed through pupil-teacher planning. Twenty-two girls, paired according to intelligence and age, were used in the experiment. They were from 12 to 14 years of age and were enrolled in the first-year homemaking at Big Spring, Texas.

Two experimental groups composed of 11 girls each were organized in separate classes and studied by McAlister. The first group took no part in planning problems and activities, or in evaluating results. A plan made by the teacher was followed throughout the term, and the work was evaluated entirely by the teacher. At the first of the term each student was given a mimeographed copy of the plan made by the teacher. This was accepted by the students, and

few offered any suggestions for changing the course of study. The second group of girls determined their own needs and interests through discussion. They set up their own goals, presented problems, and determined how they might best solve these problems and how they might evaluate and score their own work. The pupils in this group were led to realize the real purpose of evaluation as a measure of growth. Evaluation devices worked out by this group were to be used by pupils in both groups.

McAlister stated that, at first, the group seemed hesitant about evaluating their own work, but were guided in planning score cards, check sheets, and other devices. In consequence, various items on these tests were of interest to the group, while girls in Group I, who had had no part in making the test, seemed only interested in the total score. In the unit on grooming, students in Group II, who had helped make the test, seemed more aware of their own carelessness in habits through self-evaluation. The girls in this group apparently continued their own improvement while some in Group I returned to their former habits soon after the unit was over. In the clothing construction unit, students in Group I developed more accuracy in identifying parts of the machine, but those in Group II learned more about manipulation and adjustment of the

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machine. The girls in Group II continually checked themselves according to self-evaluation score cards while they were making a garment and so kept the original problem in mind and critically recognized existing problems yet to be faced. The girls in Group I seemed more interested in finishing the garment. Students in Group II seemed more time conscious and considered it their responsibility to keep within the time schedule which they themselves had made. Some of those in Group I were behind, which often resulted in nervous strain and poor workmanship. The students in Group II seemed to work with more freedom and enjoyment than did those in Group I.

The importance of self-evaluation on the part of the student was indicated by McAlister. A recognition of new problems and a desire toward greater improvement of work being done seemed to result from this method. It was found that results were more effective when students cooperated in appraising pupil growth than when the teacher alone was responsible for the evaluation. Pupils seemed to enjoy setting up plans, checking their own progress, and accepting the responsibility of independently solving problems.

In 1941, Lela O'Toole (7) studied procedures used by homemaking teachers who were graduates of Oklahoma Agricultural and Mechanical College in order

to locate needs of teachers according to a philosophy of democratic homemaking education. The teachers contacted were divided into two groups according to date of graduation. One group was composed of those called experienced teachers, or those who had graduated within five years preceding the study. The other group was composed of first-year teachers. Questionnaires were answered by 36 experienced teachers, 26 superintendents, and 338 pupils during 1939-40, and 27 first-year teachers, 264 pupils, and 17 superintendents during 1940-41.

The information obtained in the above study gave a picture of what was done in high school classes and to what extent students had participated in democratic classroom procedures including evaluation of personal and group progress. Questions answered by students on the use of democratic procedures showed that the highest ranking for the schools of first-year teachers was 92 per cent and the lowest was 52 per cent. For schools of experienced teachers the highest ranking was 86 per cent, and the lowest was 47 per cent. Questions answered by the teachers also showed that the first-year teachers ranked higher than did the experienced teachers in the use of these procedures. The teachers felt that they were making provision for democratic procedures. The questions answered by the



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superintendents showed that a need was felt for improved methods of teaching, more practical college experiences, more practice teaching, preparation in more than one teaching field, and training in guidance. The findings from the study by O'Toole seemed to indicate that the teachers needed to provide more democratic experiences for students. The students did not, in general, use the home economics department for experimentation after school hours. They had little opportunity to help in their own evaluation and wanted to use pupil-teacher participation in planning and organizing many classroom activities. There was evidenced a desire for improved methods on the part of the teachers. Some college subject matter courses were considered impractical, some practice teaching experiences appeared inadequate, and there was insufficient training in guidance, adult education, and adolescent psychology.

A study of college student growth was completed by Dorothy Barton (1) in 1942. The class studied was taking methods of teaching in home economics education and was organized in two sections at Oklahoma Agricultural and Mechanical College. The objectives and procedures used for each section were similar.



Experiences offering participation in planning, working out, and evaluating were provided for the students in the investigation by Barton. Democratic procedures and actions were discussed, and then purposes, aims, and learning experiences were set up by the students in each group. Study plans were also made so that the students could participate in determining content and procedure. Individuals and groups worked in volunteer planning committees, which distributed responsibilities to each group. Six types of group experiences were given to each person. Students were given an opportunity to solve personal or group problems, to create, select, and weigh values, to follow a course of action, to select and continually to evaluate as a guide for further planning. The group decided that each student should observe at least nine classes at high schools and should make reports of her observations. Class members felt free to speak frankly about what was or was not accomplished.

These observation reports were studied and criticized by Barton, and evidences of personal growth in social sensitivity, of the use of reflective thinking, and of self direction were found. At first, it seemed that observers saw only student behaviors, but later they observed procedures and purposes. Almost all of the students showed decided growth except in ability

to direct individual activities. An analysis was made of the works of 20 students selected at random. Changes of opinions and suggestions for improvement were included in some reports. Increased social sensitivity was evidenced by breadth of vision, implied changes of opinions, and evidences of understanding adolescence. Evidence of ability to use reflective thinking was shown by increased understanding of democratic classroom procedures and by the conclusions reached. Evidence of the ability of the students to direct personal activities was recognized by use of initiative, creativeness, and self analysis. The evidences of growth toward becoming more democratic individuals numbered 3,166, while 1,981 statements showed growth in ability to use reflective thinking and 91 statements showed growth in ability to direct personal activities.

The effectiveness of classroom procedures designed to be consistent with the learning of the democratic ideal, in which students and teachers cooperated in planning, executing, and evaluating class work was studied by Millie Pearson (8) in 1942. Learning experiences based upon criteria for democratic living were provided for college classes taught by Pearson. She supervised student teachers in the use of similar procedures in high school classes, and teachers in a number of public high schools were observed and

guided in the use of these procedures. Graduate students were guided in the evaluation of such learning experiences. Opinions of students, teachers, and administrators, who were familiar with the use of this ideal, were considered.

That students, teachers, and administrators prefer democratic learning experiences was tested in the above study by studying and comparing student opinion in college classes through personal interviews, teacher and observer records in six Home Economics Education classes, student comments, informal evaluations made on 30 personal progress reports, statements of student opinion regarding class activities and policies made in 30 selected semester summaries and in 47 student teacher summary books, and responses to a questionnaire answered by 279 students in seven college training centers and by 602 pupils in high schools throughout the state. The conclusions of the teachers and the administrators were based on the reactions of college instructors, the answers made by 28 student teachers, by 62 regular high school teachers, and by 32 administrators to a questionnaire regarding classroom procedure. The conclusions were that college students were capable of, and enjoyed, assisting in and participating in the planning, execution and evaluation of class work, that they

disliked undemocratic procedures, and that they believed in pupil participation in teacher-guided learning situations.

Pearson also pointed out that student growth was made in democratically guided classes. This growth was tested through the personal progress reports, group reports, observation in public school classes, statements of evaluation, and records of teachers and observers for college classes. Growth of high school students was shown in a review of a study made of ninth-grade students and of reports from student teachers. It was concluded that college students grew in responsibility, attitudes, appreciation, ability to solve problems, social sensitivity, and knowledge.

Evidence mentioned in the above study showed that democratic class procedures were carried out in Home Economics Education classes at Oklahoma Agriculture and Mechanical College. Conclusions were that these procedures were probably applicable to all types of classes and of additional organizations and that teachers and students working cooperatively formulated better plans for a classroom procedure which more nearly met the needs of all. More energy, broader knowledge, and experience were required of the teachers. Evaluation instruments were found to be useful as

teaching instruments.



### Chapter III

#### METHODS AND MATERIALS

In this study the experimental method of research was used for determining the value of pupil participation in the construction of evaluation devices as an effective method in teaching clothing selection. In order to have a sample sufficiently large for statistical treatment of the data, four teachers<sup>1/</sup>, in addition to the writer, were selected to cooperate in the study. Each teacher had two first-year homemaking classes of approximately the same number. None of the students had studied clothing selection before this time.

#### Organization of the experiment

The experiment as a whole was planned in a conference with the cooperating teachers. The clothing selection unit<sup>2/</sup> was outlined by the teachers at this time. In this way all of the classes received the same general content, activities, and teaching procedures. The amount of time devoted to the various activities,

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<sup>1/</sup> These teachers were located in Clio, Michigan; Beeville, Texas; Herculaneum, Missouri; and LaPorte, Texas.

<sup>2/</sup> Appendix A

as well as the time for the entire unit, was also determined in the conference. The experimental factor was explained, and the differences in procedure to be used with each group clearly outlined by the writer and discussed with the teachers. The method of procedure was included in an instruction sheet which explained again all details of the experiment and which was to be used by the teacher while teaching the unit. This sheet was given to all of the cooperating teachers. A copy of these instructions is given here:

Instructions to Cooperating Teachers

The purpose of this study is to help determine the value of pupil-participation in the construction of evaluation devices as a method of teaching clothing selections.

Materials include copies of the following: (1) an art-judgment test with the key for scoring, (2) an interest check sheet, (3) an outline of the unit on clothing selection, (4) sample tests, (5) a list of the characteristics of a good test, (6) a form for the description of students, and (7) a form for recording scores.

Directions to teachers for conducting experiment

1. Select one of the first-year home-making classes to be the experimental group and the other to be the control group.
2. Give the art-judgment test<sup>3/</sup> as a pre-test to both groups before beginning the unit on clothing selections. Score according to key.

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<sup>3/</sup> Appendix B

3. Do not give girls correct answers or scores on pre-test at this time.

4. Give the interest check sheet<sup>4/</sup> to both groups before beginning the unit on clothing selection.

5. Describe students on the forms for description of students<sup>5/</sup>. The experimental group will be described on one form and the control group on another.

Terms used on this form are defined here:

Previous scholastic standing will include an average of school grades made the year before. Social and economic status may be termed very high, high, medium, low, or very low. The instructor will determine this through contacts with the girl, her family, other school workers, and the community. A rating scale describing the different terms is given below:

Economic status of family

Very high

Family income above \$5000 yearly.

High

Family income \$3000 to \$5000 yearly.

Medium

Family income \$1000 to \$3000 yearly.

Low

Family income \$750 to \$1000 yearly.

Very low

Family income under \$750 yearly.

Social status of girl

Very high

Girl participates, enjoys, and leads in social activities. Her family provides many social advantages.

High

Girl participates in and enjoys many social activities. Social advantages are provided by her family.

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<sup>4/</sup> Appendix C  
<sup>5/</sup> Appendix D

Medium

Girl participates and enjoys social activities. Family provides some social advantages.

Low

Girl participates in a few social activities. Family does not provide social advantages.

Very low

Girl seldom participates in social activities. Family may retard her social development.

6. Use teaching methods described below for each group in teaching the unit as planned.

Experimental Group

Teach the unit on clothing selection as you ordinarily do except that after each section let students group themselves in fours or fives and make out tests for evaluating their own progress.

The unit will be divided into sections for study and testing as follows:

- A. Color in relation to clothes
- B. Line in relation to clothes

It will be necessary to help girls understand different types of tests that may be used. Show and explain the various types of tests provided as samples.

Control Group

Teach the unit as you ordinarily do, except that after each section of study these girls will take tests made by the other girls but will not make out tests themselves. The instructor may give the section tests that are constructed by herself or those obtained from another source as she prefers. The difference is that this group will not make out tests themselves.

During the time tests are being explained and constructed by the experimental group, the control group will continue work on the same section but will have activities other than making evaluation devices.



Explain the characteristics of a good test<sup>6/</sup>, and show how they may be applied in the samples<sup>7/</sup>.

The unit for this group will be divided into the same sections for study as those planned for the experimental group.

Time allowed for group construction of tests is one hour.

Girls take all tests made on each section. This will be done after the study on color and then again after the study on line.

7. When the unit on clothing selection is completed, give art-judgment test again. Score according to key.

8. Record scores from both the pre-test and post test on the form for recording scores<sup>8/</sup>.

9. When the unit is completed have the girls recheck the interest check sheet.

10. Please return all art-judgment and information tests given before and after unit, all interest check sheets given before and after the unit, forms describing both groups of students, forms of recorded scores, sample tests, and the illustrative material for the art-judgment test.

Selection and use of materials

Sample tests were selected, and a list of characteristics for good tests was compiled. These were to be used in explaining the technique of good

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<sup>6/</sup> Appendix E  
<sup>7/</sup> Appendix F  
<sup>8/</sup> Appendix G



test construction to the experimental group before the pupils were allowed to make their own evaluation devices.

An art-judgment test was selected, and the teachers agreed on its validity for the unit and for the group of students to be taught. The art-judgment test used was that devised by Alice Peyton (9) in 1938 for determining the effectiveness of teaching art principles in a clothing class. Illustrations in the test, in addition to the various posters<sup>9/</sup> designed for use with the test, were made by the writer. The key for scoring was also made by the writer. The interest check sheet, which was to be used for comparing changes in interests of each group after completing the unit, was explained to the teachers and its purpose explained with instructions for its use. These instructions were also listed in the instructions to cooperating teachers given before.

### Procedure

Mimeographed copies of the art-judgment test and the interest check sheet, which were to be given to both groups before and after the unit, were made. Each of these was clearly marked experimental or

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<sup>9/</sup> Appendix H

control. Each of these in turn was also marked before with red pencil, for the test to be given before the unit, or after for the tests to be given after the unit. This precaution was taken so that all tests would be labeled for each group for the pre-test and post-test and thus eliminating a possible source of error.

Before the cooperating teachers began the clothing selection unit, a packet of materials was sent to each teacher including the art-judgment tests with the illustrative material and the key for scoring, the interest check sheets, an outline of the unit on clothing selection, the sample tests, a list of the characteristics of a good test, forms for describing students, and forms for recording scores.

Each teacher selected one first-year home-making class as the experimental group and the other as the control group. Students were then described according to age, sex, year in school, previous scholastic standing, intelligence, art-judgment pre-test score, social and economic status. These descriptions were made on forms provided for the purpose. These forms were used according to the instructions given in the instruction sheet. Social and economic status were not rigidly described because they were opinions of the teacher. In the

equating process, sex, age, intelligence, year in school, and pre-test score were considered to be the most important factors for this study. A detailed description of the technique used for equating the groups will be found in Chapter IV.

Teaching methods

Following the pre-test and the interest sheet, the groups were taught the unit on clothing selection as planned. The experimental group was allowed to construct evaluation devices themselves, working in groups of four or five, after the study on color and again after the study on line. Sample tests and a list of the characteristics of a good test were used in explaining to the pupils in this group the techniques of good test construction. The pupils also took the tests themselves. The control group was taught the unit as planned and took the above tests after the study on color and again after the study on line. The hour and a half used by the experimental group for test construction was used by this group for other activities suggested in the unit or suggested by the teacher. This group constructed no evaluation device. This difference in teaching method is the experimental factor in this study. When the unit was completed, the same art-judgment test and interest check sheet as were used for the pre-tests were given

again to the students in each group. Gains in judgment and changes in interest were studied after completion of the unit on clothing selection.

#### Selection of sample

A total of 152 girls from the five high schools studied the unit on clothing selection. Seventy three of these cases were in the experimental groups and 79 in the control groups. Of the total, only 133 cases were usable including 62 cases in the experimental group and 71 in the control group. This difference was caused from failure on the part of the student to complete some part of the unit, the tests, or the check sheet. Absence from school was the major difficulty in completing the work.

## Chapter IV

### ANALYSIS OF DATA

This investigation was made to test the value of student participation in constructing evaluation devices as a method of teaching clothing selection. Five high school homemaking classes cooperated in the experiment and from the 133 girls tested, 122 cases were selected for this study. This number included 61 cases in the experimental group and 61 cases in the control group. This chapter has been organized under the following headings: definition of statistical terms; validity of the art-judgment test; equation of groups; gains in judgment as measured by the art-judgment test, experimental and control groups; changes in interests as measured by the interest check sheet, experimental and control groups.

#### Definition of statistical terms

The statistical terms used in the analysis of data are as follows:

N is the number in the group under consideration

X is the score or variate of any member of  
either group

E represents the experimental group



C represents the control group

$\bar{X}$  is the mean (average) of a distribution

$\sigma \bar{x}$  or  $SE_x$  is the standard error of a mean score or variate

SD is the standard deviation of a distribution of scores

$\chi^2$ , chi square, is the statistic commonly employed in the study of association

$\sigma SD = SE_{SD}$  is the standard error of a standard deviation

d,  $\bar{X}_E - \bar{X}_C$ , is the difference between mean scores or variates of the experimental and control groups

$\sigma d$  or  $SE_d$  is the standard error of the difference of two comparable statistics

d,  $SD_E - SD_C$ , is the difference between the standard deviations of the experimental and control groups

$\sigma SD_1 - SD_2$  is the standard error of the difference of two standard deviations

r is the coefficient of correlation between two variables

t is the ratio of a statistic to its standard error, sometimes referred to as the "critical ratio"

Throughout the study, the value of t will be interpreted in three classifications:

Values of t equal to or greater than 3 are considered very significantly different from "0".

Values of t equal to or between 2 and 3 are considered significantly different from "0".

Values of t equal to or less than 2 are not considered statistically significant.

Validity of the art-judgment test

The curricular validity of the art-judgment test was estimated by the cooperating teachers who agreed that the test items covered those included in the content of the clothing selection unit. The other methods used in checking the validity are given below.

Reliability.--A test cannot be valid unless it is also reliable. In this study the reliability coefficient of the art-judgment test was estimated by the split-half method. This method was used because the test had no parallel form and because it could not well be repeated. The test was divided into two parts, and the correlation of these half tests was computed. Two sets of scores for each pupil in the entire sample were made by combining alternate items on the test in which the first set of scores represented performance on the odd items and the second set on the even items. The coefficient of correlation for the two comparable

halves, or for a test one half the length of the test used, was found to be .73. The reliability of the whole test as estimated by the Spearman-Brown "prophecy formula" (2:315) was .84. If the art-judgment test could be lengthened so that the number of items were doubled and if the items were comparable to those used in the original test, the reliability coefficient would be expected to be .91.

Item analysis.--If an achievement test is to be valid, it must distinguish between the abilities of the students tested. An item analysis is presented in Table 1, which was made of the 50 items included in the art-judgment test. The pupils were ranked on the basis of scores made on the art-judgment test from the highest to the lowest. The papers of the highest 37 pupils (approximately one third of the entire sample) were placed in one group and those of the lowest 37 pupils in another. The pupils who scored between 31 and 40 were not considered in this analysis. The correct responses of the pupils on each item were tabulated for the "high" group and the "low" group. The numbers of "high" pupils and of "low" pupils correctly answering each item were then obtained.

The analysis included the total number of both "high" and "low" pupils passing each item. The

total number ranged from 24 to 68 with an average of 49.48 and a standard deviation of 12.33. All items answered correctly by the total number of pupils in both the "high" and "low" groups which fell below or above the mean plus or minus twice the standard deviation of the total number answering the item correctly were considered respectively too difficult or too easy for the group.

The difference between the number of "high" pupils and the number of "low" pupils passing each item was also computed. The differences between the number of pupils in the "high" group and that of those in the "low" group who answered the individual items correctly ranged from two to 30 with an average difference of 12.64 and a standard deviation of 7.08. If the obtained difference between the number of correct responses in the two groups for any item falls below the obtained mean of the difference minus two standard deviations of the distribution of differences, that item is considered to be invalid because it fails to discriminate between the abilities of the students. On the other hand, a difference which is more than two standard deviations above the mean indicates that, although there is marked discrimination between the two groups, the item should be further examined because it possibly is not contributing to the evaluation of

individual differences within each group. It probably is too easy for the "high" group and too difficult for the "low" group.

Evaluation of the art-judgment test.--Because this test was used for the purpose of distinguishing between two equated groups the reliability coefficient of .84 is regarded as highly satisfactory according to Garrett (2) who stated the following:

To distinguish reliably between the means of two relatively small groups of narrow range of ability (for example, a group of children in the fifth grade, and a group of children in the sixth grade), a reliability coefficient need be no higher than .50 to .60. If the test is to be used to differentiate among the scores made by individuals in the group, however, its reliability must be .90 or more (2:314-15).

The test could satisfactorily be used to differentiate between individuals if it were doubled in length and the added items were comparable in reliability to the 50 items on the original test because the reliability was estimated to be .91 for the test doubled in length.

In the item analysis a positive difference was shown on every item between the number of "high" pupils answering the item correctly and the number of "low" pupils answering the item correctly, Table 1. Because all of the items included in the test discriminated between the "high" and "low" pupils they were all considered to be of value to the test. The greater the discrimination between the "high" and



Table 1.--ITEM ANALYSIS OF ART-JUDGMENT TEST

ITEM NUMBER	HIGH GROUP		LOW GROUP		TOTAL NUMBER of Students Answering Correctly	DIFFERENCE IN NUMBER of High and Low Group Answering Correctly
	Number of Students Answering Correctly	Number of Students Answering Correctly	Number of Students Answering Correctly	Number of Students Answering Correctly		
I	A.	24	8	32	16	
	B.	28	9	37	19	
	C.	29	26	55	3	
	D.	25	6	31	19	
	E.	31	4	35	27	
II	A.	20	15	35	5	
	B.	27	9	36	18	
	C.	33	21	54	12	
	D.	29	8	37	21	
	E.	24	7	31	17	
III	A.	33	13	46	20	
	B.	27	11	38	16	
	C.	32	10	42	22	
	D.	37	18	55	19	
	E.	31	6	37	25	
IV	A.	37	29	66	8	
	B.	36	32	68	4	
	C.	35	5	40	30	
	D.	35	28	63	7	
	E.	36	6	42	30	
V	A.	36	27	63	9	
	R.	35	26	61	9	
	B.	35	32	67	3	
	R.	30	19	49	11	
	C.	36	22	58	14	
	R.	37	26	63	11	
	D.	28	16	44	12	
	R.	32	13	45	19	
	E.	36	22	58	14	
	R.	21	13	34	8	

Table 1.--ITEM ANALYSIS OF ART-JUDGMENT TEST--Continued

ITEM NUMBER	HIGH GROUP Number of Students Answering Correctly	LOW GROUP Number of Students Answering Correctly	TOTAL NUMBER of Students Answering Correctly	DIFFERENCE IN NUMBER of High and Low Group Answering Correctly
VI				
A.	35	30	65	5
R.	27	16	43	11
B.	36	23	59	13
R.	26	13	39	13
C.	34	25	59	9
R.	37	25	62	12
D.	13	11	24	2
R.	34	12	46	22
E.	29	18	47	11
R.	37	27	64	10
VII				
A.	36	30	66	6
R.	33	31	64	2
B.	31	17	48	14
R.	35	26	61	9
C.	32	27	59	5
R.	35	31	66	4
D.	33	30	63	3
R.	31	22	53	9
E.	37	25	62	12
R.	34	22	56	12
-----				
		$\bar{X}$	49.48	12.64
		SD	12.33	7.08

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"low" pupils within certain limits the more valid is the item; however, the validity of the item naturally decreases as the difficulty of the item increases or decreases markedly.

Items I C, V B, VI D, VII AR, and VII D were the least valid because there was a difference of only two to three correct responses between the "high" and the "low" groups. These items with the exception of VI D were very easy because they discriminated only slightly between the abilities of the "high" and "low" group. These differences were, however, more than two standard deviations below the obtained mean. Item VI D showed little discrimination between groups but was considered difficult for the group because only 24 pupils out of the 74 tested answered the item correctly. Items I E, IV C, and IV E were considered difficult because the differences were too great above 26.80 or two standard deviations above the obtained mean. However, since these items are only slightly higher than the critical value determined and since there are only a few of these items they probably should be retained in any revision of the test. An item answered by 74.14 of the total number of pupils in the "high" and "low" groups was considered too easy and an item answered by less than 24.82 of the number of pupils in both groups was considered too difficult. These

critical values were obtained by adding or subtracting twice the standard deviations of the obtained mean to or from the obtained mean of the correct responses of both groups combined. Because no item was answered correctly by more than 68 pupils, no item was considered too easy. Item VI D was the only one considered possibly too difficult for the group since only 24 of the total number of pupils answered this question correctly. Since this item was also shown above to be low in discrimination, it should probably be excluded in a revision of the test, or at least reworded.

#### Equation of groups.

In the equating process 122 students were selected from the 133 tested in order to have two comparable groups for this study. Those students who were very high or very low in pre-test scores and in intelligence were dropped, leaving 61 students in the experimental group and 61 students in the control group. The raw scores of the experimental group and of the control group are presented in Appendix I. Pupils were then equated according to chronological age, sex, year in school, pre-test score, previous scholastic standing, intelligence, economic status, and social status. For this study chronological age, sex, school year, pre-test score and intelligence were the factors considered most important in the

equating process. Pupils tested were all girls so the factor of sex was constant. Previous scholastic standing, year in school, social status and economic status served as descriptive factors concerning each group.

Comparison of groups within schools.--The two groups were compared within each school on the basis of chronological age, intelligence and pre-test scores. Various statistical measures were used in equating these groups as shown in Table 2. The experimental and control groups were fairly comparable within the schools except perhaps for the difference in mean ages and age range for which there is as much as one year difference in the two groups tested at La Porte. The age range was more variable for the control groups in Beeville and La Porte and for the experimental groups in Clio and Herculanum. The means of the two groups in terms of intelligence were similar except in La Porte where there was a difference of 5.6. Scores on the administration of the art-judgment pre-test showed a difference in average of the groups which ranged from .6 to 3.1 points for the various schools. The difference, however, was not always in favor of the same group.

Comparison of groups on an aggregate basis.--An examination of Table 3 shows no significant difference between the experimental and control groups



Table 2.--VARIOUS STATISTICAL MEASURES USED IN EQUATING EXPERIMENTAL AND CONTROL GROUPS ARRANGED BY SCHOOLS WITH CHRONOLOGICAL AGE, INTELLIGENCE AND PRE-TEST SCORES AS CRITERIA

SCHOOL	EXPERIMENTAL GROUP						CONTROL GROUP					
	C. A.		I. Q.		Pre-test		C. A.		I. Q.		Pre-test	
	X	Range	X	Modified Range	X	Modified Range	X	Range	X	Modified Range	X	Modified Range
Festus	14.6	14-15	96.3	89-104	30.1	24-36	15.2	15-16	96.9	90-108	29.5	26-33
Clio	15.1	14-17			27.6	22-34	14.5	13-15			29.0	19-35
Beeville	14.0	13-15			30.9	25-36	13.9	13-16			30.0	25-35
Hercu- laneum	15.0	14-17	102.3	95-113	25.0	22-28	14.2	14-15	103.5	95-112	26.0	19-31
La Porte	13.7	13-15	102.8	14-111	28.6	23-37	14.7	13-17	97.2	88-107	25.5	19-31

1. I. Q.'s were given for three schools only
2. The modified range was an average of the three highest and the three lowest for each group in each school according to each of the measures.

Table 3.--STATISTICS OF EQUATED GROUPS ON AGGREGATE BASIS WITH CHRONOLOGICAL AGE, SCHOOL YEAR, PRE-TEST SCORES AND INTELLIGENCE AS CRITERIA (61 CASES IN EACH GROUP)

MEASURE	EXPERIMENTAL GROUP		CONTROL GROUP		DIFFERENCE		
	$\bar{X}$	SD	$\bar{X}$	SD	d	SE	t
C. A.	14.607	.945	14.509	.898	.098	.160	.612
School year	9.328	.361	9.443	.184	.115	.405	.283
Pre-test	28.402	4.70	27.944	5.02	.458	.88	.52
I. Q. <sup>1</sup>	99.62	7.58	99.15	7.862	.474	1.954	.242

<sup>1</sup> I. Q.'s were given for three schools only

on an aggregate basis with chronological age, school year, pre-test score, and intelligence as criteria. There was a difference of only one tenth of a year in age with the age range the same, seven tenths of a point difference in intelligence with the modified range close, and five tenths of a point difference in pre-test with the modified range fairly close. Since the differences, all of which are in favor of the experimental group except that of age, are less than one standard error of the difference the groups were considered equated on this basis.

A comparison of the groups with previous scholastic standing as a criterion is presented in Table 4, which shows similarity between groups, except that in the number having a standing of B in which there was a difference of 11.5 per cent in favor of the control group, and that the two pupils having a standing of A were both in the experimental group. An examination of Table 6 reveals that the chi-square value obtained for the groups on this basis was 4.6. This value was under the expected value of 7.815 which shows close association between the experimental and control group in previous scholastic standing.

Social and economic status were criteria used in describing the groups in Table 5. A difference noted was that the few cases which rated high economic

Table 4.--COMPARISON OF EQUATED GROUPS ON AGGREGATE BASIS WITH PREVIOUS SCHOLASTIC STANDING AS CRITERION (61 CASES IN EACH GROUP)

PREVIOUS SCHOLASTIC STANDING <sup>1</sup>	EXPERIMENTAL GROUP		CONTROL GROUP	
	Number	Per cent	Number	Per cent
A	1	1.6	0	0
A-	1	1.6	0	0
B <sup>1</sup>	3	4.9	3	4.9
B	12	19.7	19	31.2
B-	2	3.3	4	6.5
C <sup>1</sup>	6	9.8	5	8.2
C	30	49.2	26	42.6
C-	2	3.3	0	0
D	4	6.5	4	6.5

<sup>1</sup> Grade averages of E, S, and M given for one school were considered as A, B, and C for this study.

status were in the experimental group, while the control group had five more cases or 8.2 per cent in the medium economic status. The number rated in high social status was in favor of the experimental group, but this group also had more cases rated in the low social status. The control group then was composed of more pupils rated as medium in social and economic status while the experimental group was composed of pupils who

Table 5.--COMPARISON OF EQUATED GROUPS ON AGGREGATE BASIS WITH ECONOMIC AND SOCIAL STATUS AS CRITERIA (61 CASES IN EACH GROUP)

STATUS	EXPERIMENTAL GROUP						CONTROL GROUP					
	LOW		MEDIUM		HIGH		LOW		MEDIUM		HIGH	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Economic	13	21.31	42	68.85	6	9.83	14	22.95	47	77.04	0	0
Social	15	24.55	37	60.65	9	14.75	10	16.39	47	77.04	4	6.55



were more variable in this respect. The relationship between the two groups is shown in Table 6. The chi-square value shows no significant difference between the two in social status, and, although the chi-square value for the economic status of the groups was higher than the above, this value obtained was only slightly significant.

Summary of the equating process.--In

comparing the groups within the schools on the basis of chronological age, intelligence, and pre-test scores it was found that they were approximately equal except for a small difference in age in favor of the control group in two schools and a difference of five in intelligence between the two groups in one school.

An analysis of the statistics of the two equated groups on an aggregate basis with chronological age, school year, pre-test score and intelligence as criteria showed no significant difference between the groups. A description of the groups according to previous scholastic standing showed little difference except in the case of those students having a standing of B where the number was in favor of the control group. The chi-square value, however, was not significant. A comparison of the groups according to economic and social status showed that the groups were approximately equal except that high economic status

Table 6.--CHI-SQUARE VALUES FOR EXPERIMENTAL AND CONTROL GROUPS ON AGGREGATE BASIS WITH ECONOMIC STATUS, SOCIAL STATUS, AND PREVIOUS SCHOLASTIC STANDING AS CRITERIA

CRITERIA USED	DEGREES OF FREEDOM	X <sup>2</sup> VALUE	VALUE NECESSARY FOR SIGNIFICANCE		INTERPRETATION
			.05	.01	
Economic Status	2	6.32	5.991	9.210	Slightly significant
Social Status	2	4.11	5.991	9.210	Not significant
Previous Scholastic Standing	3	4.60	7.815	11.341	Not significant

was a rating in favor of the experimental group and medium economic status was a rating in favor of the control group. More pupils were found in both high and low social status in the experimental group than in the control group. In the control group more pupils were found in medium social status. The chi-square value was not significant for social status and only slightly significant for economic status.

Gains in judgment as measured by the art-judgment test

The art-judgment test which was given as a pre-test was also given after the unit as a post-test. The difference between the scores of these tests was the basis for comparison of the experimental and the control group as shown in Table 7. The total gains of the control group were higher than the total gains of the experimental group. The mean gain of the control group was 7.385 which showed a difference of .720 as compared with the mean gain of the experimental group which was 6.665. The critical ratio of the difference between the two means was .69 which is not considered statistically significant.

Although the mean gain of the control group was higher than that of the experimental group, the gains of the experimental group showed a greater

variability, the standard deviation of the mean gains of the experimental group being 6.08 compared with 5.60 of the control group. The standard error of the difference of the two standard deviations of the mean gains was computed to be 1.06 which shows variability but is not considered significant.

Table 7.--STATISTICS OF EQUATED GROUPS IN TERMS OF GAINS ON ART-JUDGMENT TEST (61 CASES IN EACH GROUP)

	GAINS		DIFFERENCE			Interpretation
	M or $\bar{X}$	SD	$M_E - M_C$	SE	t	
Experimental group	6.573	6.08	7.38	1.06	.69	Not significant
Control group	7.311	5.60				

Changes in interests as measured by interest check sheet

An examination of Table 8 shows that the responses of the control group to the interest check sheet before the unit were most favorable toward those items which were concerned with interests in selecting their own clothing and with color in planning clothing, which were checked yes by 95.1 per cent and 86.9 per cent of the group respectively. Interests in planning their own clothes, line in clothes, and a preference

Table 8.--ITEM ANALYSIS OF RESPONSES OF CONTROL GROUP TO INTEREST CHECK SHEET BEFORE AND AFTER UNIT

ITEMS	BEFORE UNIT						AFTER UNIT					
	YES		NO		SOMEWHAT		YES		NO		SOMEWHAT	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
A. Interests in clothing selection												
Are you interested in color when planning clothes?	58	95.1	0	0	3	4.9	58	95.1	0	0	3	4.9
Do you like to select your own clothes?	53	86.9	1	1.6	7	11.5	49	80.4	4	6.5	8	13.1
Do you like to plan your own clothes?	47	77.0	3	4.9	11	18.0	45	73.7	4	6.5	12	19.7
Are you interested in line when planning clothes?	43	70.5	8	13.1	10	16.4	53	86.9	4	6.5	4	6.5
Is the planning of clothes a <u>special</u> hobby or interest of yours?	23	37.7	22	36.1	16	26.3	25	41.0	19	31.3	17	28.0
Do you like to plan clothes for other people?	21	34.4	24	39.3	16	26.3	23	37.7	20	32.8	18	29.6



Table 8.--ITEM ANALYSIS OF RESPONSES OF CONTROL GROUP TO INTEREST CHECK SHEET BEFORE AND AFTER UNIT---Continued

ITEMS	BEFORE UNIT						AFTER UNIT					
	YES		NO		SOMEWHAT		YES		NO		SOMEWHAT	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Do you prefer to rely on your own judgment rather than some one else's judgment in the selection of your clothes?	20	32.8	21	34.4	20	32.8	19	31.3	14	23.1	28	45.9
B. Interests in testing												
Do you prefer to take tests made by the teacher rather than those made by students?	39	63.9	14	23.1	8	13.1	45	73.8	13	21.3	3	4.9
Do you like to help construct tests during a unit of work?	23	37.7	24	39.3	14	23.1	29	47.5	21	34.4	11	18.0
Do you like to take tests?	7	11.5	29	47.5	25	41.0	5	8.2	21	34.4	35	57.4

for tests made by the teacher rather than those made by the students were also definitely favored by 60 per cent or more of the group. A liking for taking tests was least interesting to this group. After the unit was taught the interest in color in planning clothes remained most in favor of the group while the interest in selecting clothes decreased slightly. The greatest increase in interest was shown in the application of line in planning clothes. There was an increase of 10 per cent interested in tests made by the teacher rather than by students. There was still very little interest in liking to take tests.

Table 9 shows the chi-square values for the responses of the control group to the interest check sheet before and after the unit. The interest in line when planning clothes was the only item which approached significance, its chi-square value being 4.94.

An item analysis of the responses of the experimental group to the interest check sheet before and after the unit is presented in Table 10. Before the unit was taught more than 90 per cent expressed interest in selecting their own clothes and in the use of color in planning clothes. Definite interest was shown in planning clothes and line in clothes by more than 65 per cent of the group. Over 50 per cent of

Table 9.--RELATION OF RESPONSES OF CONTROL GROUP TO INTEREST CHECK SHEET BEFORE AND AFTER UNIT

ITEMS	DEGREES OF FREEDOM	X <sup>2</sup> VALUE	VALUE NECESSARY FOR SIGNIFICANCE	INTERPRETATION
A. Interests in clothing selection				
Are you interested in color when planning clothes?	2	0.000	5.991	Not significant
Do you like to select your own clothes?	2	2.02	5.991	Not significant
Do you like to plan your own clothes?	2	.22	5.991	Not significant
Are you interested in line when planning clothes?	2	4.94	5.991	Not significant
Is the planning of clothes a <u>special</u> hobby or interest of yours?	2	.33	5.991	Not significant
Do you like to plan clothes for other people?	2	.57	5.991	Not significant

Table 9.--RELATION OF RESPONSES OF CONTROL GROUP TO INTEREST CHECK SHEET BEFORE AND AFTER UNIT--Continued

ITEMS	DEGREES OF FREEDOM	$\chi^2$ VALUE	VALUE NECESSARY FOR SIGNIFICANCE	INTERPRETATION
Do you prefer to rely on your own judgment rather than some one else's judgment in the selection of your clothes?	2	2.76	5.991	Not significant
B. Interests in testing				
Do you prefer to take tests made by the teacher rather than those made by students?	2	2.74	5.991	Not significant
Do you like to help construct tests?	2	1.25	5.991	Not significant
Do you like to take tests?	2	3.28	5.991	Not significant

Table 10.--ITEM ANALYSIS OF RESPONSES OF EXPERIMENTAL GROUP TO INTEREST CHECK SHEET BEFORE AND AFTER UNIT

ITEMS	BEFORE UNIT						AFTER UNIT					
	YES		NO		SOMEWHAT		YES		NO		SOMEWHAT	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
A. Interests in clothing selection												
Do you like to select your own clothes?	56	91.8	0	0	5	8.2	56	91.8	3	4.9	2	3.3
Are you interested in color when planning clothes?	56	91.8	0	0	5	8.2	54	88.5	2	3.3	5	8.2
Do you like to plan your own clothes?	44	72.1	4	6.5	13	21.3	45	73.8	6	9.8	10	16.4
Are you interested in line when planning clothes?	40	65.6	14	23.1	7	11.5	47	77.0	6	9.8	8	13.1
Do you prefer to rely on your own judgment rather than some one else's judgment in the selection of your clothes?	19	31.2	16	26.3	26	42.6	18	29.6	22	36.0	21	34.4
Is the planning of clothes a <u>special</u> hobby or interest of yours?	15	24.7	29	47.5	17	27.8	15	24.7	24	39.3	22	36.1



Table 10.--ITEM ANALYSIS OF RESPONSES OF EXPERIMENTAL GROUP TO INTEREST CHECK SHEET  
BEFORE AND AFTER UNIT--Continued

ITEMS	BEFORE UNIT						AFTER UNIT					
	YES		NO		SOMEWHAT		YES		NO		SOMEWHAT	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Do you like to plan clothes for other people?	8	13.1	41	67.2	12	19.7	14	23.1	31	50.8	16	26.3
B. Interests in testing												
Do you prefer to take tests made by the teacher rather than those made by students?	34	55.7	16	26.3	11	18.0	21	34.4	29	47.5	11	18.0
Do you like to help con- struct tests during a unit of work?	31	50.8	22	36.1	8	13.1	35	57.4	20	32.8	6	8.8
Do you like to take tests?	8	13.1	31	50.8	22	36.1	13	21.3	32	52.4	16	26.3

the group expressed a preference for taking tests made by the teacher rather than by the students and a liking for helping construct tests. No desire for planning clothes for other people was expressed by 67.2 per cent of the group. Almost 50 per cent expressed no interest in planning clothes as a special hobby.

After the unit was taught the interest in selecting their clothes remained almost the same. While the interest in color in planning clothes decreased slightly, there was an increase of 11.4 per cent in the number who checked yes to an interest in line in planning clothes. There was an increase of 10 per cent interest in planning clothes for other people. No interest in teacher-made tests in preference to those made by students was expressed by 47.5 per cent of the group as compared with only 26.3 per cent who expressed no interest before the unit. This difference of 21.2 per cent was the greatest change in interest shown.

An examination of Table 11 shows the chi-square value of the interest of the experimental group in preferring to take tests made by the teacher rather than by the students to be 6.83 which is considered statistically significant. The difference was shown in the number changing responses from yes

Table 11.--RELATION OF RESPONSES OF EXPERIMENTAL GROUP TO INTEREST CHECK SHEET BEFORE AND AFTER UNIT

ITEMS	DEGREES OF FREEDOM	X <sup>2</sup> VALUE	VALUE NECESSARY FOR SIGNIFICANCE	INTERPRETATION
A. Interests in clothing selection				
Do you like to select your own clothes?	2	4.29	5.991	Not significant
Are you interested in color when planning clothes?	2	2.04	5.991	Not significant
Do you like to plan your own clothes?	2	.80	5.991	Not significant
Are you interested in line when planning clothes?	2	3.83	5.991	Not significant
Do you prefer to rely on your own judgment rather than some one else's judgment in the selection of your clothes?	2	1.51	5.991	Not significant
Is the planning of clothes a <u>special</u> hobby or interest of yours?	2	1.11	5.991	Not significant

Table 11.--RELATION OF RESPONSES OF EXPERIMENTAL GROUP TO INTEREST CHECK SHEET BEFORE AND AFTER UNIT--Continued

ITEMS	DEGREES OF FREEDOM	X <sup>2</sup> VALUE	VALUE NECESSARY FOR SIGNIFICANCE	INTERPRETATION
Do you like to plan clothes for other people?	2	3.12	5.991	Not significant
B. Interests in testing				
Do you prefer to take tests made by the teacher rather than those made by students?	2	6.83	5.991	Significant
Do you like to help construct tests during a unit of work?	2	.63	5.991	Not significant
Do you like to take tests?	2	2.16	5.991	Not significant

to no after the unit indicating a preference for those made by students. A chi-square value of 4.29 for the interest in selecting their clothes approached significance. The interest in line in planning clothes also approached significance with a chi-square value of 3.83.

Table 12 shows an item analysis of the changes in the responses of the experimental and control groups to the interest check sheet after the unit. More interest was gained by the experimental group than by the control group in planning clothes for other people. Slightly more interest was gained by the control group than the experimental group in planning clothes according to line although both groups became more interested in this item. Students in the control group gained an interest in teacher-made tests while those in the experimental group made a definite change by gaining an interest in those made by the students. It is interesting to note that there was only slight change in either group in the interest of planning one's own clothes, in preferring to rely on one's own judgment in selecting clothes, in color in planning clothes and in liking to help construct tests during a unit of work. More in the experimental group liked to take tests than did those in the control group.



Table 12.--ITEM ANALYSIS OF CHANGES IN RESPONSES OF EXPERIMENTAL AND CONTROL GROUPS  
AFTER UNIT

ITEMS	EXPERIMENTAL GROUP						CONTROL GROUP					
	YES		NO		SOMEWHAT		YES		NO		SOMEWHAT	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
A. Interests in clothing selection												
Do you like to select your own clothes?	0	0	3	4.9	-3	-4.9	-4	-6.5	3	4.9	1	1.6
Do you like to plan your own clothes?	1	-1.6	2	3.3	-3	-4.9	-2	-3.3	1	1.6	1	1.6
Do you prefer to rely on your own judgment rather than some one else's judgment in the selection of your clothes?	-1	1.6	6	9.7	-5	-8.2	-1	-1.6	-7	11.3	8	13.3
Is the planning of clothes a <u>special</u> interest or hobby of yours?	0	0	-5	-8.2	5	8.2	2	3.3	3	4.9	1	1.6
Do you like to plan clothes for other people?	6	10.0	-10	-6.4	4	6.6	2	3.3	-4	-6.5	2	3.3

Table 12.--ITEM ANALYSIS OF CHANGES IN RESPONSES OF EXPERIMENTAL AND CONTROL GROUPS  
AFTER UNIT--Continued

ITEMS	EXPERIMENTAL GROUP						CONTROL GROUP					
	YES		NO		SOMEWHAT		YES		NO		SOMEWHAT	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Are you interested in color when planning clothes?	-2	-3.3	2	3.3	0	0	0	0	0	0	0	0
Are you interested in line when planning clothes?	7	11.4	-8	-13.3	1	1.6	10	16.4	-4	6.5	-6	9.7
B. Interests in testing												
Do you like to take tests?	5	8.2	1	1.6	-6	9.8	-2	-3.3	-8	13.3	10	16.4
Do you prefer to take tests made by the teacher rather than those made by students?	-7	-21.3	13	21.3	0	0	6	9.7	-1	-1.6	-5	-8.2
Do you like to help con- struct tests during a unit of work?	4	6.6	-2	-3.3	-2	-3.3	6	9.7	-3	-4.9	-3	-4.9

Summary of responses of the experimental and control group to the interest check sheet.---According to the responses on the interest check sheet it was found that an interest was stimulated in both groups during the unit on the subject of line in planning clothes. Students retained the interest in selecting one's own clothes and color in planning clothes after the unit that they indicated before the unit. The experimental group gained more of an interest in taking tests and a much greater interest in taking those made by students than did the control group. Both groups gained an interest in planning clothes for other people, with the gain in favor of the experimental group.

Chapter V  
DISCUSSION

In order to determine the value of pupil participation in the construction of evaluation devices as a method of teaching clothing selection, experimental and control groups were equated and then compared on the basis of gains in judgment and changes in interests acquired during a unit in clothing selection in which the content, activities and methods used with both groups were similar except that the experimental group participated in the construction of evaluation devices as a classroom activity and the control group did not. Other factors considered in the equating process were sex, age, intelligence, socio-economic status, previous scholastic average, the teacher, and the school environment. Results of this study with implications, limitations and suggestions for further study will be discussed in this chapter.

Gains in judgment

Many evidences of pupil growth resulting from the use of democratic classroom procedures were shown in similar studies discussed in Chapter II. Pearson (8) concluded that there was growth in responsibility,

attitudes, appreciation, abilities to solve problems, social sensitivity, and broader knowledge when college students worked in a democratic classroom situation. Watson (12) reported student growth in interest, quality and number of experiences, group consciousness, and development in social graces, by a group where there was cooperative thinking and action. Hatcher (4) found the achievement of students in an experimental group, who worked with the teacher in planning and working out of classroom activities, to be significantly higher than that of students in a control group, who were wholly directed by the teacher. A sense of responsibility, a more critical attitude, an ability to cooperate, and an ability to plan more effectively were reported by Trent (11) as developments during a study of a student-planned program. McAlister (6) reported more freedom, responsibility, enjoyment, and an independence in solving problems by a group directed through pupil-teacher planning.

These studies would seem to indicate that student growth might be expected through the use of the democratic technique tested in the present problem. However, this study does not indicate that gains in judgment result from the use of pupil participation in the construction of evaluation devices. In fact, the total gains made were in favor of the control group.



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The difference in mean gain of the two groups, however, was not found to be statistically significant as shown by the obtained critical ratio of .69. In other words, in 76 chances out of 100, the gains made by the control group would exceed those made by the experimental group if the study were repeated.

The control group was found to be less variable in mean gains than the experimental as shown through a comparison of the standard deviation of the differences between the standard deviations of the two groups. This value of 1.06, however, is not statistically different from zero. The experimental group, then, was more heterogeneous at the end of the unit than was the control group. Therefore, it may be that certain members of this group were stimulated by the experimental factor while other members would have gained more if the experimental factor had not been included in the teaching methods.

#### Changes in interests

Comparisons were made of the changes in interests before and after the unit for each group. The only significant change was made by the experimental group in that more of them were interested after the unit in taking tests made by students rather than those made by the teacher. However, there were almost as many who still preferred teacher-constructed

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tests as those who preferred pupil-constructed tests. Since this group was allowed to participate in the construction of evaluation devices this change implies that some enjoyed or liked this activity. Whether or not this enjoyment of a classroom activity is sufficiently important to warrant its acceptance as a teaching device is a matter of opinion. Other changes in interest were noted although they were not considered significant. There was an increased interest in the study of line in planning clothes by both groups during the unit. Content rather than method may have accounted for this. The subject of line was probably not so well known to the group at the beginning of the unit as was color which was interesting to the groups from the first. The experimental group became somewhat more interested in planning clothes for others during the unit than did the control group which may or may not have been a result of the experimental procedure. There was slight change in favor of the experimental group in that they were more interested in helping construct tests during a unit of work. This may have been brought about through the experimental factor.

#### Limitations

Although each teacher taught both the experimental and control group in the school, neverthe-

less, there were five teachers involved in teaching the unit. The teachers cooperated in planning the unit in order that all groups might be taught alike as much as possible; however, it is not inconceivable that one teacher could have been better than another in the use of the experimental technique in this study or in the use of democratic procedures in general. Perhaps if the teachers had had more knowledge of and practice in the use of the experimental factor the results might have been otherwise. Girls in this age range are in general expected to be interested in clothing selection and may have already formulated definite ideas, attitudes, and interests on the subject before beginning the unit, and, since the unit was only three weeks in length, some of the real outcomes may not have been measured at this time. Perhaps a unit in nutrition, care and repair of clothing, or home nursing might have presented more of a challenge to the pupils, because of the possibility of more new information and skills that might be obtained in these units.

In this study the experimental factor was used as a classroom activity only twice. Pupils made evaluation devices working in groups of three or four after the section on color and again after the section on line. If this technique could have been used more times during the unit, or during several

units, the results might have been otherwise. The fact that the experimental factor has failed to justify its use for the particular unit used in this study does not mean that it is of no value.

The art-judgment test and the interest check sheet were the only measuring devices used in this study. The interest check sheet was only a measure of change in interest during the unit, and, although the art-judgment test proved to be reliable for the items included in the content of the clothing selection unit, it tested only gains in judgment. Certain personal qualities such as originality, independence, self-direction, group consciousness, an ability to organize, and an ability to cooperate may have been developed in the pupils, but could not be adequately measured by the devices used.

Suggestions for further study

From the above discussion, it is evident that there is a need for further study on the subject of pupil participation in the construction of evaluation devices as a method of teaching. Some of these suggested studies are:

1. What gains might be made by the use of pupil participation in the construction of evaluation devices in a unit other than clothing selection or in a sequence of units requiring a

longer period and probably resulting in greater changes in judgment and interest?

2. What would be the results of a follow-up study made after the unit on clothing construction which would show the effects of the clothing selection unit on judgment during the clothing construction unit?

3. What effect would other art training in the school have upon judgment in clothing selection?



## Chapter VI

### SUMMARY

Cooperative evaluation is one of many different procedures proposed by educators as a democratic classroom activity. A technique of cooperative evaluation that has received little attention in an experimental way is the participation of pupils in the construction of evaluation devices. In this investigation an attempt has been made to determine its value as a teaching device in clothing selection.

#### Methods and materials

The experimental method of research was used in this study. The 61 cases in the experimental group and the 61 cases in the control group were selected from the sample tested which included all the girls enrolled in homemaking in the five cooperating high schools. In the equating process, comparisons were made on the basis of following factors: chronological age, year in school, sex, pre-test scores, previous scholastic standing, intelligence, economic status, and social status. Gains in judgment were measured by an art-judgment test and changes in interests were measured by an interest check sheet. Each of these

devices were administered to the pupils in both the experimental and control groups before and after the unit on clothing selection.

Analysis and interpretation of data

An analysis of the art-judgment test proved that it was satisfactory for the survey purposes of this study. The reliability coefficient was estimated by the split-half method to be .84 which is regarded as highly satisfactory for distinguishing reliably between the two groups tested. An item analysis of the art-judgment test showed discrimination between high and low groups on every item.

In the equating process only one significant difference was found between the experimental and the control groups, that being in the economic status which was high for the experimental group. However, the two groups were considered approximately equal for this study.

A comparison of mean gains made by the two groups on the art-judgment test showed no significant difference between the two groups. However, total gains were slightly in favor of the control group. This finding indicates that, as far as gains in judgment are concerned, pupil participation in constructing evaluation devices is of no value as a

teaching method in clothing selection.

An examination of changes in interest revealed that only one significant change was made by the experimental group in that a large percentage was more interested in tests constructed by students rather than by the teacher after the unit was completed. Since this group had participated in the construction of evaluation devices as a classroom activity this evidence seems to indicate that more of the group did become more interested in tests made by students as a result of the experimental factor.

Other advantages may have been obtained as a result of the experimental factor, but a measurement of these values was not possible with the devices used in this investigation. Further study might possibly reveal advantages in the use of this technique as a method of teaching.

In answering the questions raised in the problem, it has been shown that:

1. No gains in judgment were produced through pupil participation in constructing evaluation devices in clothing selection.

2. A change in the interest in tests made by students rather than those made by the teacher was made through pupil participation in constructing evaluation devices in clothing selection.

A P P E N D I X

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Appendix A.--OUTLINE OF UNIT TAUGHT IN  
CLOTHING SELECTION

Appendix A.--OUTLINE OF UNIT TAUGHT IN CLOTHING SELECTION

Time Spent -- 3 weeks

Desired Outcomes to be Developed:

1. The girl applies art principles of color and design in the planning and selection of clothing and clothing accessories.
2. The girl understands and appreciates the relationship of personality, occasion, fashion, and age as it influences her choice of suitable clothing.
3. The girl analyzes different individuals and is able to plan and select suitable clothing for those types.

CONTENT	SUGGESTED EXPERIENCES - ACTIVITIES	TIME
	Give art-judgment and information pre-test. Give interest check sheet.	1 day
A. Selection of clothes in relation to personality.	A.	1 day
1. Types of personality.	1. Analyze pictures of movie stars then different girls according to personality types.	
a. Dramatic, sophisticated	2. As far as possible analyze girls in class according to type.	
b. Sweet and demure		
c. Motherly	3. Discuss selection of color, line, materials, designs, and accessories in relation to each type. (Pictures showing styles of dress, fabrics, accessories may be used during this discussion.)	
d. Vivacious		
Other descriptive words may be used for classifying into different groups.		

Appendix A.--OUTLINE OF UNIT TAUGHT IN CLOTHING SELECTION--Continued

CONTENT	SUGGESTED EXPERIENCES - ACTIVITIES	TIME
2. Suitable colors, lines, fabrics, designs, and accessories suitable for each type.	4. List reasons why two girls cannot wear the same style of clothing successfully.	
-----		
B. Selection of clothes suited to occasion.	B.	1 day
1. Types of clothing needed according to various activities.	1. Discuss activities where different type clothing may be needed.	
a. Appropriateness b. Usefulness c. Durability	2. Discuss relative value of various outfits according to amount and kind of wear, such as sport clothes and formal wear.	
2. Suitable styles, colors, materials and accessories for various occasions and purposes.	3. Select from pictures of dress styles, fabrics, and accessories and show suitable combinations for the occasion needed.	
	4. Discuss usefulness and durability of styles, fabrics, and accessories in determining value for a particular wardrobe.	
-----		
C. Selection of clothes suited to age.	C.	1 day
1. Various age groups	1. Discuss styles, materials, colors, and accessories suitable for each group according to age.	
a. 1 - 6 b. 6 - 12	2. Let girls select complete outfits from illustrative materials for different ages.	

Appendix A.--OUTLINE OF UNIT TAUGHT IN CLOTHING SELECTION--Continued

CONTENT	SUGGESTED EXPERIENCES - ACTIVITIES	TIME
<ul style="list-style-type: none"> <li>c. 12 - 18</li> <li>d. 18 - 25</li> <li>e. 25 - 40</li> <li>f. 40 - 55</li> <li>g. 55 -</li> </ul>	<ul style="list-style-type: none"> <li>3. Compare garments of one type (formals or sport) for each group.</li> <li>4. Girls may give examples of appropriate dress according to age.</li> </ul>	
<p>2. Suitable styles, colors, materials, and accessories for the different age groups.</p>		
<p>-----</p> <p>D. Color in relation to selection of clothing.</p>		
<ul style="list-style-type: none"> <li>1. Characteristics of color.</li> <li>2. Personal coloring                             <ul style="list-style-type: none"> <li>a. Warm</li> <li>b. Cool</li> <li>c. Intermediate</li> </ul> </li> <li>3. Suitable colors for each type:                             <ul style="list-style-type: none"> <li>a. How to enhance personal coloring.</li> <li>b. How to subdue personal coloring.</li> <li>c. How certain colors may be worn in combination with others.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>D. 1. Analyze complexion, hair, and eyes and group according to different types.</li> <li>2. Show different type by selecting examples from girls in class. Let girls group themselves according to these types.</li> <li>3. Let students try on squares of colored fabrics of different hues, values, and intensities in front of mirrors. Decide on becoming colors for each group. Explain difference in each group.</li> <li>4. Show effects produced by using colors next to the complexion.</li> </ul>	<p>5 days</p>

Appendix A.--OUTLINE OF UNIT TAUGHT IN CLOTHING SELECTION--Continued

CONTENT	SUGGESTED EXPERIENCES - ACTIVITIES	TIME
4. Attractive combinations according to:	5. Show how personal coloring may be accented or subdued by proper use of color.	
a. Hue (1) Monochromatic (2) Analogous (3) Complementary (4) Triad	6. Demonstrate the effect of warm and cool colors, bright and dull, and light and dark colors on the wearer.	
b. Value (1) Light and dark	7. Make attractive combinations of colors using the colored materials.	
c. Intensity (1) Bright and dull	8. Show how area can be made interesting by use of proper proportion of hues, values, and intensities.	
d. Area or proportion according to hue, value, and intensity.	9. Show effect of texture on color.	
5. Effect of texture on color.	10. Summarize principles for use of color in dress.	
6. Effect of color on wearer's size, complexion, etc.	11. Review suitability of color to personality, occasion, and age and relate to suitability according to personal coloring, and size of the individual as well.	
7. Suitable colors according to:	12. (Experimental group will be shown samples of tests and taught how to make good ones. Girls will be divided into groups and make out tests on color and clothing selection.)	
a. Personality b. Occasion c. Age		



Appendix A.--OUTLINE OF UNIT TAUGHT IN CLOTHING SELECTION--Continued

CONTENT	SUGGESTED EXPERIENCES - ACTIVITIES	TIME
	(Control group will take tests only -- they do not make out any. Activities may be carried out further. With this group during the time the other group is making out tests and having tests explained to them, expand further.)	
-----		
E. Line in relation to selection of clothing.	E.	5 days
1. Types of line	1. Show different lines and relate to figures.	
a. Horizontal, transitional, diagonal, and curved	2. Demonstrate by using illustrations of dresses showing effects of different lines on like figures.	
2. Analysis of individuals according to line.	3. Analyze girls in class according to size and type.	
3. Effect of different lines on apparent size of wearer.	4. Select dress styles from fashion magazines suitable to different types.	
4. Use of lines in emphasizing good points and helping correct bad ones.	5. List details in dress such as pleats, pockets, etc., and discuss how each may affect size of the wearer.	
5. Details in dress analyzed according to line.		

Appendix A.--OUTLINE OF UNIT TAUGHT IN CLOTHING SELECTION--Continued

CONTENT	SUGGESTED EXPERIENCES - ACTIVITIES	TIME
<p>6. Selection of becoming clothing details according to size and shape of wearer.</p> <p>a. Necklines and collars  b. Position of and kind of belt  c. Division of garment  d. Position of and kind of trimmings  e. Details in design of material  f. Sleeve  g. Basic lines of dress  h. Accessories</p>	<p>6. Show how good points may be emphasized in figures and poor ones corrected. Illustrations of different styles may be used. Drawings may be made on blackboard. Cut-outs may be made by girls.</p> <p>a. Girls may try on different collars and necklines in front of mirror. Those made of material or of paper may be used.</p> <p>b. Girls may draw onto a plain dress suitable belts, design in material, necklines, sleeves, and other trimmings and accessories in showing how good points may be accented and poor ones corrected.</p>	
<p>7. Use of art principles in lines of a dress.</p> <p>a. Structural and decorative design  b. Proportion, balance, rhythm, emphasis, and harmony</p>	<p>7. Select from fashion magazines those dresses showing examples of good use of the different art principles.</p>	
<p>8. Relation of line to fashion.</p>	<p>8. An analysis of present fashion in relation to line may be made. This may lead to an analysis of fashion of other times.</p>	
<p>9. Relation of line in clothing selection to the personality, occasion, and age of the wearer.</p>	<p>9. Review again personality, age and occasion and show how each may be reflected in line. (Let experimental group make tests on line in dress. Control group will continue with other activities.)</p>	

Appendix A.--OUTLINE OF UNIT TAUGHT IN CLOTHING SELECTION--Continued

CONTENT	SUGGESTED EXPERIENCES - ACTIVITIES	TIME
	Give art-judgment and information pre-test again to both groups. Give interest check sheet again to both groups.	1 day

Time allowed -- 3 weeks

When students have one hour period only assignments of some activities including reading will need to be made for outside of class. It will not be necessary to assign so much when students have two forty-five minute periods in class. All groups will try to include same amount of material as class work. Time for making out tests will be one hour for all experimental group, and one-half hour will be allowed for explaining tests to the experimental group. One hour will be allowed for taking the art-judgment and information test and checking the interest sheet before the unit and one hour will be allowed for the same purpose after the unit.

Appendix A.--OUTLINE OF UNIT TAUGHT IN CLOTHING  
SELECTION--Continued

References

Different schools will use references in their particular libraries. Suggested ones are:

1. Baxter, Mrs. Laura, and Latzke, Alpha, Modern Clothing, J. B. Lippincott, 1938.
2. Donovan, Dulcie G., The Mode in Dress and Home, Allyn and Bacon, 1935.
3. Goldstein, Harriet and Vetta, Art in Everyday Life, Macmillan, 1940 (rev.).
4. Harris, Florence L., and Houston, H. H., The Home Economics Omnibus, Little, Brown, 1935.
5. Jensen, M. B., Jensen, M. R., and Ziller, M. L., Fundamentals of Home Economics, Macmillan, 1935.
6. Matthews, Mary Lockwood, Clothing, Selection and Care, Little Brown, 1936.
7. Rathbone, L., and Tarpley, E., Fabrics and Dress, Houghton Mifflin, 1937.
8. Russell, Mable, and Gwynne, E. P., Art Training Through Home Problems, Manual Arts Press, 1933.
9. Ryan, Mildred Graves, Your Clothing and Personality, D. Appleton-Century, 1937.
10. Todd, Elizabeth, Clothes for Girls, Little, Brown, 1933.
11. Trilling, Mabel B., and Williams, Florence, Art in Home and Clothing, J. B. Lippincott, 1934.
12. Trilling, Mabel B., Williams, F., and Reeves, G. G., A Girl's Problems in Home Economics, J. B. Lippincott, 1934.
13. Van Duzer, Adelaide L., and Others, Everyday Living for Girls, J. B. Lippincott, 1936.

Appendix A.--OUTLINE OF UNIT TAUGHT IN CLOTHING  
SELECTION--Continued

Illustrative materials

Illustrative materials will include:

Samples of colored materials and different types  
of materials.

Fashion magazines.

Colored construction paper.

Large illustrations of dress styles.

Accessories for clothing.

Necklines and collars made from materials or paper.

Illustrations of different shaped faces and  
figures.



Appendix B.--COPY OF THE ART-JUDGMENT TEST

## Art-Judgment Test

## TEST 1

## Judgment Test on Color for Personality

Directions: From the samples of colored material on chart for Test 1, choose the fabric group suitable in color for a dress for each of the types of girls described below, giving special emphasis to colors suitable for the personality. Place the number corresponding to your choice opposite the girl's name under column marked Number of Fabric Group.

Girls for whom color is to be chosen	No. of Fabric Group
A. Mary: <u>Dramatic type</u> , tall and slender.	(A) _____
B. Ruth: Small and <u>vivacious</u> .	(B) _____
C. Jean: <u>Quiet and shy</u> .	(C) _____
D. Martha: <u>Athletic</u> .	(D) _____
E. Anne: <u>Leader, dominant type</u> .	(E) _____

(Pictures representing each type of girl are given on chart for Test 1. Each color group given should be used only once.)

## TEST 2

## Judgment Test on Choice of Color for Girl's Personal Coloring

Directions: From samples of colored material on charts, choose the color of fabric which is best suited to each girl's personal coloring. Place the number corresponding to your choice of color opposite each girl's name in the blank provided. Do not let the colors in the picture influence your choice. Use each color only once.

	No. of Fabric
A. Betty: Red orange hair, fair and creamy brown eyes, red orange coloring in lips and cheeks.	(A) _____
B. Alice: Dark brown hair, brown eyes, olive skin with orange tones in lips and cheeks.	(B) _____
C. Marie: Blond with fair skin, golden hair, blue eyes.	(C) _____
D. Janet: Cool brunette, blue black hair, fair skin, red cheeks, blue eyes, and lips with violet tone.	(D) _____
E. Sue: Intermediate. Skin neither warm nor cool, slight yellow tinge, gray eyes, light brown hair, violet red in lips and cheeks.	(E) _____

TEST 3

Judgment Test on Color for the Occasion

Directions: Below is given a description of Alice. On the chart, for Test 2, her picture is shown. Choose a color for this girl suitable for each occasion listed below. Colors are shown on the chart for Test 3. Use colors shown on the chart only once. Place the number corresponding to the sample chosen opposite the occasion.

Alice: Dark brown hair, brown eyes, olive skin.

Occasions	Number of fabric chosen
Sports	:
Afternoon	:
Parties and Social Functions	:
Travel	:
School	:

TEST 4

Judgment Test on Color According to Age

Directions: From samples of colored material on chart for Test 4, choose colors best suited to each age person listed below. Place the number corresponding to your choice opposite each name given in the blank provided.

- |                                       | No. of Fabric |
|---------------------------------------|---------------|
| A. Mary Jane: Eight years old.        | (A) _____     |
| B. Jeanette: Sixteen years old.       | (B) _____     |
| C. Miss Brown: Twenty-four years old. | (C) _____     |
| D. Mrs. Smith: Forty years old.       | (D) _____     |
| E. Mrs. Jones: Sixty-five years old.  | (E) _____     |

TEST 5

Judgment Test on Selection of Line for Different Type of Figures

Directions: Below are listed five types of figures. From the sketches for Test 5, on the next page, choose a dress which is suitable in Line to each type of figure. Place the numbers corresponding to the dress chosen opposite each type under column No. of Dress Chosen. Use each style only once.

Figure	No. of Dress Chosen	Reasons
Short-stout		
Average		
Tall-slender		
Large hips		
Narrow shoulders		

Among the statements given below you will find reasons to justify your choice which has influenced you in making each choice and place the corresponding letter opposite the item chosen under reasons. Use each statement only once.

- a. Broken and curved lines give the effect of adding width.
- b. Horizontal lines and wide panels should be used to increase apparent width.
- c. Lines which give a balance between the vertical and horizontal do not add or detract from the height of the person.
- d. Straight lines, unbroken, give the effect of height.
- e. A bloused waist line will help balance the figure in some instances.

1937 5



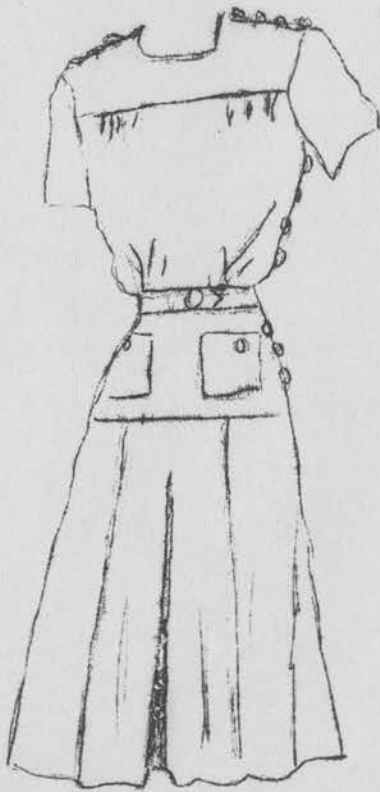
1



2



3



4



5



## TEST 6

## Judgment Test on Proportion in Dress

Directions: From the two pictures of dresses shown for each problem, select the dress which is best suited to Mary, who is short and stout, and Jane, who is tall and slender. Place the number chosen opposite each problem under column marked Choice.

Special problem in proportion	:	Choice	:	Reasons
Mary	:		:	
Width of belt	:		:	
Mary	:		:	
Length of skirt	:		:	
Mary	:		:	
Width of panels	:		:	
Jane	:		:	
Length of jacket	:		:	
Jane	:		:	
Contrast of light and dark:	:		:	

Among the statements given below, you will find reasons to justify choices made above. Select the reasons which have influenced you in making each choice and place the letter corresponding in the column marked "Reasons". One statement may be used more than once. More than one reason may be given for each answer.

- a. The amounts of light and dark should not be used in equal areas.
- b. The Greek law of two to three proportion should be applied to all space divisions used.
- c. When contradicting lines are used, they should be in proportion to the figure as a whole.
- d. The proportions used in panels determines whether length or width is added to the figure.



MARY

WIDTH OF BELT

1

2

MARY

LENGTH OF SKIRT



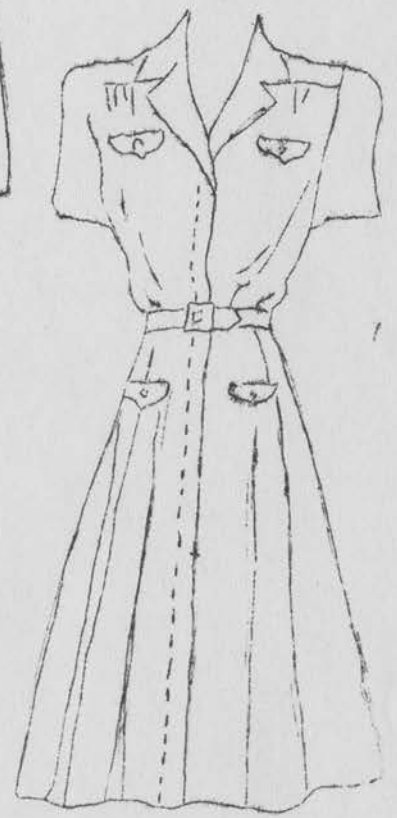
1

2

# TEST 3

MARY

WIDTH OF PANELS

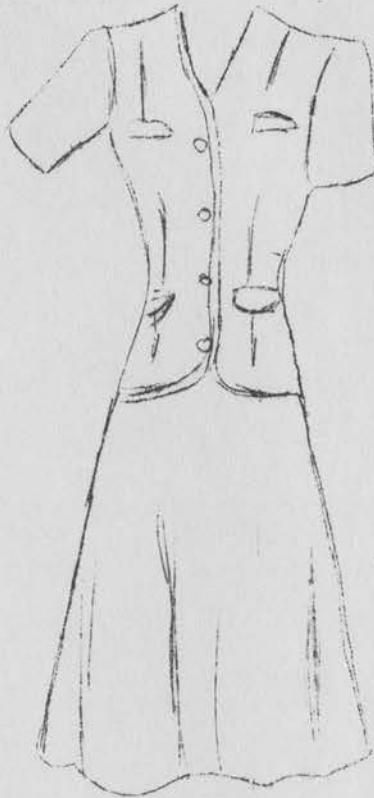


2

# TEST 3

JADE

LENGTH OF  
JACKET



JADE

CONTRAST OF  
LIGHT AND DARK



1

2

TEST 7

Judgment Test on Choice of Suitable Collars for Different Shapes of Faces

Directions: On the chart are pictures of five girls representing the different shapes of faces as listed below. From the collars on the wall, choose the one which will be most becoming to the girl in each case. Place the number corresponding to the collar under column No. of Collar Chosen.

Type of Face	No. of Collar Chosen	Reasons
Round face		
Small pointed		
Square		
Long		
Perfect oval		

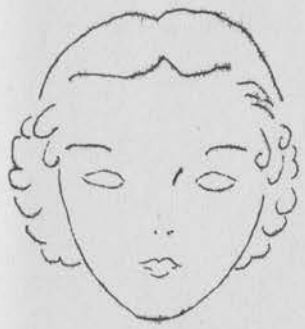
Among the statements listed below you will find reasons to justify your choices made above. Select the reasons which have influenced you and place the letter corresponding in column marked Reasons. Statements may be used more than once.

- a. The line or shape of the face is not emphasized if it is not repeated in the line or shape of the collar or neckline.
- b. The line or shape of the face is not emphasized if the collar or neckline do not sharply contradict that line or shape.
- c. Suitable collars and necklines may be chosen for faces that are too round or too square by selecting those having transitional lines making long ovals or rectangles.
- d. A variety of necklines or collars may be worn by one who has a face with a near perfect oval shape.



# TEST 7

## FACES



OVAL



ROUND



SQUARE



LONG



SMALL POINTED

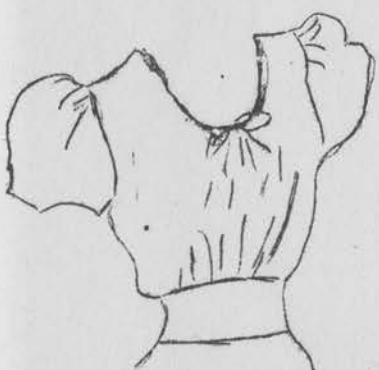
## NECKLINES



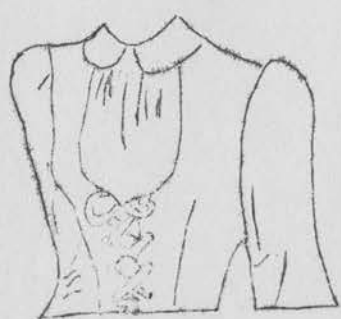
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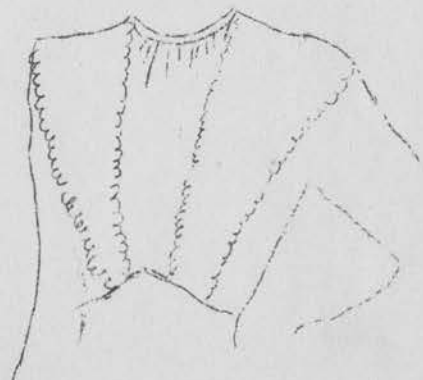
2



3



4



5

Appendix C.

Interest Check Sheet

Name \_\_\_\_\_ Date \_\_\_\_\_

Directions: Following is a list of questions concerning interests in clothing selection and testing. You are to check (✓) your answer for each item in the column to the right in the proper space.

Answers do not influence your grade in this course. You are to answer all questions.

	Yes	No	Somewhat
A. Interests in Clothing Selection			
1. Do you like to select your own clothes?			
2. Do you like to plan your own clothes?			
3. Do you prefer to rely on your own judgment rather than some one else's judgment in the selection of your clothes?			
4. Is the planning of clothes a <u>special</u> interest or hobby of yours?			
5. Do you like to plan clothes for other people?			
6. Are you interested in color when planning clothes?			
7. Are you interested in line when planning clothes?			
B. Interests in Testing			
1. Do you like to take tests?			
2. Do you prefer to take tests made by the teacher rather than those made by students?			
3. Do you like to help construct tests during a unit of work?			

Appendix D.--COPY OF THE FORM FOR DESCRIPTION OF  
GIRLS AS A BASIS FOR EQUATING GROUPS

Appendix D.--DESCRIPTION OF GIRLS AS A BASIS FOR EQUATING GROUPS

Name	Age	Sex	School Year	CONTROL GROUP		I Q	Economic Status	Social Status
				Pre-test Scores	Previous Scholastic Standing			

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.
- 21.
- 22.
- 23.
- 24.
- 25.





Appendix E.--CHARACTERISTICS OF A GOOD TEST

1. Some evaluation devices are more suitable and effective for testing certain units of work than others.
2. Good tests are valid. They measure what they are supposed to measure.
3. Test may be made interesting and so be made more pleasant and enjoyable.
4. Statements should be clear and definite with directions and explanations accurate.
5. A variety of types of evaluation may be used more satisfactorily than one of the same type all of the time.
6. Before making tests, it is necessary to know why the test is being made out, and what the test is looking for.
7. Judgment developed in the use of information is more important than knowing the items of information.
8. A good test should stimulate further thinking on the part of the student rather than serve as only a check of what has been learned.
9. Tests should be adapted to real life situations and abilities of people.

Appendix F.--EXAMPLE OF A SAMPLE TEST

## Appendix F.--EXAMPLE OF THE SAMPLE TESTS

Providing Entertainment for Friends

Problem: Mary's mother has told her that she may have a surprise birthday party for her brother who is two years older than she. Mrs. Smith says that the expenses for the party must not exceed \$5.00 and that 16 guests may be invited. From the following list select one type of entertainment that you think would be desirable for the occasion.

- \_\_\_\_\_ 1. picnic
- \_\_\_\_\_ 2. dance
- \_\_\_\_\_ 3. taffy pull
- \_\_\_\_\_ 4. movie
- \_\_\_\_\_ 5. pingpong
- \_\_\_\_\_ 6. bridge
- \_\_\_\_\_ 7. dinner party
- \_\_\_\_\_ 8. skating
- \_\_\_\_\_ 9. scavenger hunt
- \_\_\_\_\_ 10. hayrack ride
- \_\_\_\_\_ 11. tea
- \_\_\_\_\_ 12. masquerade party
- \_\_\_\_\_ 13. game party (such as checkers, bunco, monopoly, dominos)
- \_\_\_\_\_ 14. swimming

## Appendix F.--EXAMPLE OF THE SAMPLE TESTS--Continued

From the following lists select the corresponding items that will fit in with the type of entertainment you have chosen.

## A. Select the correct dress for the occasion.

- \_\_\_ 1. evening dress
- \_\_\_ 2. slacks
- \_\_\_ 3. afternoon dress
- \_\_\_ 4. bathing suit
- \_\_\_ 5. sports dress
- \_\_\_ 6. costume

## B. Etiquette

- \_\_\_ 1. Introductions
- \_\_\_ 2. How to ask for a dance
- \_\_\_ 3. How to participate in games
- \_\_\_ 4. Consideration for others
- \_\_\_ 5. How to accept a dance
- \_\_\_ 6. Means of expressing thanks to the hostess
- \_\_\_ 7. Time of arrival
- \_\_\_ 8. Invitation
- \_\_\_ 9. Acceptance of an invitation
- \_\_\_ 10. How to bid your escort good night
- \_\_\_ 11. Responsibilities of the escort
  - \_\_\_ 1. dance floor
  - \_\_\_ 2. getting in and out of a car
  - \_\_\_ 3. walking down the street

Appendix F.--EXAMPLE OF THE SAMPLE TESTS--Continued

C. Suggest refreshments: (suitable for the occasion you have chosen)

Suggest type of service.

D. List responsibilities of the hostess.

- 1.
- 2.
- 3.
- 4.
- 5.

E. List responsibilities of the guests.

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



Appendix G.--COPY OF THE FORM FOR RECORDING  
SCORES

Appendix G.--FORM FOR RECORDING SCORES

EXPERIMENTAL GROUP				
ART-JUDGMENT AND INFORMATION TEST		INTEREST CHECK SHEET		
Name	Score Before Unit	Score After Unit	Score Before Unit	Score After Unit

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.
- 21.
- 22.
- 23.
- 24.
- 25.

Appendix G.--FORM FOR RECORDING SCORES---Continued

CONTROL GROUP				
ART-JUDGMENT AND INFORMATION TEST			INTEREST CHECK SHEET	
Name	Score Before Unit	Score After Unit	Score Before Unit	Score After Unit
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

Appendix H.--PHOTOGRAPHS OF THE POSTERS USED  
WITH THE ART-JUDGMENT TEST

### TEST 1



ANNE



RUTH



MARY



MARTHA



JEAN

### TEST 2



JANET



MARIE



SUE



BETTY



ALICE

### TEST 3

1



2



3



4



5

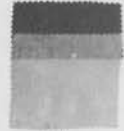
### TEST 1



1



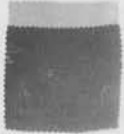
2



3



4



5

### TEST 2



1



2



3



4



5

### TEST 4



1



2



3



4



5



Appendix I.--MASTER SHEETS DESCRIBING GIRLS IN  
THE EXPERIMENTAL AND CONTROL GROUPS

### Description Of Girls In Experimental Group

Student No.	Age	Sex	School Year	Scores		GAINS or Test	Scholastic standing	Intelligence Quotient	Economic Status	Social Status
				Pre-Test	Final Scores					
1	14	F	9	38	42	4	S	108	Med. up	Med. up
2	15	F	9	34	37	3	S	97	Med. up	Med. up
3	15	F	9	34	42	8	M	97	Med. up	Med. up
4	15	F	9	32	38	6	S	97	Med. up	Med. up
5	15	F	9	32	40	8	HS	105	Med. up	Med. up
6	14	F	9	31	37	6	S	95	Med. up	Low
7	15	F	9	31	38	7	M	94	Med. up	Med. up
8	15	F	9	30	40	10	M	93	Med. up	Med. up
9	14	F	9	30	35	5	S	92	Med. up	Med. up
10	14	F	9	29	36	7	M	100	Med. up	Med. up
11	14	F	9	28	35	7	M	94	Med. up	Med. up
12	15	F	9	28	31	3	M	90	Med. up	Med. up
13	15	F	9	25	35	7	M	90	Med. up	Med. up
14	14	F	9	25	39	14	M	95	Med. up	Med. up
15	14	F	9	23	35	12	M	95	Med. up	Med. up
16	14	F	9	19	29	10	M	92	Low	Low
17	17	F	11	32	35	-3	C	ACE	Med. up	Med. up
18	15	F	10	32	32	0	C	102	Low	Med. up
19	14	F	9	31	34	-3	C	83	Med. up	Low
20	15	F	10	31	31	-3	C	86	Med. up	Med. up
21	15	F	10	30	31	1	C	85	Med. up	Med. up
22	15	F	10	30	30	-1	C	85	Med. up	Med. up
23	15	F	10	28	32	4	C	107	Med. up	Med. up
24	15	F	10	27	30	3	C	94	Med. up	High
25	14	F	10	27	29	-2	C	88	Med. up	High
26	14	F	10	26	26	0	C	81	Med. up	Med. up
27	15	F	10	26	27	1	B	82	Med. up	Med. up
28	15	F	10	25	28	3	C	80	Med. up	Low
29	15	F	10	24	28	4	D	88	Med. up	Med. up
30	14	F	10	23	27	4	D	89	Low	Med. up
31	14	F	9	20	31	11	B	82	Low	Low
32	15	F	9	20	28	8	C	80	Low	Low
33	15	F	9	19	25	6	C	80	Low	Low
34	15	F	9	18	24	6	C	80	Low	Low
35	15	F	9	18	24	6	C	80	Low	Low
36	15	F	9	18	24	6	C	80	Low	Low
37	15	F	9	18	24	6	C	80	Low	Low
38	15	F	9	18	24	6	C	80	Low	Low
39	15	F	9	18	24	6	C	80	Low	Low
40	15	F	9	18	24	6	C	80	Low	Low
41	15	F	9	18	24	6	C	80	Low	Low
42	15	F	9	18	24	6	C	80	Low	Low
43	15	F	9	18	24	6	C	80	Low	Low
44	15	F	9	18	24	6	C	80	Low	Low
45	15	F	9	18	24	6	C	80	Low	Low
46	15	F	9	18	24	6	C	80	Low	Low
47	15	F	9	18	24	6	C	80	Low	Low
48	15	F	9	18	24	6	C	80	Low	Low
49	15	F	9	18	24	6	C	80	Low	Low
50	15	F	9	18	24	6	C	80	Low	Low
51	15	F	9	18	24	6	C	80	Low	Low
52	15	F	9	18	24	6	C	80	Low	Low
53	15	F	9	18	24	6	C	80	Low	Low
54	15	F	9	18	24	6	C	80	Low	Low
55	15	F	9	18	24	6	C	80	Low	Low
56	15	F	9	18	24	6	C	80	Low	Low
57	15	F	9	18	24	6	C	80	Low	Low
58	15	F	9	18	24	6	C	80	Low	Low
59	15	F	9	18	24	6	C	80	Low	Low
60	15	F	9	18	24	6	C	80	Low	Low
61	15	F	9	18	24	6	C	80	Low	Low
62	15	F	9	18	24	6	C	80	Low	Low
63	15	F	9	18	24	6	C	80	Low	Low
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65	15	F	9	18	24	6	C	80	Low	Low
66	15	F	9	18	24	6	C	80	Low	Low
67	15	F	9	18	24	6	C	80	Low	Low
68	15	F	9	18	24	6	C	80	Low	Low
69	15	F	9	18	24	6	C	80	Low	Low
70	15	F	9	18	24	6	C	80	Low	Low
71	15	F	9	18	24	6	C	80	Low	Low
72	15	F	9	18	24	6	C	80	Low	Low
73	15	F	9	18	24	6	C	80	Low	Low
74	15	F	9	18	24	6	C	80	Low	Low
75	15	F	9	18	24	6	C	80	Low	Low
76	15	F	9	18	24	6	C	80	Low	Low
77	15	F	9	18	24	6	C	80	Low	Low
78	15	F	9	18	24	6	C	80	Low	Low
79	15	F	9	18	24	6	C	80	Low	Low
80	15	F	9	18	24	6	C	80	Low	Low
81	15	F	9	18	24	6	C	80	Low	Low
82	15	F	9	18	24	6	C	80	Low	Low
83	15	F	9	18	24	6	C	80	Low	Low
84	15	F	9	18	24	6	C	80	Low	Low
85	15	F	9	18	24	6	C	80	Low	Low
86	15	F	9	18	24	6	C	80	Low	Low
87	15	F	9	18	24	6	C	80	Low	Low
88	15	F	9	18	24	6	C	80	Low	Low
89	15	F	9	18	24	6	C	80	Low	Low
90	15	F	9	18	24	6	C	80	Low	Low
91	15	F	9	18	24	6	C	80	Low	Low
92	15	F	9	18	24	6	C	80	Low	Low
93	15	F	9	18	24	6	C	80	Low	Low
94	15	F	9	18	24	6	C	80	Low	Low
95	15	F	9	18	24	6	C	80	Low	Low
96	15	F	9	18	24	6	C	80	Low	Low
97	15	F	9	18	24	6	C	80	Low	Low
98	15	F	9	18	24	6	C	80	Low	Low
99	15	F	9	18	24	6	C	80	Low	Low
100	15	F	9	18	24	6	C	80	Low	Low

\* This case was dropped for this study

Description Of Girls In Control Group

Student	Age	Sex	School Year	Scores on Post-test	Final Scores	Gain on Test	Scholastic standing	Intelligence Quotient	Economic Status	Social Status
1	12	F	10	40	44	4	B	119	Med. u. r	Med. u. r
2	12	F	10	34	33	-1	B	97	Med. u. r	Med. u. r
3	12	F	10	35	37	2	B	103	Med. u. r	Med. u. r
4	12	F	10	32	33	1	B	79	Med. u. r	Med. u. r
5	12	F	10	21	23	2	B	77	Med. u. r	High
6	12	F	10	31	44	13	B	114	Med. u. r	Med. u. r
7	12	F	10	30	44	14	B	94	Med. u. r	Med. u. r
8	12	F	10	29	35	6	B	96	Med. u. r	Med. u. r
9	12	F	10	29	35	6	B	92	Med. u. r	Med. u. r
10	12	F	10	28	34	6	B	90	Med. u. r	Med. u. r
11	12	F	10	27	34	7	B	98	Med. u. r	Med. u. r
12	12	F	10	27	33	6	B	109	Med. u. r	High
13	12	F	10	27	41	14	B	98	Med. u. r	Med. u. r
14	12	F	10	27	30	3	B	92	Med. u. r	Med. u. r
15	12	F	10	28	33	5	B	92	Med. u. r	Med. u. r
16	12	F	10	28	33	5	B	92	Med. u. r	Med. u. r
17	12	F	10	38	30	-8	C	102	Med. u. r	Med. u. r
18	12	F	10	39	39	0	C	103	Med. u. r	Med. u. r
19	12	F	9	39	37	-2	C	68	Med. u. r	Low
20	12	F	10	32	37	5	B	101	Med. u. r	Med. u. r
21	12	F	10	31	37	6	B	101	Med. u. r	Med. u. r
22	12	F	10	30	36	6	B	101	Med. u. r	Med. u. r
23	12	F	10	30	35	5	B	107	Med. u. r	Med. u. r
24	12	F	10	27	32	5	B	102	Med. u. r	Med. u. r
25	12	F	9	27	34	7	C	100	Low	Med. u. r
26	12	F	10	24	34	10	B	101	Low	Med. u. r
27	12	F	10	25	35	10	B	103	Low	Med. u. r
28	12	F	10	24	41	17	B	101	Med. u. r	Med. u. r
29	12	F	9	22	30	8	B	72	Med. u. r	Med. u. r
30	12	F	10	21	23	2	C	81	Med. u. r	Low
31	12	F	10	20	17	-3	D	82	Low	Med. u. r
32	12	F	9	16	16	0	D	64	Med. u. r	Med. u. r
33	12	F	9	11	13	2	D	62	Low	Low
34	12	F	9	25	44	19	B	101	Med. u. r	Med. u. r
35	12	F	9	23	32	9	B	101	Low	Med. u. r
36	12	F	9	22	44	22	D	101	Med. u. r	Low
37	12	F	9	22	44	22	D	101	Med. u. r	Low
38	12	F	9	22	44	22	D	101	Med. u. r	Low
39	12	F	9	21	38	17	B	101	Med. u. r	High
40	12	F	9	21	38	17	B	101	Med. u. r	High
41	12	F	9	21	38	17	B	101	Med. u. r	High
42	12	F	9	21	38	17	B	101	Med. u. r	High
43	12	F	9	21	38	17	B	101	Med. u. r	High
44	12	F	9	21	38	17	B	101	Med. u. r	High
45	12	F	9	21	38	17	B	101	Med. u. r	High
46	12	F	9	21	38	17	B	101	Med. u. r	High
47	12	F	9	21	38	17	B	101	Med. u. r	High
48	12	F	9	21	38	17	B	101	Med. u. r	High
49	12	F	9	21	38	17	B	101	Med. u. r	High
50	12	F	9	21	38	17	B	101	Med. u. r	High
51	12	F	9	21	38	17	B	101	Med. u. r	High
52	12	F	9	21	38	17	B	101	Med. u. r	High
53	12	F	9	21	38	17	B	101	Med. u. r	High
54	12	F	9	21	38	17	B	101	Med. u. r	High
55	12	F	9	21	38	17	B	101	Med. u. r	High
56	12	F	9	21	38	17	B	101	Med. u. r	High
57	12	F	9	21	38	17	B	101	Med. u. r	High
58	12	F	9	21	38	17	B	101	Med. u. r	High
59	12	F	9	21	38	17	B	101	Med. u. r	High
60	12	F	9	21	38	17	B	101	Med. u. r	High
61	12	F	9	21	38	17	B	101	Med. u. r	High
62	12	F	9	21	38	17	B	101	Med. u. r	High
63	12	F	9	21	38	17	B	101	Med. u. r	High
64	12	F	9	21	38	17	B	101	Med. u. r	High
65	12	F	9	21	38	17	B	101	Med. u. r	High
66	12	F	9	21	38	17	B	101	Med. u. r	High
67	12	F	9	21	38	17	B	101	Med. u. r	High
68	12	F	9	21	38	17	B	101	Med. u. r	High
69	12	F	9	21	38	17	B	101	Med. u. r	High
70	12	F	9	21	38	17	B	101	Med. u. r	High
71	12	F	9	21	38	17	B	101	Med. u. r	High
72	12	F	9	21	38	17	B	101	Med. u. r	High
73	12	F	9	21	38	17	B	101	Med. u. r	High
74	12	F	9	21	38	17	B	101	Med. u. r	High
75	12	F	9	21	38	17	B	101	Med. u. r	High
76	12	F	9	21	38	17	B	101	Med. u. r	High
77	12	F	9	21	38	17	B	101	Med. u. r	High
78	12	F	9	21	38	17	B	101	Med. u. r	High
79	12	F	9	21	38	17	B	101	Med. u. r	High
80	12	F	9	21	38	17	B	101	Med. u. r	High
81	12	F	9	21	38	17	B	101	Med. u. r	High
82	12	F	9	21	38	17	B	101	Med. u. r	High
83	12	F	9	21	38	17	B	101	Med. u. r	High
84	12	F	9	21	38	17	B	101	Med. u. r	High
85	12	F	9	21	38	17	B	101	Med. u. r	High
86	12	F	9	21	38	17	B	101	Med. u. r	High
87	12	F	9	21	38	17	B	101	Med. u. r	High
88	12	F	9	21	38	17	B	101	Med. u. r	High
89	12	F	9	21	38	17	B	101	Med. u. r	High
90	12	F	9	21	38	17	B	101	Med. u. r	High
91	12	F	9	21	38	17	B	101	Med. u. r	High
92	12	F	9	21	38	17	B	101	Med. u. r	High
93	12	F	9	21	38	17	B	101	Med. u. r	High
94	12	F	9	21	38	17	B	101	Med. u. r	High
95	12	F	9	21	38	17	B	101	Med. u. r	High
96	12	F	9	21	38	17	B	101	Med. u. r	High
97	12	F	9	21	38	17	B	101	Med. u. r	High
98	12	F	9	21	38	17	B	101	Med. u. r	High
99	12	F	9	21	38	17	B	101	Med. u. r	High
100	12	F	9	21	38	17	B	101	Med. u. r	High

\* These cases were dropped for this study

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