A consideration of the problems involved in teaching homemaking in single and double periods has greatly interested the writer. She therefore undertook this study of the progress of two paired ninth grade foods classes when taught in 50 and 100-minute periods daily for 18 weeks.

The 25 members of each of the parallel groups used in this study were selected from 130 students in Phoenix Union High School. These groups were selected on the basis of the following factors: (1) intelligence quotient, (2) average grade points in other high school subjects, (3) chronological age in years and months, (4) previous homemaking experience, and (5) home conditions. School records provided the data necessary in the first three of these factors, but the writer had to develop devices to determine previous homemaking experience and home conditions.

The same objectives and subject matter were used for both of the experimental groups. Except in the case of methods used in laboratory lessons an effort was made to maintain
identical procedure in the two experimental classes. Demonstrations which substituted individual laboratory experience were used extensively in the 50-minute period class.

In order to compare the two experimental groups of the 50 and 100-minute periods, the following is presented.

1. **Comprehensive Test scores.** Students in the 50-minute period class show slight gain.

2. **Re-Testing after eight months.** From limited data obtained, students in the 100-minute period class showed greater retention of information.

3. **Total scores on Unit Tests.** Progress was practically the same.

4. **Individual laboratory skill.** Students in the 50-minute period class were rated as more skillful in individual laboratory work.

5. **Group laboratory skill.** Students in the 50-minute period group were rated as more skillful in group laboratory work.

6. **Home experience reported.** Students in the 50-minute period class reported more home practice. More comprehensive home projects were selected by students in the 100-minute period group.

7. **Pupil attitude toward course.** Students in the 50-minute period class were better satisfied with the course and planned to continue homemaking classes.

8. **Progress of five pairs of students of different I.Q. levels.** The limited data secured indicated that: Students with I.Q. above 110 in the 50-minute period showed greater progress except in long time learning and individual laboratory skill. Students with I.Q. below 100 in the 100-minute period showed greater progress except in individual laboratory skill.
STUDENT PROGRESS IN TWO PAIRED FOOD CLASSES
Grade Time and Method Specified

by

ISABELLA FRANKLIN McQUESTEN

A THESIS

submitted to the

OREGON STATE COLLEGE

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APPROVED:

Redacted for privacy

Professor and Head of Home Economics Education
In Charge of Major

Redacted for privacy

Chairman of School Graduate Committee

Redacted for privacy

Chairman of State College Graduate Council
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. The Problem and Its Setting</td>
<td>1</td>
</tr>
<tr>
<td>II. Procedure</td>
<td>10</td>
</tr>
<tr>
<td>Selection of Groups</td>
<td>10</td>
</tr>
<tr>
<td>School Records</td>
<td>11</td>
</tr>
<tr>
<td>Previous Homemaking Experience</td>
<td>12</td>
</tr>
<tr>
<td>Home Conditions</td>
<td>14</td>
</tr>
<tr>
<td>Selection of Paired Groups</td>
<td>16</td>
</tr>
<tr>
<td>Selection of Subject Matter</td>
<td>18</td>
</tr>
<tr>
<td>Subject Matter Included</td>
<td>18</td>
</tr>
<tr>
<td>Justification of Material Included</td>
<td>18</td>
</tr>
<tr>
<td>Objectives of Unit</td>
<td>18</td>
</tr>
<tr>
<td>Selection of Methods</td>
<td>20</td>
</tr>
<tr>
<td>Description of Class Procedures</td>
<td>20</td>
</tr>
<tr>
<td>Description of Method Used in 50-Minute Laboratory Lesson</td>
<td>22</td>
</tr>
<tr>
<td>Description of Method Used in 100-Minute Laboratory Lesson</td>
<td>23</td>
</tr>
<tr>
<td>Summary</td>
<td>24</td>
</tr>
<tr>
<td>III. Evaluation of Student Progress</td>
<td>25</td>
</tr>
<tr>
<td>Constructing and Use of Measuring Devices</td>
<td>25</td>
</tr>
<tr>
<td>Objective Tests</td>
<td>25</td>
</tr>
<tr>
<td>Comprehensive Test</td>
<td>26</td>
</tr>
<tr>
<td>Constructing Comprehensive Test</td>
<td>26</td>
</tr>
</tbody>
</table>
# Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determining Reliability of Comprehensive Test</td>
<td>28</td>
</tr>
<tr>
<td>Using Comprehensive Test</td>
<td>29</td>
</tr>
<tr>
<td>Constructing Unit Tests</td>
<td>31</td>
</tr>
<tr>
<td>Laboratory Rating Scales</td>
<td>32</td>
</tr>
<tr>
<td>Individual Rating Scale</td>
<td>33</td>
</tr>
<tr>
<td>Description of Individual Rating Scale</td>
<td>34</td>
</tr>
<tr>
<td>Using Individual Rating Scale</td>
<td>34</td>
</tr>
<tr>
<td>Group Rating Scale</td>
<td>35</td>
</tr>
<tr>
<td>Description of Group Rating Scale</td>
<td>35</td>
</tr>
<tr>
<td>Using Group Rating Scale</td>
<td>35</td>
</tr>
<tr>
<td>Home Experience Records</td>
<td>36</td>
</tr>
<tr>
<td>Pupil Questionnaire</td>
<td>38</td>
</tr>
<tr>
<td>Analysis of Findings</td>
<td>39</td>
</tr>
<tr>
<td>Objective Tests</td>
<td>40</td>
</tr>
<tr>
<td>Comprehensive Test</td>
<td>40</td>
</tr>
<tr>
<td>Unit Tests</td>
<td>44</td>
</tr>
<tr>
<td>Laboratory Rating Scale</td>
<td>46</td>
</tr>
<tr>
<td>Individual Rating Scale</td>
<td>46</td>
</tr>
<tr>
<td>Group Rating Scale</td>
<td>48</td>
</tr>
<tr>
<td>Home Experience Records</td>
<td>52</td>
</tr>
</tbody>
</table>
Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Practice</td>
<td>52</td>
</tr>
<tr>
<td>Home Project</td>
<td>54</td>
</tr>
<tr>
<td>Pupil Questionnaire</td>
<td>56</td>
</tr>
<tr>
<td>Progress of Five Pairs of Students Representing Different Intelligence Levels</td>
<td>58</td>
</tr>
<tr>
<td>Additional Observations of the Groups</td>
<td>62</td>
</tr>
<tr>
<td>Summary</td>
<td>64</td>
</tr>
<tr>
<td>IV. Conclusions and Recommendations</td>
<td>66</td>
</tr>
<tr>
<td>Bibliography</td>
<td>71</td>
</tr>
<tr>
<td>Appendix A. Experience Check-List</td>
<td>74</td>
</tr>
<tr>
<td>Appendix B. Comprehensive Test</td>
<td>77</td>
</tr>
<tr>
<td>Appendix C. Laboratory Rating Scales</td>
<td>94</td>
</tr>
<tr>
<td>Appendix D. Pupil Questionnaire</td>
<td>96</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Means and Standard Deviations of the Five Factors Used in Selecting 25 Pairs of Students</td>
<td>17</td>
</tr>
<tr>
<td>II</td>
<td>Scores on the Comprehensive Test Used as a Pre-Test and Final Test</td>
<td>41</td>
</tr>
<tr>
<td>III</td>
<td>Scores on the Comprehensive Test Used as Final Test and Re-Test</td>
<td>43</td>
</tr>
<tr>
<td>IV</td>
<td>Scores on Unit Tests</td>
<td>45</td>
</tr>
<tr>
<td>V</td>
<td>Scores on Individual Laboratory Skill Rated by Partners and Judges</td>
<td>47</td>
</tr>
<tr>
<td>VI</td>
<td>Scores on Group Laboratory Skill Rated by Teacher</td>
<td>48</td>
</tr>
<tr>
<td>VII</td>
<td>Scores on Group Laboratory Skill Rated by Judges</td>
<td>49</td>
</tr>
<tr>
<td>VIII</td>
<td>Frequency of Home Practice Reported</td>
<td>53</td>
</tr>
<tr>
<td>IX</td>
<td>Home Projects Completed</td>
<td>55</td>
</tr>
<tr>
<td>Xa</td>
<td>Progress of Five Pairs of Students with I. Q. Above 110</td>
<td>59</td>
</tr>
<tr>
<td>Xb</td>
<td>Progress of Five Pairs of Students with I. Q. Below 100</td>
<td>61</td>
</tr>
</tbody>
</table>
CHAPTER I

THE PROBLEM AND ITS SETTING.
During the past decade increased enrollments and restricted building programs have had varied significant effects upon schools in the United States. Management of the school day for the most effective use of pupil-time and teacher-time, together with the building and equipment of the school plant, has presented a perplexing problem to school administrators. In secondary schools, increased emphasis upon the value of extra-class activities in developing well-rounded individual students has necessitated a re-evaluation of the time allotted each course in the curriculum.

A survey of literature dealing with the findings and opinions of educational writers and experimenters in regard to the general use of school time and specifically to the use of time in homemaking classes reveals many problems requiring careful consideration.

The effective use of the time allotted for classes is recognized as involving a critical problem. Bates (3, page 659), writing of the effect of time allotment in ninth and tenth grade mathematics classes states:
"Among the numerous activities of school life none are more important than those of the class period. In spite of the amount of assigned home work most of the learning the high school pupil gains is from his classroom experience. The highest efficiency of our schools cannot be reached until teachers have learned to make every minute of class periods contribute toward achievement of results."

Breck (6), discussing the problem of time management in homemaking classes, says that using time efficiently is a problem for even the experienced home economics teacher. Herrington (17) points out that conservation of the pupil's time is essential.

For many years, homemaking, art, industrial arts, and science classes have been allotted more time in school programs than have other classes. This has been done to provide a larger block of time for laboratory work. In each of these subjects, the development of skills and techniques was considered of paramount importance, and more time was needed for practice periods. In any of these classes, a certain amount of routine work is necessary in preparing for work and in putting equipment and materials away at the end of the laboratory period. For these reasons, such classes have been given more of the school day.

A re-evaluation of the longer period allotted to such courses entails a consideration of some evident problems. Koos (24)
The efficiency with which the extra time provided for laboratory classes is used seems questionable. Krambly (26), reporting a study made of biology classes of varying lengths, noted a marked tendency on the part of students in two-period classes to waste time because they felt that they had plenty of it. Waples (35) points out that one of the difficulties in teaching homemaking is the insuring of efficient use of time on the part of all class members.

The additional time required for laboratory courses may affect the enrollment in such courses. Bowman (4) Wynn (37) noted that high school students select courses that give the most credit with the least work; therefore scheduling homemaking in double-periods prevents students from electing such courses. Breck (6), discussing the problem of scheduling homemaking classes, indicates that students fail to elect homemaking scheduled for double-periods, because of difficulty in fitting such courses into their programs when other classes are planned on the single period basis.

In some schools, laboratory classes have been scheduled for single periods of from 40 to 60 minutes. Christoph (8) suggests that 60 minute periods are as long as junior high school students can be expected to keep at one task. According to Clevenger (9) in some junior and senior high schools where industrial arts, drawing, agriculture, and
homemaking are scheduled for single-periods, such changes have been justified because of increased enrollments and limited laboratory facilities.

Problems in scheduling classes arise when periods for classes are of varying lengths. Clevenger (9) agrees that if all periods were of equal length, arranging the students' daily programs would be easier. The administrative difficulties of fitting homemaking classes taught in double periods into students' schedules were noted by Breck (6).

In describing the effects in one school of changing the homemaking class schedule from double periods to single periods, Christoph (8, page 31) says:

"Pupils get experience in planning work so that it can be done in the required time and often work better under pressure."

Breck (6) suggests that the fact that George Reed money may be used for 60-minute classes in vocationally reimbursed schools has focused greater attention upon the possibilities of single periods in the homemaking program. This writer also states that when classes are scheduled for single periods more students per day may use the laboratory and equipment.

Unfavorable criticisms have been made of single-period classes in foods and clothings units. Hubbell (19) McAdam (29) states that lower standards of work are accepted, and the teacher as well as the pupil must work
under continuous time pressure. Christoph (8) states that (1) some of the necessary skills must be eliminated from units because of lack of time; (2) there is inadequate time to evaluate results; (3) there is loss of valuable experience in caring for equipment and supplies; and finally (4) that short periods may work a hardship upon the retarded pupil. Wynn (37) criticizes the short periods upon the basis that there is too little opportunity for repetition of the same products or skills and that limited time may be devoted to discussion.

Some writers view the change from double to single-period classes in homemaking with favor. Hoppes (18, page 31) draws the following conclusion regarding the use of single periods in the seventh grade:

"In general the conclusion drawn from this study was that the content considered by leading home economists as essential for seventh grade food courses can be satisfactorily adapted for use in sixty-minute periods."

Christoph (8) states that the single period is long enough for related subjects in senior high school. Braithwaite (5) reported a study of six paired ninth-grade foods class conducted on long and short periods for eight weeks. She found that the students in the upper quartile, ranked according to intelligence, made greater progress in the short period than those taught in the longer class period. The progress of students in the lowest quartile was practically
equal. The progress of the students was measured by the score made on two forms of a 100-item objective test, the reliability of which was 0.92 and 0.97 respectively. The average gain of all of the students in the long periods was 19 points and in the short periods 23 points. She further comments that the students in the short period did more work at home and manifested a greater interest throughout the course than did the students in the longer period class.

It will be noted that Krach (25) states that eighth grade students in a double period printing shop set in one semester three times as many lines of type as students in a single period. This evidence may seem contradictory to the findings of Braithwaite, but it must be noted that in a class such as printing, where progress is measured strictly by the acquisition of a skill in which no practice outside of class is possible, the uninterrupted practice time the students have in class is of great importance.

During the past decade the emphasis in homemaking curricula has shifted from courses dealing strictly with the acquisition of the skills of cooking and sewing. Now the trend is to plan units of work the desired outcomes of which include the understandings, appreciations, attitudes, and ideals necessary to improve home and family life.

This change is evident to anyone surveying recent
courses of study for homemaking, or glancing at the table of contents of recent homemaking textbooks.

Christoph, (8, page 31) reporting the effects of hour periods in homemaking in one department, says:

"In adapting our courses to the hour period we find that we include more units of work in related subjects and in selection and less and less in laboratory work."

If more stress is placed upon selection and less upon skill in single-period classes, this would seem to indicate that from such courses more students will be given an opportunity to receive needed instruction in buying and other activities of daily living. For as Christoph (8, page 31) further states:

"We also find that with the hour period more senior high school students elect the work than when we had a double period."

It may be true that, as Clevenger (9) points out, improvement in organization and management of time would not necessarily be assured if classes of laboratory nature, such as foods and clothing, were scheduled for single periods. However, if an effective method of teaching foods and clothing in a single period could be developed, these important phases of homemaking would be made available to more students, and the school would profit by the additional single periods.

A consideration of the problems involved in teaching homemaking in single and double periods interested the
writer in undertaking an experimental study to evaluate the progress of students in classes of varying lengths.

The present study was planned and conducted to collect data which might be analyzed to determine the effects of the allotment of time upon two parallel groups of ninth-grade girls during an eighteen week food unit in the Phoenix Union High School. One group was scheduled for a single period of 50-minutes, the other for a double period of 100-minutes.

The objectives set for this study are:

1. To determine the relative progress of students in parallel groups taught in these two periods of time.

2. To investigate the degree of retention of information by students taught in these two periods of time.

3. To compare the progress made by students representing higher and lower intelligence levels as measured by the Terman Group Intelligence Test who were taught in these two periods of time.

4. To compare the amount and the kind of home experience stimulated in classes of these two lengths of time.

5. To determine attitude of students toward the class of which they were members.

In setting up this problem certain factors which might have a limiting effect upon the findings were evident.

Therefore, the following was assumed:

1. That the teacher is equally skilled in presenting this unit in either double or single-period class.

2. That the materials included in the course, be-
cause of their recent use and revision, are worth while and will lend themselves to either length period.

3. That the problems of routine class management will be the same in each group.

4. That the same laboratory will be used for each group.

Such assumptions can be somewhat justified as the teacher had an opportunity, in the semester prior to the experimental study, to present this same unit to two unselected classes in 50 and 100-minute periods in the same laboratory. The teacher had had three years experience in the same school system with students of this age group and during this time taught in the same laboratory two and one-half years.

This study may, therefore, be stated as: A study conducted under specified time and method of the progress of students in a ninth-grade food unit.
CHAPTER II
PROCEDURE
Chapter II
PROCEDURE

In setting up an experimental study of the progress of two groups of students in food classes taught in two different length periods in Phoenix Union High School, it was necessary to select the groups, the subject matter, and the methods to be used. Each of these important factors will be discussed in this section.

Selection of Groups

The validity of the data secured in this study is largely dependent upon the care with which the individuals used in the study were selected and the extent to which the two groups were parallel. In choosing factors as a basis for equalizing groups, Englehart (13) recommends that only those factors which have a bearing upon the study be used. He further points out that to assure equivalence of groups used in a study with parallel classes the mean of each group in these factors should be the same.

After a careful consideration of suggestions made by such research writers as Comley (10), Braithwaite (5), Anibil (1), Stevenson (33), Courtis (12), and Knox (23) in

---

1. It would have been impossible to set up or conduct this experiment without the cooperation and assistance of the administrators of the Phoenix Union High School. Those who helped to make this study possible are: Superintendent W. W. Montgomery, Dr. L. Eastburn, and Mrs. Mildred W. Wood.
describing methods used in pairing groups, and after studying available facilities, the writer determined that five factors would be used in choosing individuals for this study, namely: (1) intelligence quotient, (2) chronological age in years and months, (3) average of grade points in all school subjects previous to the time of the study, (4) previous experience in school and at home in various homemaking duties that would have an effect upon the results of such a study, and (5) the home conditions of the student which would determine the type and kind of home experience the student could be expected to have during the unit.

School records. There were 130 high school girls enrolled in homemaking classes in the Phoenix Union High School who were available for the experimental study. The opportunity to select the paired students used in experimental groups from such a large number of students is unusual and contributes to the strength of the present study. The office made available the high school records from which some of the data used were secured, as follows:

1. The intelligence quotient had been determined by the Terman Group Intelligence Test.

2. The birth date was included in the permanent record files of the school office. From these records could be determined the exact chronological age in years and months.

3. Grades were recorded in school offices and from these it was possible to secure the average grade points for
students in all high school subjects in the semester previous to the study.

**Previous homemaking experience.** As there was no type of record available to determine the extent or kind of experience of the group of 130 individuals, from which the experimental groups were to be selected, the writer found it necessary to develop a check list, the results of which could be transferred to a numerical score for convenience in pairing. (Appendix page 74)

In order to develop such a check list, it was necessary to determine what types of experience the girls might have at home that would affect their performance in a unit in food preparation. After a careful analysis of the type of material included in the unit, it was decided that experience in (1) planning meals, (2) buying food, (3) preparing entire meals, (4) preparing individual dishes, and (5) miscellaneous housekeeping duties such as setting the table was important. It was also necessary to determine the extent to which the students performed these tasks independently, since this would influence their work in class. To secure this information, the students were directed to indicate whether they carried out these duties by themselves or with the help of others. To further validate replies, students were asked to check the list on the basis of their experience during the previous two weeks. The results of this list indicated the extensiveness of their home ex-
To check the extent and attitude toward previous food preparation work in school, students were asked (1) in what year or years they had had such work, (2) whether they enjoyed these classes, and (3) whether they prepared foods at home that they learned to prepare in class. These answers formed a basis upon which to judge the previous school experience in foods classes.

It was necessary so to weight the answers to these questions that a numerical score for this check-list could be assigned to each student's record. To do this, it was decided that for each home task checked as having been completed alone, a score of two would be given. For each checked as having been completed with help, a score of one would be given. A score of five was given for each class in foods taken previous to this course. Five points were given if the students reported enjoyment of the classes. Five points were given if the student had prepared at home foods she had learned to prepare in school. If the student had had no previous school training in food preparation, a special notation was made, and this was taken into consideration in pairing the classes. The highest possible score that any student might make on this part of the check-list was 67 points.

The scores for homemaking experience gave a comparatively objective measure of this factor regarded as important in the choice of students for paired groups in the
Home conditions. No school records were available which would indicate the type of homes in which the students lived. Braithwaite (5) reported using the Simms Score Card of Socio-Economic Status as a basis for pairing. This did not seem particularly useful for this study, since it did not measure certain items believed necessary.

In using the Simms Score Card it would be evident that information was being secured regarding homes which, in some cases, might embarrass adolescent girls and affect their checking. For these reasons, there were placed at the end of the experience check-list five questions designed to secure information about (1) the kind of fuel used, (2) summer and winter storage of perishable foods, and (3) family buying practices. In the opinion of the writer and a member of the school staff working with guidance and, therefore, familiar with community conditions, the answers to these questions would provide a reliable basis upon which to judge the home conditions considered of importance in this study.

The fuels used in the community were listed without regard to order of preference as (1) gas, (2) electricity, (3) kerosene, (4) rock gas, (5) wood, and (6) coal. With community conditions and costs in mind, a numerical score was assigned to each of these types of fuel as follows: electricity, six points; gas, five points; rock gas, four
points; kerosene, three points; coal, two points; and wood, one point.

In order to check on the type of winter and summer storage of perishable foods, all possible types used in the homes were selected and listed without regard to probable preference (1) ice refrigerator, (2) cooler, (3) cupboard, (4) open shelves, (5) electric refrigerator, (6) gas or oil refrigerator, and (7) cellar. This question regarding both winter and summer storage of perishable foods was asked because it was believed that homes on a lower economic level provided for food storage in a less expensive way during the season when it was possible to do so. With probable economic levels in mind a score was assigned to each of these types of refrigeration as follows: ice refrigerator, five points; cooler, four points; cupboard, two points; open shelves, one point; electric refrigerator, seven points; gas or oil refrigerator, six points; and cellar, three points.

Finally, in considering home conditions affecting the girl's opportunity for carrying out certain types of home activities, information regarding the food-buying practices of the family were considered and weighed as to relative value to the girl in a foods class. The following scores were used: (1) small neighborhood store, two points; (2) cash and carry store, five points; (3) have groceries delivered, three points; (4) wholesale market, four points; (5) hucksters wagon, one point. A possible score of 25
could be secured on this section of the check-list used to
determine the home conditions of the student.

Selection of paired groups. With all the necessary
data tabulated from school records and the scores on the
combined check-list questionnaire recorded on a separate
card for each of the 130 students available for the study,
the next step was to select the pairs.

The factor considered first was the intelligence
quotient. The cards upon which data for each student were
recorded were sorted according to I. Q. From these groups
of cards were selected the records of two individuals most
nearly alike in all the other factors.

In order to keep the groups as nearly equal as possible
in all the factors, averages were computed each time that
five names had been selected for either of the two classes.
By this method, not only the individual pairs were balanced
in all factors, but the averages for the factors in both
groups were checked for equivalence.

The registrar's office of the school was very co-
operative with the writer and scheduled the members of one
of these groups for the second period of the day for 50
minutes. The members of the other group were scheduled for
the third and fourth periods of the day, which provided 100
minutes.

Table I, page 17, presents a comparison of the class
means and standard deviations for each of the factors for
**TABLE I**

**MEANS AND STANDARD DEVIATIONS OF THE FIVE FACTORS USED IN SELECTING 25 PAIRS OF STUDENTS**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Experimental Groups</th>
<th>50-Minute Period</th>
<th>100-Minute Period</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
<td>Mean</td>
</tr>
<tr>
<td>I. Q.</td>
<td>106</td>
<td>7.71</td>
<td>106</td>
</tr>
<tr>
<td>Home Experience</td>
<td>43</td>
<td>16.6</td>
<td>39</td>
</tr>
<tr>
<td>Home Conditions</td>
<td>19</td>
<td>3.8</td>
<td>19</td>
</tr>
<tr>
<td>Average Grade Points</td>
<td>9</td>
<td>2.4</td>
<td>10</td>
</tr>
<tr>
<td>Age</td>
<td>14 yr.</td>
<td>0.44</td>
<td>14 yr.</td>
</tr>
<tr>
<td></td>
<td>6 mo.</td>
<td>3.6</td>
<td>5 mo.</td>
</tr>
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the two groups.

It is interesting to note the extent to which the classes were similar. The only difference shown is that the group scheduled for the 100-minute period had had less home experience and had received higher grades in other subjects than had those who were to be members of the 50-minute class.

**Summary.** The care with which the groups were selected and the extent to which the means of the factors, considered important in this study, equalled one another would seem to justify the assertion that considering the number of students from which the writer had to choose and the imperfections of the measuring instruments, these two groups
were as nearly equal as was possible.

Selection of Subject Matter

To further describe the background for this study, it is necessary to comment briefly regarding the general nature of the subject matter taught to both groups enrolled for this unit, the reasons for including such material, and the desired outcomes of the course.

Subject matter included. The subject matter of the course included a consideration of the body's food needs, preparation of foods which must be included in the daily diet to meet these needs, and the planning, preparing, and serving of simple meals to include the foods prepared.

Justification of subject matter included. The material used in this unit had been evaluated and revised a short time before this study was made. The unit was developed with the needs of groups of this age and the attainment of desired outcomes in mind. This same unit had been used in a similar group the previous semester and had proved effective on the basis of several criteria, including that of encouraging home experience. For these reasons, the writer believed that the subject matter presented was worth while.

Objectives of the Unit. The objectives planned for this course were similar to those set up for this unit in the Arizona State Course of Study for Homemaking.

Major Objective: Ability to plan, prepare, and serve
simple meals for families in the average income group.

Specific Objectives:

1. Recognition of acceptable standards for products.

2. Understanding of the important principles involved in the preparation of foods.


5. Judgment in choosing suitable foods for health and economy.

6. Understanding of some of the principles and techniques of food preservation.

7. Interest in wise buying of food at the market.

8. Ability to prepare and serve simple meals well.

9. Appreciation of the satisfaction that may be derived from a well-planned, attractive meal.

10. Recognition of the value of planning and cooperation.

11. Understanding of how to organize time in planning and serving a meal.

12. Realization of the possibilities of the use of food as a means of providing gifts for friends and for hospitality in the home.

After having thus selected the groups to be used in the study and determining the objectives and materials to be included in the unit, the next step in setting forth the background for this study is to describe the methods and procedures used in these two groups.
Selection of Methods

In order to attain the objectives planned for these paired classes of varying lengths and to have this study as well controlled as possible, an effort was made to provide as many similar learning situations in each class as could be arranged for.

Description of class procedures. In attempting to control the setting for this study, many details were considered. The same teacher conducted both of the classes. A special effort was made by the teacher to become acquainted with the girls in both of the groups as early as possible.

Both of the classes were scheduled before noon to avoid afternoon fatigue, often evident in younger pupils. Time scheduled for classes before noon is less interrupted than that later in the day, since in the afternoon it is frequently necessary to make adjustments for assemblies or special afternoon programs and activities.

In presenting the subject matter of the unit, the same textbook, reference books, magazines, bulletins, illustrative materials, displays, and special talks were included in both of the classes.

Home experience was encouraged in each class. Home practice was suggested at intervals, and time was provided in each class for students to report such practice
orally or on card file records. In both classes home projects were presented merely as an additional kind of home experience more extensive than home practice. The home projects involved the selection of a project, making a plan, carrying out the plan, and finally evaluating the completed work. After each girl selected a project, the same number of conferences were scheduled with each student so that the teacher and the student might discuss and work on home project plans.

During discussions, an attempt was made to use the same techniques and similar problems in each class. The same room was used for class discussion, study, and laboratory lessons. The laboratory equipment included six built-in kitchen desks each equipped for four students. Each of the desks had two four-burner gas plates. A bank of gas ovens and two regular sized sinks with long drain boards flanked one wall close to the unit desks, which were grouped in three rows of two desks each. The storage space for dishes and supplies was fairly well planned to save time and effort. Three large tables could be placed in the front of the room for use either in meal serving or as centers around which groups could work when planning. During discussions, girls from the desks farthest from the front of the room moved up around one of these tables to see and hear more easily.

The laboratory housekeeping duties were cared for by
class members in both groups. Each class was expected to leave the laboratory in good condition.

It will be noted that the two classes used in the study were in many respects managed alike. Only in the procedures used in laboratory lessons did the two classes differ. These differences will be described in the following sections.

**Description of method used in 50-minute laboratory lessons.** The teacher with student assistance, individual class members, or groups of class members demonstrated to the entire group the preparation of foods which were selected to reach the definite desired outcomes planned for the course. An effort was made to give all students as many opportunities as possible to demonstrate before the group. When a sufficient number of appropriate types of foods had been demonstrated to the class by the teacher or the students, the entire class, working in groups of four to eight, planned, prepared, and served simple meals.

The extensive use of demonstrations seemed justified by the opinions and experiments comparing the demonstration method with the usual laboratory method. Good (16) states that investigations, though not statistically significant, show that the demonstration method is favorable for both bright and dull students. Hunter (20) points out that the demonstration is good for younger students in biology. Hurst (21) indicates that in homemaking classes taught in
a single period much of the material might be presented by demonstration. She suggests that demonstrations would give the students an entire pattern of work and would eliminate much trial and error. Recognizing the need for practice, Hurst suggests that when the demonstrations are used in place of individual laboratory experience, the desire to act at home under home conditions needs to be stimulated. From her study of eighth grade students taught a foods unit in a 50-minute period in which demonstrations were used extensively, as compared with a paired group taught by the regular laboratory method in a 50-minute period Comley (10) concludes that under similar conditions 96 out of 100 students would learn more in the class in which demonstrations were used. As a result of her study, Comley recommends that the demonstration and laboratory methods be combined to present foods units in a limited amount of laboratory time.

The method used in the 50-minute laboratory was planned in an attempt to make use of the recommendations of Comley and others writing on this subject.

Description of method used in 100-minute laboratory lessons. Laboratory lessons in the class meeting 100 minutes each day were conducted in the usual individual laboratory method in which each pupil, working individually or in groups of two or four, prepared the foods selected to
attain the desired outcomes of the course. Occasional demonstrations were used in this class, but only to clarify techniques and not to substitute for individual laboratory experience. When the students had had experience in preparing a sufficient number of dishes, they worked in groups of from four to eight to plan, prepare, and serve simple meals.

The foods prepared in each class were similar, and each served meals using the same menu patterns. There was less opportunity for variety in the foods prepared in the 50-minute class period than in laboratory lesson of 100-minutes.

It will be noted that an attempt was made to secure as much uniformity as possible both in the laboratory lessons and in the other learning situations planned to reach the desired outcomes of the unit.

Criticism will be offered concerning the fact that the methods used were not identical. The writer recognized this as a weakness of the study but decided it was wisest to use the best recommended practice for each length of class period.

Summary. In this study the two equivalent classes chosen on the basis of five factors, considered to have a definite bearing upon the study, were conducted as uniformly as possible in all respects except in the matter of time allotment and the method of organizing the laboratory lessons.
CHAPTER III

EVALUATION OF STUDENT PROGRESS
Chapter III
EVALUATION OF STUDENT PROGRESS

Construction and Use of Measuring Devices

The writer recognized the necessity emphasized by Barr (2) of measuring the progress of students in as many ways as possible. Claims of student progress based upon the findings from only one kind of measuring device may be justly criticized.

When developing the measuring devices for this study, the writer was obliged to use certain subjective judgments as well as those of the objective variety for which first preference would normally be given.

In order to secure a variety of data concerning the progress of students in these two groups, several specific devices were used, namely: (1) a 220-item objective comprehensive test, (2) three teacher-made objective tests, (3) an individual laboratory rating scale, (4) a group laboratory rating scale, (5) an accumulative record of all home practice reported, (6) records of home projects selected and carried out, and (7) a questionnaire in which the students expressed their opinions regarding the class of which they were members.

Objective Tests

Two types of objective tests were used to evaluate the
progress of members of these two classes. A 220-point comprehensive test, and three shorter unit tests were used. Comprehensive test.

Construction of Comprehensive Test. To provide a test which measured the extent to which the students had attained the desired outcomes of the entire unit, a 220-point objective test was developed by the writer. To distinguish it from the shorter unit tests, this test will be referred to hereafter as the Comprehensive Test. These unit tests will be referred to as Unit Test I, II, or III, depending upon the time in the semester in which they were given. While developing all of these tests, the writer had in mind that reliability characterizes a dependable objective test. Lee (27, page 355) states:

"A test can be made reliable by using items which can be scored objectively, by using a sufficient number of items, and widely sampling the material covered in the course."

With this in mind, certain steps suggested by Lee (27) were followed in constructing this comprehensive test.

1. The desired outcomes for the course were listed and expressed in terms of desired changed behavior on the part of the students. (Appendix, page 77)

2. Test items were drafted to determine the extent to which the specific desired outcomes had been attained by the students. To increase the validity a large number of items were prepared from which to choose. Lee (27, page
336) points out:

"It has been shown that short objective tests which include only a small number of items, from twenty to forty, have very poor validity."

The test items used were: completion, which requires recall, and modified true-false and multiple choice, which are recognition items. Commenting on the reliability of different types of objective questions, Lee (27) indicates that the completion type of question is slightly more reliable than others and that modifications of true-false test seems to increase the reliability. He indicates that recall items are most reliable and that recognition questions including several choices are probably second best in reliability. Considering both of these criteria, this test was constructed with such care as would provide a reliable measuring device.

3. Test items were organized according to type, in three sections.

4. Directions for each section were prepared.

5. A key was prepared by the writer. To further establish the validity of the test and to check for clarity, the writer asked ten other teachers in this field to take the test. Where there was a disagreement as to the meaning of any item or the clarity of directions needed, alterations were made.

6. This test was prepared as a project in a summer school course in Measurement in Secondary Schools; so the
writer had the opportunity of submitting the test for the
criticism of the instructor. Some very helpful suggestions
were made concerning ways in which the wording of the items
could be clarified.

7. The test was then revised to include all sugges-
tions, and copy was prepared for mimeographing.

Determining the reliability of the Comprehensive Test.
The claims that might be made regarding progress measured
by this Comprehensive Test for either of these groups would
be justified only to the extent that the test was reliable.
Lee (27, page 338), in a discussion of the reliability of
teacher-made objective tests, makes several statements of
importance:

"If a reliability of 0.90 is considered sat-
isfactory, approximately 100 recall items, or 125
five-response items, or 150 true-false items are
necessary to attain this degree of reliability.
Where examinations include a number of different
types of questions as most examinations do, they
should include enough items to be equivalent to
this estimate."

This test contains 122 response items and 38 recall
items. All of the items could be scored objectively, and
the test includes items designed to test the progress
toward the desired outcomes of the entire course. Using
these criteria, the reliability of this test might be pre-
dicted as comparatively high for a non-standardized teacher-
made test.

In order statistically, to determine the coefficient
of reliability, the method described by Lindquist (28) was used. The test was split into chance halves using the odd and even items of the test. Each half was scored separately for the group of 50 students used in the two experimental classes. Using the Pearson’s Product-Moment Method, the coefficient of correlation of these scores was found to be 0.84, P.E. ± .026. This was the coefficient of reliability of either half of the test. The coefficient of reliability of the whole test was determined by applying the Spearman Brown Prophecy Formula and was found to be 0.90, P.E. ± .015.

The coefficient of reliability of 0.90 on this test may be interpreted, according to Lindquist (28), as being meaningful for only this group. For the purpose of this study, however, it can be said that this correlation coefficient is significantly high, and that the test measures consistently what it is supposed to measure. Therefore, in this study, the findings based upon this test may be used to claim evidence of progress or lack of progress.

Using the Comprehensive Test. In order to secure data concerning the progress of each of these students at dif-

1. $r = \frac{\frac{1}{N} \sum x' y' - (\frac{1}{N} \sum x')(\frac{1}{N} \sum y')}{S.D.x \cdot S.D.y}$  
P.E. r = .6745  

2. $R = \frac{2r}{1 + r}$  
P.E.R = .6745  

S.D.R
ferent intervals, the Comprehensive Test was given to the students at three different times.

The test was given first as a Pre-Test at the beginning of the course. Each student answered as many of the items as she could in 60 minutes. It was made clear to the students that this test was not to be considered in their semester grades, but was to guide the teacher in planning the course. The test papers were collected, and during the unit no further reference was made to this test. The results from this administration of the test will hereafter be referred to as the scores on the Pre-Test.

The Comprehensive Test was given a second time as the final examination of the course, and all students were expected to answer as many of the questions as they could in 60 minutes. The data secured from this use of the Comprehensive Test will be referred to as the scores on the Final Test.

Eight months after the Final Test the test was given the third time. Students still in school who had been members of either of the experimental groups were requested to take the test again.

It was explained to these students that the teacher wished to secure this information for use in a study. Two of the 48 girls finally used in the study were not enrolled in school at the time the test was given the third time.
Of the 46 so enrolled, 28 responded to the request to repeat the test. The results of this administration of the Comprehensive Test will be referred to as the Re-Test scores.

**Constructing the Unit Tests.**

As grades had to be assigned to students at six-week intervals, objective tests were developed by the writer and others teaching this unit. In constructing these tests, practically the same procedure was followed as the writer has already described for construction of the Comprehensive Test. Three of these Unit Tests were used during the 18-week unit.

Unit Test I, consisting of 69 points, included modified true-false, matching, and ranking test items. Unit Test II totaled 121 points and included modified true-false, completion, and matching test items. A possible score of 98 could have been made on Unit Test III. This third test included items of completion, modified true-false, and multiple choice types. (Unit Tests on file in Home Economics Education Office)

In discussing validity of teacher-made objective tests, Lee (27, page 336) states:

"According to a study of testing practices, of teachers, the median number of items which teachers include in objective tests is 31...It would appear that the objective tests teachers give are too short to be valid, but they can be made valid when scores from a number of these
tests are combined."

The combined scores of the Unit Tests used in this study totaled 288 points. In the light of Lee's comments, these facts would seem to indicate that the validity of these tests could be expected to compare favorably with that of other well-constructed, teacher-made objective tests.

The reliability of the Unit Tests is unknown. Claims regarding student progress measured by any or all of these Unit Tests, as unrefined, teacher-made tests, have some significance. Much less weight could be placed upon the results of these tests than upon the data secured from the Comprehensive Test which had a proved coefficient of reliability of 0.90 for this group. Each of these three Unit Tests was given at six-week intervals to members of the groups used in the study.

Laboratory Rating Scales

Students in foods classes should repeat laboratory projects at home. It is important that this be a successful and satisfying experience for them and for their families. During laboratory lessons, the teacher has the responsibility of providing activities which will give the girl successful experience and will encourage good working habits.

Because it was impossible for the writer accurately to rate individual students or groups of students, while
conducting the class, and because the opinions of others regarding performance of students in these two groups would be valuable, the writer selected five persons to rate the class at two different times. These five will be referred to as judges. Each was familiar with the unit, knew what could be expected of ninth grade girls in laboratory work, and was interested in the study. Three of the five raters had had state supervisory experience. Prior to the time for rating, all raters were given a copy of the rating scale to be used so that they might examine it and ask any questions with regard to its use. In the opinion of the writer, the decisions of these judges provided a reliable subjective judgment of the practical performance of the students used in the study.

To measure the progress of students based upon practical performance in the laboratory, rating scales were used similar to those developed by Comley (10). (Appendix, page 94) These rating scales were particularly effective as learning as well as measuring devices, for the students were always interested in seeing which part of their work they had improved in and where further improvement was needed.

**Individual Rating Scale.**

As the objectives of this unit referred to some abilities and skills, a rating of performance of each
individual was necessary. To rate this progress, the Individual Rating Scale was used.

Description of Individual Rating Scale. The rating scale to determine the progress of the individual student in laboratory work considered speed, efficiency in use of time and effort, condition of working area, use of supplies, and appearance at work as important factors in performance.

The scale described levels of performance for each of these factors. The judges were directed to indicate the place on the six-point scale which most correctly described the performance of the individual rated.

Using Individual Rating Scale. During the tenth week, each girl was given an individual rating scale. The points included on the scale were discussed. The girls then rated their laboratory partners, with whom they had been working during the semester. When the rating was completed, the cards were returned to each girl, and each had an opportunity to analyze the rating and make plans for improvement.

During the fifteenth week, three judges were invited to visit each of the experimental groups and observe the performance of eight class members. During the laboratory lesson, each girl was working in a group of four preparing and serving a simple luncheon which had been planned in previous class periods. In order to identify each girl so that the judges would have no difficulty in determining
which girls to observe, numbers were pinned on the front and back of the girl's apron to correspond with the numbers placed on the rating scales given to the judges.

The girls had been advised that judges would be in the class to rate them on that day, and they did not seem to be unduly nervous but, rather, were interested to learn how the judges had rated them and how this compared with the rating their partners had given them earlier in the semester. It would have been better to use this scale when each girl was preparing and serving a meal independently, but inadequate time and laboratory equipment made this impossible.

**Group Rating Scale.**

Another specific objective for the unit indicated that students were to gain an understanding of the value of group cooperation. To measure progress of groups toward this objective, the Group Rating Scale was used.

**Description of Group Rating Scale.** The Group Rating Scale considered the following factors regarding the girls working in groups: menu planned, cost, division of duties, recipes, market order, time schedule, and plan of service. Levels of performance were described for each of these factors, and a six-point rating scale was devised.

**Using the Group Rating Scale.** During the second and third months of the semester, the teacher rated the class
members who were then working in groups of four in preparing and serving simple breakfasts and luncheons. Following each rating, these scales were returned to the groups and discussed from the standpoint of how the laboratory work might be improved.

At the close of the semester, during the sixteenth week, three of the judges who had rated the students individually, returned to rate the class on group work. At this time, the girls were working in groups of eight preparing and serving a simple dinner. Each judge was directed to rate one of these groups of eight. A copy of the group's menu, market order, work plan, and serving plan was given to the judges of each group.

Home Experience Records

The extent to which students actually use material presented in class is a final measure of teaching effectiveness. To secure information regarding the amount and kind of experiences the girls in these experimental groups carried out at home during the unit, records were kept of home practice and home projects completed by members of each class.

Home Practice.

To provide a record of information regarding the home conditions affecting each girl's opportunity to do home practice, the following questions were asked: (1) Can you
prepare foods at home if you wish? (2) How many are
served at meals in your home? (3) Do you prepare food at
home often now? (4) What foods would you be most interested
in learning more about? On the reverse side of the three-
by-five index card used for recording this information,
students were directed to place a record of the date and
kind of home practice they completed during the semester.

These cards were placed in a file where they could be
checked at any time when the student wished to report home
practice experience, but no pressure was exerted, and no
reference was made to home practice records in relation to
grades.

Home Projects.

During the fourth week, home projects were presented
to each class, and time was allotted for group discussion.
Copies of projects completed by students in former classes
in that department, as well as mimeographed copies of home
projects from other schools in the state provided by the
State Department of Vocational Education, were distributed
for inspection.

Students were asked to think about home projects, to
talk about them with their mothers, and to be ready in a
few days to tell what they would like to choose for their
home projects.

During the fifth week, the girls were asked to hand in
a card upon which they answered the following questions: (1) What home project would you like to do? (2) Have you discussed home projects with your mother? (3) When would you like to begin this project? (4) At which of the following periods can you come for conference? 1______ 6______ 7______ 8______. As noted before, each girl was scheduled for an equal number of home project conferences.

Home projects were planned in conference, checked, and reported on either orally to the class or in a written form whichever the individual girl preferred.

Pupil Questionnaire

The writer believes that an expression of the opinion of high school students regarding a course is a worthwhile method of evaluating materials, organization, and procedures used in any class. The practice followed by the writer of asking students to evaluate courses at the close of a semester has indicated various weaknesses and strengths of homemaking classes which the writer has taught. These evaluations are unsigned, and it is emphasized that the comments will not affect the grade to be given for the course.

To secure this information for this study, a questionnaire (Appendix, page 96) was used which provided an opportunity to check student reaction to several aspects of
the class, namely: (1) satisfaction regarding the class of which students were members, (2) their plans for enrolling in additional homemaking courses, (3) their reasons for not planning to take additional homemaking courses, (4) their attitude toward the length of period, and (5) their judgment regarding the various methods under which their work has been done.

This questionnaire was answered at the last regular meeting of the class. It is interesting to note that, as has always been the case in the writer's experience, the group wanted to know how others had answered the questions and asked to have the answers read to the class. Until all papers were handed in, however, it was quite evident that each student had her own opinion and was not concerned with the feelings of others. This is a very subjective evidence to present; but as the writer has stated, in this study an attempt was made to secure a variety of evidences regarding the progress of these two experimental groups.

Analysis of Findings

The data for this study were collected through the use of objective tests, laboratory rating scales, home experience records, and a pupil questionnaire, each of which was described in the foregoing division of this chapter. The analysis of these data is included in the following sections.
Objective Tests

Included as measuring devices in this study were two types of objective tests, the Comprehensive Test and the three Unit Tests used as previously described. **Comprehensive Test.**

Scores on the Comprehensive Test given to each group at the beginning and close of the semester are presented in Table II, page 41, for each of the 48 students used in the study. The difference between the scores may be attributed to the learning acquired during the semester.

An analysis of Table II shows that the group in the 50-minute period had on the Pre-Test a mean score which was ten points lower than the mean of the 100-minute period group on the same test. At the close of the semester, when this test was repeated, the mean score of the 50-minute period class was only three points lower than that of the 100-minute period.

The average positive difference in the scores in the 50-minute period class was seven points greater than the average positive difference of the scores in the 100-minute period group. This difference is not statistically significant, but indicates that the students in the 50-minute period class when measured by the Comprehensive Test showed as much progress during the semester as the students in the 100-minute period class.
### TABLE II

**SCORES ON THE COMPREHENSIVE TEST USED AS PRE-TEST AND FINAL TEST**

<table>
<thead>
<tr>
<th>Experimental Groups</th>
<th>50-Minute Period</th>
<th>100-Minute Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scores</td>
<td>Scores</td>
</tr>
<tr>
<td></td>
<td>Pre-Test*</td>
<td>Final</td>
</tr>
<tr>
<td>Mean</td>
<td>133</td>
<td>161</td>
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<tr>
<td>S.D.</td>
<td>17</td>
<td>11.1</td>
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<tr>
<td>Pair No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>163</td>
<td>176</td>
</tr>
<tr>
<td>2</td>
<td>120</td>
<td>174</td>
</tr>
<tr>
<td>3</td>
<td>130</td>
<td>163</td>
</tr>
<tr>
<td>4</td>
<td>122</td>
<td>148</td>
</tr>
<tr>
<td>5</td>
<td>151</td>
<td>166</td>
</tr>
<tr>
<td>6</td>
<td>143</td>
<td>152</td>
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<tr>
<td>7</td>
<td>131</td>
<td>172</td>
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<tr>
<td>8</td>
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<td>159</td>
</tr>
<tr>
<td>24</td>
<td>161</td>
<td>156</td>
</tr>
</tbody>
</table>

*Note: This table may be read as follows: The same Comprehensive Test was used both as a pre-test and final test.*
Eight months later the Comprehensive Test was repeated. Table III, page 43, presents the scores on the Final Test and Re-Test of those students repeating the Comprehensive Test.

In studying Table III it will be observed that the means of the scores on the Comprehensive Test used as a Final Test were practically the same. When the Comprehensive Test was repeated after eight months, the mean of the scores of the 50-minute period group was six points lower than that of the students of the 100-minute period class. This indicates that insofar as we may draw any inference from such a small group the 50-minute period group forgot more material, as measured by the Comprehensive Test, than did the 100-minute period group.

When the average loss is studied, the superiority of the 100-minute period class becomes more evident. The average loss of the 50-minute period class was more than five times the average loss of the 100-minute period group.

Using the rank order correlation method, the coefficient of correlation between the Final Test and the Re-Test for the two groups was determined. The coefficient of correlation of these two tests for the 50-minute period class was $0.502 \pm 0.13$. The 100-minute period tests resulted in a correlation of $0.68 \pm 0.008$, which fact emphasizes that the students in the 100-minute period class performed more consistently on the two tests than did the
**TABLE III**

**SCORES ON THE COMPREHENSIVE TEST USED AS FINAL TEST AND RE-TEST**

<table>
<thead>
<tr>
<th>Experimental Groups</th>
<th>50-Minute Period</th>
<th>100-Minute Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Final Test</td>
<td>Difference</td>
</tr>
<tr>
<td>Mean</td>
<td>161.3</td>
<td>153.14</td>
</tr>
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</table>

<table>
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<th>Pair No.</th>
<th>50-Minute Period</th>
<th>100-Minute Period</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Final Test</td>
<td>Difference</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>---</td>
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<td>152</td>
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<tr>
<td>6</td>
<td>172</td>
<td>167</td>
</tr>
<tr>
<td>7</td>
<td>168</td>
<td>154</td>
</tr>
<tr>
<td>8</td>
<td>156</td>
<td>129</td>
</tr>
<tr>
<td>9</td>
<td>164</td>
<td>147</td>
</tr>
<tr>
<td>10</td>
<td>150</td>
<td>141</td>
</tr>
<tr>
<td>12</td>
<td>172</td>
<td>171</td>
</tr>
<tr>
<td>13</td>
<td>155</td>
<td>164</td>
</tr>
<tr>
<td>14</td>
<td>156</td>
<td>149</td>
</tr>
<tr>
<td>15</td>
<td>179</td>
<td>138</td>
</tr>
<tr>
<td>16</td>
<td>155</td>
<td>164</td>
</tr>
<tr>
<td>17</td>
<td>159</td>
<td>157</td>
</tr>
<tr>
<td>18</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

A dash indicates that these students did not take the Re-Test and therefore their scores are omitted.

These data indicate that as measured by the Comprehensive Test the students in the 100-minute period group had more permanent learning. It is impossible for the students in the 50-minute period class.
writer to offer evidence whether either the particular laboratory procedure or the length of time influenced this difference between the two groups used in this study.

**Unit Tests.**

The Unit Tests were given to each group at six-week intervals. Consideration will be given to the total scores made on the three Unit Tests, as Lee, in a reference previously cited (27), indicates that the reliability and validity of teacher-made objective tests are increased by combining the scores on several tests.

The scores made by the two experimental groups on the Unit Tests are presented in Table IV, page 45.

A review of Table IV shows that the mean score of the 50-minute period class on each of the Unit Tests was slightly higher than the mean of the 100-minute period class on the same tests. The mean of the total score in the 50-minute period class was slightly higher than that of the 100-minute class. The difference is not statistically significant, but indicates that the 50-minute period group, when measured by the Unit Tests, showed progress which at least was equal to that of students in the 100-minute period group.

The limited number of pairs of students in this study makes it impossible to claim anything regarding individual progress. Claims for progress made in these paired groups
TABLE IV
SCORES ON THE UNIT TESTS

<table>
<thead>
<tr>
<th>Experimental Groups</th>
<th>50-Minute Period</th>
<th>100-Minute Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scores on Unit Test</td>
<td>Scores on Unit Test</td>
</tr>
<tr>
<td></td>
<td>I    II   III  Total</td>
<td>I    II   III  Total</td>
</tr>
<tr>
<td>Means</td>
<td>54    80   73  207</td>
<td>53    82   71  206</td>
</tr>
<tr>
<td>S. D.</td>
<td>18.42</td>
<td>16.16</td>
</tr>
</tbody>
</table>

Pair No.

| 1 | 59 | 93 | 75 | 227 | 62 | 102 | 80 | 244 |
| 2 | 58 | 87 | 90 | 245 | 58 | 75  | 67 | 200 |
| 3 | 53 | 83 | 72 | 206 | 45 | 69  | 73 | 187 |
| 4 | 51 | 77 | 64 | 192 | 55 | 81  | 74 | 210 |
| 5 | 54 | 83 | 83 | 206 | 63 | 66  | 63 | 234 |
| 6 | 59 | 75 | 70 | 204 | 43 | 63  | 77 | 203 |
| 7 | 54 | 97 | 78 | 229 | 57 | 82  | 67 | 206 |
| 8 | 55 | 86 | 75 | 216 | 54 | 83  | 64 | 201 |
| 9 | 47 | 83 | 64 | 194 | 58 | 89  | 72 | 219 |
| 10| 65 | 75 | 70 | 210 | 56 | 74  | 74 | 204 |
| 11| 51 | 71 | 72 | 194 | 52 | 81  | 73 | 206 |
| 12| 51 | 72 | 59 | 182 | 52 | 81  | 65 | 198 |
| 13| 42 | 70 | 73 | 185 | 57 | 82  | 73 | 212 |
| 14| 56 | 87 | 76 | 221 | 57 | 95  | 72 | 224 |
| 15| 52 | 76 | 63 | 191 | 57 | 83  | 76 | 216 |
| 16| 47 | 51 | 63 | 161 | 51 | 69  | 56 | 176 |
| 17| 49 | 77 | 71 | 197 | 48 | 85  | 65 | 198 |
| 18| 54 | 84 | 79 | 217 | 50 | 91  | 78 | 219 |
| 19| 54 | 68 | 78 | 200 | 57 | 80  | 76 | 213 |
| 20| 63 | 102| 83 | 248 | 53 | 90  | 63 | 206 |

must be made in terms of the mean progress of the groups.
With this general principle in mind, it may be said that
the progress, as measured by the Unit Tests, of the 50-
minute period groups can be compared favorably with that of
the 100-minute period group.

Laboratory Rating Scales

At different times during the study, individuals and groups of both experimental classes were rated by the teacher, the pupils, and the judges. The following section will present the findings based upon the use of the Laboratory Rating Scales.

Individual Rating Scale.

During the semester, each of the students in the two experimental groups was rated on individual laboratory skill as evidenced by practical performance in the laboratory. The ratings were made by the laboratory partners and a judge. Table V, page 47, presents the scores on these two ratings.

This table reveals that, according to both of the ratings evaluating individual performance, the mean score of the 50-minute period group was higher than the mean score of the 100-minute period class. The scores of the judges, whose ratings provided the more reliable basis upon which claims may be made, indicated that the students in the 50-minute period class were more skillful in laboratory work than those in the 100-minute period. This greater skill on the part of the members of the 50-minute period class may have been the result of demonstrations in which patterns of whole jobs were presented. These demonstrations
TABLE V

SCORES ON INDIVIDUAL LABORATORY SKILL RATED
BY PARTNERS AND JUDGES

<table>
<thead>
<tr>
<th>Experimental Groups</th>
<th>50-Minute Period</th>
<th>100-Minute Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rating Scores</td>
<td>Rating Scores</td>
</tr>
<tr>
<td>Mean</td>
<td>Partner</td>
<td>Judge</td>
</tr>
<tr>
<td>Pair No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>27</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>6</td>
<td>21</td>
<td>23</td>
</tr>
<tr>
<td>7</td>
<td>27</td>
<td>25</td>
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<tr>
<td>8</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>9</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>10</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>11</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>12</td>
<td>27</td>
<td>23</td>
</tr>
<tr>
<td>13</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>14</td>
<td>23</td>
<td>27</td>
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<tr>
<td>15</td>
<td>22</td>
<td>22</td>
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<tr>
<td>16</td>
<td>23</td>
<td>26</td>
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<tr>
<td>17</td>
<td>27</td>
<td>25</td>
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<tr>
<td>18</td>
<td>18</td>
<td>17</td>
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<tr>
<td>19</td>
<td>26</td>
<td>27</td>
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<td>20</td>
<td>25</td>
<td>27</td>
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<td>21</td>
<td>25</td>
<td>22</td>
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<tr>
<td>22</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>23</td>
<td>24</td>
<td>27</td>
</tr>
</tbody>
</table>

were performed with a reasonable amount of skill and technique. The writer observed from work-plans handed in to be checked, that the individuals in the 50-minute period group
seemed to plan for the use of their class time in greater detail than did the students in the other class. These two facts may explain why the students of the 50-minute period class were rated higher by the judges than those in the 100-minute period class.

Group Rating Scale.

In addition to the Individual Rating Scale, the Group Rating Scale was also used for each of the experimental groups. This scale was used twice by the teacher to rate groups of four girls working together in each group. Table VI presents the scores made by the groups in each of these classes.

**TABLE VI**

<table>
<thead>
<tr>
<th>Experimental Groups</th>
<th>50-Minute-Period Rating Scores</th>
<th>100-Minute Period Rating Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I*</td>
<td>II**</td>
</tr>
<tr>
<td>Mean</td>
<td>24.3</td>
<td>25.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Groups</th>
<th>Rating Score</th>
<th>Rating Score</th>
<th>Rating Score</th>
<th>Rating Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>23</td>
<td>24</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>B</td>
<td>25</td>
<td>28</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>C</td>
<td>20</td>
<td>27</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>D</td>
<td>22</td>
<td>25</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>E</td>
<td>22</td>
<td>24</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>F</td>
<td>24</td>
<td>27</td>
<td>3</td>
<td>21</td>
</tr>
</tbody>
</table>

* Rating Score I March, 1938.
** Rating Score II April, 1938.

Table VI discloses that in every class improvement was
made each time the groups were rated. The evidence of progress in group laboratory skill of these two groups, as judged by the teacher, indicates that the 50-minute period group did as well as the 100-minute period group in the laboratory work performed in groups of four.

The group laboratory skill was rated by judges at the close of the unit. Each of the classes was divided into three groups of eight students each to prepare a simple dinner. The scores of the three groups in each class are presented in Table VII.

**TABLE VII**

<table>
<thead>
<tr>
<th></th>
<th>Experimental Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50-Minute Period 100-Minute Period</td>
</tr>
<tr>
<td>Rating Scores</td>
<td>Rating Scores</td>
</tr>
<tr>
<td>Mean</td>
<td>26.66</td>
</tr>
<tr>
<td>Groups</td>
<td>X Y Z</td>
</tr>
<tr>
<td>Scores</td>
<td>23 21 32 (50-Minute Period)</td>
</tr>
<tr>
<td></td>
<td>21 29 26 (100-Minute Period)</td>
</tr>
</tbody>
</table>

Table VII shows that for this kind of laboratory work the students in the 50-minute period class, when rated by judges, have a higher mean score than do the students in the 100-minute period group.

Two of the judges who rated a group in each of the classes suggested that if the students in the 50-minute period class had had as much as 10 minutes more for their
work, they would have rated even higher than they did. Both of these judges stated that the groups in the 50-minute period class managed time more effectively than the members of the other class.

It was also noted that one of the judges showed a tendency to rate consistently lower than any of the other judges. This judge observed the performance of only eight students in the 100-minute period class. However, the lower average rating on the scale may be attributed, in part, to this fact.

It is interesting to note that the average difference between the partner's rating in the 100-minute period class and the rating given by the judges was very slight. As compared with that of the judge the partner's rating in the 50-minute period showed more than five times the average difference of the 100-minute period class. This may indicate that because of the lack of experience in individual laboratory work, students in the 50-minute period class were less able than those in the 100-minute period class to judge the performance of others.

These ratings indicate that in the 50-minute period class the individual performance of students, as measured by this rating scale, was slightly better than that of members of the 100-minute period group.

When both of the classes were ready to serve, a teacher who came in to judge the appearance of the serving
table, the working areas, and the girls made several interesting observations. She stated that the serving tables in the 100-minute period groups were set more carefully, and the dishes, silver, and table decorations were chosen more tastefully than was done by the students in the 50-minute period class. She further noted that the girls in the 100-minute period class looked neater than those in the other experimental class. She reported no observable difference in the appearance of the working areas when the meals were served. The shorter period allowed less time for the students to experiment with flower arrangements or combinations of dishes and glassware than was possible in the 100-minute period class. Meals had to be served more hurriedly in the 50-minute period class. These conditions, no doubt, affected the appearance of the tables and the girls in the 50-minute period class. It is interesting to note that although the students in the 50-minute period group felt the pressure of time when they served meals, they left their working areas in a condition that compared favorably with that of students in the longer period class.

When rated by either the teacher or the judges the group laboratory work in the 50-minute period class as measured by this scale compared favorably with the work of the students in the 100-minute period class.
Home Experience Records

The home experiences of the students were classified as home practice and home projects. The term "home practice" used in this study, means repeating classroom activities at home. "Home projects" are a more extensive type of home experience which require management and planning. Some data regarding both of these phases were obtained and are presented in the following sections.

Home Practice.

The frequency of home practice reported in both of the experimental groups is presented in Table VIII, page 53.

An analysis of this table shows that the students in the 50-minute period class did more practice than the students in the 100-minute period class. The difference in the mean frequency is approximately three points, but it will be noted that the mean for the 100-minute period class was considerably affected by the extensive home practice reported by pair 16 of that group. Without this girl's report the mean frequency in this group is 4.4.

The students in the 50-minute period class repeated class activities at home more frequently than did the students in the 100-minute period group. The writer believes that the more extensive home practice in the 50-minute period class may have been stimulated when the students
### TABLE VIII

**FREQUENCY OF HOME PRACTICE REPORTED**

<table>
<thead>
<tr>
<th>Experimental Groups</th>
<th>50-Minute Period</th>
<th>100-Minute Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Home Practices Reported</td>
<td>Home Practices Reported</td>
</tr>
<tr>
<td>Mean</td>
<td>9.3</td>
<td>6.5</td>
</tr>
<tr>
<td><strong>Pair No.</strong></td>
<td><strong>Note:</strong> This table may be read as follows; one girl reported home practice 15 times during the semester. <strong>The extensive home practice reported by this individual affects the mean for this group to a great extent. Without this girl's report the mean for the group is 4.4.</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>15*</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>24</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>13</td>
<td>17</td>
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<tr>
<td>10</td>
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</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>8</td>
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<tr>
<td>13</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>14</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>16</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>25</td>
<td>45**</td>
</tr>
<tr>
<td>19</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>7</td>
<td>0</td>
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<tr>
<td>23</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>24</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>27</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>28</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>29</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

*Observed a successful demonstration or saw and tasted attractive, appetizing dishes in the classroom. The desire...*
to perform this same activity at home was greater because the students had had no experience with the process or the materials themselves. On the other hand the students in the 100-minute period class were less interested in home practice having prepared a dish themselves, frequently with less success than was usually attained in the demonstrations in the 50-minute period class.

These data show that more home practice was stimulated and reported in the 50-minute period than in the 100-minute period.

Home Projects.

The data concerning home projects completed by the two classes are included in Table IX, page 55.

It is apparent from this table that there was a tendency on the part of more students in the 50-minute period group to choose less extensive projects than those undertaken by students in the 100-minute period class. To clarify this statement, it will be noted that the students in the 50-minute period chose to prepare a single meal or a part of a meal. Whereas the students in the 100-minute period class chose projects which required more responsibility and a longer period of time. This may be due to lack of class experience on the part of the 50-minute period class. They may not have felt sufficiently confident to undertake as extensive projects as did those students in
TABLE IX

HOME PROJECTS COMPLETED IN THE 50-MINUTE PERIOD

<table>
<thead>
<tr>
<th>Titles of Home Projects</th>
<th>Number Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning and Preparing a Birthday Dinner</td>
<td>1</td>
</tr>
<tr>
<td>Planning Food and Exercise to Loose Weight</td>
<td>1</td>
</tr>
<tr>
<td>Planning Food and Exercise to Gain Weight</td>
<td>1</td>
</tr>
<tr>
<td>Planning and Preparing Desserts for One Week</td>
<td>4</td>
</tr>
<tr>
<td>Preparing Salads for the Evening Meal</td>
<td>4</td>
</tr>
<tr>
<td>Planning and Preparing Salads and Desserts for the Evening Meal</td>
<td>3</td>
</tr>
<tr>
<td>Planning to Use Eggs in a Variety of Ways</td>
<td>1</td>
</tr>
<tr>
<td>Planning and Preparing Sunday Dinners</td>
<td>5</td>
</tr>
<tr>
<td>Planning Menus and Buying Groceries for One Week</td>
<td>1</td>
</tr>
<tr>
<td>Planning and Preparing Breakfast and Supper on Week End</td>
<td>2</td>
</tr>
<tr>
<td>Planning and Preparing Saturday Supper for One Month</td>
<td>1</td>
</tr>
</tbody>
</table>

HOME PROJECTS COMPLETED IN THE 100-MINUTE PERIOD

<table>
<thead>
<tr>
<th>Titles of Home Projects</th>
<th>Number Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning and Preparing Easter Dinner</td>
<td>1</td>
</tr>
<tr>
<td>Planning and Preparing Time Saving Meals</td>
<td>1</td>
</tr>
<tr>
<td>Planning Inexpensive Desserts for One Week</td>
<td>1</td>
</tr>
<tr>
<td>Preparing a Variety of Quick Breads for the Family Meals for One Week</td>
<td>1</td>
</tr>
<tr>
<td>Planning and Preparing Sunday Dinners</td>
<td>8</td>
</tr>
<tr>
<td>Planning and Serving Sunday Breakfasts</td>
<td>2</td>
</tr>
<tr>
<td>Planning and Serving a Birthday Dinner</td>
<td>3</td>
</tr>
<tr>
<td>Planning and Serving Mother's Day Dinner</td>
<td>3</td>
</tr>
<tr>
<td>Planning and Preparing Evening Meals for One Week</td>
<td>2</td>
</tr>
<tr>
<td>Planning Dinners and Buying Groceries for One Week</td>
<td>1</td>
</tr>
</tbody>
</table>

the 100-minute period who had had more laboratory experience.

The writer could observe no difference in the interest
with which the students of the two groups undertook and carried through the projects. It was interesting to note, however, that home project reports for the 50-minute period class were completed more promptly than such reports made in the 100-minute period class.

Less comprehensive home projects were selected and completed by students in the 50-minute period class than by those in the longer experimental group.

It can be said that more home practice was stimulated by the class activities in the 50-minute period, but the nature of the home projects chosen by the students of this group was less comprehensive than that of those selected by students in the 100-minute period class.

Pupil Questionnaire

The pupil questionnaire was designed to determine student attitudes and reactions toward the courses they had taken. An analysis of the summary of the replies made by the two classes to this questionnaire reveals several interesting points. (Appendix, page 96) More students in the 50-minute period class than in the 100-minute period class planned to continue homemaking courses. Of the students who did not plan to do so those in the 100-minute period class checked the reasons "not interested" and "takes too much time" more frequently than did those in the other experimental group. This might indicate that
the students in the 50-minute period class had a more sustained interest in homemaking than those in the 100-minute period class.

As might be expected greater dissatisfaction with the length of the period was expressed by students in the 100-minute period class than by those in the 50-minute period group. The converse was true regarding the criticism that the period was too short. In each class then, some students were dissatisfied with the time allotment although greater criticism was made by the 100-minute period class.

Each group stated they learned most by preparing complete meals. Working with partners, observing demonstrations, and performing individual work, in the order named, were the other methods preferred by both groups.

Three times as many students in the 50-minute period favored the plan to continue this unit on the 50-minute basis as compared with the group who regarded such procedure as unwise.

The general statement can then be made that as far as one may judge from this subjective evidence, the pupils in the 50-minute period class more frequently expressed approval of their working plan than did the pupils in the 100-minute period class.
Progress of Five Pairs of Students Representing Different Intelligence Levels

In planning this study, the writer was interested in investigating the progress of pairs of students who represented different intelligence levels. The records for the individuals presenting all phases of progress measured in this study are presented for five pairs of students from the two experimental groups. The writer regrets that on the Re-Test more complete data were not secured. Complete data from such a limited number of students can be said to indicate merely possible trends.

Progress of five pairs of students with I.Q. above 110.

Table Xa, page 59, presents data available for five pairs of students with I.Q. above 110.

Table Xa indicates that the five individuals in the 50-minute period class showed greater gain on the Comprehensive Test given as a Pre-Test and Final Test than did their corresponding pairs in the 100-minute period group. The three students in the 50-minute period for whom data were secured on the Re-Test had forgotten three times the average number of points lost by their pairs in the 100-minute period. As compared with the other group the five individuals in the 50-minute period showed a slight gain on the Unit Tests.

The students in the 50-minute period class reported more home practice than did the students in the 100-minute
### TABLE Xa

**PROGRESS OF FIVE PAIRS OF STUDENTS WITH I.Q. ABOVE 110**

<table>
<thead>
<tr>
<th>50-Minute Period Group</th>
<th>100-Minute Period Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comprehensive Test Scores</strong></td>
<td><strong>Unit Tests</strong></td>
</tr>
<tr>
<td>Pre-Final Test</td>
<td>Test</td>
</tr>
<tr>
<td>Pair No.</td>
<td>163</td>
</tr>
<tr>
<td>1</td>
<td>180</td>
</tr>
<tr>
<td>2</td>
<td>130</td>
</tr>
<tr>
<td>3</td>
<td>122</td>
</tr>
<tr>
<td>4</td>
<td>141</td>
</tr>
</tbody>
</table>

1. This table may be read, the student representing pair #1 in the 50-minute period received a score of 163 on the Pre-Test. The student representing pair #1 in the 100-minute period made 155 on the Pre-Test.

* Scores for Unit Tests I, II, III see Table IV.

** Laboratory rating by judge.

period experimental group. Those students in the 100-minute period class were rated on an average of two points higher on the individual laboratory skill than were students in the 50-minute period class. The writer can offer no
no reason for this difference in laboratory skill unless the more alert students did not observe the demonstrations as carefully and therefore did not do as well when they were required to perform the task alone.

**Progress of five pairs of students with I.Q. below 100.**

Table Xb, page 61, presents the data concerning the progress of five pairs of students with I.Q. below 100. A study of Table Xb shows that the five students in the 50-minute period group made lower scores on the Comprehensive Test when used as a Pre-Test and Final Test than the students with whom they were paired in the 100-minute period class. It will be noted also that the students in the 50-minute period class showed a greater gain between these two tests than did the students in the longer experimental period. Students in the 50-minute period class for whom scores on the Re-Test were secured forgot more than did their pairs in the other group. The scores on the Unit Test were lower for the 50-minute period group than for the 100-minute period group.

Students in the 50-minute period class reported slightly more home practice than did those in the other experimental group.

The students in the 50-minute period were rated higher by the judges in individual laboratory skill than were the students with whom they were paired in the 100-minute period.
<table>
<thead>
<tr>
<th>Pair No.</th>
<th>50-Minute Period Group</th>
<th>100-Minute Period Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comprehensive Test Scores</td>
<td>Unit Home Individual Pre-Final Test Test Difference Test Score* Reported Rating**</td>
</tr>
<tr>
<td>Mean</td>
<td>120 154</td>
<td>146 164</td>
</tr>
<tr>
<td>14</td>
<td>150 172</td>
<td>166 166</td>
</tr>
<tr>
<td>15</td>
<td>119 149</td>
<td>143 169</td>
</tr>
<tr>
<td>16</td>
<td>109 128</td>
<td>146 155</td>
</tr>
<tr>
<td>21</td>
<td>111 164</td>
<td>112 142</td>
</tr>
<tr>
<td>23</td>
<td>111 159</td>
<td>177 168</td>
</tr>
<tr>
<td></td>
<td>22 -1 221 8</td>
<td>16 +7 224 6</td>
</tr>
<tr>
<td></td>
<td>30 -68 191 0</td>
<td>26 -10 216 5</td>
</tr>
<tr>
<td></td>
<td>19 161 3</td>
<td>9 176 1</td>
</tr>
<tr>
<td></td>
<td>53 197 7</td>
<td>30 176 1</td>
</tr>
<tr>
<td></td>
<td>48 -2 210 0</td>
<td>11 -13 235 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. This table may be read, the student representing pair #14 in the 50-minute period made a score of 150 on the Pre-Test. The student of pair #14 in the 100-minute period received a score of 150 on the Pre-Test.

* Scores on Unit Tests I, II, III see Table IV.
** Laboratory rating by judge.

class. Perhaps this justifies the statement that in the 50-minute period class the demonstration was observed more carefully by the students whose I.Q. was below 100 than those who had an I.Q. above 110.
To summarize, these data regarding students with varying intelligence, probably indicate that (1) the 100-minute period was superior for the students in this study having an I.Q. below 100 except in individual laboratory skill, (2) except in individual laboratory skill and long time learning, the 50-minute period was as effective for students with I.Q. above 110, as the 100-minute period.

The writer believes that research is needed to determine the method and time allotment most desirable in homemaking courses for students of different intelligence levels.

Additional Observations Concerning the Groups

In addition to the progress measured by the devices used in this study, the writer observed certain differences during the unit for which no objective evidence can be presented, but which nevertheless should be reported as findings in this study.

It was noted that the students in the 50-minute period class were more self-directive than those in the 100-minute period group. The greater independence of students in the 50-minute period may be attributed, in part, to the fact that less time was available for detailed instruction and the students knew that it was their responsibility to follow carefully any directions that were given.

The time the students used in getting ready to work
was varied. Students in the 100-minute period class seemed to perform much as Krambly (25) described the students in a double-period class; they were not careful of their time because they had plenty of it.

An advantage of the 100-minute period class was that the teacher was better acquainted with students and was more aware of their individual problems. Therefore she was able to assist the students with these problems.
Summary

In order to compare the two experimental groups, of the 50 and 100-minute periods, the following summary is presented.

1. Comprehensive Test scores. Students in the 50-minute period class show slight gain.

2. Re-Testing after eight months. From limited data obtained, students in the 100-minute period class showed greater retention of information.

3. Total scores on Unit Tests. Progress was practically the same.

4. Individual laboratory skill. Students in the 50-minute period class were rated as more skillful in individual laboratory work.

5. Group laboratory skill. Students in the 50-minute period group were rated as more skillful in group laboratory work.

6. Home experience reported. Students in the 50-minute period class reported more home practice. More comprehensive home projects were selected by students in the 100-minute period group.

7. Pupil attitude toward course. Students in the 50-minute period class were better satisfied with the course and planned to continue homemaking classes.
8. **Progress of five pair of students of different I.Q. levels.** The limited data secured indicated that: Students with I.Q. above 110 in the 50-minute period showed greater progress except in long time learning and individual laboratory skill. Students with I.Q. below 100 in the 100-minute period showed greater progress except in individual laboratory skill.
CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS
Chapter IV
CONCLUSIONS AND RECOMMENDATIONS

A consideration of the problems involved in teaching homemaking in single and double periods has greatly interested the writer. She therefore undertook this study of the progress of two paired ninth grade foods classes when taught in 50 and 100-minute periods daily for 18 weeks.

The objectives set up for the study were:

1. To determine the relative progress of students in parallel groups taught in these two periods of time.

2. To investigate the degree of retention of information by students taught in these two periods of time.

3. To compare the progress made by students representing higher and lower intelligence levels as measured by the Terman Group Intelligence Test who were taught in these two periods of time.

4. To compare the amount and the kind of home experience stimulated in classes of these two lengths of time.

5. To determine attitude of students toward the class of which they were members.

The 25 members of each of the parallel groups used in this study were selected from 130 students in Phoenix Union High School. These groups were selected on the basis of the following factors: (1) intelligence quotient, (2) aver-
age grade points in other high school subjects, (3) chronological age in years and months, (4) previous homemaking experience, and (5) home conditions. School records provided the data necessary in the first three of these factors, but the writer had to develop devices to determine previous homemaking experience and home conditions.

The same objectives and subject matter were used for both of the experimental groups. Except in the case of methods used in laboratory lessons an effort was made to maintain identical procedures in the two experimental classes. Demonstrations which substituted individual laboratory experience were used extensively in the 50-minute period class.

In order to measure the progress of the students in these two groups, the writer developed devices of both objective and subjective types. Progress during the semester was measured by a Comprehensive Test, which proved to have a coefficient of reliability of 0.90 ± 0.015. The retention of information was measured by the Comprehensive Test given eight months after the unit was completed. Cumulative scores on the three objective Unit Tests, devised by the writer and other teachers conducting similar units, provided additional, though less reliable, evidence of student progress during the unit.

Laboratory rating scales were designed to measure individual and group laboratory skill. Records of home
practice and home projects provided additional information on student progress. A pupil questionnaire, answered by students at the close of the unit, indicated the student's attitude toward the course taken.

The findings of this study show: (1) the members of the class conducted in the 50-minute period demonstrated progress that compared favorably with that of the group taught in the 100-minute period; (2) the limited number of cases for whom Re-Test scores were secured indicates that for long time learning the 100-minute period was superior for all students; (3) students with I.Q. above 110 showed greater progress in the shorter period than did those with I.Q. below 100; (4) the 50-minute period stimulated more home practice than the 100-minute experimental period; (5) problems chosen for home projects by students in the 50-minute period group were of a less comprehensive nature than those selected by students in the 100-minute period; (6) as far as one may judge from subjective evidence provided by the pupil questionnaire, the pupils of the 50-minute period class expressed approval of their working plan more frequently than did the pupils in the 100-minute period.

These facts would seem to justify the recommendation that a single-period laboratory course might well be included in the homemaking curriculum and would probably result in more effective use of time. These single-period classes, conducted as described in this study, might be more
attractive to the brighter students as well as to students whose time is limited either because of interest in extra-class activities or demands of outside responsibilities. This unit might be considered as a non-major, an elective, or a general course and be planned to include subject matter that would provide the background needed by the average homemaker for maintaining the positive health of her family and spending the food dollar wisely. Such courses might help remove the stigma, sometimes attached to homemaking courses, that they are made up of retarded students who can use only their hands.

These findings indicate that the 100-minute period was superior for long time learning of all students and for immediate learning of students with I.Q. below 100. However, the writer would not advocate a wider use of double-period classes on the basis of such a limited study. The 100-minute period provided the teacher greater opportunity to consider the individual differences of the students as well as to offer more guidance.

Indeed, the writer believes one of the greatest weaknesses of the present study is that it is impossible to determine definitely whether the difference in the progress of these two groups should be attributed to the time allotted to the classes or to the methods developed for effective use of time in the laboratory lessons.

A similar study using three parallel groups would help
clarify this point. The study might be set up so that one group, used as a control, would be taught in a double period by the regular laboratory procedure; another group conducted in a single-period would use the regular laboratory method; and the third group scheduled for a single-period would be taught by the modified demonstration method described in this study. It would further validate findings if, at the mid-point of the unit, the method used in the two single-periods could be interchanged. This would furnish data which would reveal the effects of two methods on each of the experimental groups.


31. Riedel, F. A. What has been proved as to the relative effectiveness of demonstration and laboratory methods in science. School Science and Mathematics, 27: 512-516, May, 1927.


APPENDIX A

EXPERIENCE CHECK-LIST
Place a check in the column at the right in the following list which most correctly describes your duties during the last week or two.

Example:
Did you prepare breakfast? 

<table>
<thead>
<tr>
<th>Alone</th>
<th>With help</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If your mother has been away from home and you prepared breakfast alone you would place a check in the **Alone** column.

During the last week or two did you:

1. Plan:
   - breakfast for the family
   - lunch or supper for the family
   - dinner for the family

2. Buy:
   - bakery products
   - canned foods
   - dairy products (milk, cheese)
   - Fresh fruits
   - fresh vegetables
   - meat

3. Cook, Prepare, Make or Fix:
   - breakfast
   - lunch or supper
   - dinner

4. Cook or Fix:
   - buttered vegetables
   - baked vegetables
   - creamed vegetables
   - fruits
   - meats
   - salads
PHOENIX UNION HIGH SCHOOL

HOME ECONOMICS DEPARTMENT—EXPERIENCE CHECK-LIST

5. Cook: (fry, boil, bake)  
- puddings
- hot breads
- cakes
- pies
- refreshments for a party
- food for a small child
- food for a sick person
- meat substitutes (macaroni and cheese, scalloped eggs)

6. Miscellaneous Duties:
- set the table
- wash the dishes
- pack a lunch
- light an oven
- clean the refrigerator
- list any others

The following are questions the answers to which will help in planning a foods class for you by showing what you do now. Place checks in the blanks at the left of the phrase or word which answers the question correctly for you. Some of the questions may have more than one answer. If the correct answer is not there write it in.

Example: How old will you be your next birthday?

- 14 years
- 15 years
- 16 years

1. In which grade or grades did you have cooking?

- In none
- In sixth--full year
- In seventh--only ½ year
- In eighth--full year

2. Did you enjoy this work mentioned in question 1?

- yes
- no
3. Did you prepare the foods at home which you learned to prepare at school in a previous home economics class?

_____yes  _____no

4. What kind of fuel do you use for cooking at home?

_____gas
_____electricity
_____kerosene
_____Rock gas
_____wood
_____coal

5. (a) During the summer, how do you keep foods in your home that have a tendency to spoil quickly? Check the method used.

_____ice refrigerator (ice box)
______electric refrigerator
cooler
_____cupboard
_____open shelves

(b) During the winter, how do you keep foods in your home that have a tendency to spoil? Check the method used.

_____ice refrigerator (ice box)
______electric refrigerator
cooler
_____cupboard
_____open shelves

6. At what type of store listed below do you buy most of your groceries?

_____small neighborhood store
cash and carry store
_____wholesale market
_____have groceries delivered
_____huckster's wagon
APPENDIX B

COMPREHENSIVE TEST
APPENDIX B

COMPREHENSIVE TEST

The Comprehensive Test is planned to determine to what extent the students had achieved the following objectives considered as desired outcomes for the Homemaking I course.

Major Objective:

Ability to plan, prepare, and serve simple meals.

Specific Objectives:

1. Recognition of acceptable standards for products.
2. Understanding of the important principles involved in the preparation of food.
4. Skill in preparation of some simple foods.*
5. Judgment in choosing suitable foods for health and economy.
6. Understanding of some of the principles and techniques of food preservation.
7. Interest in wise buying of food at the market.
8. Ability to prepare and serve simple meals well.
9. Recognition of the value of planning and cooperation.*
10. Appreciation of the satisfaction that may be derived from a well-planned, attractive meal.*
11. Understanding of how to organize time in planning and serving a meal.*
12. Realization of the possibilities of the use of

*No attempt has been made in this written test to measure the progress toward the objectives starred.
food as a means to provide gifts and for hospitality in the home. *

The numbers included in parentheses at each item on the Comprehensive Test are to indicate the objective for which the item is designed to measure.

* No attempt has been made in this written test to measure the progress toward the objectives starred.
Modified true-false.

Directions: Read the following statements carefully, place an x before the phrases that complete the statements correctly and an O before the phrases that do not complete the statements correctly.

Example:

1. Baked potatoes are:

   ____ good for children
   ____ baked at a very high temperature
   ____ meat substitutes
   ____ a starchy food

1. Beef is tender or less tender depending upon the presence of:

   ____ meat juice
   ____ connective tissue
   (2) ____ distributed fat
   ____ iron
   ____ bone

2. In the mixing of pastry success is due to:

   ____ the care taken not to overmix
   ____ the kind of fat used
   (3) ____ the accuracy of measurements
   ____ the temperature at which the pastry is baked

3. Doughnuts have a tendency to become fat soaked because:

   ____ the fat in which the doughnuts were cooked was not hot enough
   ____ the fat in which the doughnuts were cooked was too hot
   (2) ____ the doughnuts were cooked too long
   ____ the doughnut dough was too rich
   ____ the doughnut dough was too stiff
4. A gelatin dish may be considered a complete protein dish when it contains:

- eggs
- oatmeal
(5) tapioca
- carrots
- milk

5. Preparation of beef for roasting should include:

- washing thoroughly
- scoring
(3) wiping with a damp cloth
- putting in roaster and placing in a moderate oven
- rubbing the roast with fat

6. The liquid used in the preparation of pastry should be:

- added all at once
- added a little at a time
(2) cold
- mixed to the fat
- mixed with a little of the flour and added to flour

7. Foods fried in deep fat:

- are quickly digested
- provide variety in meals
(5) are suitable for children's diets
- digest slowly
- are inexpensive

8. If green vegetables are to be palatable and nutritious they should be:

- cooked in boiling water
- cooked thirty minutes
(2) cooked as short a time as possible
- seasoned well
- cooked with the lid on the pan

9. Steps in preparing a fine cereal, such as cream of wheat, should include:

- sprinkling into boiling water
- stirring into cold water first
(3) cooking first few minutes on the top of the stove
- cooking a long time
10. After the sugar syrup for fudge has formed a "soft ball" it should be:

beaten until thick
cooled to luke warm and beaten until shine leaves the mixture
(3) beaten rapidly with a whisk egg beater
cooled before adding vanilla
placed in the refrigerator until firm

11. Home care of milk includes:

keeping in clean containers
storing in place below 50 F.
keeping in enameled pans
washing top of bottle before pouring out milk
avoiding mixing of old and fresh milk

12. A good biscuit when properly made:

is light for its size
has porous texture
(1) is twice the size it was before baking
has a sweet flavor
has an even shape

13. The fermentation of foods is encouraged by:

the presence of moisture
luke warm temperature
(6) pasteurization
leavening agents
thorough stirring while hot

14. Some harmless food preservatives are:

salicylic acid
borax
(6) salt
spices
benzoate of soda

15. A good sponge cake should be:

coarse grained
fluffy and fine grained
(1) dry
golden brown
16. Whole grain cereals are rich in:

- vitamin D
- vitamin C
(5) vitamin B
- cellulose
- copper

17. Raw green vegetables are included in the diet because they supply:

- vitamin A
- iron
(5) starch
- vitamin C
- fat

18. A good butter cake should:

- be fine grained
- be light
(1) feel velvety to the touch
- be coarse grained
- be dry

19. Homemakers should use more salads in their meal planning because salads:

- are always cheap
- provide possibilities for variety
(5) offer a chance to include protective foods
- everyone likes them very much
- makes additional use of leftovers possible

20. Purchase in large quantities for a family of six such foods as:

- white flour
- bananas
(5) potatoes
- bakery goods
- butter

21. When selecting a head of cabbage choose one which is:

- oblong in shape
- firm and heavy for its size
(5) green and crisp
light for its size
is a creamy yellow color

22. Good beef in appearance is:

- bright cherry red color when first cut
- fine grained with soft bones
- well marbled with fat
- covered with yellow fat
- pink in color

23. In order to provide inexpensive meals for her family
the homemaker should:

- plan definitely the week's meals in advance
- consider the relative economy of different foods
- select many of the cheapest foods
- plan to use less tender cuts of meat
- use cereals in as many different ways as possible

24. Meat which bears federal stamp "inspected and passed"
indicates that:

- the meat has been shipped in from another state
- healthy animals were used in butchering
- the meat has been stored in refrigerator for
given length of time before selling
- the meat has been graded for quality
- acceptable sanitary conditions for workers and
plant exist

25. Foods which may serve as meat substitutes are:

- macaroni
- cottage cheese
- rice
- eggs
- white bread

26. A supper consisting of meat loaf, scalloped potatoes,
macaroni, hot biscuits, and apple tapioca:

- is a good combination of foods
- contains too much starch
- would be better in food value if cabbage was used
for salad in the meal
- provides too much protein
- would be good for a child of 4 years
27. When planning a vegetable plate meal one should choose vegetables that:

_____ have the same texture
_____ provide a good color combination
(5) _____ provide a variety of textures
_____ are prepared in a variety of ways
_____ are all strong flavored

28. Most fresh fruits are valuable in the diet as:

_____ appetizers
_____ a source of energy
(5) _____ a source of starch
_____ a source of minerals
_____ a source of the vitamins

29. When filling water glasses:

_____ fill only three-fourth full
_____ remove from the table fill and replace the glass
(6) _____ serve to the left of the guest
_____ fill without removing the glass from table if possible
_____ fill to the rim

30. When the mother of three small children has no help and is having guests for dinner she should:

_____ plan to serve foods that must be served immediately after preparation
_____ spend several days preparing the food for the meal
(6) _____ serve a simple easily prepared meal
_____ plan to have food that she has prepared successfully before
_____ plan her work so that it will fit into her daily time schedule

Completion.

Directions: Read the statements through carefully, place the word that completes the statement correctly in the blank at the extreme right.

Example: 1. Vegetables have a _____ fuel value.  1. low

1. There are 16 T. in _____ cup.  (2) 1. _____
2. 2 c. equals one _____.
3. 1 T. equals ______.
4. 1 # cane sugar equals ______cups.
5. 1 # white flour equals ______cups.
6. To a package of prepared gelatin dessert use ______cups of milk.
7. In preparation of custard one egg will thicken ______cups of milk.
8. The ingredient which causes light bread to rise is ______.
9. Croquettes are cooked in _____fat.
10. High temperatures cause egg whites to be ______.
11. Less tender cuts of meat should be cooked at a ______temperature.
12. To prevent bananas from turning brown sprinkle with ________.
13. The daily intake of milk for a person over 16 years should be at least ________.
14. In the preparation of a butter cake the shortening should be mixed in_______.
15. Cheese is valuable as a food because it is made from ________.
16. The best grade of canned fruit is ______.
17. The grade of meat determines its ______.
18. Pastry should be served for dessert after a ______ meal. (8) 16.____

19. When setting the table the knife is placed at the _____ of the plate. (8) 19.____

20. When serving a meal pass bread to the guests _______. (8) 20.____

21. Beverages are served to the guest's _______. (6) 21.____

22. The flavor of cereals is developed by cooking a _____ time. (2) 22.____

23. Before cooking dried vegetables they should be washed and ______. (2) 23.____

24. Eggs are graded according to ______. (5) 24.____

25. Biscuits, cakes, muffins, etc. should be placed on the _____ shelf of the oven first. (3) 25.____

26. Salt used in the preparation of cereals is added in proportion to the amount of _____ used. (3) 26.____

27. One ounce of chocolate is equal to _____ T. cocoa. (3) 27.____

28. One half cup uncooked rice will yield ______. (3) 28.____

29. Two level or one heaping T. of coffee should be used to each _____ of water in ______.
the preparation of percolated coffee. (3) 29.____

30. If vegetables are cut into small pieces
the cooking time will be ______. (2) 30.____

31. To retain the shape of fruit add the sugar
at the _____ of the cooking process. (2) 31.____

32. Cook onions in a _____ amount of water. (2) 32.____

33. The greatest amount of food value is re-
tained in vegetables when they are_____. (2) 33.____

34. Cuts of meat that are less tender are
_____ expensive. (5) 34.____

35. Mayonnaise is made from seasonings, oil,
and _______. (3) 35.____

36. A cake that has too much flour in it
will be ______. (2) 36.____

37. The day's diet should include at least
_______vegetables. (5) 37.____

38. A cake that has too much sugar or fat in
it will ______. (2) 38.____

Multiple choice.

Directions: Below are a number of incomplete statements
which may be correctly completed by one of the phrases below
it. Place an X in the blank at the left of the phrase which
correctly completes each statement.

Example: 1. When preparing apple sauce add the sugar:

X when apples are tender
_____ to the water and bring to a boil
_____ to the raw apples and let stand
1. A cube of bread used for testing deep fat for doughnuts will brown in:

- 50 seconds
- 60 seconds
- 30 seconds
- 40 seconds

2. The basis for croquettes is a:

- pour batter
- drop batter
- medium white sauce
- very thick white sauce

3. Acid or corn syrup is used in the preparation of crystal-line candies to:

- insure smoothness
- improve flavor
- make the candy shine
- make the candy set more quickly

4. The color of red vegetables is intensified by using:

- vinegar
- sugar
- spices
- salt

5. Baking powder biscuits should be baked in a:

- very hot oven
- slow oven
- hot oven
- moderate oven

6. Griddle cakes are ready to be turned on the griddle when:

- the bubbles of gas form
- the griddle cake stops steaming
- the bubbles of gas have broken
- the griddle cake begins to steam

7. Yeast grows best when put into a mixture which is:

- lukewarm
- boiling
- cold
- brought to a boil and cooled
8. Soft custard is cooked until the mixture:
   ___ is stiff
   ___ is free from curds
   (2) ___ is free from raw starch
   ___ coats a spoon

9. A cut from the chuck of beef is suitable for:
   ___ broiling
   ___ roasting
   (2) ___ pot roasting
   ___ pan broiling

10. Fresh pineapple before being added to gelatin should be:
     ___ sweetened
     ___ shredded
     (2) ___ steamed
     ___ heated

11. A pan in which a "butter cake" is to be baked should be:
    ___ rinsed with cold water
    ___ covered with melted fat
    (2) ___ greased and dusted with flour
    ___ dusted with flour

12. When making fondant the sugar syrup should not be scraped from the sides of the pan because:
    ___ the large crystals from the sides cause the candy to sugar
    the pan may chip off into the candy
    (2) ___ these crystals are invert sugar and will prevent the candy hardening
    ___ the syrup on the sides has cooked past the correct stage

13. A principle which affects the leavening of baked mixtures is:
    ___ starch swells and gelatinizes to give body when heated
    ___ dry heat caramelizes sugar
    (2) ___ heat kills bacteria
    ___ gas and air expand when heated and gluten hardens
14. The term "marinate" used in salad making means to:
   ___add vegetables to a gelatin mixture when it is partially set
   (3)let vegetables stand in french dressing before mixing in salad
   ___let vegetables stand in ice water until crisp
   ____sprinkle the vegetables with lemon juice

15. The best method of combining fat and dry ingredients in mixing pastry:
   ___melt fat and add to flour
   ___cream fat with flour
   (3)___cut fat into the flour
   ___melt fat, mix with the liquid and add to flour

16. Fruits or nuts when used in a gelatin mixture are added:
   ___as the gelatin dissolves
   ___when gelatin begins to thicken
   (3)___when soaked gelatin is added to the liquid
   ___after the gelatin is set

17. The whites of eggs beaten stiff to which a small amount of sugar has been added is called:
   ___omelet
   ___fondant
   (3)___angel food
   ___meringue

18. Cereals are the cheapest source of:
   ___sugar
   ___energy foods
   (5)___tissue building material
   ___the mineral calcium

19. If a girl selected a tuna fish salad for her luncheon, she could best complete her meal by choosing:
   ___a cheese sandwich, glass of milk, apple pie
   ___whole wheat toast, glass of milk, baked apple
   (5)___peanut butter sandwich, buttered potatoes, fruit jello
   ___macaroni and cheese, sliced tomatoes, lemonade, and chocolate
   ___creamed chipped beef on toast, buttered potatoes, ice cream
20. Whole grain food products should be eaten:
   _____ twice daily 
   _____ weekly
   (5) _____ every other day
   _____ daily 

21. Drink daily at least:
   _____ 10-12 glasses of water
   _____ 1 quart of water
   (5) _____ 6-8 glasses of water
   _____ 2 pints of water

22. Tomato juice, raw cabbage or a citrus fruit is recommended daily chiefly as a source of:
   _____ sugar
   _____ water
   (5) _____ vitamin C
   _____ valuable acid

23. When family style service is used:
   _____ all of the food is served at the table
   _____ the food is served in the kitchen and brought to the dining room
   (8) _____ only the members of the family should be present
   _____ a maid passes all of the food to the guests

24. After the knife and fork have been used they should be placed:
   _____ so that the handles rest on the table
   _____ on the dinner plate
   (8) _____ on the salad plate
   _____ at the side of the plate on the table

25. When the main course of a family dinner is completed the person helping with the serving removes first:
   _____ all of the silver ware
   _____ the plate from each guest's cover
   (6) _____ all of the serving dishes
   _____ all of the glass ware

26. The bread and butter plate when used is placed:
   _____ at the left of the knife
27. The chair at the dining room table before the meal is served is:

- pushed entirely under the table cloth
- partly under the table cloth
- about six inches away from the table cloth
- just touching the table cloth

28. The proportion of liquid to flour in a soft dough is approximately:

- 1 c. liquid to 4 c. flour
- 1 c. liquid to 3 c. flour
- 1 c. liquid to 1 c. flour
- 1 c. liquid to 2 c. flour

29. To make satisfactory biscuits by one accepted method is to:

- melt fat in hot liquid, add flour, cook and roll on heavily floured board
- cut fat into flour, baking powder, and salt, add cold liquid, roll on slightly floured board
- cut fat into flour and salt, add hot liquid and roll on unfloured board
- mix liquid and flour, add melted fat, roll on floured board

30. The standard proportion of fat to flour in baking powder biscuits is:

- $\frac{1}{2}$-2 T fat per cup of flour
- 4 T fat per cup of flour
- 1 T fat per cup of flour
- 3-4 T fat per cup of flour

31. In measuring flour one should:

- scoop flour from bin with measuring cup and use
- shake flour down in cup before measuring
- sift and measure before using
- measure and sift before using
32. When testing a sugar syrup for "doneness" such as fudge:

- put a small amount of the syrup in a saucer and let cool
- put a small amount in cold water
- remove a small sample every minute
- remove syrup from the fire, test a small amount in cold water

33. A vegetable plate luncheon which consists of baked potato and buttered cabbage could be completed to make a good vegetable plate by adding:

- buttered cauliflower
- creamed peas
- sliced tomatoes
- shredded lettuce

34. Spanish cream is a dessert made from:

- cream, egg whites and candied cherries
- a soft custard, egg whites or cream, gelatin
- whipped cream, canned pineapple, gelatin
- rice, cream, nuts
APPENDIX C

LABORATORY RATING SCALES
INDIVIDUAL RATING SCALE FOR ABILITY IN MEAL PLANNING AND SERVING★

<table>
<thead>
<tr>
<th>Good Score: 6 or 5</th>
<th>Average Score: 4 or 3</th>
<th>Poor Score: 2 or 1</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SPEED</td>
<td>Works with average speed; jobs almost all completed on time.</td>
<td>Works very slowly; jobs not finished on time.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. EFFICIENCY IN USE OF TIME AND EFFORT</td>
<td>Effort wasted in needless steps, or poor planning.</td>
<td>Time wasted; poorly chosen methods used.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. CONDITION OF WORKING AREA;</td>
<td>Not orderly, but working space cleared when needed; some effort made to care for used dishes.</td>
<td>Much confusion, dishes and utensils disorderly; no attempt to care for used dishes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. USE OF SUPPLIES</td>
<td>Reasonably careful; accurate in measurements. Little spilling or burning.</td>
<td>Wasteful; poor proportions used. Food burned or spilled.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. APPEARANCE AT WORK.</td>
<td>Apron not freshly laundered; personal clean and attractive.</td>
<td>Apron missing or soiled; hair or hands untidy.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

★ Developed from unpublished material from a thesis by Katherine Comley, University of Minnesota

DIRECTIONS: Place the number in the column at the right which corresponds most correctly with the student's work. Each time the student is rated, she will be able to see where progress has been made.
GROUP RATING SCALE FOR ABILITY IN MEAL PLANNING AND SERVING

<table>
<thead>
<tr>
<th></th>
<th>Good Score: 6 or 5</th>
<th>Average Score: 4 or 3</th>
<th>Poor Score: 2 or 1</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. MENU</strong></td>
<td>Good selection;</td>
<td>Good selection;</td>
<td>Poor selection;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>fairly attractive;</td>
<td>pleasing combination</td>
<td>poor combination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of foods.</td>
<td>of foods.</td>
<td>of flavor;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>color and texture.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. COST</strong></td>
<td>Well within the</td>
<td>Cost reasonable for</td>
<td>Too expensive for</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>limits set; well</td>
<td>type of occasion or</td>
<td>family or type of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>chosen in relation</td>
<td>family.</td>
<td>occasion.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to cost.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3. DIVISION OF DUTIES</strong></td>
<td>Plan for</td>
<td>Duties listed and</td>
<td>Duties not listed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>preparation of</td>
<td>performed with few</td>
<td>so that pupil knew</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>food, setting</td>
<td>errors.</td>
<td>what to do.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>table, clearing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>up, carried out.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4. RECIPES</strong></td>
<td>All recipes</td>
<td>Most recipes included,</td>
<td>Recipes lacking,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>needed are well</td>
<td>with some errors in</td>
<td>proportions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>chosen, proper</td>
<td>amounts planned and</td>
<td>incorrect.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>amounts used.</td>
<td>used.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5. MARKET ORDER</strong></td>
<td>List complete;</td>
<td>Most things needed on</td>
<td>Some articles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>quantities</td>
<td>list; quantities</td>
<td>omitted;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>accurate.</td>
<td>fairly accurate.</td>
<td>amounts not listed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>correctly.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6. TIME SCHEDULE</strong></td>
<td>Correct order,</td>
<td>Necessary jobs listed,</td>
<td>Final schedule</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>proper time</td>
<td>but order of work not</td>
<td>lacking,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>planned for each</td>
<td>satisfactory.</td>
<td>or very poorly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>job.</td>
<td></td>
<td>planned.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7. PLAN OF SERVICE</strong></td>
<td>Plan complete,</td>
<td>Plan for serving</td>
<td>Method not clear,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>all points clearly</td>
<td>complete, some</td>
<td>articles not</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>understood.</td>
<td>articles missing.</td>
<td>listed or forgotten.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Developed from unpublished material from a thesis by Katherine Comley, University of Minnesota
APPENDIX D

PUPIL QUESTIONNAIRE
Directions: Check the answers which most nearly express your ideas on the questions asked. If the answer is not there you may write it in.

1. Have you liked your homemaking class this semester?

Yes

<table>
<thead>
<tr>
<th>50-minute class</th>
<th>100-minute class</th>
</tr>
</thead>
<tbody>
<tr>
<td>24*</td>
<td>23</td>
</tr>
</tbody>
</table>

No

<table>
<thead>
<tr>
<th>50-minute class</th>
<th>100-minute class</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

2. Do you plan to take other homemaking classes?

Yes

<table>
<thead>
<tr>
<th>50-minute class</th>
<th>100-minute class</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>7</td>
</tr>
</tbody>
</table>

No

<table>
<thead>
<tr>
<th>50-minute class</th>
<th>100-minute class</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>17</td>
</tr>
</tbody>
</table>

3. If you do not plan to take more homemaking check the reason which tells why or add your reason.**

<table>
<thead>
<tr>
<th>50-minute class</th>
<th>100-minute class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes too much time</td>
<td>2</td>
</tr>
<tr>
<td>Not interested</td>
<td>3</td>
</tr>
<tr>
<td>My friends do not take it</td>
<td>1</td>
</tr>
<tr>
<td>Learn it at home</td>
<td>4</td>
</tr>
<tr>
<td>Other reason</td>
<td>4</td>
</tr>
</tbody>
</table>

* For brevity the answers to the questionnaire are indicated on the original form.

** Some students indicated more than one reason whereas others did not give any reasons.
4. Do you feel you have learned things that are and will be useful to you?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-minute class</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>100-minute class</td>
<td>24</td>
<td>0</td>
</tr>
</tbody>
</table>

5. Did you think the periods were:

<table>
<thead>
<tr>
<th></th>
<th>Too long</th>
<th>Too short</th>
<th>Long enough</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-minute class</td>
<td>1</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>100-minute class</td>
<td>9</td>
<td>2</td>
<td>13</td>
</tr>
</tbody>
</table>

6. From what kind of lessons do you feel you learned the most?

<table>
<thead>
<tr>
<th></th>
<th>50-minute class</th>
<th>100-minute class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrations</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Fixing foods by self</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>With partner</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Preparing and serving meals</td>
<td>10</td>
<td>19</td>
</tr>
</tbody>
</table>

7. Have you made some new friends during this semester in this class?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-minute class</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>100-minute class</td>
<td>24</td>
<td>0</td>
</tr>
</tbody>
</table>

8. Answer only if in 2nd hour. Single period.

Do you believe we should have single period Homemaking I classes?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Reasons Given by Students Who Answered Yes*</td>
<td>Reasons Given by Students Who Answered No</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>1. Students learn to do as much in a shorter time. 10 times**</td>
<td>1. Keep mind on the time rather than what you are preparing. 1 time</td>
<td></td>
</tr>
<tr>
<td>2. More students will take it. 3 times</td>
<td>2. There is not enough time to prepare meals in one period. 4 times</td>
<td></td>
</tr>
<tr>
<td>3. Two periods is too long. 1 time</td>
<td>3. Students do not prepare enough food. 1 time</td>
<td></td>
</tr>
<tr>
<td>4. Students would take homemaking as other subjects. 1 time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Learn to do better planning. 1 time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Some students gave no reason for their belief.
** Indicates the number of times mentioned.