SOME FACTORS AFFECTING THE SELECTION OF THE PLATE LUNCH

APPROVED:

[Names and signatures]

Major Professor

Minor Professor

Dean of the School of Home Economics

Dean of the Graduate School
SOME FACTORS AFFECTING THE SELECTION OF
THE PLATE LUNCH

THESIS

Presented to the Graduate Council of the
North Texas State College in Partial
Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

Merlene Hunnicutt Key, B. S.

Denton, Texas
August, 1959
TABLE OF CONTENTS

LIST OF TABLES ........................................ iv
LIST OF ILLUSTRATIONS ................................ v
INTRODUCTION .......................................... 1
PROCEDURE .............................................. 8
DISCUSSION ............................................. 11
SUMMARY ................................................ 24
APPENDIX ............................................... 27
BIBLIOGRAPHY ........................................... 28
LIST OF TABLES

Table                                                                 Page
I. Average Percentage of Children by Schools Selecting Plate Lunches with Specified Meat Dishes ............... 20
LIST OF ILLUSTRATIONS

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attendance in Six Schools by Six-Week Periods (A), and Total Plate Lunch Participation in These Same Schools by Six-Week Periods (B)</td>
<td>13</td>
</tr>
<tr>
<td>2. Total Daily Number of Plate Lunches Selected in the Six Schools as Compared to the Average for the Entire School Year</td>
<td>16</td>
</tr>
</tbody>
</table>
INTRODUCTION

According to the United States Department of Agriculture (14) the importance of a regular school lunch is universally recognized by all who are interested in children and agree that better health, better attendance, improved scholarship, work habits and attitudes result from regular lunches.

Price (11) reported in 1944 that the aim of the School Lunchroom Department of the Dallas Independent School District was to make available to all children warm, wholesome lunches of high nutritive value, carefully prepared under sanitary conditions and sold at the lowest possible cost per serving. This is still the aim of the lunchroom department.

As early as 1934, Holt (7) compared the administration, operation and management of the school lunchrooms of the Dallas, Texas, centralized type with the Shreveport, Louisiana, unit control type. Her findings show 41 per cent of the enrollment in the Dallas schools were served, compared to 36.9 per cent in the Shreveport schools.

Factors affecting pupil participation in a three-year study of selected school lunchrooms in sixteen eastern states were studied by Driesback and Handy (5) in 1946. They found participation in the lunchroom program to be from 21 to 100 per cent with an average of 63 per cent. These authors defined
participation as pupils and adults eating the school lunch. Some of the factors affecting participation in these school lunches were the distance the pupils lived from school and the price of the lunch. The school having 100 per cent participation was in a community in which the school lunch program had had community support and where a well-organized nutrition program for pupils and parents had been conducted.

The Department of Agricultural Marketing Service, United States Department of Agriculture (13) studied the factors influencing lunchroom sales in the spring and in the fall terms of school in 1953. One hundred seven schools with high and low lunchroom sales were obtained from fourteen states, for the study. The results indicate that no single factor accounted for high or low lunchroom sales in these schools and that no special combination of factors resulted in high or low sales.

A study of the appearance, aroma, palatability of menu items, weather conditions (temperature, wind speed and direction and barometric pressure), other factors such as illness, athletic activities, and unusual events was made in 661 Iowa schools, grades one through twelve, by Augustine and co-workers (1). Some foods were found to be more readily accepted than others; these included sandwiches, main dishes and desserts. Potatoes, beans and peas were better accepted than beets and carrots. Buttered vegetables were more popular than either creamed or stewed vegetables. Weather conditions
apparently had no effect on the acceptability of the menu items. The authors found that 70.9 per cent of the enrolled pupils were participating in the school lunch program.

In 1951 Habig (6) studied the cost of the school lunch and size of the school lunchrooms in relation to the number actually participating in the school lunch program of 200 Indiana schools. Questionnaires sent to the schools and reimbursements for federal commodities furnished these data. Contrary to the findings of Driesback and Handy (5) Habig found the price of the lunch made little difference in the percentage of the students participating. Lunchroom participation was highest in the smaller schools and became less as the enrollment increased. High participation was found in school lunchrooms when they were under the direction of the principal rather than under the Home Economics teacher or head cook. This was due to the fact that the principal usually had a greater influence over a larger group of the children in school than any other person.

Obert and Patton (10) in 1953 made an initial survey of thirteen Ohio schools before conducting a lunchroom management training program. This was followed by another survey at the end of the program to see what effect the program had on the nutritive value of the lunches served and on the number of pupils participating in these schools. Since administrators expect lower lunchroom participation in the spring
than in the fall as a normal occurrence, participation during the previous spring period was used for comparison. It was concluded that the higher participation reported for the year of the study may be due to improvement in the lunches served. The participation increased 13 per cent in one school when a cook who served poorly prepared food and was not liked by the children was replaced.

A questionnaire about school lunch buying practices, was given to 233 junior high school children in Philadelphia. This school offered "Type A" as well as "a la carte" items, although an average of one child in nine purchased the "Type A" lunch. From the questionnaire Demery (4) found the reason for not eating to be the child's likes and dislikes. He liked or disliked a menu or the way the food was prepared and only purchased the lunch when he liked it.

Kimbball (8) in 1955 studied the factors influencing high lunchroom participation in the New York State public schools selected by New York State Department of Education. The schools selected were in central New York State, of different sizes, with successfully operated lunchrooms. All of the schools served the "Type A" lunch although most of them had "a la carte" items. Lunchroom participation in the forty-two schools studied ranged from 6 to 100 per cent. Seven of the schools required participation. Five of the schools with voluntary participation reported all participating, namely
100 per cent. The median for the forty-two schools was 51.8 per cent and the mean was 55 per cent. All of the managers listed six outstanding factors affecting participation: (1) Menus planned for at least a week in advance; (2) Food of high quality, carefully prepared and attractively served; (3) Lunch prices kept at a minimum; (4) Adequate time allowed for eating; (5) No regular menu repetition; (6) All workers well trained.

More recently the United States Department of Agriculture studied the schools taking part in the National School Lunch Program and those with "other plate lunch programs," like those in Dallas, Texas. About 6 per cent of all public schools, representing 10 per cent of the total pupil enrollment below college level, offered plate lunch combinations but did not participate in the National School Lunch Program during March, 1957 (15). The percentage of schools serving plate lunches other than those under the National School Lunch Program was highest in the Southwest. The number of lunches served daily, as a percentage of total enrollment, was highest in the less densely populated areas. When participation was expressed as a percentage of the school enrollment, the average daily participation was highest in the medium-sized cities, small schools, and elementary grades.

Few studies were found on racial preference of foods, One of these by Whitacre (16) reports the dietary habits of school children of three racial groups—Mexican, white and
Negro—in three different regions of Texas. This 1934 study reported that there was little difference, generally, in the diets of the three races. The white children in her study ate more butter, fruits, leafy vegetables and drank more milk than the Negro and Mexican children; while the Mexican children exceeded both the white and Negro children in the use of more legumes and whole cereals.

More recently (1957) a similar study of food preferences was made by Lantz and Wood (9) of Mexican and white school children in New Mexico. She found that the whites consumed twice as much milk, ice cream, cheese, cabbage, tomatoes and citrus fruits as the Mexicans who ate more dried beans than the whites. Chili was eaten by both races, but more often by Mexicans. The one Negro in the study had food habits so closely resembling the whites that he was placed in that group when making comparisons.

Another study was made in Dallas (Texas) in 1956 by Brown (3) using upper elementary level children. Questionnaires were developed and given to the fifth, sixth, and seventh grade children from nine schools in the Oak Cliff section of the city. Her study included just one day for which she reports that 40.9 per cent of the children bought the plate lunch. This author states that many factors, family policies, weather conditions, lunchroom policies, and the menu served, influence participation and that they are interrelated.
From the references reported, it is evident that there are a number of factors which may influence participation in a lunchroom program. None of these authors were able to show a direct relation between the factor and the number of school lunches sold. Furthermore, length of time and the method used in these studies vary greatly. Many studies were based on a one-day report. A study covering a longer period of time lead to a more direct relationship between the factors and the number participating in the school lunch program.

The six outstanding factors listed by Kimball's (8) lunchroom managers as affecting lunchroom participation are carefully controlled in the Dallas Independent School District lunchrooms. Consequently, an investigation covering a longer period of time seems advisable.

The purpose of the present study is to investigate the factors affecting the sale of the plate lunch in six of the one hundred twenty-nine Dallas Public School lunchrooms, two each of predominantly Mexican, white and Negro enrollment, when the time is extended to include the entire school year of one hundred eighty school days.
PROCEDURE

The lunchroom department of the Dallas Independent School System has a central office. The menus are planned for all the lunchrooms two weeks in advance by a different committee, of technically trained managers and supervisors, each two weeks. The same menu and cafeteria-type service are offered in each school. There are several over-all policies which govern all the lunchrooms. The Dallas schools have a closed noon hour, so that the pupils who are not participating in the school lunch program but who bring their lunches from home must eat their lunches in the lunchroom. Also, policies regarding conduct in the lunchroom are set by the individual school. These policies relate to: length of time the children remain in the lunchroom before going outside to play, seating arrangements, rainy day schedules, and lunchroom duty for the teachers. All of the schools have a thirty-five-minute lunch period.

The plate lunch consists of a serving of meat or meat substitute, two vegetables, or a vegetable and salad, or any three of the items with a hot roll and fortified margarine. Carefully tested recipes are given to the lunchroom managers to assure uniform products with standardized size servings. Any part of the plate lunch may be purchased "a la carte" as well as milk, soup, salad, pie, cake, gelatin dessert, ice
cream, crackers, and graham crackers. The plate lunch is the most expensive single item sold in the lunchroom, but in return it offers more food value for the money spent than when these foods are purchased separately.

To gather data, six of the Dallas (Texas) Elementary schools of similar size and socio-economic level--two predominantly Mexican, two predominantly white and two predominantly Negro--were studied during the entire school year of 1958-1959. These schools contained grades one through six with an average daily attendance of 685 to 1013 pupils.

The two predominantly Mexican schools ($M_1$ and $M_2$) averaged 685 to 1013 daily attendance, the two white schools ($W_1$ and $W_2$) 825 and 922, and the two Negro schools ($C_1$ and $C_2$) 737 and 851, respectively.

Individual conferences were held with the lunchroom managers of these schools, before school opened in the fall of 1958, to explain the purpose of the present study. In order to obtain accurate data, duplicate weekly reports were made by the managers, for use in the present study. These reports included number of plate lunches sold together with any unusual events which occurred at the different schools during the week. Daily menus for the central office were compiled, and weather conditions recorded with these reports. These weekly data sheets were then transferred to a ledger for compiling the unusual events, weather, and daily plate
lunch participation. The attendance records at six-week intervals were obtained from the attendance office in the administration building of the Dallas Independent School District.
DISCUSSION

This study was made to see what factors, if any, affect the acceptance of the plate lunch in the Dallas public schools. The study was limited to the plate lunch, since the plate lunch is planned to provide the most nutrients for the money, although "a la carte" foods are available also. A study of the nutritive value of the plate lunch of the Dallas public school lunchrooms was made by Rodgers (12) in 1952, and from the calculations she found it to provide one third of the National Research Council's 1948 recommended daily dietary allowances for elementary school-age girls and boys.

The elementary school lunchrooms from which the present data were obtained were of similar size, with the students representing similar economic levels. Furthermore, they all had the same plate lunch served each day, although prepared in separate kitchens. Two of the schools were predominantly Mexican, two Negro and two white.

Figure 1 shows the total school attendance (A) by six-week periods for the entire school year, 1958-1959, for each of the six schools represented in the present study. As shown, the enrollment reaches a peak during the second and third six-week periods and declines during the fourth and
fifth periods. These periods of lowered attendance occur during the spring months. During the fourth six-weeks period two ice storms occurred, which undoubtedly contributed to the lowered attendance. However, each of the six schools ended the school year with a slightly higher attendance than they had in the beginning. It is apparent that the attendance pattern is similar in these six schools during the 180 days of this study.

Figure 1 also gives the total number of plate lunches (B) selected during each of these same six-week periods of the school year. It is obvious from these data that the selection of plate lunches does not necessarily follow the attendance records. Between the first and second periods and between the second and third periods there is in general an increase in both attendance and plate lunch acceptance. However, between the third and fourth periods and between the fourth and fifth periods there is a decreased attendance with general increased acceptance of plate lunches. This inverse relationship is also shown between the fifth and sixth periods with an increased attendance and a decrease in plate lunch acceptance.

It is interesting to note that there is an increase in the selection of the plate lunch in five out of six schools during the decline in attendance of the fifth period. This appears contrary to the findings of Obert and Patton (10)
Fig. 1—Attendance in six schools by six-week periods (A), and total plate lunch participation in these same schools by six-week periods (B).
who state that administrators considered lower participation in the spring than in the fall, a normal event, although the drop in their sales was not as great as in previous years due to increased emphasis on the lunch program. This reason cannot account for the increase in the present study since the member of the school lunchroom department who conducted the present study had no contacts with the children and so could not influence the number selecting the plate lunch.

There is one noteworthy exception to this general trend which occurred in the two white schools. Plate lunch acceptance at school W₂ decreased sharply while school W₁ showed only a slight decrease, between the second and third periods, although the other schools showed marked increases. A careful review of the records available failed to disclose any obvious reason for the marked decrease in plate lunch selection in school W₂ during this period. However, this school had a much larger relative increase in plate lunch acceptance between the third and fourth periods which shows that the earlier decrease was temporary, regardless of the reason. School W₁ was more constant in lunchroom participation during the entire school year, yet was the only one to have fewer students participating the last six weeks of the school year. Although the over-all attendance in this school increased slightly, as it did in the other five schools during the year, the increase in school lunch participation during the school year was greater than the increase in attendance.
In Figure 2 the number of plate lunches selected each day for the 180 days of this study is recorded for the six schools studied, the daily average number of plate lunches selected represented by the top line. The same general daily fluctuations in the number of plate lunches selected by the pupils are evident in the lines representing each school, as well as in the average line. Maximum and minimum acceptance of plate lunches occurred on the same days in all six schools in general, although there are some striking deviations from this pattern. Apparently the factors affecting participation are similar for the three racial groups.

One of these factors which appears to affect plate lunch acceptance is the occurrence of special occasions or events. Two of the special occasions coincide with the highest peaks in five of the six schools and represent a greater number of plate lunches chosen of the traditional Thanksgiving and Christmas luncheons. A set menu with no choice was served on these days:

<table>
<thead>
<tr>
<th>Thanksgiving Menu</th>
<th>Christmas Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creamed turkey on dressing</td>
<td>Creamed turkey on dressing</td>
</tr>
<tr>
<td>Buttered English peas</td>
<td>Seasoned green beans</td>
</tr>
<tr>
<td>Fruit salad</td>
<td>Peach half</td>
</tr>
<tr>
<td>Cranberry sauce</td>
<td>Cranberry sauce</td>
</tr>
<tr>
<td>Hot roll and margarine</td>
<td>Hot roll and margarine</td>
</tr>
</tbody>
</table>

The Thanksgiving menu invited more participation in the plate lunch selection than the Christmas menu, yet the latter was well accepted also.
Fig. 2--Total daily number of plate lunches selected in the six schools as compared to the average for the entire school year.
Special school days apparently affected the selection of the plate lunch in the second week of November, and again during the first week in March when "American Education Week" and the "Texas Public School Week," respectively, were observed. During these two weeks, parents were encouraged to visit the schools for the planned programs and to see the displays. However, since a number of parents visiting the schools eat in the lunchrooms they may have helped to increase the number of plate lunches selected during these weeks. Although more plate lunches were sold during these weeks, there is no way of knowing how many more children selected the plate lunch. The effect of "Texas Public School Week" is one example of how schools differed in their response to this factor. A distinctly lower acceptance of the plate lunch is shown on Monday of "Texas Public School Week" in both white schools \( (W_1 \text{ and } W_2) \), while acceptance was slightly greater in both the Mexican and Negro schools.

Every Tuesday is Banking Day in each of the schools, yet there is no consistent decrease on these days. Banking Day does not appear to influence the number selecting the plate lunch, although the plate lunch is the highest priced single item on the lunchroom menu and it seems logical to expect a depressive effect upon plate lunch acceptance.

School carnivals held in October appeared to be associated with a slight decrease in participation. This might be due to the children saving their money to spend at this
much publicized school activity. A similar downward trend in the number of plate lunches selected appears after the holidays.

That weather was another factor affecting plate lunch participation is evident on only two days. A decided dip in the line is noticed on the third Wednesday in January and again on the second Monday of February. The temperature did not get above freezing on either of these days. There was ice on the ground, making travel hazardous, and the number of plate lunches selected was less than on previous or succeeding days. However, one school (W1) was not affected by either storm. Although Augustine and co-workers (1) recorded that weather did not influence the acceptance of the "Type A" lunch in a 44-day study of Iowa schools, this severe weather is unusual in Texas and probably accounts for the lower attendance of period four (Figure 1) which, in turn, could explain the lowered acceptance of the plate lunch on these days.

The asterisk (Figure 2) in the first week in November and again in the last week of February indicates the two days "chili" was on the "a la carte" menu. The first time "chili" was served there was a marked decrease in the number of plate lunches selected. The second time it was served the dip is no more marked than on other days. The reason for this difference may be that the selection of the plate lunch had become more nearly stabilized so that more children were accustomed to the plate lunch and less affected by the "a la
carte" foods. The three races in the present study exhibit a similar response on these days although roast beef, another favorite food, was on the plate lunch on each of these days. The Mexicans were reported by Lantz and Wood (9) in a New Mexico study to eat chili more often than the other races represented in the present study, but chili did not appear on the menu sufficiently often during the present study to permit such a conclusion. Chili is a popular food in all of the Dallas public school lunchrooms and the effect of its appearance as an "a la carte" item upon the plate lunch acceptance that first day is not surprising. This suggests that another factor in plate lunch participation may be the foods on the "a la carte" menu. However, preferences for "a la carte" foods as compared to foods on the plate lunch were not a part of the present study.

Table I gives the percentage of children at each school selecting the plate lunch when different meat dishes form the basis of the plate lunch. The average acceptance of these foods was 20 and 22; 19 and 25; and 19 and 21 per cent in schools M₁ and M₂; W₁ and W₂; and C₁ and C₂, respectively. The average acceptance of all meat dishes in all six schools is 21 per cent.

The meats forming the basis of the plate lunch were served from one to twenty times during the 180 days of the school year. Only one of the meats appearing just once in the year has a percentage acceptance of less than the average
<table>
<thead>
<tr>
<th>Meat Dishes of Plate Lunch</th>
<th>Number Times Served</th>
<th>W₁</th>
<th>W₂</th>
<th>M₁</th>
<th>M₂</th>
<th>C₁</th>
<th>C₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barb-Q-Beef Sandwich</td>
<td>1</td>
<td>26</td>
<td>32</td>
<td>27</td>
<td>30</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td>Tuna Noodle Supreme</td>
<td>1</td>
<td>22</td>
<td>25</td>
<td>16</td>
<td>26</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>Barb-Q-Pork Chops</td>
<td>1</td>
<td>21</td>
<td>29</td>
<td>20</td>
<td>26</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>Hot Tuna Surprise</td>
<td>1</td>
<td>18</td>
<td>23</td>
<td>22</td>
<td>21</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Cream Chicken on Rice</td>
<td>1</td>
<td>13</td>
<td>23</td>
<td>18</td>
<td>21</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Turkey and Dressing</td>
<td>2</td>
<td>24</td>
<td>42</td>
<td>45</td>
<td>49</td>
<td>39</td>
<td>38</td>
</tr>
<tr>
<td>Barb-Q-Chicken Thighs</td>
<td>2</td>
<td>22</td>
<td>26</td>
<td>19</td>
<td>23</td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td>Spoonburgers</td>
<td>2</td>
<td>22</td>
<td>25</td>
<td>15</td>
<td>13</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Italian Delight</td>
<td>2</td>
<td>19</td>
<td>23</td>
<td>19</td>
<td>20</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Macaroni and Cheese</td>
<td>2</td>
<td>14</td>
<td>17</td>
<td>14</td>
<td>23</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Chicken Noodle Supreme</td>
<td>3</td>
<td>16</td>
<td>17</td>
<td>16</td>
<td>19</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>Beef Cutlets</td>
<td>4</td>
<td>21</td>
<td>24</td>
<td>20</td>
<td>20</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Meat Pie</td>
<td>4</td>
<td>21</td>
<td>26</td>
<td>20</td>
<td>24</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Hot Tamales</td>
<td>4</td>
<td>21</td>
<td>29</td>
<td>23</td>
<td>22</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Baked Hash</td>
<td>4</td>
<td>20</td>
<td>26</td>
<td>20</td>
<td>23</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Vienna Sausage</td>
<td>4</td>
<td>19</td>
<td>24</td>
<td>20</td>
<td>22</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Tuna Macaroni Casserole</td>
<td>4</td>
<td>19</td>
<td>26</td>
<td>23</td>
<td>16</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Weiner in Roll</td>
<td>4</td>
<td>19</td>
<td>22</td>
<td>20</td>
<td>22</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Salmon Croquette</td>
<td>4</td>
<td>18</td>
<td>23</td>
<td>20</td>
<td>21</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Chicken Pie</td>
<td>4</td>
<td>18</td>
<td>23</td>
<td>21</td>
<td>22</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Tamale Pie</td>
<td>5</td>
<td>19</td>
<td>24</td>
<td>19</td>
<td>23</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Schoolburger</td>
<td>6</td>
<td>18</td>
<td>23</td>
<td>19</td>
<td>23</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Beef Fricassee</td>
<td>7</td>
<td>19</td>
<td>24</td>
<td>21</td>
<td>23</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Salisbury Steak</td>
<td>7</td>
<td>19</td>
<td>24</td>
<td>20</td>
<td>20</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Beef Stew</td>
<td>7</td>
<td>18</td>
<td>27</td>
<td>19</td>
<td>22</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Boiled Weiners</td>
<td>8</td>
<td>24</td>
<td>27</td>
<td>21</td>
<td>22</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Baked Ham</td>
<td>8</td>
<td>21</td>
<td>25</td>
<td>19</td>
<td>20</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Baked Fish</td>
<td>8</td>
<td>19</td>
<td>24</td>
<td>21</td>
<td>23</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Hot Meat Bun</td>
<td>8</td>
<td>17</td>
<td>23</td>
<td>20</td>
<td>24</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Salmon Loaf</td>
<td>8</td>
<td>13</td>
<td>17</td>
<td>16</td>
<td>17</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Meat Balls</td>
<td>9</td>
<td>22</td>
<td>25</td>
<td>21</td>
<td>23</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Meat Loaf</td>
<td>15</td>
<td>18</td>
<td>25</td>
<td>20</td>
<td>22</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Roast Beef</td>
<td>20</td>
<td>21</td>
<td>28</td>
<td>20</td>
<td>22</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td>19</td>
<td>25</td>
<td>20</td>
<td>22</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td></td>
<td>2.85</td>
<td>4.31</td>
<td>4.99</td>
<td>5.4</td>
<td>4.12</td>
<td>3.74</td>
</tr>
</tbody>
</table>
for all meats in each of the schools, and it was creamed chicken on rice. One Negro and one Mexican school (C₁ and M₁) had their lowest acceptances the days on which macaroni and cheese was served. The other Negro school (C₂) as well as the other Mexican school (M₂) and the white school (W₂) had their poorest acceptance of the plate lunch when it contained salmon loaf.

The Mexican schools (M₁ and M₂) both showed above the average acceptance of plate lunches containing fish dishes when served on Friday. This was not true of the other schools. This higher average is probably related to the religious practices of the Mexican children.

The highest acceptance occurred on the two days on which turkey and dressing was on the plate lunch in five of the six schools (W₂, M₁, M₂, C₁, and C₂) whereas the highest acceptance for school W₁ was the one day barb-q-beef was served on the plate lunch.

The other meats on the plate lunch which gave acceptances above the average in more than one school were in descending order: boiled weiners and hot tamales in each of five schools; meat balls, barb-q-chicken thighs and barb-q-pork chops in four schools; tuna noodle supreme, schoolburger and hot meat bun in three schools; and beef roast, beef stew, baked fish, beef fricassee, and chicken pie in two schools. The preference for uncombined meats is in agreement with Breckenridge
(2) who found that 6- to 12-year old Merrill-Palmer children preferred uncombined meat to meat mixtures.

The differences in food acceptance between the schools of each race are evident from the standard deviation of these percentages. The two white schools varied most in their acceptance with a standard deviation of 2.85 for school W₁ and 4.31 for school W₂. This difference between the two white schools was evident also in Figure 1 with reference to the number selecting the plate lunch and the daily attendance in each of these schools. The difference between the white schools W₁ and W₂ was about four times as variable as the differences between the two Mexican and the two Negro schools. Although the two Mexican schools and the two Negro schools were more similar in their acceptance of the plate lunch the percentages were not identical or even similar for many of the meats served on the plate lunch. No menus were duplicated; the same meat was used with different vegetables or salads. Probably the daily variation in the selection of the plate lunch in these schools is no different than the daily acceptance of home meals and foods. Psychological factors probably enter into food selection in the lunchrooms as well as in the selection of specific foods.

However, the students of school W₁ were more uniform in their acceptance of the plate lunches than the students in any of the other schools, although their average acceptance was one of the lowest—19 per cent. Only one other school
$C_1$ had the same. School $W_2$ had the highest percentage acceptance (25 per cent) with school $M_2$ the next highest (22 per cent).
SUMMARY

The factors which may contribute to the acceptance of the plate lunch which provides the most nutritious food for the least money were investigated. Six elementary schools, two predominantly Mexican, two predominantly white, and two predominantly Negro, from similar economic strata and as nearly the same size as it was possible to obtain, were used in this study. The average daily attendance of the six schools was 828, 922, 685, 1013, 737, and 851 for schools $W_1$, $W_2$, $M_1$, $M_2$, $C_1$, and $C_2$, respectively.

Duplicate weekly report sheets on which unusual events, weather conditions and the daily menus were recorded were obtained from each school. The attendance records by six-week periods were obtained from the attendance office.

Attendance by six-week intervals is not related to the number of students selecting the plate lunch for the same six-week periods. The factors which appear to increase the acceptance of the plate lunch are special occasions such as Thanksgiving and Christmas luncheons; special events such as "American Education Week" and "Texas Public School Week." Severe weather conditions and school carnivals decreased the number of students selecting the plate lunch. Banking Day appeared to be without effect upon the number selecting the plate lunch.
A study of the daily percentage of plate lunches selected in each school when different meats were the basis of the lunch did not indicate a marked preference for specific lunches other than those associated with special occasions.

No distinct racial preferences were observed under the present practice of serving the same plate lunch on the same day in each of these schools. However, the Mexican children chose the plate lunch containing fish when served on Friday more frequently than the Negro or white children.

The average participation in the plate lunch acceptance of these six schools was 21 per cent with a range of 19 to 25 per cent. There was less variation between schools W2, M1, M2, C1, and C2 than between schools W1 and W2.

One of the two days on which chili was on the "a la carte" lunch menu showed a decided drop in the number of plate lunches selected. This may indicate that certain daily "a la carte" items influence the number of students selecting the daily plate lunch. The number of students selecting specific "a la carte" items daily was not a part of the present study. This might bear further investigation.

From this 180-day study of six elementary school lunchrooms having the same plate lunch served each day it appears that only special holiday meals and very severe weather conditions have markedly changed the fluctuating daily lunch pattern of each school. The fact that the number of students selecting the plate lunch daily increased during the year in
five of the six schools suggests that with an active educational lunchroom program more students might select the plate lunch.
APPENDIX

School $W_1$ . . . . . . . . . . . . . . . . . . . Lelia P. Cowart
School $W_2$ . . . . . . . . . . . . . . . . . . . Margaret B. Henderson
School $M_1$ . . . . . . . . . . . . . . . . . . . William B. Travis
School $M_2$ . . . . . . . . . . . . . . . . . . . Gabe P. Allen
School $C_1$ . . . . . . . . . . . . . . . . . . . B. F. Darrell
School $C_2$ . . . . . . . . . . . . . . . . . . . N. W. Harlee
BIBLIOGRAPHY


