

COLLEGE STUDENTS STATED ENTREE DECISIONS
AS A FORECASTING TOOL

by

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TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	vi
INTRODUCTION	1
REVIEW OF LITERATURE	2
College Foodservice	2
Objectives	2
Development of College Foodservice	3
Menu Planning	4
Acceptability	4
Factors Influencing Menu Planning	5
Forecasting	6
Factors Affecting Forecasting	6
Forecasting Models	7
Food Habits	8
Food Preferences	9
College Studies	9
Studies in the Armed Services	13
Other Studies	14
METHODOLOGY	16
Site of the Study	16
Data Collection and Analysis	17
Development of the Instrument	17
Selection of the Sample	19
Distribution of the Research Instrument	20

	Page
Collection of Actual Selection Data	21
RESULTS AND DISCUSSION	22
Survey of Preferences and Stated Entree Selection	
Decisions	22
Description of Survey Sample	22
Preference Data	24
Preferences by Entree Types	24
Liked, Disliked and Unfamiliar Entrees	28
Selection and Certainty of Choice Data	30
Actual Selection Data	40
Comparison of Actual and Stated Selection Data	41
SUMMARY AND CONCLUSIONS	51
REFERENCES	54
APPENDIXES	58
A. First Pretest Instrument	59
B. Second Pretest Instrument	61
C. Final Research Instrument	64
D. Residence Hall Menus	69
E. Biographical Information Page	85
F. Description of Study	87
G. Instructions for Research Assistants	89
H. Menu Item Census	91
I. Letter to Serving Line Personnel	93
J. Stated Selection Data for Luncheon Entrees	95
K. Stated Selection Data for Dinner Entrees	101
L. Stated Entree Selection Data for Choices Not Served	106

	Page
M. Actual Selection Data for Luncheon Entrees	108
N. Actual Selection Data for Dinner Entrees	118

LIST OF TABLES

Table	Page
1. Comparison of study sample and hall population	20
2. Description of sample	23
3. Comparison of sample and campus residence hall population by classification	24
4. Mean preference scores for entree items by categories	25
5. Entree items most liked, disliked, and unfamiliar to residence hall students	29
6. Students' stated entree selection decisions and decision certainty scores	31
7. Actual and stated entree choices and certainty scores	42

INTRODUCTION

Accurate forecasting techniques are essential for control of the food production subsystem and for control of food costs. Increasing food prices have made control of food costs very difficult and have emphasized the need for effective forecasting to avoid costly overproduction. Control of the production subsystem is related to a reliable estimate of consumer demand. Food preference studies have served as one means of identifying menu items the patron will choose.

This study is concerned with an analysis of students' stated decisions of entree selections that would be served in a university residence hall foodservice and comparison of these results with actual choices from a cafeteria line. A number of research studies have reported food preferences of university residence hall students (1-11). In general, the results have been used for planning menus more acceptable to students. Previous studies have pointed to such factors as sex, urbanization, frequency of eating, education, and knowledge of nutrition as influences on food preferences (1-11). This research focused on menu item decisions of university students and the reliability of food preference studies for predicting students' actual choices from a selective menu. Specific objectives were to:

- ✓(a) study preferences for entree items;
- (b) study consumer selection decisions between pairs of entree items and degree of certainty concerning the decisions;
- (c) compare actual choices with data of stated food decisions; and
- (d) study whether a survey of students' entree item decisions is useful for forecasting production demand.

Literature reviewed related to the study included: college foodservice, menu planning, forecasting, food habits, and food preferences.

REVIEW OF LITERATURE

College Foodservice

Objectives

Serving university residence hall students presents some unique challenges for a foodservice operation. Goals and objectives for the foodservice must reflect needs of the students as well as efficiency of operation.

As one example, the goals of the Princeton University (12) foodservice include establishment of a leadership program to provide dedicated, qualified personnel, and maintenance of an employee program to attract and encourage qualified personnel. Brigham Young University (13) stated that the goal of the university foodservice is to provide students with quality food, courteous service, and a pleasant atmosphere at the lowest possible cost; also, that the university foodservice be operated on sound business principles and be self-sustaining and independent from the university and church.

The purpose of the Virginia Commonwealth University (14) foodservice is to provide students with high quality food, and a wide variety of attractively served and appetizing choices. The ARA-Slater School and College Services (15) stated that objectives of the university foodservice division are to encourage cultural and social development of the student body and provide nourishment, variety, and high quality food.

The philosophy of the housing and foodservice at Pennsylvania State University (16) is that the experience of living with other students is as significant a part of the educational process as the academic development. The objectives of the foodservice (16) are not only to provide nutritional

requirements but also to change students' eating habits and provide maximum eating pleasure at a minimum cost. The foodservice at North Dakota State University (17) endeavors to serve nutritional, well prepared meals with interesting varieties and combinations in a pleasant, sociable atmosphere. These examples are illustrative and encompass, generally, the goals and objectives of college and university foodservices.

Development of College Foodservice

College foodservice has undergone many changes since it was first implemented. Stokes (18) described the first college foodservices as being table service operations. When Yale University began providing foodservice for its students in 1718 it was designed for wealthy students accustomed to formal table settings and service (19). Dobie (19) regarded World War II as the turning point for college foodservice in that cafeteria lines began to replace the formal table service. West, Wood, and Harger (20) cited that larger enrollments were a primary factor encouraging implementation of cafeteria service. Since World War II college foodservice has undergone numerous other changes; coeducational housing has been another important influence.

One innovation came largely as a result of administrators ceasing to regard students as merely a captive audience. In a study conducted at Andrews University, Chilson and Knichrehm (21) found that students preferred the a la carte system rather than the contract system because of the greater selection, variety, and quality provided.

The foodservice at the University of the Pacific (22) increased menu flexibility by offering a vegetarian food program and partial meal tickets so that students could choose the number of meals they wished to eat at the

university foodservice. To meet the needs of a large number of commuting students, Temple University (23) offers vending cafeterias and special sandwich lines in addition to regular cafeteria lines and a catering service.

Student food committees have been implemented by some college foodservices as a mechanism for student input. At St. Joseph's College in Philadelphia (24) a student committee approves all menus and makes suggestions on both food and service. Spritzler (25) purported that competition with drive-ins and restaurants has forced some college foodservices to increase the hours of service and provide optional meal plans. Millron (26) indicated longer serving periods was a recent change in the foodservice at Bowling Green University. A la carte pricing on serving lines and a coupon system where students may buy a book of food coupons redeemable in the college cafeterias and snack bars were other innovations. Cornell (27) described a coupon system recently implemented at Davidson College and foodservice facilities which include a Kosher-style delicatessen; more formal dining area for luncheons, buffets, and special occasions; and a standard snack bar and cafeteria.

Menu Planning

Acceptability

Menu planning is a key factor in food acceptability. Not only must the menu be planned for adequate nutrition and tempt the appetite, but it must result in satisfaction for the patron as well. According to Morgan (28) consumer requirements are the first consideration in menu planning. He stressed the necessity of determining characteristics of potential consumers and the specific demands they bring with them. The menus and recipe

committee report of the National Association of College and University Food Service (29) listed student acceptance as one of the major objectives of college and university foodservice menu planning.

Factors Influencing Menu Planning

Fowler, West, and Shugart (30) acknowledged four considerations to insure that the menu will meet customers needs: (a) age, sex, and occupation of the group to be served, (b) climate and season, (c) flavor and appearance of food, and (d) variety. Nutritional needs are relative to the age, sex, and activity level of the group served (31). West, Wood, and Harger (20) noted that nutritional implications are particularly important in menu planning for institutions that provide all the meals for a group. Climate and season influence not only the appetites of the patrons but the availability of menu items as well. Holiday seasons were seen by Stokes (18) as an opportunity for the menu planner to add variety to the menu by including traditional and seasonal favorites.

West, Wood, and Harger (20) noted that a knowledge of foods and a variety of preparation methods are essential for maintaining appetizing flavor and appearance of foods. For successful menu planning they stressed the importance of harmonious colors; variety in texture, consistency, and shape of foods; complementary flavors; attractive arrangement of food on the plate; and a variety of preparation methods. Lack of variety in menus was cited by Treat and Richards (32) as the most frequent criticism of foodservice patrons. Kotschevar (33) agreed that variety is an important factor not only in the types of foods offered but in preparation and service of food as well. Morgan (28) emphasized that religious, ethnic, and geographic needs of the consumers influence menu planning. Consideration

of regional foods and method of preparation was seen as a necessity of good menu planning by Treat and Richards (32) and Morgan (28).

Forecasting

Factors Affecting Forecasting

Careful planning is as essential in foodservice as in every other industry. According to Johnson, Kast, and Rosenweig (34) the function of accurate forecasting is to provide a basis for understanding and formulating expectations. College foodservice imposes various constraints on foodservice planning. A unique problem the university residence hall management must deal with is that a fixed number of students live in the halls and have paid for their meals. Although meals are paid for in advance every resident will not necessarily eat every meal offered; however foodservice must provide a nutritious, satisfying meal to every resident who wishes to eat. Kotschevar and Terrill (35) cited administrative policies and a school's financial limitations as two additional constraints.

McMannis (36) listed ten factors for making a systematic pattern of forecasting in a college foodservice: popularity of an item, meal count records, weather, events, sex, previous production records, plate waste studies, specifications, portion sizes, purchasing units, recipe batch sizes, and pan sizes. Popularity of menu items, yields from purchased food units, and common packaging and container sizes are cited by Morgan (28) as forecasting considerations. He also emphasized the need for accurate specifications and knowledge of lead time for ordering as factors and acknowledged the importance of maintaining a sales history record showing date, meal, day, weather, competing menu item, featured specials, and

special events. The need for keeping accurate records of meal census and effect of such factors as weather, menu offerings, and season was discussed by Kotschevar (33). He stressed that including such information as portion sizes and batch times and sizes on recipes and in work areas for quick and easy reference can increase the accuracy of forecasting.

Two elements, the population estimate and food preference prediction, were cited by Uhrich and Noort (37) as the basis for production demand forecasting. By studying the historical customer census and data over a period of time it is possible to draw an accurate projection of the population and meals to be served.

Forecasting Models

Three techniques of forecasting are described by Uhrich and Noort (37); the first is the informed estimate method which consists of an educated guess. It is probably the oldest, least expensive and most common of the three types of forecasting described. Although this method of forecasting may be useful in analyzing data that are difficult to quantify, its weakness lies in the fact that it is not systematic.

Internal analysis of individual and cumulative data is a second type of forecasting. This technique requires maintaining accurate records to predict the future production demands. Shortcomings of the method are its inability to take into consideration many variables that may occur in food-service operations (37).

The third type of forecasting encompasses sophisticated statistical techniques. These include the moving average techniques and exponential smoothing models. Both types are useful for analysis of specific

forecasting problems but they require a high level of technical skill and may be time consuming and expensive (37).

Food Habits

Food habits of a clientele have a tremendous impact on menu planning and production forecasting. Students in nutrition courses were subjects for a study of food habits at the University of Illinois (38). The students were asked to write papers describing the development of their food habits and specific likes and dislikes. Factors students considered as influential in the development of their food habits and preferences were parental influence, place of residence, family income, family size, pressures of life, peer influence, eating situations and living arrangements outside the home, ease of securing meals, and income and hours of work.

In Thompson's (39) study of college students' food habits, fifty women students were interviewed and wrote papers describing their early childhood experiences and development of food habits. Food habits were found to be closely associated with family relationships; attitudes and food habits of parents proved to be the most important single factor in the development of the child's food habits. Habits formed in childhood were found to be long lasting and difficult to change.

Wise (40) conducted a study to determine food habits of college students, nutrient content of their diets, and their knowledge of nutrition. Questionnaires were distributed to students and their parents to ascertain students' food habits. Students indicated that they were not forced to eat foods they disliked, to eat more food than they wanted, or to try new foods as children. According to both the parents and students, students enjoyed

eating and most were willing to try new foods. Pleasant meal situations were found to provide an environment for better food intakes.

Nugent (41) found that freshman college students arrive with preconceived ideas about institutional food which tend to be negative. Upperclassmen try to educate freshmen's positive thinking about food into negative ideas. Nugent (41) also noted that most young people are unadventurous eaters and unfamiliar foods frequently go untouched.

Food Preferences

College Studies

Early findings of food preferences came as a result of studies of the eating habits of college students. Hall and Hall (1) asked students to indicate on a list of 150 foods those that they did not know or disliked intensely and their reasons for the decision. Results of the study showed that certain foods were unfamiliar or disliked by a large number of students and that often students rated the same foods as both disliked and unfamiliar. Highly disliked foods included organ meats such as brains, kidney, and liver; all other meats and all poultry were well liked.

Lamb, Adams, and Godfrey (2) predicted that the results of a food preference study they conducted at Texas Technological College could be implemented in planning and serving meals in a residence hall. College women, who were the subjects for this study, were asked to rate their like or dislike of 116 common foods and reasons for their attitudes about these foods. Most liked foods proved to be whole milk, citrus and some other fruits, and all pies and cakes. Beef, pork, and chicken proved to be well liked when prepared by any cooking method; fried fish and tuna salad were other well liked entree items. Vegetables, buttermilk, organ meats, and

soft-cooked eggs were least liked foods; disliked foods were seldom or never eaten.

Barlow (3) found that sex and size of the home community affected food preferences of college students. Participants completed a questionnaire of seventy menu items by rating their like or dislike using a five-point scale: like very much, like, neither like nor dislike, dislike very much, don't know. The majority of the respondents indicated "like" scores for beef, bacon, ham, turkey, chicken, and veal. Lamb was disliked by the majority. Liver was popular with 53 per cent of the respondents and tongue and heart were liked by 55 per cent. Trout, shrimp, and fish were well liked items but oysters and clams were highly disliked.

A study conducted at Oklahoma State University (4) showed that there were differences between food selection of male and female students; between students who selected a la carte meals and those who ate their meals at contract foodservices; and among various grade classifications of students. The research instrument listed 153 food items and asked students to indicate how frequently they would be willing to eat each item.

Factors influencing food preferences of college students were the basis of Warren's study (5). She identified sex, where the student lived, places visited, and age and education of mother as influencing factors. Students' degree of like or dislike of 334 foods were analyzed using a seven-point scale. From these data some patterns of food prejudices within the population were studied. Foods disliked most were dark green and yellow vegetables, combination meat dishes, organ meats, pudding type desserts, cooked cereals, canned fruit, cheese, and buttermilk. Best liked foods were meats without extenders, hot breads and plain white bread, fresh fruit, pies and cobblers, ice cream, hot chocolate, and milk.

Using a check list of sixty-one foods Schuck (6) asked South Dakota College students to rate their degree of like or dislike using a four-point scale. Results of the study showed that whole milk and butter were most highly accepted; most fruits and certain meats, such as beef, fowl, pork, and fresh fish, ranked second; and vegetables, lamb, and organ meats were the least acceptable foods. Women were willing to eat fruits more often than men; but men indicated that they were willing to eat vegetables more frequently than women. Higher acceptability was noted in students coming from town homes than students coming from rural homes.

In a study of the nutritional implications of college students' food preferences a survey (7) was conducted of a 1 per cent sample of all college students in the United States. A research instrument was presented to students during the noon meal asking them to express their like, dislike, or unfamiliarity with 207 randomly listed items. Food items were separated into ten food classes and the percentage of like and dislike computed so that preferences among food classes could be compared. Included in the 10 per cent best liked items were beef steak, roast turkey, roast beef, fried chicken, and hamburger. Sauteed chicken livers, sauteed liver, navy bean soup, stuffed pepper, and lamb stew were listed among the 10 per cent least liked foods.

Food habits and preferences were the subject of a study of 394 freshmen at New Mexico State University (8). Students completed questionnaires indicating their breakfast and snack habits and listed foods which they considered appropriate for breakfast, lunch, and dinner. Entree items preferred at each meal were: bacon, ham, sausage, and steak for breakfast; steak, sandwich, chicken, hamburger, and roast beef for lunch; and steak, chicken, and roast beef for dinner. Findings of the study indicated that

students had a basic knowledge of nutrition and in general, preferred foods they considered to be healthful.

Freshmen at Fresno State College (9) completed questionnaires indicating their degree of like or dislike of 152 food items. A comparison between women and men showed that women had more food likes, while men had more dislikes but were familiar with more foods than were women. Foods liked by both sexes were whole milk, fresh fruit, salad, baked potato, fried chicken, hot chocolate, lemonade, cola beverage, and orange juice. Commonly disliked foods were kidney beans, beets, and hominy. Shrimp Polynesian, chicken croquettes, and shrimp creole were among foods unfamiliar to both sexes.

Knickrehm, Cotner, and Kendrick (10) studied residence hall students' frequency of acceptance of 126 menu items by listing commonly served foods and asking students to indicate how often they would be willing to eat the food. They found that vegetables were acceptable less frequently than other types of menu items and few foods would be accepted if served as often as twice a week. Entree items acceptable twice a week to at least 25 per cent of students were roast beef, broiled steak, ham, baked or grilled steak, fried chicken, hamburger on bun, bacon and tomato sandwich, and chili. Entree items that at least 25 per cent of the students said they would not eat were corned beef and cabbage, liver and onions, veal casserole, ham loaf, roast lamb, shrimp casserole, veal cutlet, salmon, chicken giblets and liver, chow mein, chop suey, hash, meat and potato cakes, fish salad sandwich, and meat and rice casserole.

White's study (11) also was concerned with frequency of acceptance of menu items. Using the nine-point scale developed by Knickrehm et al. (10) students were asked to indicate how frequently they would like to eat 153

food items. No menu items were acceptable on a daily or more frequent basis. Fresh fruit, tossed green salad, ice cream, fruit pie, and cake were acceptable every other day. Popular vegetables were acceptable once or twice a week. Fried chicken, roast beef, and chicken fried steak were the most frequently acceptable entree items.

Studies in the Armed Services

Preference studies with armed service personnel are another area of food preference research. In some respects these studies are comparable to college studies in that they focus on adult eating habits and as Pilgrim (42) has noted, both groups of persons involved are part of the American population and have experienced similar cultural influences.

In a study of the food likes and dislikes of Army personnel, Pilgrim and Wood (43) compared two types of food preference testing: the single stimulus method and paired comparison method. For the single stimulus method a form listed food items and asked respondents to indicate their degree of like or dislike with a nine-point hedonic scale. A second instrument recorded the preference between pairs of samples. The respondent was required to choose only one of the samples from each pair. Findings of the study indicated that both types of testing were equally sensitive.

In a study of Army personnel conducted by Peryam and Gutman (44) five factors were varied with each meal served according to a pre-planned pattern and their effects on food preferences were noted. The five factors were mess hall group, day of the week, questionnaire form, meal, and week. A single-test food, e.g., orange juice, was presented repeatedly at the regular meals in nine mess halls. At each meal period food preference ratings were obtained. Findings indicated that influence of the mess hall

group and the meal of the day were significant factors. Effects of day, week, and form of the questionnaire were insignificant.

Menu combination effects were studied by Eindhoven and Peryam (45). They developed an instrument which listed key food items from main dish and potato classes with sub-items from vegetable and potato classes and asked the respondents to indicate their like or dislike of each combination using a nine-point hedonic scale. Results of the study showed that preferences for combinations of main dishes and potatoes and main dishes and vegetables were independent of preferences for the individual main dishes, potatoes, and vegetables.

The Quartermaster Food and Container Institute for the Armed Forces (46) conducted a study of the food preferences of army personnel using an instrument listing forty-five to fifty-four foods. Soldiers were asked to indicate their like or dislike using a nine-point hedonic scale and comparisons were made with biographical data obtained from the sample. Findings indicated that among food groups breads were highly preferred as were fruits and desserts; while vegetables were least preferred and soup, the next least preferred. Main dishes required a large range of preferences with fish, lamb, meat combinations, and liver at the lower end of the range and fowl, pork, ham, and ground meat at the higher end. The status of accessory foods or condiments and beverages also were evaluated. Factors affecting preferences were length of service, age, and region of origin; while education and size of town had less effect.

Other Studies

In a food preference study conducted with hospital patients and employees, Schutz, Rucker, and Hunt (47) listed twelve menu items and asked

respondents to indicate the appropriateness of each item given twelve specific situations: for lunch, for special holidays, not very hungry, evening snack, for dinner, nutritious, not feeling well, lose weight, going to sleep, for breakfast, when unhappy, and food value equal to milk. Findings indicate that patients and employees were unclear as to what foods are equivalent to milk in food value and that both groups considered sandwiches and meat entrees appropriate for lunch; however, sandwiches were considered less appropriate for dinner. Patients were hesitant to select foods that were unfamiliar to them.

Schuh, Moore, and Tuthill (48) used plate waste as a measure of hospital patients' satisfaction of computer planned menus. They compared plate waste of twenty-four foods with a food preference questionnaire to find if the acceptability could be predicted. The food preference instrument consisted of a total of 100 entrees, vegetables, salads, and desserts and asked patients to indicate how frequently they would select each item using a six-point scale. Attitudes of the population toward frequency of service could not be predicted by a frequency rating technique.

Schutz (49) developed an action scale for measuring the frequency of acceptance of menu items. The action scale consisted of a nine-point scale allowing respondents to express how frequently they would be willing to eat menu items. Two instruments listing fifty-four menu items were developed; one asked a randomly selected sample from the general population to indicate how often they would accept each menu item using the action scale. The second questionnaire asked respondents to express their like or dislike of the same fifty-four items using the hedonic scale described by Peryam and Pilgrim (50). Findings indicated that the action scale had a higher descriptive sensitivity than did the hedonic scale.

METHODOLOGY

Site of the Study

This study was conducted at a large midwestern university with an approximate enrollment of 16,400. University residence hall dwellers are served by five foodservices: two central facilities servicing two and four residence halls, respectively; and three self-contained facilities providing foodservice for residents of smaller halls.

The first objective of the residence hall foodservices is to serve quality food that is nutritious, palatable, attractive, and safe. A second objective is to direct students towards good food habits. Cooperation and support for social and educational programs within the residence halls are other goals. Objectives are achieved by emphasis on high quality foods which are the result of the application of changing technological developments and tight supervision and control of sanitation practices. The introduction of new foods, service of appetizing, flavorful foods, and utilization of various styles of service enhances students' knowledge of food (51).

The four-hall complex and food center were sites for the study; the center is the newest and largest foodservice on the campus. An approximate total of 2,250 students reside in the complex; two halls house 647 and 316 female residents, respectively, one houses 646 male residents, and the fourth, 645 coed students. Three meals are served daily except on Sunday when no evening meal is provided. Three of the seven serving lines are open for breakfast; a regular, full breakfast is provided from 6:30 to 8:15 a.m. and a continental breakfast, from 8:30 to 9:15 a.m. At lunch four cafeteria lines are open from 10:45 a.m. to 1:15 p.m. in addition to a

line serving hamburgers from 10:00 a.m. to 1:00 p.m. Dinner is served on six lines between 4:50 and 6:10 p.m.

Menus for all of the university residence hall foodservices are centrally planned two months in advance of service. All dietitians receive copies of the tentative menu. They review the menus, note production problem areas, and make recommendations before menus are finalized. Copies of the menus are sent to each foodservice one month in advance of the serving date. A nine-week cycle of luncheon and dinner entree items is used for menu planning; however, the cycle is not strictly adhered to.

Approval for the study was granted by the residence hall presidents and governing board in addition to the Director and Associate Director of Housing. The Associate Director of Housing and the manager of the foodservice unit were consulted prior to the beginning of the study and their suggestions were obtained through periodic progress reports.

Data Collection and Analysis

Two types of data were collected to fulfill the objectives of the study: data of students' preferences for various entrees and stated entree selection decisions and actual selection data from records of foods served at cafeteria serving lines. A survey was designed to collect data concerning preferences and students' predictions of what they would select if offered various choices of entree items (stated food selection decisions).

Development of the Instrument

Two pretests were conducted in the development of the instrument. The first pretest instrument (Appendix A) consisted of twenty pairs of entree items and asked the respondent to indicate a choice between the two

selections and the degree of certainty of each choice using a three-point scale, A = certain to C = not sure. An example follows:

- | | | | |
|--------------------|---|---|---|
| 1. _____pork steak | A | B | C |
| _____beef brisket | A | B | C |

Items were chosen from the residence hall menu and were listed as choices as they would be offered. This pretest was conducted with a random sample of fifteen students. Results indicated a need for descriptions of many items.

A second pretest instrument (Appendix B), distributed to a sample of twenty randomly selected students, included a page of explanation, instructions at the top of each page, and descriptions for most of the entree items. The instrument asked students to indicate like or dislike for each entree, using a four-point scale, in addition to selection and certainty decision. The following is an example from the second pretest instrument:

- | | | neither
like nor
like dislike | have
not
dislike eaten |
|---------------------------------|---|-------------------------------------|------------------------------|
| 1. _____Tacos and Refried Beans | 1 | 2 | 3 4 |
| _____Tuna Noodle Casserole | 1 | 2 | 3 4 |
- Circle: A B C

Results indicated students often failed to circle the A, B, or C to indicate certainty of choice.

The final research instrument (Appendix C) consisted of a listing of sixty-nine pairs of luncheon and dinner entree items from actual residence hall menus (Appendix D). To delimit the study, only entree items were included because they traditionally comprise the most costly part of the menu; also, it was hypothesized that the entree is a major factor in patron menu acceptance. The entree items were listed randomly by first assigning

each pair of entrees a number; then a table of random numbers were used to determine the order for listing choices on the research instrument. Horizontal lines separated each choice to increase the readability of the instrument. Instructions printed at the top of each page of the instrument seemed to sufficiently explain how to complete the questions so the introductory page was deleted. Also, the certainty scale was defined under each choice to more clearly delineate the response desired; for example:

	like	will eat	dis- like	don't know
1. _____ Beef Stew	1	2	3	4
_____ Deep Fat Fried Lake Perch	1	2	3	4
A-Very sure B-Fairly sure C-Not sure				

The final instrument was printed in booklet form with the cover page identifying the sponsor and title of the study.

Each questionnaire was accompanied by a biographical information page (Appendix E) and a self-addressed envelope with prepaid postage for the return of the complete instrument. Biographical data asked for included: residence hall lived in; sex; age; student classification; major; urban or rural dweller; geographic location of home town; number of communities, cities, or towns lived in; and number of semesters in residence hall.

Selection of the Sample

A stratified random sample of 20 per cent of the university residence hall dwellers serviced by the food center was selected to complete the questionnaire. To insure that the sample chosen was proportional to the population of each hall the sample was stratified by hall (Table 1). The sample also was stratified by floor and wing to compensate for the tendency of students of similar interests and curricula to live on the same wing.

Lists of inhabited rooms were obtained from the Department of Housing; consecutive numbers were assigned to the lists of inhabited rooms according to floor and wing of each of the four halls. From these numbers the sample was randomly selected and students' names corresponding to these numbers were obtained from the residence halls. Using the same method alternates also were selected. The sample included 448 students, 128 from each of the three larger halls and sixty-four students from the smaller hall.

Table 1: Comparison of study sample and hall population

	student population		study sample ¹	
	N	%	N	%
residence hall:				
Ford	636	28.7	128	28.6
West	307	13.8	64	14.2
Moore	640	28.8	128	28.6
Haymaker	638	28.7	128	28.6
total	2221	100.0	448	100.0
sex:				
males	1079	48.6	210	46.7
females	1142	51.4	238	53.2

¹Random sample stratified by residence hall, wing, and floor.

Distribution of the Research Instrument

The instrument was delivered personally to each respondent by eleven student employees. A training session was held with the student employees to orient them to the project and to instruct them concerning distribution procedures. Each student employee was given a folder containing names of students to whom they were to deliver questionnaires, a page briefly describing the study (Appendix F), and a sample introduction to the study

(Appendix G) explaining how they should introduce the instrument and encourage student participation. For purposes of follow-up questionnaires were prenumbered with the identification number previously assigned to each student in the sample.

A second identical instrument and a return envelope were delivered to the 143 non-respondents 4 weeks after the initial delivery. Four student employees who had delivered the first instruments were hired to contact non-respondents in a manner similar to the initial distribution procedure. Total overall return was 376 (84 per cent); 25 alternates were in the final sample.

Collection of Actual Selection Data

Single key tabulators were placed on each cafeteria line during lunch and dinner meals for an eight-week period corresponding to the period from which menu selections were chosen for the research instrument. The number of residents selecting each entree item and the number desiring no entree were recorded with the tabulators. At the end of each meal, cumulative data were recorded by the servers on a form provided (Appendix H). An orientation session was held with line supervisors and individual instructions were given to cafeteria employees to acquaint them with the project and instruct them on the use of the tabulators. A letter of instruction on the use of the tabulators also was sent to serving line personnel (Appendix I).

RESULTS AND DISCUSSION

Survey of Preferences and Stated Entree Selection Decisions

Description of Survey Sample

Table 2 presents demographic data from the student survey. Respondents were distributed among the four residence halls in proportions similar to the sample that was drawn. Percentage response was higher from Ford and West halls (90.6 and 89.1 per cent, respectively) than from Moore and Haymaker (74.2 and 81.3 per cent). There were slightly more females than males which also was true for the total residence hall population. The seventeen to nineteen year olds comprised the largest (55.9 per cent) age group; the twenty and twenty-one year olds made up 35.4 per cent of the sample; and the twenty-two and older groups, 8.5 per cent.

The largest student classification completing the instrument were freshmen; sophomores comprised the second largest group. The sample also was distributed among classifications similar to the campus residence hall population (Table 3). The largest number of students were in arts and sciences curricula, followed by agriculture, home economics, and business administration. Students majoring in curricula in the other four colleges were represented in the sample in ratios somewhat parallel to enrollments among colleges. A small majority (55.1 per cent) indicated that they were from urban communities and 44.7 per cent were from rural areas; although community size was not indicated. Because a large majority of students (86.6 per cent) named the midwest as the regional location where they had lived most of their lives it was believed many were from small and medium-sized towns, rather than large cities. There were small percentages from the southwest, northeast, southeast, and outside U.S.A. Students indicated

Table 2: Description of sample

residence hall (N = 376) ¹		community most of life (N = 376)	
	%		%
Ford Hall	31.1	urban area	55.1
West Hall	15.2	rural area	44.7
Moore Hall	25.3		
Haymaker Hall	27.9		
sex (N = 375)		regional location most of life (N = 374)	
	%		%
male	46.4	west	2.7
female	53.6	southwest	1.1
		midwest	86.6
		northeast	7.0
		southeast	.8
		outside U.S.A.	1.6
present age in years (N = 376)		number of communities lived in prior to coming to college (N = 375)	
	%		%
17-19	55.9	only one	52.8
20-21	35.4	2-3	33.3
22-23	6.1	4-6	8.5
24 and over	2.4	more than 6	5.7
student classification (N = 376)		semesters in residence hall (omit current semester) (N = 375)	
	%		%
freshmen	38.0	none before this semester	45.3
sophomore	29.5	1 semester	44.8
junior	17.6	2-3	32.3
senior	10.6	4-6	11.7
graduate student	4.0	more than 6	5.6
major (N = 371)			
	%		
agriculture	19.9		
architecture	5.9		
arts and sciences	35.0		
business administration	10.5		
education	3.5		
engineering	8.4		
home economics	14.6		
veterinary medicine	2.2		

¹N varies because all students did not respond to all questions.

that they had lived in the following number of communities prior to coming to college: only one, 52.9 per cent; two to three, 33.3 per cent; four to six, 8.5 per cent; and more than six, 5.1 per cent.

Table 3: Comparison of sample and campus residence hall population by classification

classification	sample ¹ (N=376)	campus residence ² hall population (N=4135)
	%	%
freshmen	38.0	44.2
sophomores	29.5	26.1
juniors	17.6	15.7
seniors	10.6	10.8
graduate students	4.0	3.2

¹Sample was randomly selected from four residence halls.

²Campus residence hall population includes nine residence halls.

Preference Data

Preferences by Entree Types. Similar entrees were grouped into sixteen categories according to the classifications established by Shriwise (52). The 01-beef, roast category was not represented in the instrument for this study. Although roast beef was served, it was not paired with another entree on the preplanned menus; only paired, pre-planned entrees were included in the study.

Table 4 is a compilation of the mean preference scores for the 128 entrees included on the instrument by category. Twenty-nine items were included more than once in the paired choices; e.g., on different menus, pizza was paired with chicken a la king, with corned beef, and with bacon sandwich. In this situation, a mean value was computed for pizza (or other

Table 4: Mean preference scores for entree items by categories¹

item	mean s.d.	item	mean s.d.	item	mean s.d.		
02 beef: steak or cutlet							
grilled steak	1.33± .67	roast pork loin	1.70± .91	09 fish: baked	baked catfish	2.37±1.21	
grilled minute steak	1.41± .72	pork steak	1.93± .98		red snapper	2.49±1.19	
ground beef steak	1.53± .73	pork ribs	2.43±1.17		poached halibut	2.51±1.24	
chicken fried steak	1.56± .83				sole almonidine	2.73±1.18	
salisbury steak	1.59± .92						
beef brisket	1.60± .85	06 poultry: fried or roast					
kabobs	1.86±1.02	roast turkey	1.32± .58	10: salad plate			
beef birds	2.14±1.07	country fried chicken	1.52± .92		K-State salad bowl	2.09±1.08	
		baked chicken	1.57± .85		trio luncheon plate	2.33±1.06	
03 beef: ground							
meat loaf, bbq. sc.	1.97±1.11	07 poultry: other			hospitality plate	2.38±1.15	
meat balls, gravy	1.97±1.00	chicken antoine	2.32±1.11	Dutch treat plate	2.38±1.11		
meat loaf, mushrm. sc.	1.98±1.08	chicken crepes	2.52±1.13	shrimp Louis salad	2.41±1.19		
Swedish meat balls	2.00±1.05	chicken giblets	2.95±1.14	meat salad, soup, roll	2.48±1.08		
snowdrift squares	2.58±1.10			salad greens, cott.			
				chs., fruit	2.58±1.14		
04 pork: chop or ham							
roast ham	1.42± .74	08 fish: fried			egg salad on lettuce	2.60±1.12	
pork chop	1.54± .83	french fried shrimp	1.41± .93	sliced meat loaf, turkey	2.60±1.10		
		fisherman's platter	1.99±1.15	peach of a dairy salad	2.64±1.18		
		fried lake perch	2.30±1.18	plum delicious plate	2.64±1.14		
		salmon patties	2.60±1.19	brighten a day plate	2.77±1.13		
				yogurt fruit plate	2.89±1.18		

¹Entree categories specified by Shriwise.²Scale = 1, like; 2, will eat; 3, don't know; 4, dislike.

Table 4: (cont.)

item	mean s.d.	item	mean s.d.	item	mean s.d.
11: cold sandwich					
ham on hoagie bun	1.52± .81			15: Italian, Mexican dishes	
submarine sandwich	1.52± .76			pizza	1.52± .82
chicken salad sandwich	2.04±1.04			chili	1.52± .94
				tacos	1.53± .94
12: hot sandwich					
b.b.q. beef on bun	1.41± .71	14: casserole, creamed, extended main dishes		16: other main dishes	
bacon, lettuce, tomato	1.46± .86	hunter's dinner	1.34± .47	Boston baked beans	2.18± .81
beef French dip	1.49± .88	beef stew	1.83± .97	western omelet	2.25±1.17
grilled cheese	1.59± .89	turkey and dumplings	1.84± .99	scrambled egg	2.27±1.19
college Joe	1.64± .89	creole spaghetti	1.84± .99	ham and beans	2.30±1.18
wiener on bun	1.79± .95	hamburger goulash	1.92± .98	veal cordon bleu	2.36±1.14
corned dog	1.95±1.13	beef on noodles	1.93± .99	omelet, mushrm. sc.	2.58±1.21
pork cutlet on rye	1.97±1.06	tuna noodle casserole	1.94±1.08	cheese rarebit	2.60±1.13
chicken cutlet on bun	1.97±1.04	hamburger stroganoff	2.00±1.06	cheese soufflé	2.61±1.14
deep sea dandy	2.13±1.16	beef, tom., mac. casserole	2.00±1.02	fried rabbit	2.78±1.19
reuben sandwich	2.14±1.28	beef noodle casserole	2.01±1.04	cheese balls	2.88±1.13
corned beef on rye	2.25±1.19	beef pot pie	2.03±1.12		
13: hamburger sandwich					
hamburger on bun	1.51± .81	turkey pot pie	2.03±1.07		
K-State hamburger	1.51± .79	scalloped chicken	2.06± .99		
cheeseburger	1.53± .84	Spanish noodles	2.10±1.03		
superburger	1.59± .89	Texas straw hat	2.11±1.10		
pizzaburger	1.78± .95	beef chop suey	2.17±1.21		
		cream chipped beef	2.31±1.18		
		shepherd's pie	2.32±1.10		
		Spanish rice	2.33±1.17		
		beef biscuit roll	2.35±1.09		
		chicken ala king	2.43±1.14		
		ham shortcake	2.50±1.08		
		six layer dinner	2.52±1.18		
		corned beef hash	2.67±1.13		

items listed more than once) using data from the multiple responses; however preference scores were similar for each response. A lower preference score indicates greater degree of "like" for an entree. Appendix J includes tables summarizing percentage responses for the preference data.

The mean preference values indicate entrees classified as 02 beef; steak or cutlet tended to be well liked. These findings were similar to those reported by Warren (5), Einstein and Hornstein (7), Stasch et al. (8), and White (11). Knickrehm et al. (10) found that broiled, baked or grilled steak was a frequently accepted item.

The category of salad plates had a high percentage of "will eat" and "dislike" responses and tended to be among the least preferred items (Appendixes J, K, L). Many respondents indicated that they were unfamiliar with the salad plate entrees included on the menus. Ambiguous names for some of the salad plate items may have been responsible for the high degree of unfamiliarity (e.g., plum delicious plate, brighten a blustery day plate).

Items in the cold and hot sandwich categories tended to be well liked (Table 4). Corned beef on rye, reuben sandwich, deep sea dandy (fish square on bun), chicken salad sandwich, and pork cutlet on a bun were the least liked of the sandwiches; whereas, bacon, lettuce, and tomato sandwich, barbequed beef on a bun, and beef French dip were favorites. Knickrehm et al. (10) also found bacon and tomato sandwich to be a highly acceptable entree item.

Mean preference scores for the hamburger sandwich category indicated all items in this group were liked (Table 4). Other studies (7,8,10) corroborate these findings. Mean preference scores for hamburgers were

comparable to the steak or cutlet category and the other two sandwich categories.

A wide range of mean preference scores were indicated for the casseroles and creamed and other extended main dish category. Creole spaghetti, beef stew, and turkey and dumplings were liked best of the items included in this classification. Corned beef hash, six layer dinner, and southern ham shortcake were the least preferred items. Warren (5) and Peryam et al. (46) found that extended main dishes were frequently disliked. The category of casseroles and creamed and other extended main dishes tended to be less well accepted than the steak or cutlet, pork chop and ham, fried or roasted poultry, and sandwich categories.

Italian and Mexican ethnic main dishes had a high degree of acceptance. Preference scores were similar to those for hamburgers, sandwiches, steaks and cutlets, and porkchops and ham. Chili which was a well liked item also was found to be a frequently accepted item by Knickrehm et al. (10).

The category of other entrees included non-meat entrees such as Boston baked beans, omelets, cheese balls, cheese souffle, and scrambled eggs and less commonly eaten dishes such as veal cordon bleu, and fried rabbit. Preference scores for all items in this category indicated the entrees were liked less than all categories except baked fish items and salad plates.

Liked, Disliked and Unfamiliar Entrees. Items were grouped into categories in relation to preference responses. Table 5 summarizes entrees least liked (33 per cent or more of the respondents indicated

Table 5: Entree items most liked, disliked, and unfamiliar to residence hall students (N = 376)

items liked by 66% or more		items unfamiliar to 5% or more	
item	% "like" responses	item	% "don't know" responses
french fried shrimp	80.3	southern ham shortcake	14.6
chili and crackers	78.2	hunter's dinner	13.8
grilled steak	74.5	veal cordon bleu	13.3
roast turkey	72.3	Boston baked beans	13.2
bacon, lettuce, tomato sandwich	71.2	cheese souffle	12.8
tacos	70.4	cheese balls on pineapple	12.4
swiss steak with gravy	69.8	snowdrift squares	12.1
roast ham	68.6	cheese rarebit on toast	11.9
beef french dip	68.5	chicken crepes	10.2
country fried chicken	67.9	fried rabbit	9.9
grilled minute steak	67.9	beef biscuit roll	9.4
barbequed beef on bun	67.8	yogurt fruit plate	9.4
		chicken antoine	8.6
		meal salad, cup of soup	8.3
		omelet	8.1
		sole almondine	7.8
		beef cutlet wrapped around dressing	7.8
		chicken giblets on rice pilaf	7.5
		Dutch treat plate	7.3
		beef birds with gravy	7.0
		shrimp Louis salad bowl	6.5
		brighten a blustery day plate	6.4
		trio luncheon plate	6.2
		chicken ala king	6.2
		salmon patties, cream sauce	6.1
		red snapper	5.7
		egg salad on lettuce	5.7
		hospitality plate	5.7
		pork ribs, sauerkraut	5.6
		plum delicious plate	5.6
		salad greens, cottage cheese, fruit	5.4
		peach of a dairy salad bowl	5.4
items disliked by 33% or more			
item	% "dislike" responses		
chicken giblets on rice pilaf	50.5		
yogurt fruit plate	48.0		
sole almondine	44.7		
fried rabbit	44.5		
peach of a dairy salad plate	42.7		
brighten a blustery day plate	41.6		
Boston baked beans	39.7		
corned beef hash	38.1		
salmon patties	37.4		
omelet with mushroom sauce	36.8		
hunter's dinner	35.4		
six layer dinner	35.1		
salad greens, cottage cheese, fruit	34.9		
red snapper	34.0		
cold sliced meat loaf and turkey	33.7		
cheese souffle, with cheese sauce	33.4		
cheese rarebit on toast	33.2		

dislike for the item), those liked by 66 per cent or more, and those unfamiliar to 5 per cent or more of the respondents.

French fried shrimp was the entree item with the highest percentage of "like" responses (80.3 per cent) of all items listed on the instrument (Table 5). Chili, several sandwich items, steaks, and turkey were among other best liked main dishes of a majority of students.

Highly disliked items included items with unusual names, salad plates, several cheese and/or egg dishes and items not commonly eaten in the midwest (e.g., fish items) (Table 5). Many items that students indicated they were unfamiliar with were those named so that they could not be identified easily. Other unfamiliar items were foods not common to the midwest; e.g., sole almondine and red snapper. Many unfamiliar items also were indicated as disliked by a large number of students. All but three items on the "dislike" list also were on the "unfamiliar" lists.

Selection and Certainty of Choice Data

Table 6 summarizes students' responses concerning items they would select if offered the various choices presented on the research instrument. Same or similar entrees paired with different choices are grouped together and percentages of the sample selecting each item, mean certainty scores (indicating degree of certainty about selection of the item) and mean preference scores (indicating degree of like or dislike) for each item also are presented in Table 6.

In a majority of the selections certainty scores reflected greater uncertainty for items selected by smaller percentages of the students. Choices where more uncertainty was not associated with the lesser selected item included: swiss steak vs. cheeseburger, red snapper vs. ham and

Table 6: Students' stated entree selection decisions and decision certainty scores (N = 376)

choice no. ¹	selection ²	stated selection decision	item certainty score ³		item preference ⁵	
		%	mean	s.d. ⁴	mean	s.d.
66	chili with crackers	86.2	1.26 ± .53		1.37 ± .83	
	salad greens, cottage cheese, fruit	12.8	1.79 ± .82		2.58 ± 1.14	
37	baked pork chop	46.3	1.60 ± .76		1.53 ± .50	
	chili with oyster crackers	51.9	1.50 ± .71		1.55 ± .74	
33	grilled steak	89.9	1.28 ± .52		1.33 ± .67	
	cold sliced meat loaf and turkey	9.6	1.77 ± .73		2.60 ± 1.10	
36	kabobs	40.2	1.71 ± .75		1.86 ± 1.02	
	grilled minute steak	58.2	1.46 ± .63		1.41 ± .72	
14	roast pork loin	27.1	1.51 ± .67		1.73 ± .95	
	french fried shrimp	72.9	1.29 ± .58		1.41 ± .93	
34	roast pork loin	74.5	1.50 ± .68		1.64 ± .88	
	chicken crepes with curry sauce	23.9	1.66 ± .70		2.52 ± 1.13	
44	pork loin roast	67.8	1.73 ± .71		1.73 ± .91	
	beef cutlet wrapped around dressing	35.6	1.78 ± .69		2.07 ± 1.00	
2	pizzaburger	81.7	1.38 ± .57		1.78 ± .95	
	peach of a dairy salad bowl	17.8	1.56 ± .68		2.73 ± 1.18	

¹Number indicates placement on research instrument.

²Selections including same or similar items are grouped.

³Scale = 1, very sure; 2, fairly sure; 3, not sure.

⁴Mean certainty score for those who selected each item.

⁵Scale = 1, like; 2, will eat; 3, don't know; 4, dislike.

Table 6: (cont.)

choice no.	selection	stated selection decision	item certainty score		item preference	
		%	mean	s.d.	mean	s.d.
56	barbequed beef on bun	67.8	1.37 ± .58		1.41 ± .71	
	peach of a dairy salad bowl	11.2	1.76 ± .69		2.60 ± 1.14	
49	college Joe	80.1	1.41 ± .59		1.65 ± .91	
	peach of a dairy salad bowl	18.6	1.65 ± .73		2.58 ± 1.15	
2	pizzaburger	81.7	1.38 ± .57		1.79 ± .95	
	peach of a dairy salad bowl	17.8	1.56 ± .68		2.73 ± 1.18	
69	hamburger on a bun	85.6	1.38 ± .61		1.51 ± .83	
	plum delicious plate	13.0	1.61 ± .65		2.64 ± 1.14	
5	superburger	75.5	1.40 ± .59		1.59 ± .89	
	Dutch treat plate	23.9	1.80 ± .60		2.38 ± 1.11	
63	grilled hamburger	81.6	1.46 ± .62		1.51 ± .79	
	cheese rarebit on toast	17.3	1.71 ± .84		2.60 ± 1.13	
45	K-State hamburger on bun	68.4	1.50 ± .64		1.51 ± .79	
	Texas straw hat	30.3	1.64 ± .69		2.18 ± 1.09	
10	Swiss steak with gravy	71.0	1.52 ± .67		1.40 ± .72	
	cheeseburger	28.2	1.51 ± .66		1.53 ± .85	
53	beef on noodles	31.7	1.57 ± .62		1.93 ± .99	
	bacon, lettuce, tomato sandwich	66.5	1.39 ± .59		1.43 ± .82	
65	cheese souffle with cheese sauce	21.0	1.68 ± .86		2.61 ± 1.14	
	bacon, lettuce, tomato sandwich	77.1	1.43 ± .69		1.46 ± .84	
3	bacon, lettuce, tomato sandwich	55.4	1.50 ± .68		1.48 ± .91	
	pizza	43.2	1.66 ± .70		1.56 ± .83	
49	college Joe	80.1	1.41 ± .59		1.65 ± .91	
	peach of a dairy salad bowl	18.6	1.65 ± .73		2.58 ± 1.15	
28	college Joe	83.5	1.41 ± .65		1.62 ± .87	
	cheese ball on pineapple	14.1	1.67 ± .74		2.88 ± 1.13	

Table 6: (cont.)

choice no.	selection	stated selection decision	item certainty score		item preference	
		%	mean	s.d.	mean	s.d.
35	pizza chicken ala king	78.2	1.41 ± .60		1.48 ± .81	
		20.2	1.60 ± .57		2.40 ± 1.12	
60	pizza corned beef on rye	74.2	1.45 ± .62		1.52 ± .84	
		23.9	1.53 ± .73		2.22 ± 1.19	
3	bacon, lettuce, tomato sandwich pizza	55.4	1.50 ± .68		1.48 ± .91	
		43.2	1.66 ± .70		1.56 ± .83	
58	roast turkey ham and beans	77.9	1.39 ± .59		1.32 ± .58	
		21.0	1.81 ± .75		2.28 ± 1.18	
68	red snapper ham and beans	43.6	1.78 ± .80		1.54 ± .50	
		51.9	1.73 ± .79		1.74 ± .79	
19	tacos creamed chipped beef on toast	69.7	1.36 ± .58		1.51 ± .95	
		29.8	1.76 ± .82		2.19 ± 1.19	
16	tacos and refried beans tuna noodle casserole	67.3	1.43 ± .63		1.55 ± .94	
		32.2	1.62 ± .73		1.94 ± 1.08	
19	tacos creamed chipped beef on toast	69.7	1.36 ± .58		1.51 ± .95	
		29.8	1.76 ± .82		2.19 ± 1.19	
30	creamed chipped beef on toast grilled cheese sandwich	67.3	1.71 ± .75		2.32 ± 1.17	
		32.2	1.41 ± .61		1.58 ± .86	
61	creamed chipped beef on baked potato trio luncheon plate	53.0	1.68 ± .75		2.42 ± 1.20	
		47.0	1.75 ± .79		2.33 ± 1.06	
35	pizza chicken ala king on toast	78.2	1.41 ± .60		1.48 ± .81	
		20.2	1.60 ± .57		2.40 ± 1.12	
40	wieners on bun chicken ala king on toast	68.9	1.55 ± .67		1.75 ± .91	
		29.8	1.78 ± .73		2.45 ± 1.15	

Table 6: (cont.)

choice no.	selection	stated selection decision	item certainty score		item preference	
		%	mean	s.d.	mean	s.d.
6	country fried chicken	60.1	1.44 ± .62		1.52 ± .92	
	salisbury steak	38.8	1.59 ± .69		1.71 ± .98	
11	beef stew	41.2	1.87 ± .69		1.80 ± .98	
	salisbury steak with gravy	57.5	1.55 ± .62		1.66 ± .92	
47	pork cutlet on bun	72.1	1.49 ± .66		1.85 ± 1.05	
	corned beef hash	23.7	1.91 ± .73		2.67 ± 1.13	
23	beef noodle casserole	51.1	1.62 ± .65		2.01 ± 1.04	
	pork cutlet on dark rye	47.1	1.75 ± .69		2.09 ± 1.07	
30	creamed chipped beef on baked potato	29.8	1.71 ± .75		2.32 ± 1.16	
	grilled cheese sandwich	68.9	1.41 ± .61		1.58 ± .86	
41	grilled cheese sandwich	60.1	1.52 ± .64		1.59 ± .91	
	hamburger goulash	37.8	1.59 ± .67		1.92 ± .97	
4	meat loaf with barbeque sauce	76.1	1.47 ± .67		1.97 ± 1.11	
	sole almondine	22.1	1.63 ± .78		2.80 ± 1.91	
26	baked sole almondine	24.7	1.69 ± .73		2.69 ± 1.18	
	meat loaf with mushroom gravy	72.9	1.52 ± .64		1.98 ± 1.08	
39	ground beef steak	62.0	1.52 ± .65		1.53 ± .73	
	turkey pot pie	37.2	1.69 ± .64		2.01 ± 1.08	
51	roast fresh ham	78.8	1.45 ± .64		1.42 ± .74	
	turkey pot pie	21.2	1.63 ± .69		2.04 ± 1.05	
31	foot long hot dog	68.9	1.46 ± .63		1.76 ± .96	
	omelet with mushroom sauce	30.6	1.68 ± .75		2.58 ± 1.21	
43	corn dogs	55.1	1.57 ± .70		1.95 ± 1.13	
	scalloped chicken	42.8	1.64 ± .73		2.06 ± .99	

Table 6: (cont.)

choice no.	selection	stated selection decision	item certainty score		item preference	
		%	mean	s.d.	mean	s.d.
1	wieners on bun	43.9	1.68 ± .60		1.87 ± .98	
	turkey and dumplings	55.9	1.56 ± .59		1.84 ± .99	
40	wieners on bun	68.9	1.55 ± .67		1.75 ± .91	
	chicken ala king on toast	29.8	1.78 ± .73		2.43 ± 1.14	
31	foot long hot dog	68.9	1.46 ± .63		1.76 ± .96	
	omelet with mushroom sauce	30.6	1.68 ± .75		2.58 ± 1.21	
13	reuben sandwich	60.4	1.62 ± .77		2.14 ± 1.28	
	western omelet	36.7	1.78 ± .75		2.25 ± 1.17	
54	baked pork chop	63.8	1.51 ± .61		1.59 ± .85	
	hamburger stroganoff	34.8	1.62 ± .64		2.00 ± 1.06	
37	baked pork chop	46.3	1.60 ± .76		1.50 ± .83	
	chili with oyster crackers	51.9	1.50 ± .71		1.67 ± 1.17	
45	K-State hamburger on bun	68.4	1.50 ± .64		1.51 ± .79	
	Texas straw hat	30.3	1.64 ± .69		2.12 ± 1.09	
7	chicken salad sandwich	41.5	1.61 ± .67		2.04 ± 1.04	
	Texas straw hat	51.2	1.68 ± .70		2.09 ± 1.11	
50	fisherman's platter	73.1	1.52 ± .70		1.92 ± 1.11	
	fried rabbit	23.1	1.57 ± .69		2.76 ± 1.22	
62	fisherman's platter	54.0	1.68 ± .76		2.05 ± 1.16	
	veal cordon bleu	40.2	1.70 ± .76		2.36 ± 1.14	
50	fisherman's platter	73.1	1.52 ± .70		1.92 ± 1.11	
	fried rabbit	23.1	1.57 ± .69		2.76 ± 1.22	
42	fried rabbit	34.3	1.98 ± .77		2.79 ± 1.16	
	baked catfish	61.2	1.83 ± .84		2.37 ± 1.28	

Table 6: (cont.)

choice no.	selection	stated selection decision	item certainty score		item preference	
		%	mean	s.d.	mean	s.d.
15	poached halibut	33.0	1.62 ± .66		2.51 ± 1.24	
	Swedish meat balls	65.4	1.62 ± .70		2.00 ± 1.05	
20	chicken antoine	37.5	1.84 ± .76		2.32 ± 1.11	
	meat balls with gravy	61.2	1.67 ± .71		1.97 ± 1.00	
46	beef stew	53.5	1.59 ± .69		1.86 ± .96	
	deep fat fried lake perch	39.4	1.65 ± .74		2.34 ± 1.20	
11	beef stew	41.2	1.87 ± .69		1.80 ± .97	
	salisbury steak with gravy	57.5	1.55 ± .62		1.66 ± .92	
46	beef stew	53.5	1.59 ± .69		1.86 ± .96	
	deep fat fried lake perch	39.4	1.65 ± .74		2.34 ± 1.20	
48	fried lake perch	50.5	1.63 ± .74		2.32 ± 1.18	
	barbequed pork ribs with sauerkraut	46.8	1.76 ± .78		2.46 ± 1.16	
59	fried lake perch	54.7	1.53 ± .68		2.24 ± 1.16	
	pork ribs with sauerkraut	45.3	1.70 ± .72		2.41 ± 1.17	
60	pizza	74.2	1.45 ± .62		1.52 ± .84	
	corned beef on rye	23.9	1.53 ± .73		2.22 ± 1.19	
12	six layer dinner	42.6	1.83 ± .80		2.51 ± 1.19	
	corned beef on rye	54.8	1.69 ± .76		2.27 ± 1.18	
22	beef birds with gravy	72.3	1.70 ± .77		2.20 ± 1.14	
	yogurt fruit plate	23.9	1.80 ± .79		2.89 ± 1.18	
44	pork loin roast	62.8	1.73 ± .71		1.73 ± .91	
	beef cutlet wrapped around bread dressing	36.6	1.78 ± .69		2.07 ± 1.00	
21	baked filet of sole almondine	42.5	1.88 ± .75		2.70 ± 1.20	
	six layer dinner	57.5	1.82 ± .77		2.53 ± 1.16	

Table 6: (cont.)

choice no.	selection	stated selection decision	item certainty scale		item preference	
		%	mean	s.d.	mean	s.d.
12	six layer dinner	42.6	1.83 ± .80		2.51 ± 1.19	
	corned beef on rye	54.8	1.69 ± .76		2.27 ± 1.18	
8 ¹	beef pot pie	76.1	1.52 ± .69		2.03 ± 1.12	
	brighten a blustery day plate	22.3	1.89 ± .75		2.77 ± 1.13	
9	salmon patties, cream sauce	35.4	1.82 ± .75		2.60 ± 1.79	
	shepherd's pie	62.5	1.86 ± .77		2.32 ± 1.10	
17	shrimp Louis salad bowl	29.8	1.54 ± .71		2.41 ± 1.19	
	chicken cutlet on bun	69.4	1.66 ± .67		1.97 ± 1.04	
24	Spanish noodles	31.4	1.66 ± .68		2.10 ± 1.03	
	thin sliced ham on hoagie bun	67.8	1.50 ± .63		1.52 ± .81	
25	beef chop suey	55.3	1.62 ± .72		2.17 ± 1.21	
	K-State salad bowl	42.3	1.50 ± .66		2.09 ± 1.08	
27	beef, tomato, macaroni casserole	63.4	1.65 ± .71		2.00 ± 1.02	
	hospitality plate	32.5	1.74 ± .78		2.38 ± 1.15	
29	baked, breaded pork steak	36.2	1.78 ± .74		1.93 ± .98	
	beef brisket	62.8	1.55 ± .71		1.60 ± .85	
32	submarine sandwich	84.3	1.35 ± .56		1.52 ± .76	
	chicken giblets	14.1	1.83 ± .75		2.95 ± 1.14	
52	creole spaghetti	70.2	1.61 ± .70		1.84 ± .99	
	beef biscuit roll	26.6	1.95 ± .95		2.35 ± 1.09	
55	southern ham shortcake	56.1	1.94 ± .78		2.50 ± 1.08	
	egg salad	39.1	1.90 ± .76		2.60 ± 1.12	
57	deep sea dandy	62.2	1.58 ± .69		2.13 ± 1.16	
	meat salad, cup of soup, roll	32.5	1.72 ± .74		2.48 ± 1.08	

¹ Items for these choices were included only once on the menu plan.

Table 6: (cont.)

choice no.	selection	stated selection decision	item certainty scale		item preference	
		%	mean	s.d.	mean	s.d.
64	hunter's dinner	66.3	2.23 ±	.80	1.34 ±	.47
	Boston baked beans	33.7	2.14 ±	.78	2.18 ±	.81
67	chicken fried steak	71.8	1.43 ±	.66	1.56 ±	.83
	scrambled egg	28.2	1.68 ±	.69	2.27 ±	1.19

beans, creamed chipped beef vs. grilled cheese sandwich, baked pork chop vs. chili, poached halibut vs. Swedish meat balls, salmon patties vs. shepherd's pie, shrimp Louis salad bowl vs. chicken cutlet on bun, beef chop suey vs. K-State salad bowl, southern ham shortcake vs. egg salad plate, hunter's dinner vs. Boston baked beans. Respondents' certainty scores were similar in cases where two preferred items were presented together (e.g., baked pork chop vs. chili and swiss steak vs. cheese-burger) and when two items were unfamiliar to a large number of respondents (e.g., salmon patties vs. shepherd's pie).

When results of mean certainty scores were compared with preferences it became apparent that in most instances students were more certain in selecting a highly preferred menu item when paired with a lesser preferred item. A greater degree of certainty of choice for highly preferred items also was reflected when these were paired with less known items. Mean item certainty scores indicated that students were more certain of their choices of highly preferred and less certain of items that were less preferred and unknown.

Comparison of mean preference scores and percentages of item selections indicate that more preferred items were chosen most often (Table 6). Degree of preference for an item varied according to what it was paired with (e.g., a larger percentage of students chose bacon, lettuce, and tomato sandwich when paired with cheese souffle than when paired with pizza). In choices where a well liked item was paired with a lesser liked item the certainty score of the preferred item tended to be lower (indicating more certainty of choice) than when it was paired with an item having a similar preference.

Certain categories of main dishes were paired more frequently than other entree types (e.g., salad plates were paired more often with hot sandwiches than with any other entree category). Students' selections in relation to entree categories were influenced by the combination of entree types. For example, casseroles, creamed and extended main dishes were chosen more often when they were paired with salad plates but less often when paired with hot sandwiches and Italian and Mexican ethnic dishes. A larger percentage of students chose hot sandwiches when paired with casseroles, creamed and extended main dishes, salad plates and other main dish items. When salad plates were paired with hamburger sandwiches the majority of students chose hamburgers. In choices between pork items (other than chops or ham) and fried fish items the students most often chose the fried fish items. Ground beef items were selected by more students than were baked fish items when these two categories were paired.

Actual Selection Data

As described in the methods section, actual entree selection data were collected over an eight-week period corresponding with the eight weeks of selective menus utilized in construction of the research instrument (Appendix D). Data for entree selection for sixty-two luncheon and dinner meals are summarized in Appendixes M and N. Seven menus included on the instrument were not actually served; subsequent changes were made to alter the preplanned menu in these instances. Entree data were collected only for meals where there were two preplanned entrees; although other main dish items may have been added to the two choices on the printed menu at or close to the time of service.

In her study of residence hall forecasting Shriwise (52) reported that the reason given most often for additions to the planned menu was the need to use items previously purchased in excess of need or overproduction from a prior meal. Other reasons were: to provide a cushion because of concern the amounts of other items was insufficient, to fill-in when items ran out before the serving period was over, or to reduce food costs if planned items were high cost items.

The over-produced items either were served in the same form as they had been served at a previous meal or were incorporated into a combination dish. All serving lines did not necessarily offer all of the added main dishes as shown in the tables in Appendixes M and N. The number of additional items varied from one to three at a meal. Additional entrees were served at all but eight dinner and twenty-one luncheon meals.

Also, on all weekdays one serving line offered a hamburger as an alternate to the two planned and additional entrees. The percentage of students who frequented the hamburger line varied widely and tended to be higher when less popular items were served on the regular luncheon menu (e.g., fish sandwich and salad plate as the two planned choices).

Comparison of Actual and Stated Selection Data

Actual selection data, stated selection data, chi-square values and mean certainty scores are included in Table 7. In the majority of cases the item which was indicated by the greatest percentage of students to be their choice on the research instrument also was more often selected from the cafeteria lines.

However, in all but eighteen instances, the chi-square values indicated stated and actual selections were not significantly related, even

Table 7: Actual and stated entree choices and certainty scores

item no.	selection ¹	actual choice		stated choice		χ^2	certainty score ⁴	
		f	%	f	% ²		mean	s.d.
52	fried rabbit with gravy baked catfish	219 389	36.02 63.98	129 230	34.31 61.17	0.002 ³	1.88 ± .82	
45	K-State hamburger Texas straw hat	1126 513	68.74 31.32	257 114	68.35 30.32	0.02	1.55 ± .66	
68	red snapper ham and beans	646 747	46.38 53.62	164 195	43.62 51.86	0.03	1.74 ± .79	
53	*beef on noodles bacon, lettuce, tomato sandwich	490 989	33.13 66.87	119 250	31.65 66.49	0.07	1.45 ± .61	
22	beef birds with gravy yogurt fruit plate	547 168	76.50 23.50	272 90	75.14 24.86	0.18	1.71 ± .78	
38	*beef French dip Spanish rice	1269 307	80.52 19.48	293 77	77.93 20.43	0.26	1.42 ± .60	

¹Selections which are starred (*) indicate no other choice was offered on the serving line. At luncheon meals, a separate line was set up serving hamburgers.

²May not equal 100% because of nonresponses.

³ χ^2 values less than 3.84, nonsignificant.

⁴Certainty score = 1, very sure to 3, not sure of stated choice.

Table 7: (cont.)

item no.	selection	actual choice		stated choice		χ^2	certainty score	
		f	%	f	%		mean	s.d.
20	chicken antoine meat balls, gravy	223 333	40.11 59.39	141 230	37.50 61.17	0.33	1.73 ± .73	
37	baked pork chop chili with oyster crackers	757 774	49.45 50.56	174 195	46.28 51.86	0.54	1.55 ± .74	
24	*Spanish noodles thin sliced ham on hoagie bun	471 894	34.51 65.50	118 255	31.38 67.82	0.95	1.55 ± .66	
27b ⁵	beef, tomato, macaroni casserole hospitality plate	969 424	69.56 30.44	242 122	64.36 32.45	1.14	1.68 ± .74	
67	*chicken fried steak, gravy scrambled egg, cheese, mushrooms	1465 495	74.75 25.26	268 105	71.28 27.93	1.23	1.50 ± .68	
18	baked chicken snowdrift square	817 176	82.28 17.72	293 77	77.93 20.48	1.50	1.46 ± .64	
33	*grilled steak cold sliced meat loaf and turkey	888 127	87.49 12.51	338 36	89.89 9.57	1.93	1.33 ± .56	
35	pizza chicken ala king on toast	1175 245	82.75 17.25	294 76	78.19 20.21	1.94	1.45 ± .60	
5	superburger Dutch treat plate	1473 575	71.92 28.08	284 90	75.53 23.94	2.36	1.50 ± .62	

⁵ Selection served more than once during data collection period.

Table 7: (cont.)

item no.	selection	actual choice		stated choice		χ^2	certainty score	
		f	%	f	%		mean	s.d.
48	fried lake perch pork ribs with sauerkraut	968 733	56.91 43.09	190 176	50.53 46.81	2.85	1.69 ± .76	
60	*pizza corned beef on rye	1243 310	80.04 19.96	279 90	74.20 23.94	3.28	1.47 ± .65	
50	fisherman's platter fried rabbit	815 192	80.93 19.07	275 87	73.14 23.14	3.75	1.55 ± .71	
29	baked, breaded pork steak beef brisket	505 688	42.33 57.67	136 236	36.17 62.77	3.91 ⁶	1.63 ± .73	
40	wieners on bun chicken ala king on toast	1099 362	75.22 24.78	259 112	68.88 29.79	4.24	1.63 ± .70	
54	*baked pork chop hamburger stroganoff	1102 779	58.59 41.41	240 131	63.83 34.84	4.54	1.55 ± .63	
56	barbequed beef on bun peach of a dairy plate	1444 119	92.39 7.61	330 42	87.77 11.17	4.85	1.42 ± .60	
4	meat loaf, barbeque sauce sole almonidine	1112 227	83.05 16.95	286 83	76.06 22.07	5.61	1.50 ± .70	
12	six layer dinner corned beef on rye	397 697	32.29 63.71	160 206	42.55 54.79	6.10	1.75 ± .78	

⁶ χ^2 values 3.84 - 6.62, $P \leq .05$.

Table 7: (cont.)

item no.	selection	actual choice		stated choice		χ^2	certainty score	
		f	%	f	%		mean	s.d.
23	beef noodle casserole pork cutlet on dark rye	532 679	43.93 56.07	192 177	51.06 47.07	7.16 ⁷	1.68 ± .67	
69	hamburger on bun plum delicious plate	1388 128	91.56 8.44	322 49	85.64 13.03	7.41	1.41 ± .62	
58	*roast turkey ham and beans	1629 285	85.11 14.89	293 79	77.93 21.01	8.90	1.48 ± .65	
8	beef pot pie brighten a blustery day plate	1174 219	84.28 15.72	286 84	76.06 22.34	9.53	1.60 ± .72	
46	beef stew deep fat fried lake perch	988 957	50.80 49.20	220 148	58.51 39.36	9.66	1.62 ± .72	
49	college Joe peach of a dairy salad bowl	1141 161	87.63 12.37	301 70	80.05 18.62	9.72	1.45 ± .62	
28	college Joe cheese balls on pineapple ring	1222 177	87.35 12.65	314 53	83.51 14.10	9.82	1.45 ± .67	
2	pizzaburger peach of a dairy salad bowl	1307 170	88.49 11.44	307 67	81.65 17.82	10.40	1.41 ± .60	
15	poached halibut Swedish meat balls	210 677	23.68 76.32	124 246	32.98 65.43	12.43	1.62 ± .69	

⁷ χ^2 values greater than 6.63, $P \leq .01$.

Table 7: (cont.)

item no.	selection	actual choice		stated choice		χ^2	certainty score	
		f	%	f	%		mean	s.d.
31	foot long hot dog omelet with mushroom sauce	1071 296	78.35 21.65	259 115	68.88 30.59	12.97	1.53 ± .68	
41	grilled cheese sandwich hamburger goulash	1125 447	71.56 28.44	229 142	61.70 38.30	13.76	1.56 ± .66	
14	roast pork loin, gravy french fried shrimp	201 919	17.95 82.05	102 274	27.13 72.87	14.13	1.35 ± .62	
16	tacos and refried beans tuna noodle casserole	1128 328	77.47 22.53	253 121	67.29 32.18	14.99	1.49 ± .67	
66	chili and crackers salad greens, cottage cheese, fruit	1368 95	93.51 6.62	324 48	86.17 12.77	16.08	1.33 ± .60	
6	country fried chicken salisbury steak	1473 575	71.92 28.08	226 146	60.11 38.83	18.25	1.50 ± .66	
3	bacon, lettuce, tomato sandwich pizza	699 909	43.47 56.53	209 163	55.44 43.24	19.16	1.57 ± .69	
27a	*beef, tomato, macaroni casserole hospitality plate	1030 293	77.85 22.15	242 122	64.36 32.45	19.29	1.68 ± .74	
11	beef stew salisbury steak with gravy	533 1269	29.58 70.42	155 216	41.22 57.45	20.61	1.69 ± .67	
36	kabobs grilled minute steak	524 1319	28.43 71.57	151 219	40.16 58.24	21.69	1.53 ± .70	

Table 7: (cont.)

item no.	selection	actual choice		stated choice		χ^2	certainty score	
		f	%	f	%		mean	s.d.
25	beef chop suey on rice K-State salad bowl	950 412	69.75 30.25	208 159	55.32 42.29	21.76	1.57 ± .71	
39	ground beef steak turkey pot pie	1443 494	74.50 25.04	233 140	61.97 37.23	22.13	1.58 ± .65	
19	tacos creamed chipped beef on toast	1174 264	81.64 18.36	262 112	69.68 29.79	23.54	1.48 ± .68	
52	creole spaghetti beef biscuit roll	1200 230	83.92 16.08	264 100	70.21 26.60	24.32	1.70 ± .74	
17	shrimp Louis salad bowl chicken cutlet on bun	255 1146	18.20 81.80	112 261	29.79 69.41	24.39	1.62 ± .68	
26	*baked sole almonidine meat loaf, mushroom sauce	253 1509	14.36 85.64	93 274	24.73 72.87	26.11	1.56 ± .67	
65	cheese souffle with cheese sauce bacon, lettuce, tomato sandwich	426 739	36.57 63.43	79 290	21.01 77.13	28.47	1.50 ± .67	
63	grilled hamburger cheese rarebit on toast	1257 172	87.96 12.04	306 65	81.60 17.33	29.27	1.51 ± .67	
55	southern ham shortcake egg salad on lettuce leaf	414 576	41.82 58.18	211 147	56.12 39.10	30.31	1.93 ± .78	
7	chicken salad sandwich Texas straw hat	560 1479	27.46 72.54	156 215	41.49 57.18	31.28	1.65 ± .69	

Table 7: (cont.)

item no.	selection	actual choice		stated choice		χ^2	certainty score	
		f	%	f	%		mean	s.d.
47	pork cutlet on bun corned beef hash	1216 175	87.42 12.58	271 89	72.07 23.67	31.98	1.59 ± .71	
13	reuben sandwich western omelet	1065 315	77.17 22.83	227 138	60.37 36.70	32.94	1.68 ± .77	
32	submarine sandwich chicken giblets on rice pilaf	1060 185	85.14 14.86	317 53	84.31 14.09	43.76	1.42 ± .62	
57b	deep sea dandy meat salad, cup of soup, roll	1036 224	82.22 17.78	234 122	62.23 32.45	43.89	1.65 ± .73	
10a	*swiss steak with gravy cheeseburger	658 636	50.85 49.15	267 106	71.01 28.19	49.55	1.52 ± .66	
57a	deep sea dandy meat salad, cup of soup, roll	863 165	83.95 16.05	234 122	62.23 32.45	52.30	1.65 ± .73	
62	fisherman's plate veal cordon bleu	1095 317	77.55 22.45	203 151	53.99 40.16	58.29	1.70 ± .77	
30	creamed chipped beef, baked potato grilled cheese sandwich	1285 1183	52.07 47.93	112 259	29.79 68.88	60.89	1.50 ± .67	
34	roast pork loin chicken crepes with curry sauce	742 660	52.92 47.07	280 90	74.47 23.94	61.15	1.56 ± .68	
9	salmon patties in parsley cream sauce shepherd's pie	622 405	60.57 39.44	133 235	35.37 62.50	64.10	1.84 ± .76	

Table 7: (cont.)

item no.	selection	actual choice		stated choice		χ^2	certainty score	
		f	%	f	%		mean	s.d.
43	corn dogs scalloped chicken	1036 265	79.63 20.37	207 161	55.05 42.82	81.27	1.60 ± .72	
44	*pork loin roast beef cutlet wrapped around dressing	683 1200	36.27 63.73	236 134	62.77 35.64	95.78	1.75 ± .70	
10b	*swiss steak with gravy cheeseburger	782 1137	40.75 59.25	267 106	71.01 28.19	118.36	1.52 ± .66	
1	wieners on bun turkey and dumplings	948 327	74.35 25.65	165 210	43.88 55.85	120.23	1.62 ± .60	

though the ratio was in the same direction as indicated. The stated selections often give an indication of the more popular of two choices, but would not provide accurate statistical data for predictions.

Choices where actual and stated behavior did not agree as to which item was more frequently chosen were: creamed chipped beef vs. grilled cheese sandwich, salmon patties vs. shepherd's pie, pork loin roast vs. beef cutlet wrapped around bread dressing, swiss steak vs. cheeseburger, wieners on bun vs. turkey and dumplings, and southern ham shortcake vs. egg salad. Visual perception of the choices on the serving line may have been responsible for the discrepancy between stated and actual selection data.

Spearman's (53) rank order correlation coefficient was computed between the overall certainty score for each decision choice and the chi-square value. The coefficient was .20 indicating a positive relationship between the two statistics; i.e., higher certainty scores were related to higher chi-square values. Higher certainty scores indicate less certainty about a stated choice. In other words, uncertainty was related to disparity between actual and stated choices. As students were more uncertain in stating a choice, their uncertainty tended to be reflected in their actual behavior.

SUMMARY AND CONCLUSIONS

The need for accurate forecasting techniques has become more important in foodservice management because of rising food costs. Reliable prediction of consumer demand is a major factor in control of the food production subsystem, and ultimately, food costs. The purpose of this research was to assess the reliability of food preferences for forecasting students' actual choices from a selective menu and to study menu item decisions of university students.

The research focused on a comparison of entree selections from a residence hall cafeteria line and students' stated choices on a research instrument listing entree selections that were included on these menus. Actual data concerning students' entree item choices were collected by tabulating the number of portions of each entree served over an eight-week period. Data were compared with results of a survey of stated preferences of a random sample of residence hall dwellers living in a large complex served by a central foodservice facility located on a large midwestern university. The survey instrument consisted of a listing of sixty-nine pairs of preplanned entree choices derived from eight weeks of lunch and dinner residence hall menus corresponding to the time period when actual choice data were collected. Students were asked to complete the instrument by indicating which item they would select from each pair of entrees, their degree of certainty about the choice and their degree of like or dislike for each entree item. Research instruments were delivered to each student in the sample; eighty-four per cent were returned (N=376).

Preference findings indicated that items in the steak or cutlet; pork chop and ham; fried and roasted poultry; hamburger sandwich; hot and cold

sandwiches; and Italian and Mexican ethnic dishes were preferred more than were ground meat items; specialty poultry items; fried and baked fish; salad plates; casseroles, creamed and extended main dishes; and other entrees (mainly non-meat). Items liked by at least sixty-six per cent of the respondents were steak items, sandwiches, and Mexican or Italian ethnic items. Items disliked by 33 per cent or more of the respondents included non-meat items, salad plates, and ambiguously named items (e.g., snowdrift squares). Many of the same foods were included in both the disliked and unfamiliar categories. Items which were unfamiliar to a large percentage of students were foods not common to the midwest (e.g., sole almondine) and items named so that they could not be identified easily (e.g., Texas straw hat).

Mean certainty scores reflected greater uncertainty for items selected by smaller percentages of the students. Similar mean certainty scores for individual selections were obtained when two preferred items were presented together (e.g., baked pork chop vs. chili) and when two items were unfamiliar to a large number of respondents (e.g., salmon patties vs. shepherd's pie). Comparison of mean certainty scores with preference data indicated that students were more certain in selecting highly preferred items when paired with less known items.

As would be expected, preference scores were more favorable for items selected by the majority of students. In choices where a well liked item was paired with a lesser liked item students often were more certain of their choice than when it was paired with an item having a similar preference.

Certain categories of entrees tended to be selected more often when paired with other categories. Students picked the item in the more

preferred category. For example, casseroles, creamed and extended main dishes were chosen more often when they were paired with salad plates but less often when paired with hot sandwiches.

Comparison of actual and stated selection data indicated that in the majority of cases the item chosen by the greatest percentage of students on the research instrument also was selected more often from the cafeteria lines. Although stated selections often gave an indication of the more popular of the two choices, chi-square analysis indicated they did not provide accurate statistical data for predictions. When chi-square values of the actual and stated preferences were compared with the overall certainty scores for each choice there was a positive relationship between the two statistics ($r=.20$). These data indicate students tended to be more uncertain in choices where there was a larger disparity between actual and stated choices.

Entree item choices made by residence hall students apparently are influenced by several factors other than the choices available on a selective menu. In order for a food preference survey to be used as a reliable predictor of consumer demand it would be necessary for other influences to be identified. Some influencing factors that might be considered are: merchandising of the foods on the serving line; other items on the menus; environmental conditions such as weather or season of the year; and campus activities. Certainty about the choice seemed to be an indicator of how accurately a preference study could predict patrons' actual choices.

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APPENDIXES

APPENDIX A

First Pretest Instrument

QUESTIONNAIRE

Put an X in front of the menu item you would select if offered each of the pairs of entrees listed below. Put a question mark in front of items you do not recognize. Also, please indicate your degree of certainty about the selection using this scale:

(A) I am certain I would select this choice.

(B) I am fairly sure I would select the item.

(C) I am not sure I would select the item.

Circle the letter at the left of the items which corresponds with your feeling about the choice.

- | | | | | |
|----|---|---|---|---|
| 1. | _____ beef stew | A | B | C |
| | _____ deep fat fried perch with lemon wedge | A | B | C |
| 2. | _____ pizza | A | B | C |
| | _____ corned beef on rye | A | B | C |
| 3. | _____ swiss steak with gravy | A | B | C |
| | _____ cheeseburger | A | B | C |
| 4. | _____ pork loin roast | A | B | C |
| | _____ beef cutlet wrapped around bread dressing | A | B | C |
| 5. | _____ tacos and fried beans | A | B | C |
| | _____ tuna noodle casserole | A | B | C |
| 6. | _____ corn dogs | A | B | C |
| | _____ scalloped chicken | A | B | C |
| 7. | _____ beef on noodles | A | B | C |
| | _____ bacon, lettuce, tomato sandwich | A | B | C |
| 8. | _____ french fried shrimp | A | B | C |
| | _____ spaghetti and meat sauce with meat balls | A | B | C |

APPENDIX B

Second Pretest Instrument

For each pair of main dishes listed on this questionnaire please check the one you would choose if you were offered the choice listed.

After you have chosen the item, how certain are you that this would be your choice? Circle the letter under each choice that corresponds to your certainty about your decision using this scale:

A = I am positive I would choose this item compared to the other choice.

B = I probably would choose this item.

C = I might or might not choose this item.

Now, one more thing! How well do you like each of the main dishes? Circle the number to the right of each item that corresponds to your like or dislike. Use this scale:

(1) Like

(2) Will eat, neither like or dislike

(3) Dislike

(4) Have never eaten this food.

Below is an example to get you started:

		Like	Neither like nor dislike	Dislike	Have not eaten
1.	_____ Veal Piccata (breaded veal pattie in mushroom sauce with Parmesan cheese)	1	2	3	4
	<u> X </u> Beef Birds with Gravy (beef rolled around dressing with brown gravy)	1	2	3	4

Circle: A B C

In the above sample question the respondent indicated that he prefers Beef Birds with Gravy over Veal Piccata and he is certain about his selection. The numbers circled at the right of the entree items indicate that he likes both items.

Please check item you would choose in blank provided. Then circle letter below to indicate certainty about choice:

A = I am positive I would choose this item.

B = I probably would choose this item.

C = I might or might not choose this item.

Do you like or dislike each item? (circle number to indicate)

		Like	Neither like nor dislike	Dislike	Have not eaten
1.	_____ Western Omelet (baked omelet with onion and bacon)	1	2	3	4
	_____ Reuben Sandwich with Dill Pickle Spear	1	2	3	4
	Circle: A B C				
2.	_____ Pork Chops	1	2	3	4
	_____ Hamburger Stroganoff (ground beef & noodles in a mushroom, sour cream gravy)	1	2	3	4
	A B C				
3.	_____ College Joe (ground beef in tomato sauce on bun)	1	2	3	4
	_____ Cheese Balls on Pineapple Ring	1	2	3	4
	A B C				
4.	_____ Country Fried Chicken	1	2	3	4
	_____ Salisbury Steak (broiled, breaded ground beef pattie)	1	2	3	4
	A B C				
5.	_____ Submarine Sandwich	1	2	3	4
	_____ Chicken GIBLETS on Rice Pilaf (chicken giblets in a gravy over rice)	1	2	3	4
	A B C				
6.	_____ Kabobs (marinated beef cubes & vegetables on a skewer)	1	2	3	4
	_____ Minute Steak	1	2	3	4
	A B C				
7.	_____ Tacos	1	2	3	4
	_____ Creamed Chipped Beef on Toast	1	2	3	4
	A B C				
8.	_____ Red Snapper with Tartar Sauce (baked fish with tartar sauce)	1	2	3	4
	_____ Ham and Beans	1	2	3	4
	A B C				

APPENDIX C

Final Research Instrument

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Justin Hall
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COLLEGE STUDENTS' STATED ENTREE SELECTIONS
AS A FORECASTING TOOL

Instructions: Please complete this questionnaire
and the attached biographical sheet.
Return in the stamped envelope provided.
Please complete all information asked for.

Check your choice from each pair.		How sure are you of your choice? (circle)	Do you like these items? (circle each item)			
			Like	Will Eat	Dislike	Don't Know
<input type="checkbox"/> Veal		(A) = Very sure	(1)	2	3	4
<input checked="" type="checkbox"/> Beef		B = Fairly sure	(1)	2	3	4
	C = Not sure					
<hr/>						
1.	<input type="checkbox"/> Wieners on Bun		1	2	3	4
	<input type="checkbox"/> Turkey and Dumplings		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
2.	<input type="checkbox"/> Pizzaburger (ground beef pattie with pizza sauce on bun)		1	2	3	4
	<input type="checkbox"/> Peach of a Dairy Salad Bowl (cling peaches, creamed cottage cheese, bologna, ripe olives)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
3.	<input type="checkbox"/> Bacon, Lettuce, Tomato Sandwich		1	2	3	4
	<input type="checkbox"/> Pizza (ground beef and pork, spicy tomato sauce, parmesan and mozzarella cheese)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
4.	<input type="checkbox"/> Meat Loaf with Barbeque Sauce		1	2	3	4
	<input type="checkbox"/> Sole Almondine (baked fish in butter sauce with sliced almonds)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
5.	<input type="checkbox"/> Superburger (5 oz. hamburger pattie on 5" bun)		1	2	3	4
	<input type="checkbox"/> Dutch Treat Plate (potato salad, cracked wheat or sesame seed bun, ham cubes, American cheese slice, Holland dressing)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
6.	<input type="checkbox"/> Country Fried Chicken (deep fat fried chicken)		1	2	3	4
	<input type="checkbox"/> Salisbury Steak (peppers, onions on ground beef pattie)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
7.	<input type="checkbox"/> Chicken Salad Sandwich		1	2	3	4
	<input type="checkbox"/> Texas Straw Hat (ground beef, onion and green peppers in tomato sauce served on corn chips and sprinkled with American cheese)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
8.	<input type="checkbox"/> Beef Pot Pie (beef cubes, onions, celery, carrots, potatoes, peas, gravy in pastry)		1	2	3	4
	<input type="checkbox"/> Brighten a Blustery Day Plate (green grapes, avocado, orange sections, apple slices, grapefruit sections, cheese)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
9.	<input type="checkbox"/> Salmon Patties in Parsley Cream Sauce (breaded fried salmon patties in cream sauce with pimento and parsley garnish)		1	2	3	4
	<input type="checkbox"/> Shepherd's Pie (ground beef and pork, peas, carrots and onions in gravy over whipped potatoes)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
10.	<input type="checkbox"/> Swiss Steak with Gravy (braised, breaded steak with gravy)		1	2	3	4
	<input type="checkbox"/> Cheeseburger		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
<hr/>						
11.	<input type="checkbox"/> Beef Stew		1	2	3	4
	<input type="checkbox"/> Salisbury Steak with Gravy (peppers, onions on ground beef pattie with gravy)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					

Check your choice from
each pair.

How sure are you of your
choice? (circle)

Do you like these items?
(circle each item)

66

 Veal?

X Beef

A = Very sure
B = Fairly sure
C = Not sure

Like Will Eat Dislike Don't Know
1 2 3 4
2 2 3 4

12.	<u> </u> Six Layer Dinner (potatoes, celery, onions, green pepper, ground beef, tomato sauce in casserole)	1	2	3	4
	<u> </u> Corned Beef on Rye	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
13.	<u> </u> Reuben Sandwich with Dill Pickle Spear	1	2	3	4
	<u> </u> Western Omelet (baked omelet with onion and bacon)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
14.	<u> </u> Roast Pork Loin with Gravy	1	2	3	4
	<u> </u> French Fried Shrimp with Cocktail Sauce	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
15.	<u> </u> Poached Halibut (fish baked in butter sauce)	1	2	3	4
	<u> </u> Swedish Meat Balls (baked meat balls in brown gravy)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
16.	<u> </u> Tacos and Refried Beans	1	2	3	4
	<u> </u> Tuna Noodle Casserole (noodles, tuna, celery, onion, American cheese in casserole)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
17.	<u> </u> Shrimp Louis Salad Bowl (boiled shrimp on lettuce bed)	1	2	3	4
	<u> </u> Chicken Cutlet on Bun with Lettuce and Catsup	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
18.	<u> </u> Baked Chicken	1	2	3	4
	<u> </u> Snowdrift Squares (baked meat loaf slice with mashed potato topping)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
19.	<u> </u> Tacos	1	2	3	4
	<u> </u> Creamed Chipped Beef on Toast (dried beef in white sauce)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
20.	<u> </u> Chicken Antoine (baked chicken in tomato sauce)	1	2	3	4
	<u> </u> Meat Balls with Gravy	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
21.	<u> </u> Baked Filet of Sole Almondine (baked sole (fish) in butter sauce with slivered almonds)	1	2	3	4
	<u> </u> Six Layer Dinner (ground beef, celery, onions, green pepper, tomato sauce casserole)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
22.	<u> </u> Beef Birds with Gravy (beef cutlet wrapped around bread dressing with brown gravy)	1	2	3	4
	<u> </u> Yogurt Fruit Plate	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
23.	<u> </u> Beef Noodle Casserole (braised beef cubes, onions, celery in gravy over noodles)	1	2	3	4
	<u> </u> Pork Cutlet on Dark Rye with Dill Pickle	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
24.	<u> </u> Spanish Noodles (ground beef, tomato sauce, cheese, noodles in casserole)	1	2	3	4
	<u> </u> Thin Sliced Ham on Hoagie Bun	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
25.	<u> </u> Beef Chop Suey on Rice (beef cubes, green pepper, onion, celery and bean sprouts on rice)	1	2	3	4
	<u> </u> K-State Salad Bowl (ham cubes, bologna, chicken slices, American cheese, tomatoes on lettuce bed)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				

Check your choice from each pair.

How sure are you of your choice? (circle)

Do you like these items? (circle each item)

 Veal
X Beef

(A) = Very sure
B = Fairly sure
C = Not sure

Like	Will Eat	Dislike	Don't Know
(1)	2	3	4
(1)	2	3	4

26.	<u> </u> Baked Sole Almondine (baked fish in butter with toasted almonds)	1	2	3	4
	<u> </u> Meat Loaf with Mushroom Gravy	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
27.	<u> </u> Beef, tomato, Macaroni Casserole (ground beef, onions, celery, tomatoes, macaroni casserole)	1	2	3	4
	<u> </u> Hospitality Plate (deviled egg halves, ham roll, peach half with blueberries, parsley, half & half roll)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
28.	<u> </u> College Joe (ground beef in tomato sauce on a bun)	1	2	3	4
	<u> </u> Cheese Balls on Pineapple Ring	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
29.	<u> </u> Baked, Breaded Pork Steak	1	2	3	4
	<u> </u> Beef Brisket (baked in barbeque sauce)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
30.	<u> </u> Creamed Chipped Beef on Baked Potato (dried beef in white sauce on potato)	1	2	3	4
	<u> </u> Grilled Cheese Sandwich	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
31.	<u> </u> Foot Long Hot Dog	1	2	3	4
	<u> </u> Omelet with Mushroom Sauce	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
32.	<u> </u> Submarine Sandwich (salami, bologna, cheese, lettuce, tomato on a hoagie bun)	1	2	3	4
	<u> </u> Chicken GIBLETS on Rice Pilaf	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
33.	<u> </u> Grilled Steak	1	2	3	4
	<u> </u> Cold Sliced Meat Loaf and Turkey on Lettuce with Stuffed Olives	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
34.	<u> </u> Roast Loin of Pork	1	2	3	4
	<u> </u> Chicken Crepes with Curry Sauce (pancake rolled around chicken filling covered with curry flavored chicken gravy)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
35.	<u> </u> Pizza (ground beef and pork, tomato sauce, mozzarella and parmesan cheese)	1	2	3	4
	<u> </u> Chicken ala King on Toast Triangles (chicken in white sauce with green pepper and pimento)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
36.	<u> </u> Kabobs (marinated beef cubes and vegetables on a skewer)	1	2	3	4
	<u> </u> Grill Minute Steak	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
37.	<u> </u> Baked Pork Chop	1	2	3	4
	<u> </u> Chili with Oyster Crackers	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
38.	<u> </u> Beef French Dip (sliced roast beef on a hoagie bun with beef broth dip)	1	2	3	4
	<u> </u> Spanish Rice (rice, onions, green pepper and ground meat in tomato sauce)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				

Check your choice from each pair.		How sure are you of your choice? (circle)	Do you like these items? (circle each item)			
			Like	Will Eat	Dislike	Don't Know
<input type="checkbox"/> Veal		(A) = Very sure	(1)	2	3	4
<input checked="" type="checkbox"/> Beef		B = Fairly sure	(1)	2	3	4
	C = Not sure					
39.	<input type="checkbox"/> Ground Beef Steak, Tomato Slice Garnish		1	2	3	4
	<input type="checkbox"/> Turkey Pot Pie (sliced turkey, onion, celery, carrots, peas, white sauce in pastry)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
40.	<input type="checkbox"/> Wieners on Bun		1	2	3	4
	<input type="checkbox"/> Chicken ala King on Toast Triangles (chicken in white sauce with pimento and green pepper)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
41.	<input type="checkbox"/> Grilled Cheese Sandwich		1	2	3	4
	<input type="checkbox"/> Hamburger Goulash (ground beef, noodles, tomato sauce in casserole)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
42.	<input type="checkbox"/> Fried Rabbit with Cream Gravy		1	2	3	4
	<input type="checkbox"/> Baked Catfish with Tartar Sauce		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
43.	<input type="checkbox"/> Corn Dogs		1	2	3	4
	<input type="checkbox"/> Scalloped Chicken (chicken baked with bread dressing)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
44.	<input type="checkbox"/> Pork Loin Roast		1	2	3	4
	<input type="checkbox"/> Beef Cutlet Wrapped Around Bread Dressing		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
45.	<input type="checkbox"/> K-State Hamburger on Bun (tomato slice, cheese slice, hamburger on a bun)		1	2	3	4
	<input type="checkbox"/> Texas Straw Hat (ground beef, onion, celery, green pepper in tomato sauce over corn chips with American cheese)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
46.	<input type="checkbox"/> Beef Stew		1	2	3	4
	<input type="checkbox"/> Deep Fat Fried Lake Perch with Lemon Wedge		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
47.	<input type="checkbox"/> Pork Cutlet on Bun (breaded fried pork cutlet on bun)		1	2	3	4
	<input type="checkbox"/> Corned Beef Hash (corned beef, potatoes and onion baked in casserole)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
48.	<input type="checkbox"/> Fried Lake Perch (breaded and deep fat fried)		1	2	3	4
	<input type="checkbox"/> Pork Ribs with Sauerkraut (baked in chili sauce)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
49.	<input type="checkbox"/> College Joe (ground beef in tomato sauce on a bun)		1	2	3	4
	<input type="checkbox"/> Peach of a Dairy Salad Bowl (cling peaches, creamed cottage cheese, bologna, ripe olives)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
50.	<input type="checkbox"/> Fisherman's Platter (assorted breaded fried fish pieces)		1	2	3	4
	<input type="checkbox"/> Fried Rabbit		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
51.	<input type="checkbox"/> Roast Fresh Ham		1	2	3	4
	<input type="checkbox"/> Turkey Pot Pie (turkey slices, onions, celery, carrots, peas in white sauce in pastry)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					
52.	<input type="checkbox"/> Creole Spaghetti (ground beef, chili sauce, spaghetti and cheese in casserole)		1	2	3	4
	<input type="checkbox"/> Beef Biscuit Roll, Jardiniere (ground beef mixture in biscuit roll, with vegetables in brown gravy)		1	2	3	4
	A-Very sure B-Fairly sure C-Not sure					

Check your choice from each pair.

How sure are you of your choice? (circle)

Do you like these items? (circle each item)

 Veal
X Beef

(A) = Very sure
B = Fairly sure
C = Not sure

Like Will Eat Dislike Don't Know
(1) 2 3 4
(1) 2 3 4

53.	<u> </u> Beef on Noodles (braised beef cubes, onions and celery in brown gravy over noodles)	1	2	3	4
	<u> </u> Bacon, Lettuce and Tomato Sandwich	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
54.	<u> </u> Baked Pork Chop	1	2	3	4
	<u> </u> Hamburger Stroganoff (ground beef in mushroom sour cream gravy over noodles)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
55.	<u> </u> Southern Ham Shortcake on Corn Bread (ham in cheese sauce on corn bread)	1	2	3	4
	<u> </u> Egg Salad on Lettuce Leaf, Hard Roll	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
56.	<u> </u> Barbequed Beef on a Bun (thin sliced roast beef in barbeque sauce on a bun)	1	2	3	4
	<u> </u> Peach of a Dairy Plate (cling peaches, creamed cottage cheese, bologna, ripe olives)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
57.	<u> </u> Deep Sea Dandy (breaded, fried fish square on a bun)	1	2	3	4
	<u> </u> Meat Salad, Cup of Soup, Roll	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
58.	<u> </u> Roast Turkey	1	2	3	4
	<u> </u> Ham and Beans (ham cubes and pinto beans)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
59.	<u> </u> Fried Lake Perch (fried breaded fish)	1	2	3	4
	<u> </u> Pork Ribs with Sauerkraut (braised pork ribs with sauerkraut)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
60.	<u> </u> Pizza (ground beef and pork, spicy tomato sauce, mozzarella and parmesan cheese)	1	2	3	4
	<u> </u> Corned Beef on Rye	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
61.	<u> </u> Creamed Chipped Beef on Baked Potato (dried beef in white sauce on potato)	1	2	3	4
	<u> </u> Trio Luncheon Plate (bologna, salami, pickle and pimento loaf)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
62.	<u> </u> Fisherman's Plate (assorted breaded fried fish portions)	1	2	3	4
	<u> </u> Veal Cordon Bleu (veal pattie rolled around ground ham and swiss cheese, battered and fried)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
63.	<u> </u> Grilled Hamburger	1	2	3	4
	<u> </u> Cheese Rarebit on Toast (cheese sauce on toast)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
64.	<u> </u> Hunter's Dinner (pork cubes, lima beans, mushrooms, tomatoes and spaghetti in casserole)	1	2	3	4
	<u> </u> Boston Baked Beans with Brown Bread (navy beans in spicy tomato sauce)	1	2	3	4
	A-Very sure B-Fairly sure C-Not sure				
65.	<u> </u> Cheese Souffle with Cheese Sauce	1	2	3	4
	<u> </u> Bacon, Lettuce, Tomato Sandwich	1	2	3	4

Check your choice from
each pair.

How sure are you of your
choice? (circle)

Do you like these items?
(circle each item)

 Veal
X Beef

A = Very sure
B = Fairly sure
C = Not sure

Like	Will Eat	Dislike	Don't Know
<u>1</u>	2	3	4
<u>1</u>	2	3	4

66. Chili and Crackers
 Salad Greens with Cottage Cheese and Fruit
 A-Very sure B-Fairly sure C-Not sure

1	2	3	4
1	2	3	4

67. Chicken Fried Steak with Cream Gravy
 Scrambled Egg with Cheese and Mushrooms
 A-Very sure B-Fairly sure C-Not sure

1	2	3	4
1	2	3	4

68. Red Snapper with Tartar Sauce (baked fish with
 tartar sauce)
 Ham and Beans (ham cubes and pinto beans)
 A-Very sure B-Fairly sure C-Not sure

1	2	3	4
1	2	3	4

69. Hamburger on Bun
 Plum Delicious Plate (chicken slices, purple plums,
 pineapple rings, red raspberries, apricot half
 with coconut)
 A-Very sure B-Fairly sure C-Not sure

1	2	3	4
1	2	3	4

APPENDIX D

Residence Hall Menus

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
M 12/2	L Weiners on Bun Chicken ala King on Toast Triangles	Potato Chips	Minestrone Soup Cut Green Beans	Marinated Asparagus Cottage Cheese Pineapple-Apricot Salad		Karat Cookies Drumstick Fresh Fruit
	D Beef Stew Deep Fat Fried Lake Perch	O'Brien	Whole Kernel Corn Zucchini Parmesan	Sliced Orange Salad Tossed Greens	Oatmeal Rolls	German Sweet Chocolate Cake Tangy Rhubarb
Tu 12/3	L Pizza Corned Beef on Rye	Corn Chips	Fruit Punch Buttered Carrot Coins	Celery Stuffed with Peanut Butter Creamy Cole Slaw Cottage Cheese		Glazed Raised Donut Ice Cream Sandwich Fresh Fruit
	D Swiss Steak with Gravy Cheeseburger	French Fries	Broccoli Spears Mushroom Consomme	Shredded Lettuce Citrus Fruit Mold	All Bran Muffins	Strawberry Ice Cream Pineapple Ring Peach Crisp with Topping
W 12/4	L Submarine Sandwich Chicken Giblets on Rice Pilaf	Potato Chips	Buttered Mixed Vegetables Apple Cider	Walnut Stuffed Prune Combination Salad Cottage Cheese		Jumbo Sugar Cookie Fresh Fruit Refresho Bar
	D Meal not used in data analysis					

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
Th 12/5	L	Creamed Chipped Beef on Baked Potato		Buttered Green Beans Cream of Tomato Soup	Apple Wedge Fan Pickled Egg Salad Cottage Cheese		Mincemeat Square Creamsicle Fresh Fruit
	D	Meal not used in data analysis					
F 12/6	L	Beef, Tomato, Macaroni Casserole Hospitality Plate		Oriental Soup or Buttered Brussel Sprouts	Fruit Salad Tossed Salad Cottage Cheese		Fudgesicle Fresh Fruit Pumpkin Custard
	D	Meal not used in data analysis					
Sa 12/7	L	K-State Hamburger Texas Straw Hat		Cream of Potato Soup Three Minute Cabbage	Pear Half with Green Gelatin Sliced Beet Salad		Molasses Cookie Apricot Bavarian Fresh Fruit
	D	Meal not used in data analysis					

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
M 12/9	L Deep Sea Dandy Meat Salad, Cup of Soup, Roll	Corn Chips	Limeade or Mixed Vegetables	Creamy Cole Slaw Tokay Grape Cluster Cottage Cheese		Old Fashioned Rice Pudding Ice Cream Bar Fresh Fruit
	D Pork Loin Roast Beef Cutlet Wrapped around Bread Dressing	Scalloped	Buttered Green Beans Paprika Cauliflower	Heavenly Hash Green Salad	Garlic French Bread	Strawberry Shortcake Frozen Strawberries
Tu 12/10	L Tacos and Fried Beans Tuna Noodle Casserole		Cock-a-Doodle Chowder Zucchini Squash	Chopped Lettuce Fruit Juice Gelatin Cottage Cheese		Rice Krispie Square Popsicle Fresh Fruit
	D Meal not used in data analysis					
W 12/11	L Corned Dogs Scalloped Chicken	Potato Chips	Fruit Punch Clam Chowder	Apricot Halves with Coconut Egg Salad on Spinach Leaf Cottage Cheese		Baked Apple with Cream Lemon Cake Pudding Fresh Fruit
	D Meat Loaf with Barbeque Sauce Sole Almondine	Tator Tots	Buttered Broccoli Spears Pink Grapefruit Juice	Sliced Orange Salad Tossed Salad	Blueberry Muffin	Blonde Brownie ala Mode Frozen Cherries

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
Th 12/12	L Superburger Dutch Treat Plate	Potato Sticks	Minestrone Soup Buttered Turnips	Stuffed Celery Fruited Gelatin Salad Cottage Cheese		Date Nut Bar Sherbert Cup Fresh Fruit
	D Pork Steak Beef Brisket	Whipped with Gravy	Beets in Orange Sauce Parslled Carrots	Banana Chunk Salad Combination Salad	Cornmeal Rolls	Chocolate Layer Cake Frozen Mixed Fruit
F 12/13	L Beef on Noodles Bacon, Lettuce, Tomato Sand- wich		Canadian Cheese Soup Buttered Peas	Relish Plate Pear Half Cottage Cheese		Soft Gingerbread Drumstick Fresh Fruit
	D Fisherman's Platter Fried Rabbit	Dutchess	Whole Kernel Corn Glazed Parsnips	Cottage Cheese with Mandarin Orange Chinese Salad	Assorted Breads	Cherry Torts Grapefruit Sections
Sa 12/14	L College Joe Peach of a Dairy Salad Bowl		Navy Bean Soup French Fried Onion Rings	Potato Salad Apple Pinwheel Salad		Tapioca Cream with Red Hots Butterscotch Chip Cookie Fresh Fruit
	D Meal not used in data analysis					

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
M 1/27	L Meal not used in data analysis					
	D Country Fried Chicken Salisbury Steak	Whipped with Chicken Gravy	Frozen Green Peas Buttered Cauliflower	Tossed Greens Maraschino Heavenly Hash	Blueberry Muffin	White Cake Applesauce
Tu 1/28	L Barbequed Beef on Bun Peach of a Dairy Plate	Taco Chips	Cream of Celery Soup Fruit Punch	Lettuce Cubes Cooked Vegetable Salad Cottage Cheese		Chocolate Marsh- mallow Pudding Sunflower Seed Cookie Fresh Fruit
	D Meal not used in data analysis					
W 1/29	L Creole Spaghetti Beef Biscuit Roll	French Garlic Bread	Cranberry Juice Frozen Leaf Spinach	Italian Tossed Salad Pineapple Twist Salad Cottage Cheese		Raisin Bars Ice Cream Sandwich Fresh Fruit
	D Baked Filet of Sole Almondine Six Layer Dinner	Steamed in Jacket	Whole Kernel Corn Broccoli Spears	Peach-Gingerale Mold Plain Gelatin Stuffed Celery	Half and Half	Orange Cake Canned Italian Plums

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
Th 1/30	L Grilled Hamburger Cheese Rarebit on Toast		Vegetable Soup Baked Beans	Bouquet Salad Bowl Apple-Date Salad Cottage Cheese		Vanilla Pudding Refresho Bars Fresh Fruit
	D Meal not used in data analysis					
F 1/31	L Bacon, Lettuce, Tomato Sandwich Pizza	Potato Chips	Cream of Mushroom Soup Shrub	Rhubarb Mold Plain Gelatin Creamy Cole Slaw Cottage Cheese		Baked Lemon Pudding Sherbert Cup Fresh Fruit
	D Meal not used in data analysis					
Sa 2/1	L Shrimp Louis Salad Bowl Chicken Cutlet on Bun		Pepper Pot Soup Buttered Carrots	Cottage Cheese Deviled Egg Relish Plate Fresh Grapefruit Slice		Crumb Cookies Perky Pears Drumstick
	D Grilled Steak Cold Sliced Meat Loaf and Turkey	Macaroni and Cheese	Italian Green Beans Whipped Squash	Chinese Salad		

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
M 2/3	L Reuben Sandwich Western Omelet	Potato Chips	Chicken-Rice Soup Creole Hominy	Marinated Asparagus Peach Half with Apple Cottage Cheese		Rice Krispie Square Fudgesicle Fresh Fruit
	D Red Snapper Ham and Beans	Tator Tots	Broccoli Spears Oriental Carrots	Pineapple with Cranberry Relish Relish Plate	Sesame Rolls	Applesauce Cake Apricot Halves
Tu 2/4	L Tacos Creamed Chipped Beef on Toast	Refried Beans	Shrub Buttered Peas	Apple Fan Salad Macaroni Salad Cottage Cheese		Vanilla Pudding Ice Cream Sandwich Fresh Fruit
	D Meal not used in data analysis					
W 2/5	L Chili and Crackers Greens, Cottage Cheese and Fruit		Oriental Soup Orange Juice	Blue Plum with Pineapple Carrot and Raisin Salad Cottage Cheese		Nut Crunchers Lemon Snow Fresh Fruit
	D Pork Chops Hamburger Stroganoff	O'Brien	Buttered Asparagus Fried Eggplant	Cranberry Relish Caesar Salad	Goosey Rolls	Tiger Upside Down Cake Sliced Peaches

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
Th 2/6	L	Weiners on Bun Turkey and Dumplings	Corn Chips	Beef Barley Soup Spinach with Egg Garnish	Goodiz Salad Apricot-Date Salad Cottage Cheese		Butterscotch Pudding Blarney Stones Fresh Fruit
	D	Meal not used in data analysis					
F 2/7	L	Beef Noodle Casserole Pork Cutlet on Dark Rye	Potato Salad	Cream of Celery Soup Wilted Lettuce	Pea, Pickle and Cheese Fruit Juice Gelatin Cottage Cheese		Decorated Sugar Cookie Drumstick Fresh Fruit
	D	Baked Chicken Snowdrift Squares	Brown Rice	Broiled Peach Harvard Beets	Waldorf Salad Tossed Salad	Bow Knot	Chocolate Marble Cake Blue Plums
Sa 2/8	L	College Joe Cheese Balls on Pineapple Ring		Vegetable Soup Cranberry Juice	Blushed Pear Salad Cole Slaw Cottage Cheese		Dream Bars Refresho Bars Fresh Fruit
	D	Poached Halibut Swedish Meat Balls	Whipped with Gravy	Sweet and Sour Green Beans Paprika Cauliflower	Lettuce Wedge Banana Log Salad	Corn Bread	Fruit Pie Frozen Cherries

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
M 2/10	L	Chicken Salad Sandwich Texas Straw Hat	Corn Chips	Tahitian Punch Buttered Asparagus	Cranberry Orange Relish Pea, Pickle, Celery Salad Cottage Cheese		Bread Pudding Assorted Cookies Fresh Fruit
	D	Beef Birds with Gravy Yogurt Fruit Plate	Escalloped	Parsley Carrots Swiss Spinach	Spiced Apple Ring Salad Cole Slaw	Sesame Rolls	Peach Crisp Pineapple Tidbits
Tu 2/11	L	Beef French Dip Spanish Rice		Continental Peas Banana Scallop	Blush Pear Salad Green Bean Salad Cottage Cheese		Oatmeal Raisin Cookies Fudgcicle Fresh Fruit
	D	Meal not used in data analysis					
W 2/12	L	Meal not used in data analysis					
	D	Fried Rabbit Baked Catfish	Whipped Potato	Whole Kernel Corn Oven Baked Vegetables	Fresh Vegetable Salad Cider Mold Plain Gelatin	Buttermilk Biscuit with Honey	Marble Cake Frozen Raspberries

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
Th 2/13	L Beef Pot Pie Brighten a Blustery Day Plate		Cream of Tomato Soup Brussel Sprouts	Macaroni Salad Pineapple Ring with Lime Jello Cube		Chocolate Drop Cookies Refresho Fruit Fresh Fruit
	D Kabobs Minute Steak	Rice Pilaf	Fiesta Lima Beans Buttered Spinach	Overnight Salad Chef Salad	Texas Toast	Baked Date Pudding Canned Blue Plums
F 2/14	L Grilled Cheese Sandwich Hamburger Goulash		Sweetheart Punch Cream of Asparagus Soup	Pineapple Waldorf Lettuce Cubes Cottage Cheese		Strawberry Bavarian Sugar Cookies Fresh Fruit
	D Roast Pork Loin French Fried Shrimp	Duchess	Buttered Whole Beets Cinnamon Apple Slices	Caesar Salad Banana Log	Pecan Crown Rolls	Pink Marble Cake Ice Cream Slice Frozen Cherries
Sa 2/15	L Southern Ham Shortcake Egg Salad on Lettuce		Shrub Black Eyed Peas	Cornfruit Salad Prune-Apricot Salad Cottage Cheese		Peanut Butter Rice Krispie Squares Rice and Peach Pudding Fresh Fruit
	D Chicken Antoine Meat Balls with Gravy	Buttered Noodles	Buttered Broccoli Pineapple Fritters	Italian Salad Bowl Pinwheel Grape- fruit Sections	Hot Rolls	Chocolate Cream Pie Canned Pear Half

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
M 2/17	L Spanish Noodles Thin Sliced Ham on Hoagie Bun	Taco Chips	Clam Chowder Buttered Wax Beans	Creamy Vegetable Salad Peach Pinwheel Cottage Cheese		Baked Custard Drumstick Fresh Fruit
	D Meal not used in data analysis					
Tu 2/18	L Hamburger on Bun Plum Delicious Plate	Potato Chips	Canadian Cheese Soup Shrub	Stuffed Celery Fruit Gelatin Salad Plain Gelatin Cottage Cheese		Pumpkin Square Fudgesicle Fresh Fruit
	D Fried Lake Perch Pork Ribs with Sauerkraut	Paprika Buttered	Buttered Apples Mexican Kidney Beans	Combination Salad Sliced Orange Salad	Angel Biscuit	Strawberry Ice Cream Peach Half
W 2/25	L Beef Chop Suey K-State Salad Bowl		Buttered Peas Spinach with Vinegar	Lettuce and Egg Salad Lime Grapefruit Mold Plain Gelatin Cottage Cheese		Banana Cream Pudding Lemon Drop Cookies Fresh Fruit
	D Meal not used in data analysis					

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
Th 2/20	L	Pork Outlet on Bun Corned Beef Hash	Potato Chips	Mixed Vegetables Fruit Punch	Pineapple Slice with Cottage Cheese Relish Plate Cottage Cheese		Prune Whip Ice Cream Bat Fresh Fruit
	D	Meal not used in data analysis					
F 2/21	L	Salmon Patties Shepherd's Pie	Potato Sticks	French Onion Soup Corn, Celery and Cress with Herb Butter	Fruit Salad Carrot-Raisin Salad Cottage Cheese		Cake Doughnuts Plain Gelatin Fresh Fruit
	D	Meal not used in data analysis					
Sa 2/22	L	Foot Long Hot Dog Omelet with Mushroom Sauce		Navy Bean Soup Pink Lemonade	Waldorf Salad Potato Salad Cottage Cheese		Butterscotch Bars Refresho Bars Fresh Fruit
	D	Meal not used in data analysis					

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
M 2/24	L Pizza Chicken ala King		Fruit Punch Buttered Lima Beans	Celery Sticks with Spiced Apple Ring Orange Ambrosia Salad Cottage Cheese		Jumbo Molasses Cookies Sherbert Cup Fruit
	D Beef Stew Salisbury Steak with Gravy	Parsley Buttered	Creamed Corn Asparagus Spears	Tossed Salad Stuffed Prune Salad	Popcorn Rolls	Strawberry Angel Dessert Apricot Halves
Tu 2/25	L Six Layer Dinner Corned Beef on Rye	Potato Chips	Cream of Vegetable Soup Whipped Squash	Cauliflower Vineigrette Peach Half with Cranberry Relish Cottage Cheese		Apple Brown Betty Popsicle Fresh Fruit
	D Chicken Fried Steak Scrambled Egg with Cheese and Mushrooms	Duchess	Broccoli Almondine Mixed Vegetables	Combination Salad Banana-Orange Slice Salad	Poppy Seed Rolls	Coconut Cream Pie Frozen Raspberries
W 2/26	L Submarine Sandwich Chicken Giblets on Rice		Beef Barley Soup Grape Juice	Raspberry Mold Plain Gelatin Chinese Cabbage Salad Cottage Cheese		Snickerdoodles Drumstick Fresh Fruit
	D Baked Pork Chop Chilli with Oyster Crackers	O'Brien	Italian Green Beans Corn Fritters	Apricot Prune Salad Goodie Salad	Hot Rolls	Cherry Cobbler Pear Half

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
Th	L Meal not used in data analysis					
	2/27 D Roast Turkey Ham Beans	Whipped with Gravy	Frozen Peas Creole Hominy	Sunshine Salad Plain Gelatin Marinated Asparagus Pea, Pickle, Cheese Salad Minted Pear Cottage Cheese	Cornbread with Apple Butter	Banana Slices Blue Plums
F	L Beef, Tomato, Macaroni Casserole Autumn Hospital- ity Plate		Whole Kernel Corn Wilted Lettuce			Sugar Cookies Chocolate Pudding Fresh Fruit
	2/26 D Fisherman's Plate Veal Cordon Bleu	Scalloped Potatoes	Cauliflower Polonaise Harvard Beets	Farmer's Chop Suey Blue Plum, Pine- apple Salad	Hoffman Bread	Peach Shortcake Tangy Rhubarb
M	L Deep Sea Dandy Meat Salad, Cup of Soup, Rolls	Corn Chips	Creamed Carrots Buttered Spinach	Spiced Apple Ring with Pineapple Chef Salad Cottage Cheese		Date Nut Bar Drumstick Fresh Fruit
	3/3 D Ground Beef Steak Turkey Pot Pie	Dinner Fries	French Onion Soup Mixed Vegetables	Cranberry Relish Creamy Cole Slaw	Garlic French Bread	Karat Cake Grapefruit Sections

KANSAS STATE UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date	Entree	Potato or Sub	Vegetable or Soup	Salad	Bread	Dessert
Th 3/6	L Pizzaburger Peach of a Dairy Salad Bowl		Cranberry Juice Minestrone Soup	Perfection Salad Plain Gelatin Orange Ambrosia Salad Cottage Cheese		Vanilla Cream Pudding Fudgesicle Fresh Fruit
	D Roast Loin of Pork Chicken Crepes with Curry Sauce	Whipped Potatoes Gravy	Whole Kernel Corn Parsley Wax Beans	Waldorf Salad Relish Plate	Half and Half Rolls	Lemon Coconut Cake Frozen Cherries
F 3/7	L Cheese Souffle with Cheese Sauce Bacon, Lettuce, Tomato Sandwich		Vegetarian Vegetable Soup French Fried Cauliflower	Fruit Salad Deviled Egg Salad Cottage Cheese		Assorted Cookies Ice Cream Novelties Fresh Fruit
	D Meal not used in data analysis					

APPENDIX E

Biographical Information Page



KANSAS STATE UNIVERSITY

Department of Institutional Management
 Justin Hall
 Manhattan, Kansas 66506
 Phone: 913 532 5521

STUDY OF FOOD HABITS OF COLLEGE STUDENTS

I.D. no. _____ (Col 1-3
 Card 1)

PLEASE CHECK:

Col 4 1. Residence Hall living in

- _____ (1) Ford
 _____ (2) West
 _____ (3) Moore
 _____ (4) Haymaker

Col 5 2. Sex

- _____ (1) Male
 _____ (2) Female

Col 6 3. Present age in years

- _____ (1) 17-19
 _____ (2) 20-21
 _____ (3) 22-23
 _____ (4) 24 and over

Col 7 4. Student classification

- _____ (1) Freshman
 _____ (2) Sophomore
 _____ (3) Junior
 _____ (4) Senior
 _____ (5) Graduate Student

Col 8 5. Major

- _____ (1) Agriculture
 _____ (2) Architecture
 _____ (3) Arts & Sciences
 _____ (4) Business Administration
 _____ (5) Education
 _____ (6) Engineering
 _____ (7) Home Economics
 _____ (8) Veterinary Medicine

Col 9 6. Where have you lived
 most of your life?

- _____ (1) Urban area
 _____ (2) Rural area

Col 10 7. In what section of the country
 have you lived most of your life?

- _____ (1) West
 _____ (2) Southwest
 _____ (3) Midwest
 _____ (4) Northeast
 _____ (5) Southeast
 _____ (6) Outside U.S.A., please
 specify _____

Col 11 8. In how many different comm-
 unities, cities, or towns have
 you lived before you started
 to college?

- _____ (1) Only 1
 _____ (2) 2-3
 _____ (3) 4-6
 _____ (4) More than 6

Col 12 9. Number of semesters in KSU
 Residence Hall (omit current
 semester)

- _____ (1) None before this
 semester
 _____ (2) 1 semester
 _____ (3) 2-3
 _____ (4) 4-6
 _____ (5) More than 6

APPENDIX F

Description of Study

Department of Institutional Management
Justin Hall
Manhattan, Kansas 66506
Phone: 913 532-5521

COLLEGE STUDENTS' STATED ENTREE SELECTIONS AS A FORECASTING TOOL

Background Information

The questionnaires we are currently distributing concerning food preference of students eating at Derby Food Center are a part of the departmental research in Institutional Management. The research is concerned with attempting to develop a computerized forecasting model that can be used in forecasting the production demand for a residence hall foodservice, but we believe that one of the most important factors is the student himself--his meal habits while eating meals there as well as the foods he likes to eat.

A total of 448 questionnaires will be distributed to students living in four residence halls served by Derby Food Center. These students have been randomly sampled from listings of the rooms in each of the four residence halls.

APPENDIX G

Instructions for Research Assistants

COLLEGE STUDENTS' STATED ENTREE SELECTIONS AS A FORECASTING TOOL

INSTRUCTIONS FOR RESEARCH ASSISTANTS

1. For each student on your list, you will have a menu item questionnaire, a biographical data sheet and an envelope for returning completed questionnaires.
2. A packet has been prepared for each student labeled with his/her name and identification number.
3. Be sure to remove the slip of paper with the student's name before you hand it to her/him.
4. After you have given the student the questionnaire, please check off the name on the list of students you will be contacting so that we will know which students have received questionnaires.
5. For each residence hall, we have randomly selected a certain number of students. It is very important that the questionnaire go to the specified student.
6. If a student refuses to fill out a questionnaire, select the first name on the substitute list and reassign the ID number of the original student to the substitute person. Encourage students to participate--but don't force those who are strongly opposed.
7. Below is an introduction to use in soliciting participation of students in the study. Please introduce the project in basically the same way to all students on your list.

Introduction to Students in the Study Sample:

My name is _____, and I am a representative of the Department of Institutional Management in the College of Home Economics. As part of a departmental research project, we are distributing questionnaires to a random sample of students living in the residence halls served by Derby Food Center. The project is concerned with students preferences for main dish menu items. You will not be identified with your answers; the questionnaires have been coded with a number for followup purposes only. Results from all respondents will be summarized for reporting purposes. Please fill out this questionnaire and biographical data sheet today (or tomorrow) and return in the envelope provided to the Department of Institutional Management.

We need your help--thanks for your interest!

APPENDIX H

Menu Item Census

Menu Census Form

DATE _____ DAY _____

LUNCH:	ENTREE ITEMS	FINAL COUNT
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DINNER:	ENTREE ITEMS	FINAL COUNT
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APPENDIX I

Letter to Serving Line Personnel



KANSAS STATE UNIVERSITY

Department of Institutional Management
Justin Hall
Manhattan, Kansas 66506
Phone: 913 532-5521

January 24, 1975

TO:

FROM: Mary Anne Shriwise
Graduate Research Assistant
Department of
Institutional Management

Dr. Allene Vaden
Assistant Professor
Department of
Institutional Management

We are now ready to begin the second phase of our research project in Derby Food Center, which will entail the use of small counters on the serving lines. (You may have observed or even used the counters during the preliminary testing we have done.) These counters will be used to record the number of portions of each entree that is served. Because this is a research project and accuracy is very important, we think it would be helpful to have the same people serving entrees as often as possible. You have been suggested to us by Mrs. Olson as one who would be willing to take this responsibility. This would mean that you would serve the entrees every time you are scheduled as a server at lunch or dinner. If you have any objections to this arrangement, please see Mrs. Olson.

The counters will be labeled 0, 1, 2, 3 to correspond to: 0 = no entree taken; 1 = the entree placed first on the serving line; 2 = the entree placed second on the line; and 3 = the entree placed third on the serving line (if a third entree is being served.) To standardize the procedure of using the counters, please strike the counter key corresponding to the entree to be served to a student before serving the portion. There will also be a clipboard where you will record the final count on each one of your counters after each meal. The line supervisors will be available to answer your questions.

We plan to begin using the counters on the lines for lunch on Monday, January 27 and will continue to use them on the lunch and dinner serving lines (including weekends) for this semester.

Thank you for your help -- it's all in the name of research.

APPENDIX J

Stated Selection Data for Luncheon Entrees

Students' stated choice, certainty of choice, and preference for luncheon entrees served on residence hall menus

choice no. 1	selection	stated choice ²	certainty of choice ³				preference ⁴			
			A=very sure		B=fairly sure		C=not sure		like	will eat
			%	%	%	%	%	%		
		N								
40	weiners on bun	259	68.9	54.7	35.5	9.7	46.1	43.4	10.5	---
	chicken ala king on toast	112	29.8	40.0	41.8	18.2	22.2	42.4	31.6	3.8
60	pizza	279	74.2	61.5	32.0	6.6	63.1	29.1	7.5	.3
	corned beef on rye	90	23.9	60.2	26.1	13.6	34.2	36.9	27.5	1.3
32	submarine sandwich	317	84.3	69.5	26.0	4.4	58.9	35.2	5.3	.5
	chicken giblets on rice pilaf	53	14.1	37.7	41.5	20.8	12.6	29.8	50.0	7.5
30	creamed chip beef on baked potato	112	29.8	46.4	36.4	17.3	27.9	40.8	29.0	2.4
	grilled cheese sandwich	259	68.9	65.1	28.3	6.6	59.2	32.0	8.0	.8
45	K-State hamburger on bun	257	68.4	57.5	34.5	7.9	61.7	31.6	5.9	.8
	Texas straw hat	114	30.3	47.8	40.5	11.7	33.1	42.5	20.4	4.0

¹Choice number is the item number on the survey instrument. Luncheon choices are listed in chronological order of service on menus.

²Respondents were asked to indicate which of the items they would select if offered the choice listed.

³% = $\frac{\text{no. responding A, B, or C}}{\text{no. who chose each item}}$.

⁴Respondents were asked to indicate preference for each entree; N = number selecting item 1 and item 2 for each pair of entrees.

Students' stated choice, certainty of choice, and preference for luncheon entrees served on residence hall menus (cont.)

choice no.	selection	stated choice	certainty of choice				preference			
			A=very sure	B=fairly sure	C=not sure	like	will eat	dis- like	don't know	
		N	%	%	%	%	%	%	%	%
16	tacos and refried beans	253	67.3	63.6	29.2	7.2	66.6	22.7	10.4	.3
	tuna noodle casserole	121	32.2	52.9	32.2	14.9	43.5	37.4	18.3	.8
43	corn dogs	207	55.1	55.3	32.5	12.1	46.1	32.3	19.7	1.9
	scalloped chicken	161	42.8	50.6	34.4	15.0	30.3	49.2	15.7	4.9
5	superburger	284	75.5	65.0	29.6	5.4	59.2	31.6	9.1	
	Dutch treat plate	90	23.9	30.0	60.0	10.0	22.6	43.3	26.9	7.3
53	beef on noodles	119	31.7	49.6	43.6	6.8	37.0	47.7	15.0	.3
	bacon, lettuce and tomato sandwich	250	66.5	66.9	27.4	5.7	71.2	21.6	7.2	---
49	college Joe	301	80.1	63.9	31.1	5.1	55.6	34.1	9.9	.3
	peach of a dairy salad bowl	70	18.6	50.0	35.3	14.7	18.2	41.6	35.7	4.6
56	barbequed beef on bun	330	87.8	67.6	27.5	4.9	67.8	27.6	4.3	.3
	peach of a dairy plate	42	11.2	38.1	47.6	14.3	16.8	41.8	35.9	5.4
52	creole spaghetti	264	70.2	51.6	35.7	12.8	45.6	37.9	12.8	3.7
	beef biscuit roll, jardiniere	100	26.6	30.2	44.8	25.0	23.1	43.0	24.5	9.4
63	grilled hamburger	306	81.6	61.0	32.0	7.0	61.8	32.0	6.2	---
	cheese rarebit on toast	65	17.3	53.2	22.6	24.2	18.3	36.7	33.2	11.9
41	grilled cheese sandwich	229	60.9	55.6	36.3	8.1	60.1	30.3	9.7	---
	hamburger goulash	142	37.8	50.4	39.4	10.2	37.6	46.5	14.0	1.9

Students' stated choice, certainty of choice, and preference for luncheon entrees served on residence hall menus (cont.)

choice no.	selection	N	certainty of choice				preference			
			stated choice		A=very sure		B=fairly sure		C=not sure	
			%	%	%	%	%	%	%	%
3	bacon, lettuce, tomato sandwich pizza	209 163	55.4 43.2	61.0 46.6	28.3 40.4	10.7 13.0	71.0 59.0	19.4 33.2	9.7 7.0	--- 0.8
17	shrimp Louis salad bowl chicken cutlet on bun	112 261	29.8 69.4	58.6 45.6	28.8 43.2	12.6 11.2	27.4 38.6	34.9 42.6	31.2 16.9	6.5 1.9
13	reuben sandwich western omelet	227 138	60.4 36.7	56.0 40.9	26.4 40.2	17.6 19.0	46.0 32.4	22.8 36.5	29.0 26.3	2.2 4.8
19	tacos creamed chipped beef on toast	262 112	69.7 29.8	68.1 47.7	26.9 28.4	5.0 23.9	70.4 36.1	18.6 35.6	10.5 27.0	0.5 1.3
66	chili and crackers salad greens, cottage cheese and fruit	324 48	86.2 12.8	78.4 45.8	17.2 29.2	4.4 25.0	78.2 17.5	14.4 42.2	7.4 34.9	--- 5.4
1	weiners on bun turkey and dumplings	165 210	43.9 55.9	36.8 49.1	53.9 45.7	7.3 5.2	40.6 45.2	45.4 38.0	14.0 12.6	--- 4.3
23	beef noodle casserole pork cutlet on dark rye	192 177	51.1 47.1	47.3 40.0	43.6 46.9	9.0 14.1	36.5 33.2	43.4 45.1	17.2 20.3	2.9 1.4
28	college Joe cheese balls on pineapple ring	314 53	83.5 14.1	67.7 49.0	23.3 35.3	9.0 15.7	56.0 13.5	34.9 29.4	8.6 44.7	0.5 12.4

Students' stated choice, certainty of choice, and preference for luncheon entrees served on residence hall menus (cont.)

choice no.	selection	certainty of choice						preference				
		N	stated choice	A=very sure		B=fairly sure		C=not sure	like	will eat	dis- like	don't know
				%	%	%	%					
7	chicken salad sandwich Texas straw hat	156 215	41.5 51.2	49.0 45.8	40.5 40.7	10.5 13.6	34.1 36.9	46.0 38.0	18.3 20.3	1.6 4.8		
38	beef French dip Spanish rice	293 77	77.9 20.5	66.7 54.0	27.5 43.4	5.8 2.6	68.5 27.3	22.1 42.2	8.5 29.9	0.8 0.5		
8	beef pot pie brighten a blustery day plate	286 84	76.1 22.3	59.2 33.7	29.8 43.4	11.0 22.9	39.8 12.9	37.7 39.1	20.6 41.6	1.9 6.4		
55	southern ham shortcake on corn bread egg salad on lettuce leaf	211 147	56.1 39.1	33.3 33.8	39.1 42.1	27.6 24.1	18.9 15.5	39.5 43.8	27.0 35.1	14.6 5.7		
24	Spanish noodles thin sliced ham on hoagie	118 255	31.4 67.8	46.2 57.9	41.9 34.5	12.0 7.5	29.8 61.2	49.3 31.8	18.5 6.7	2.4 0.3		
69	hamburger on bun plum delicious plate	322 49	85.6 13.0	68.8 47.8	24.4 43.5	6.9 8.7	63.5 16.0	29.3 40.9	7.2 37.4	--- 5.6		
25	beef chop suey on rice K-State salad bowl	208 159	55.3 42.3	52.4 59.2	33.5 31.9	14.1 8.9	38.9 34.3	32.4 41.8	26.8 19.6	1.9 4.3		
47	pork cutlet on bun corned beef hash	271 89	72.1 23.7	60.5 31.0	30.6 47.1	9.0 21.8	48.2 14.1	34.8 43.5	15.9 38.1	1.1 4.3		
9	salmon patties in parsley cream sauce shepherd's pie	133 235	35.4 62.5	38.6 37.4	40.9 39.6	20.5 23.0	21.1 23.7	35.3 46.1	37.4 25.9	6.1 4.3		

Students' stated choice, certainty of choice, and preference for luncheon entrees served on residence hall menus (cont.)

choice no.	selection	stated choice	certainty of choice				preference			
			A=very sure	B=fairly sure	C=not sure	like	will eat	dis- like	don't know	
		N	%	%	%	%	%	%	%	%
31	foot long hot dog omelet with mushroom sauce	259 115	68.9 30.6	61.0 49.1	31.5 33.9	7.5 17.0	47.3 23.4	40.1 31.7	12.6 36.8	--- 8.1
35	pizza chicken ala king on toast triangles	294 76	78.2 20.2	64.8 44.0	29.3 52.0	5.9 4.0	65.1 22.1	28.2 43.7	6.7 28.0	--- 6.2
12	six layer dinner corned beef on rye	160 206	42.6 54.8	41.7 48.8	33.3 33.5	25.0 17.7	22.5 31.5	38.9 37.6	35.1 28.0	3.5 3.0
27	beef tomato macaroni casserole hospitality plate	242 112	63.4 32.5	49.0 46.3	37.2 33.1	13.8 20.7	35.0 25.4	46.6 40.3	17.0 28.6	1.3 5.7
57	deep sea dandy meat salad, cup of soup, roll	234 122	62.2 32.5	53.9 45.0	34.6 38.3	11.5 16.7	37.6 17.4	36.0 45.8	24.2 28.4	2.2 8.3
2	pizzaburger peach of a dairy salad bowl	307 67	81.7 17.8	66.1 54.6	29.3 34.9	4.6 10.6	47.2 16.9	39.5 36.0	11.7 42.7	1.6 4.3
65	cheese souffle with cheese sauce bacon, lettuce, tomato sandwich	79 290	21.0 77.1	57.5 68.5	17.5 20.4	25.0 11.1	19.0 70.0	34.8 22.0	33.4 7.5	12.8 0.5

APPENDIX K

Stated Selection Data for Dinner Entrees

Students' stated choice, certainty of choice, and preference for dinner entrees served on residence hall menus

choice no. 1	selection	certainty of choice ³				preference ⁴			
		stated choice ²		A=very sure		B=fairly sure		C=not sure	
		N	%	%	%	%	%	%	%
46	beef stew	220	58.5	58.6	32.3	11.9	41.1	45.3	13.1
	deep fat fried perch	148	39.4	50.7	33.1	16.2	30.6	35.2	30.4
10	swiss steak with gravy	267	71.0	57.3	33.2	9.5	69.8	25.3	4.6
	cheeseburger	106	28.2	57.3	34.0	8.7	62.5	29.6	7.8
44	pork loin roast	236	62.8	41.6	43.4	15.0	48.9	39.0	9.9
	beef cutlet wrapped around dressing	134	35.6	36.8	48.1	15.0	31.1	45.8	15.3
4	meat loaf with barbeque sauce	286	76.1	62.9	27.5	9.6	43.5	35.6	19.6
	sole almonidine	83	22.1	55.4	26.5	18.1	17.8	29.6	44.7
29	pork steak	136	36.2	40.7	40.7	18.5	37.5	45.8	14.0
	beef brisket	236	62.8	57.9	29.2	12.9	57.2	31.8	6.7
									4.3

¹Choice number is the item number on the survey instrument. Dinner choices are listed in chronological order of service on menus.

²Respondents were asked to indicate which of the items they would select if offered the choice listed.

$3\% = \frac{\text{no. responding A, B, or C}}{\text{no. who chose each item}}$

⁴Respondents were asked to indicate preference for each entree; N = number selecting item 1 and item 2 for each pair of entrees.

Students' stated choice, certainty of choice, and preference for dinner entrees served on residence hall menus (cont.)

choice no.	selection	stated choice	certainty of choice				preference					
			A=very sure		B=fairly sure		C=not sure		like	will eat	dis- like	don't know
			N	%	%	%	%	%				
50	fisherman's platter fried rabbit	275 87	73.1 23.1	59.7 54.0	28.6 34.5	11.7 11.5	46.7 20.5	33.3 28.0	18.9 44.5	1.1 7.0		
6	country fried chicken salisbury steak	226 146	60.1 38.8	63.1 52.8	30.2 35.4	6.8 11.8	67.9 53.6	22.2 33.7	9.9 12.4	--- .3		
33	grilled steak cold sliced meat loaf and turkey	338 36	89.9 9.6	75.4 40.0	21.3 42.9	3.3 17.1	74.5 14.8	21.5 43.7	3.5 33.7	.7 7.8		
68	red snapper ham and beans	164 195	43.6 51.9	45.3 48.2	31.7 31.1	23.0 20.7	24.5 28.8	35.9 39.5	34.0 29.3	5.1 2.4		
18	baked chicken snowdrift squares	293 77	77.9 20.5	66.3 44.0	28.9 38.7	4.8 17.3	58.9 16.4	33.0 40.2	7.8 31.4	.3 12.1		
54	baked pork chop hamburger stroganoff	240 131	63.8 34.8	55.0 46.5	39.1 45.0	5.9 8.5	55.8 37.7	36.4 42.0	7.3 17.8	.5 2.4		
15	poached halibut Swedish meat balls	124 246	33.0 65.4	47.5 51.0	42.6 36.3	9.8 12.7	26.8 37.5	32.2 43.2	36.7 18.0	4.3 1.3		
22	beef birds with gravy yogurt fruit plate	272 90	72.3 23.9	42.3 43.2	31.9 34.1	18.9 22.7	33.4 16.2	36.4 26.4	23.2 48.0	7.0 9.4		
42	fried rabbit with cream gravy baked catfish	129 230	34.3 61.2	30.5 44.6	41.4 27.7	28.1 27.7	16.1 30.2	31.2 34.2	42.7 31.6	9.9 4.0		

Students' stated choice, certainty of choice, and preference for dinner entrees served on residence hall menus (cont.)

choice no.	selection	stated choice	certainty of choice				preference			
			A=very sure	B=fairly sure	C=not sure	like	will eat	dis- like	don't know	
		N	%	%	%	%	%	%	%	%
36	kabobs	151	40.2	46.7	35.3	18.0	45.9	36.8	14.4	2.9
	grilled minute steak	219	58.2	61.5	31.2	7.3	67.9	27.3	4.3	.5
14	roast pork loin	102	27.1	58.8	31.4	9.8	50.4	37.5	11.5	.5
	french fried shrimp	274	72.9	77.4	15.9	6.7	80.3	8.5	10.1	1.1
20	chicken antoine	141	37.5	37.9	40.0	22.1	25.9	41.0	24.5	8.6
	meat balls with gravy	230	61.2	46.7	39.3	14.0	35.8	47.3	15.9	1.1
48	fried lake perch	190	50.5	52.7	32.1	15.2	29.8	37.3	28.4	4.6
	pork ribs with sauerkraut	176	46.8	44.8	34.5	20.7	23.0	39.8	31.6	5.6
11	beef stew	155	41.2	30.9	51.3	17.8	46.5	40.3	13.2	---
	salisbury steak with gravy	216	57.5	51.2	42.2	6.6	55.2	34.4	10.4	---
67	chicken fried steak, cream gravy	268	71.3	66.5	24.1	9.4	59.1	33.1	7.3	0.5
	scrambled egg, cheese, mushrooms	105	27.9	45.1	42.2	12.8	32.5	35.5	27.7	4.3
37	baked pork chop	174	46.3	57.2	26.0	16.8	64.2	28.5	7.3	---
	chili with oyster crackers	195	51.9	63.0	24.5	12.5	63.3	20.4	13.7	2.7
58	roast turkey	293	77.9	66.1	28.4	5.5	72.3	25.6	1.9	0.3
	ham and beans	79	21.0	39.2	40.5	20.3	30.9	38.4	28.2	2.4
62	fisherman's plate	203	54.0	49.8	32.5	17.8	42.0	33.8	22.5	1.6
	veal cordon bleu	151	40.2	48.0	33.8	18.2	27.7	34.0	25.0	13.3

Students' stated choice, certainty of choice, and preference for dinner entrees served on residence hall menus (cont.)

choice no.	selection	stated choice	certainty of choice					preference				
			N	%	A=very sure	B=fairly sure	C=not sure	like	will eat	dis- like	don't know	
					%	%	%					
39	ground beef steak turkey pot pie	233 140	62.0 37.2	56.8 40.6	34.9 50.0	8.3 9.4	56.5 38.0	38.4 42.0	4.6 19.1	0.5 0.8		
26	baked sole almonidine meat loaf, mushroom gravy	93 274	24.7 72.9	46.2 56.1	38.5 35.7	15.4 8.2	18.4 40.2	34.7 40.4	40.1 18.9	6.8 0.5		
34	roast loin of pork chicken crepes with curry sauce	280 90	74.5 23.9	58.8 41.6	32.6 41.6	8.6 16.9	54.3 20.2	35.8 38.4	8.6 31.2	1.3 10.2		

APPENDIX L

Stated Entree Selection Data for Choices Not Served

Students' stated choice, certainty of choice, and preference for entrees¹

choice no. ²	selection	stated choice ³	certainty of choice ⁴				preference ⁵			
			A=very sure	B=fairly sure	C=not sure		like	will eat	dis- like	don't know
		N	%	%	%	%	%	%	%	%
21	sole almonidine six layer dinner	152 206	42.5 57.5	34.4 39.9	43.1 38.4	22.5 21.7	20.3 19.9	30.5 41.7	41.1 34.7	8.1 3.8
51	roast ham turkey pot pie	293 79	78.8 21.2	62.9 48.7	29.0 39.7	8.0 11.5	68.6 34.2	26.1 45.8	5.1 18.3	0.3 1.6
59	fried lake perch pork ribs with sauerkraut	198 164	54.7 45.3	58.0 45.7	31.3 38.9	10.8 15.4	31.1 25.5	39.9 39.5	26.5 31.2	2.4 3.8
61	creamed chipped beef trio luncheon plate	192 170	53.0 47.0	49.2 46.4	33.3 32.1	17.5 21.4	26.9 21.2	37.6 48.7	33.1 23.9	2.4 6.2
64	hunter's dinner Boston baked beans	234 119	66.3 33.7	23.0 24.6	30.9 37.3	46.1 38.1	13.0 10.5	37.8 36.5	35.4 39.7	13.8 13.2
67	chicken fried steak scrambled egg	268 105	71.8 28.2	66.5 45.1	24.1 42.2	9.4 12.8	59.1 32.5	33.1 35.5	7.3 27.7	0.5 4.3

¹Entree choices were on preplanned menus, but were not actually served.

²Choice number is the item number on survey instrument.

³Respondents were asked to indicate which of the items they would select if offered the choice listed.

⁴% = $\frac{\text{no. responding A, B, or C}}{\text{no. who chose each item}}$.

⁵Respondents were asked to indicate preference for each entree; N = number selecting item 1 and item 2 for each pair of entrees.

APPENDIX M

Actual Selection Data for Luncheon Entrees

Students' actual entree selections from cafeteria serving lines at luncheon meals

choice no.1	date of service	selections	situa- tion ²	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
40	M 12/2	Weiners on Bun Chicken ala King on Toast Triangles No Entree Hamburger Line	1 1		423 133 1	95 54 --	194 47 7	387 128 15		1099 362 23 751	49.2 16.2 1.0 33.6
60	Tu 12/3	Pizza Corned Beef on Rye Pizzaburger No Entree Hamburger Line	1 1 3		494 110 32 3	114 27 1	140 22 2	492 151 52 9		1243 310 84 15 725	52.3 13.1 3.5 .6 30.5
32	W 12/4	Submarine Sandwich Chicken GIBLETS on Rice Pilaf Hamburger Kraut Bake Spanish Rice No Entree Hamburger Line	1 1 3 3		347 65 38 27 --	158 22 10 13 --	202 20 23 1 --	353 78 20 -- 5		1060 185 91 41 5 803	48.5 8.5 4.2 1.8 .2 36.8

¹Corresponds to number on research instrument for assessment of stated choices.

²Situation: 1 = planned entree, adequate amount throughout serving period
 2 = planned entree, inadequate amount for serving period
 3 = addition to planned menu

Students' actual entree selections from cafeteria serving lines at luncheon meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
30	Th 12/5	Creamed Chipped Beef on Baked Potato Grilled Cheese Sandwich No Entree Hamburger Line	1 1		104 426 7	25 133 --	46 176 4	110 448 11		1285 1183 22 962	37.2 34.3 .6 27.9
27	F 12/6	Beef, Tomato, Macaroni Casserole Hospitality Plate Spanish Rice No Entree Hamburger Line	1 1 3		431 75 20 0	85 18 --	134 45 1	380 155 18 7		1030 293 38 8 1117	41.4 11.7 1.3 .7 44.9
45	Sa 12/7	K-State Hamburger on Bun Texas Straw Hat Beef, Tomato, Macaroni Casserole No Entree Hamburger Line	1 1 3		353 151 4	144 74 1	245 115 8	384 173		1126 513 38 13	66.6 30.4 2.2 .8
57	M 12/9	Deep Sea Dandy Meat Salad, Cup of Soup, Roll No Entree Hamburger Line	1 1		40 44 3	197 23 3	169 18 1	457 80 4		863 165 11 1069	40.9 7.8 0.5 50.7
16	Tu 12/10	Tacos and Refried Beans Tuna Noodle Casserole No Entree Hamburger Line	1 1		476 112 --	119 39 2	124 39 --	409 138 6		1128 328 8 798	49.9 14.4 .4 35.3

Students' actual entree selections from cafeteria serving lines at luncheon meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
43	W 12/11	Corn Dogs Scalloped Chicken Beef Pot Pie No Entree Hamburger Line	1 1 3		414 88 72 2	86 48 24 2	113 38 16 2	423 91 97 3		1036 265 209 9 719	46.3 11.8 9.3 .4 32.2
53	F 12/13	Beef on Noodles Bacon, Lettuce and Tomato Sandwich No Entree Hamburger Line	1 1		224 378 --	51 45 3	189 452 20	26 114 6		490 989 29 629	22.9 46.3 1.4 29.4
49	Sa 12/14	College Joe Peach of a Dairy Salad Bowl BBQ Pork No Entree Hamburger Line	1 1 3		355 36 164 1	144 10 109 1	407 73 134 3	235 42 127 6		1141 161 534 11	61.8 8.7 28.9 .6
56	Tu 1/28	Barbequed Beef on a Bun Peach of a Dairy Plate No Entree Hamburger Line	1 1		542 29 --	191 16 --	489 49 7	222 25 4		1444 119 11 635	65.4 5.4 .5 28.7
52	W 1/29	Creole Spaghetti Beef Biscuit Roll, Jardiniere No Entree Hamburger Line	1 1		415 61 1	237 33 --	319 95 9	229 41 6		1200 230 16 723	55.3 10.6 .7 33.4

Students' actual entree selections from cafeteria serving lines at luncheon meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
63	Th 1/30	Grilled Hamburger Cheese Rarebit on Toast Cold Plate No Entree Hamburger Line	1 1 3		484 67 14 3	183 20 8 1	439 62 40 4	151 23 14 5		1257 172 76 13 300	69.1 9.5 4.2 .7 16.5
3	F 1/31	Bacon, Lettuce, Tomato Sandwich Pizza Pizzaburger Manicotti No Entree Hamburger Line	1 1 3 3		235 328 25 -- --	107 141 5 -- --	266 289 16 15 3	91 151 4 -- 4		699 909 50 15 7 589	30.8 40.0 2.2 .7 .3 26.0
17	Sa 2/1	Shrimp Louis Salad Bowl Chicken Cutlet on Bun Creole Spaghetti No Entree Hamburger Line	1 1 3		75 359 102 3	29 200 76 3	84 370 98 12	67 217 60 3		255 1146 336 21	14.5 65.2 19.1 1.2
13	M 2/3	Reuben Sandwich Western Omelet No Entree Hamburger Line	1 1		367 103 3	182 43 5	342 98 10	174 71 4		1065 315 22 801	48.3 14.3 1.0 36.4
19	Tu 2/4	Tacos Creamed Chipped Beef on Toast No Entree Hamburger Line	1 1		428 87 --	174 36 --	400 98 11	172 43 1		1174 264 12 681	54.5 12.5 0.6 32.4

Students' actual entree selections from cafeteria serving lines at luncheon meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
66	W 2/5	Chili and Crackers Salad Greens with Cottage Cheese and Fruit No Entree Hamburger Line	1 1		508 25 --	170 13 --	456 34 5	234 23 3		1368 95 8 531	68.3 4.7 0.5 26.5
1	Th 2/6	Wieners on Bun Turkey and Dumplings Macaroni and Cheese No Entree Hamburger Line	1 1 3		363 145 89 2	125 42 38	326 80 95 9	134 60 42 1		948 327 264 12 694	42.2 14.6 11.8 .5 30.9
23	F 2/7	Beef Noodle Casserole Pork Outlet on Dark Rye with Dill Pickle No Entree Hamburger Line	1 1		197 290 3	65 121 --	184 243 26	86 125 9		532 679 38 720	27.0 34.5 1.9 36.6
28	Sa 2/8	College Joe Cheese Balls on Pineapple Ring No Entree Hamburger Line	1 1		509 57 6	16 4 1	420 77 8	277 39 11		1222 177 26	85.8 12.4 1.8
7	M 2/10	Chicken Salad Sandwich Texas Straw Hat No Entree Hamburger Line	1 1		174 345 2	76 111 7	202 312 --	108 150 --		560 1479 9 812	19.6 51.7 0.3 28.4

Students' actual entree selections from cafeteria serving lines at luncheon meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
38	Tu 2/11	Beef French Dip with beef broth Spanish Rice No Entree Hamburger Line	1 1		412 134 2	181 28 0	498 101 5	178 44 1		1269 307 8 702	55.5 13.4 0.4 30.7
8	F 2/14	Beef Pot Pie Brighten a Blustery Day Plate No Entree Hamburger Line	1 1		435 62 4	135 22 --	457 107 30	147 28 7		1174 219 41 608	57.5 10.7 2.0 29.8
55	Sa 2/15	Southern Ham Shortcake on Corn Bread Egg Salad on Lettuce Leaf, Hard Roll Beef Biscuit Roll No Entree Hamburger Line	1 1 3		131 166 141 15	64 48 24 4	134 223 96 20	85 139 46 --		414 576 307 39	31.0 43.1 23.0 2.9
24	M 2/17	Spanish Noodles Thin Sliced Ham on Hoagie Bun No Entree Hamburger Line	1 1		208 306 2	54 143 2	128 325 7	81 120 3		471 894 14 714	22.5 42.7 .7 34.1
69	Tu 2/18	Hamburger on Bun Plum Delicious Plate No Entree Hamburger Line	1 1		513 43 3	143 17 --	578 54 10	154 14 9		1388 128 22 910	56.7 5.2 .9 37.2

Students' actual entree selections from cafeteria serving lines at luncheon meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
25	W 2/19	Beef Chop Suey on Rice K-State Salad Bowl No Entree Hamburger Line	1 1		327 118 1	144 57 0	354 168 13	125 69 2		950 412 16 1022	39.6 17.2 .7 42.5
47	Th 2/20	Pork Cutlet on Bun Corned Beef Hash No Entree Hamburger Line	1 1		532 70 8	136 13 1	393 57 18	155 35 3		1216 175 30 750	57.9 8.1 1.4 34.6
9	F 2/21	Salmon Patties in Parsley Cream Sauce Shepherd's Pie Chicken Sandwich Yogurt Fruit Plate No Entree Hamburger Line	1 1 3 3		156 141 155 -- 1	55 27 88 -- --	282 169 -- 44 12	129 68 -- -- 7		622 405 243 44 20 1011	26.5 17.3 10.4 1.9 .8 43.1
31	Sa 2/22	Foot Long Hot Dog Omelet with Mushroom Sauce Hamburger Kraut Casserole Hash Tuna Noodle Casserole No Entree Hamburger Line	1 1 3 3 3		366 106 21 -- -- 5	183 32 -- 11 -- 4	300 92 -- -- 63 7	222 66 -- -- -- 5		1071 296 21 11 63 21 30	70.8 19.6 1.4 .7 4.2 1.3 2.0

Students' actual entree selections from cafeteria serving lines at luncheon meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
35	M 2/24	Pizza Chicken ala King on Toast Triangles Salmon No Entree Hamburger Line	1 1 3		453 110 -- 1	170 30 -- 2	381 73 14 1	171 32 -- 4		1175 245 14 8 678	55.4 11.6 .7 .3 32.0
12	Tu 2/25	Six Layer Dinner Corned Beef on Rye Pizza Hamburger and Macaroni No Entree Hamburger Line	1 1 3 3		181 266 52 -- 1	66 71 24 -- 3	110 292 70 23 23	40 68 49 9		397 697 195 23 36 1161	15.8 27.8 7.8 0.9 1.4 46.3
27	F 2/28	Beef, Tomato, Macaroni Casserole Hospitality Plate No Entree Hamburger Line	1 1		356 124 4	134 39 1	361 189 10	118 72 4		969 424 19 786	44.1 19.3 .9 35.7
57	M 3/3	Deep Sea Dandy Meat Salad, Cup of Soup, Roll No Entree Hamburger Line	1 1		383 58 5	200 33 1	368 97 4	185 36 3		1036 224 13 1000	45.6 9.8 0.6 44.0
2	Th 3/6	Pizzaburger Peach of a Dairy Salad Bowl No Entree Hamburger Line	1 1		518 48 1	103 11 1	521 77 17	165 34 4		1307 170 23 647	60.9 7.9 1.1 30.1

APPENDIX N

Actual Selection Data for Dinner Entrees

Students' actual entree selections from cafeteria serving lines at dinner meals

choice no.1	date of service	selections	situa- tion ²	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
46	M 12/2	Beef Stew Deep Fat Fried Lake Perch with Lemon Wedge Cordon Bleu No Entree	1 1 3	213 175 18	215 185 14	158 121 13	185 183 --	156 224 --	61 69 --	988 957 45 13	49.3 47.8 2.2 .7
10	Tu 12/3	Swiss Steak with Gravy Cheeseburger No Entree	1 1	156 245	163 157	135 168	96 190	135 207	97 170	782 1137 20	40.3 58.6 1.1
44	M 12/9	Pork Loin Roast Beef Bird Ham No Entree	1 1 3	116 245 --	119 270 --	136 212 --	102 264 --	168 179 4	42 30 --	683 1200 4 13	36.0 63.1 .3 .6
4	W 12/11	Meat Loaf with Barbeque Sauce Sole Almondine Cat Fish Mushroom Steak Shrimp No Entree	1 1 3 3 3	252 -- 58 66 24	207 68 -- 65 --	154 64 -- 50 --	199 67 -- 39 --	213 -- 68 77 --	87 28 -- 41 --	1112 227 128 338 24 29	60.4 12.2 6.7 18.2 1.2 1.3

¹Corresponds to number on research instrument for assessment of stated choices; data recorded are for those menus included on the instrument.

²Situation: 1 = planned entree, adequate amount throughout serving period
2 = planned entree, inadequate amount for serving period
3 = addition to planned menu

Students' actual entree selections from cafeteria serving lines at dinner meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
29	Th 12/12	Baked, Breaded Pork Steak	2	100	166	123	77	39		505	34.6
		Beef Brisket	1	207	97	122	164	98		688	47.2
		B Bq. Meat Loaf	3	54	45	23	40	21		183	12.5
		Veal Cutlet	3	47	--	--	25	--		72	4.9
		Pork Chop	3	--	--	--	--	--		0	
		No Entree		1	--	--	6	4		11	.8
50	F 12/13	Fisherman's Platter	1		196	201	237	181		815	54.6
		Fried Rabbit	1		65	35	44	48		192	12.9
		Smothered Steak	3		119	140	--	--		259	17.3
		Brisket	3		--	--	112	95		207	13.9
		Pork Chops	3		--	--	12	--		12	.8
		No Entree			3	3	0	2		8	.5
6	W 1/29	Country Fried Chicken	1	296	209	228	286	236	218	1473	71.2
		Salisbury Steak	1	108	125	82	106	70	84	575	27.7
		Mushroom Steak	3	--	--	--	--	--	16	16	.1
		No Entree		--	1	--	--	3	2	6	
33	Sa 2/1	Grilled Steak	1		315	147	240	186		888	85.1
		Cold Sliced Meat Loaf and Turkey on Lettuce with Stuffed Olives	1		70	18	35	14		127	12.2
		No Entree			9	2	18			29	2.7
68	M 2/3	Red Snapper with Tartar Sauce	1	111	126	84	106	99	120	646	30.3
		Ham and Beans	1	119	114	118	111	116	69	747	35.0
		Baked Steak	3	105	36	37	47	75	40	340	15.9
		B Bq Pork Cutlet	3	15	43	40	20	18	13	149	7.0
		Meat Loaf	3	24	7	3	24	25	25	180	8.4
		No Entree		4	19	19	12	4	12	70	3.3

Students' actual entree selections from cafeteria serving lines at dinner meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
54	W 2/5	Baked Pork Chop Hamburger Stroganoff No Entree	1 1	227 161 5	243 196 --	124 102 1	279 192 3	229 128 2		1102 779 11	58.2 41.2 .6
18	F 2/7	Baked Chicken Snowdrift Squares Barbequed Chicken Deep Fried Chicken No Entree	1 1 3 3		213 53 21 -- 14	248 61 -- -- 1	186 22 57 26 2	170 40 111 25 12		817 176 189 51 29	64.74 13.95 14.98 4.04 2.30
15	Sa 2/8	Poached Halibut Swedish Meat Balls Whiting B Bq Pork Chops Fried Chicken No Entree	1 1 3 3 3		58 182 45 98 16 1	65 159 -- 97 11 1	52 171 19 56 -- 7	35 165 29 63 -- 6		210 677 93 314 27 15	15.72 50.67 6.96 23.50 2.02 1.12
22	M 2/10	Beef Birds with Gravy Yogurt Fruit Plate Teriyaki Hamburger St. No Entree	1 1 3	124 17 256 1	135 27 198 --	109 26 233 --	86 32 221 --	65 46 274 1	28 20 105 --	547 168 1287 2	27.30 8.38 64.22 .10
42	W 2/12	Fried Rabbit with Cream Gravy Baked Catfish with Tartar Sauce Meat Loaf Perch No Entree	1 2 3 3	42 68 223 4	50 76 224 45 4	41 51 155 3 3	55 106 284 9 9	31 88 180 8 8		219 389 1066 45 28	12.54 22.27 61.02 2.58 1.60

Students' actual entree selections from cafeteria serving lines at dinner meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
11	M 2/24	Beef Stew	1	96	99	59	70	116	93	533	27
		Salisbury Steak with Gravy	2	225	249	237	209	214	135	1269	64
		Hamburger Steak	3	13	33	--	57	58	--	161	8
		No Entree		6	2	1	6	1	--	16	1
67	Tu 2/25	Chicken Fried Steak with Cream Gravy	1	301	311	235	254	228	136	1465	74
		Scrambled Egg with Cheese and Mushrooms	1	87	80	65	107	101	55	495	25
		No Entree		3	0	0	3	3	3	12	1
37	W 2/26	Baked Pork Chop	1	209	176	95	78	128	71	757	42
		Chili with Oyster Crackers	1	98	129	99	160	169	119	774	43
		Smothered Steak	3	72	42	40	42	42	33	271	15
		No Entree		1	1	2	2	4	4	14	1
58	Th 2/27	Roast Turkey	1	335	300	254	261	236	243	1629	84
		Ham and Beans	1	77	33	25	54	52	44	285	15
		No Entree	3	3	--	--	3	1	2	9	--
62	F 2/28	Fisherman's Plate	1		338	214	315	228		1095	73.4
		Veal Cordon Bleu	1		83	86	77	71		317	21.2
		Whiting	3		31	18	14	12		75	5.0
		No Entree			1	--	1	3		5	.3
39	M 3/3	Ground Beef Steak	1	311	225	183	290	249	185	1443	73.1
		Turkey Pot Pie	1	84	78	84	96	83	69	494	25.0
		Baked Chicken Cornflake	3	24	--	--	--	--	--	24	1.2
		No Entree		3	--	3	2	2	3	13	.7

Students' actual entree selections from cafeteria serving lines at dinner meals (cont.)

choice no.	date of service	selections	situa- tion	portions served at each line						total portions served of each entree	% of total portions served
				B	C	D	E	F	G		
26	W 3/5	Baked Sole Almondine	1	49	49	31	47	57	20	253	14.2
		Meat Loaf with Mushroom Gravy	1	260	305	240	293	252	70	1509	84.8
		No Entree		6	--	2	3	6	--	17	1.0
34	Th 3/6	Roast Loin of Pork	1	200	125	110	148	159		742	43.6
		Chicken Crepes with Curry Sauce	1	92	156	111	169	132		660	38.8
		Meat Loaf	3	35	29	46	39	22		171	10.1
		B-B-Que Steak	3	36	34	--	17	31		118	6.9
		No Entree		1	--	3	2	4		10	.6

COLLEGE STUDENTS STATED ENTREE DECISIONS
AS A FORECASTING TOOL

by

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B.S., Kansas State University, 1972

AN ABSTRACT OF A MASTER'S THESIS

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ABSTRACT

The need for accurate forecasting techniques has become more important because of rising food costs. Reliable prediction of consumer demand is a major factor in control of the food production subsystem, and ultimately, food costs. The purpose of this research was to assess the reliability of food preference for forecasting students' actual choices from a selective menu and to study menu item decisions of university students.

The research focused on a comparison of entree selections from a residence hall cafeteria line and students' stated choices on a research instrument listing entree selections that were included on these menus. Actual data concerning students' entree item choices were collected by tabulating the number of portions of each entree served over an eight-week period. Data were compared with results of a survey including 448 randomly selected residence hall dwellers. The survey instrument consisted of a listing of sixty-nine pairs of pre-planned entree choices derived from eight weeks of lunch and dinner residence hall menus corresponding to the time period when actual choice data were collected. Students were asked to complete the instrument by indicating which item they would select from each pair of entrees, their degree of certainty about the choice and their degree of like or dislike for each entree item. Eighty-four per cent of the questionnaires were returned (N=376).

Preference findings indicated that items in the steak or cutlet; pork chop and ham; fried and roasted poultry; hamburger sandwich; hot and cold sandwiches; and Italian and Mexican ethnic dishes were preferred more than were ground meat items; specialty poultry items; fried and baked fish; salad plates; casseroles, creamed and extended main dishes; and other entrees

(mainly non-meat). Items liked by at least 66 per cent of the respondents were steak items, sandwiches, and Mexican or Italian items. Items disliked by 33 per cent or more of the respondents included non-meat items, salad plates, and ambiguously named items. Many of the same foods were included in the disliked and unfamiliar categories.

Mean certainty scores reflected greater uncertainty for items selected by smaller percentages of the students. Similar mean certainty scores for individual entrees were obtained when two preferred items were presented together and when two items were unfamiliar to a large number of respondents. Comparison of mean certainty scores with preference data indicated that students were more certain in selecting highly preferred or less known items.

As would be expected, preference scores were more favorable for items selected by the majority of students. In choices where a well liked item was paired with a lesser liked item students often were more certain of their choice than when it was paired with an item having a similar preference. Certain categories of items tended to be selected more often when paired with other categories. Students usually picked the item in the more preferred category.

Comparison of actual and stated selection data indicated that in the majority of cases the item chosen by the greatest percentage of students on the research instrument also was selected more often from the cafeteria lines. Although stated selections often gave an indication of the more popular of the two choices they did not provide accurate statistical data for predictions. Students tended to be more uncertain in choices where there was a larger disparity between actual and stated choices.