THE EFFECTIVENESS OF THE OKLAHOMA RESTAURANT ASSOCIATION'S SANITATION TRAINING PROGRAM

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CHAPTER I

INTRODUCTION

In discussing the meaning of sanitation the National Sanitation Foundation states that:

> Sanitation is a way of life. It is the quality of living that is expressed in the clean home, the clean farm, the clean business and industry, the clean neighborhood, the clean community. Being a way of life it must come from within the people; it is nourished within the people by knowledge and grows as an obligation and an ideal in human relations (1, p. 4).

For all who are in the food service industry, from managers to workers, sanitation can become a way of life through understanding and knowledge. Everyone needs to become aware of the dangerous consequences that lack of sanitation creates and everyone needs to become involved in sanitation training to lessen this danger.

Significance of Study

Food poisoning strikes several million people in the United States each year. Many of these occurrences of food poisoning can be traced to the mishandling of food in quantity food service operations (1).

West, Wood and Harger (1) state that Americans eat an estimated 25 percent of their food outside the home. The responsibility of these meals is left to an ever expanding food service industry. Preparing and serving clean, wholesome food to the public is a very important part of the food service industry. It is a responsibility and obligation that

can only be fulfilled if everyone in the food service establishment understands what sanitation is and practices good sanitation in any task performed.

According to the Oklahoma Restaurant Association's Midsouthwest Restaurant Journal (3), the qualifications of management and employees in the area of sanitation knowledge has become the number one issue in many areas of the country today. The news media has had much to do and say about the lack of food service personnel's use of knowledge in the area of food sanitation to protect the public.

Informal and formal sanitation training programs are being conducted for employees and managers to become more aware of the importance of sanitation and health standards. With the expansion of food service industries and the rising cost of labor, it appears that the efficiency of sanitation programs should be assessed. One hopeful element of emphasizing the effectiveness of a sanitation training program is the process of evaluation. Evaluation is the key to an on-going program and may result in disclosures of great importance. For example, evaluation may be a way to strengthen continuous efficiency. Such a continuity may give the employees a lasting awareness that the sanitation program of a food service is a "live" one and is a part of the overall objectives of the organization (4).

Purpose of Study

The purpose of this study was to investigate the effectiveness of the Oklahoma Restaurant Association's Certification Training Program in food sanitation. This training program was given to Oklahoma State University food service employees during the school year 1974-75 as a

part of their annual in-service training.

Objectives of the Study

The first objective of this study was to learn what is known about observing on-the-job performance. The second objective was to evaluate the effectiveness of the Oklahoma Restaurant Association's Certification Training Program in sanitation which was given to food service workers at Oklahoma State University. The third objective was to make recommendations for the future of the Oklahoma Restaurant Association's Certification Training Program.

Delimitations

The food service employees participating in this study from Oklahoma State University were in four selected areas: range, salad, line service and sanitation. A panel of observers were selected by the researcher of this study for the purpose of evaluating the effectiveness of the Certification Training Program on the selected sample of food service employees to prevent biasness.

Definition of Terms

Evaluation: interpreting value standards and the results of measurement in the light of a particular situation and goals which a group is striving to attain (5).

Observation: a combination of the ability to see what is looked at accurately and the possession of the memory to recall what has been observed (6).

Effectiveness: the result or outcome of knowledge gained and

actual on-the-job performance improvement after completing a formal training program. The effectiveness of the sanitation training program discussed here will be measured on a scale ranging from excellent to poor with not applicable being used when necessary.

Certification Training Program: a formal sanitation training program copyrighted by the Oklahoma Restaurant Association. The training program consists of a series of five lessions, filmstrips, quizzes, and a 60-day period of on-the-job performance evaluation.

CHAPTER II

REVIEW OF LITERATURE

Primary Sources of Contaminants

The primary sources of food contaminants important to public health are man, animals, sewage, soil, water, air, and the food supply; while secondary sources are equipment, utensils, and the food service premises themselves (1). For the purpose of this study man, the foodhandler, is the primary contaminant of food with secondary sources being equipment, utensils, and the food service premises.

Willingness to learn about food sanitation in the food service establishment becomes a very important prerequisite for any effective sanitation program (7). A healthy person carries microorganisms on and in his body. These microbes, when allowed to multiply, contaminate food and may cause serious foodborne illnesses in persons who consume contaminated food. The health, work habits, and personal hygiene of employees are, therefore, a major source of unsanitary conditions and food poisoning in public eating establishments (2). Good health reduces the chances of spreading disease bacteria and also reduces the chance for the foodhandler to be a carrier of disease pathogens.

According to Eshback (8), bacterial food poisoning can come from food infection or food intoxication. An infection can cause an illness resulting from eating or drinking food which contains harmful bacteria.

An intoxication is a result of eating or drinking food in which bacteria have grown previously and have developed a toxin or poison. Incidences of food poisoning found in food service establishments are caused primarily be three kinds of bacteria. These bacteria are Staphylococcus, Salmonella, and Streptococcus. Salmonella and Streptococcus bacteria produce a food infection, while Staphylococcus bacteria produces a toxin or poison in food which cannot be destroyed by cooking. Eshback (8) explains the flow of these types of bacteria from man to food (Figure 1).

Most outbreaks of food poisoning found in food service establishments are caused by Staphylococcus bacteria which can be found in precooked or unheated foods. Prime examples are: custards, cream-filled pastries, cream pies, salads, fish, meat products, sandwiches and creamed dishes. Poultry and poultry products, especially poultry dressings and chicken or turkey salads, are excellent growing places for this type of toxin producing bacteria. Salmonella, in contrast to Staphylococcus bacteria, causes a food infection type of poisoning when the bacteria are consumed in food. Food can become contaminated with Salmonella bacteria from infected animals, or by coming in contact with rodents or humans who are infested with bacteria. Such bacteria may contaminate low acid foods which have been lightly cooked and have been handled a great deal. Examples are: meat, poultry, casserole dishes, fish, eggs, egg dishes, prepared meat dishes, and custard-filled bakery products (8). Streptococcus bacteria are much like Salmonella, in that an infection type of food poisoning may be produced. Outbreaks of Streptococcus food poisoning generally have been traced back to such foods as: poultry dressings, sausages, beef croquettes, coconut cream

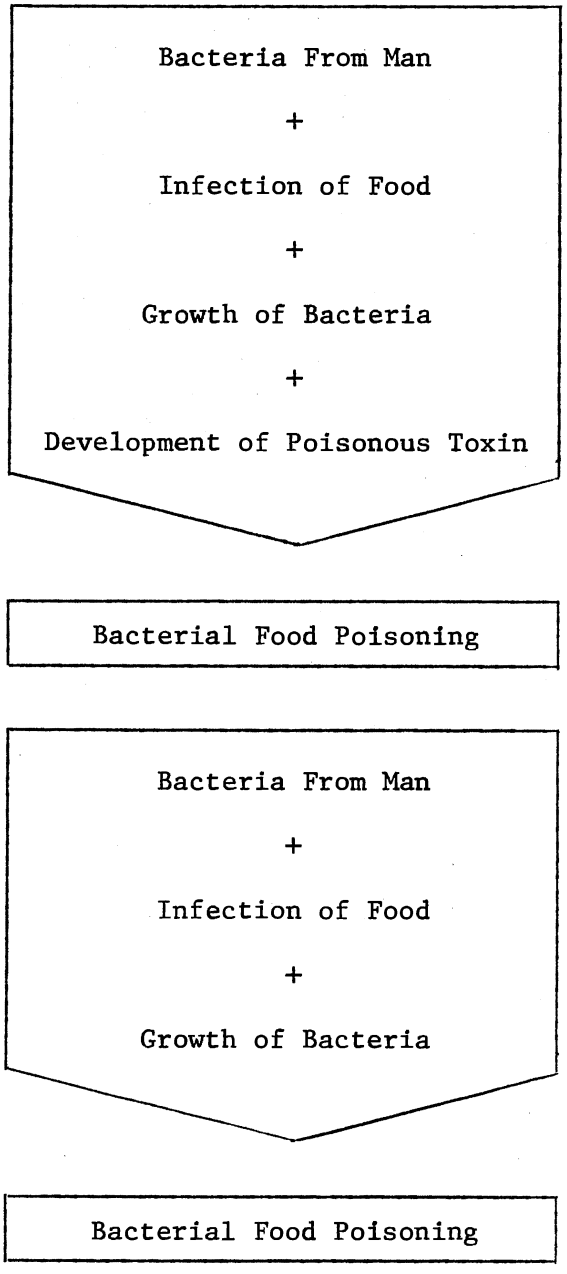

Figure 1. Flow of Bacteria from Man to Food

or other cream pies, and cheese.

The Importance of Training

Training is defined by Proctor and Thorton (9) as the purposeful act of providing means for learning to take place. In line with this definition training can be viewed as a continuous process with definable strengths and limitations; therefore, training does not terminate, it merely redirects learning. Training in a food service establishment can result in improved skills, attitudes, and greater knowledge. Training should, therefore, bring about specific tangible results. These results include: (1) increased employee satisfaction, (2) less waste and spoilage, (3) lower absenteeism and turnover, (4) improved methods and systems, (5) increased level of output, (6) less supervisory burden, (7) lower overtime costs, (8) lower machinery maintenance costs, (9) fewer grievances, (10) lower personal injury rates, (11) better communications, (12) greater employee versatility, (13) improved morale, and (14) greater cooperation.

DePhillips and associates (10) define training as that process which seeks in a planned, coordinated and continuous manner to develop in all employees those understandings, skills, and attitudes which will maximize the individual's present and future efficiency. They state that training is based on the premise that persons are more alike than different. Individual differences--physical, mental, and social--must be studied by the trainer in order to attain goals and levels of aspirations. The trainer should spend time in discovering the trainee's levels of expectations and objectives. A successful trainer should get the "feel" of the group he works with. The trainer must adapt his

methodology to the experiences of the group.

Goals of training programs have historically emanated from the organization and have until recently been concerned only with meeting organizational needs--primarily immediate needs. Today, however, the organization is an entirely different environment. The individual and societal goals have become as important as the former organizational goals. Employees are becoming more aware of the benefits of training programs and they are realizing that participation in training can increase job security, opportunity for advancement, status, prestige, and personal satisfaction.

Self-Motivation and Learning

Self-motivation is also an important aspect of the learning and training process. DePhillips and associates (10) define a motive as anything that induces the trainee to learn, and has the capacity to arouse and sustain activity. Motivation has a threefold purpose: to arouse interest, to stimulate a desire to learn, and to direct the aroused interest and effort toward the attainment of a training goal. Without proper motivation and favorable attitudes, the trainee can do little to acquire the knowledge put before him. The trainer, therefore, must create self-motivation in the employees and create the enthusiasm necessary to make a training program successful.

Another self-development which is of importance is learning. Learning is defined by DePhillips and associates (10) as the mental activity by means of which skills, habits, ideas, attitudes, and ideals are acquired, retained and utilized. This can result in the progressive adaptation and modification of behavior. It involves the development of

an individual's capacities, the actualization of his potentialities, and the reorganization of his experience in the direction of what is wiser and better.

Education and Training

Longree (1) states that industrial training is the art of helping an employee acquire desirable habits necessary for the performance of his job. Habits result from practice or repetitive actions; therefore, habits result from the practice of correct procedures.

Due to high turnover rates among food service employees, the number of employees to be trained is staggering. The amount of formal education plays an important role in training food service employees. Many employees come from lower socio-economic backgrounds and require special attention in training (7).

According to Longree (7), teaching sanitation to unskilled employees can be a difficult task and one which can lead to great frustration for the instructor. However, there are several advantages for conducting a sanitation training program which can benefit the employee and the manager. For the manager these advantages can be: (1) reduced chance for foodborne illness, (2) reduced labor turnover, (3) reduced supervision of employees, (4) improved working standards, (5) increased production, and (6) a larger supply of skilled employees is created not only for that particular food service but for the food service industry as a whole (7). For the employees there are also certain advantages in addition to manager advantages one through four. Among these are: (1) job satisfaction, (2) chance for advancement, and (3) a greater sense

of security which follows recognition, advancement and job satisfaction (7).

Developing a Sanitation Program

Longree (1) states that people can make or break a sanitation training program. Sanitation-conscious workers are developed by providing good leadership, the proper tools to complete the job, and continuous training and follow-up in order to develop safe food handling habits. Supervision and follow-up must be exercised daily if the food service employee is to believe that sanitation is important.

To develop a successful sanitation training program, management needs to evaluate the sanitation practices in use. Along with this evaluation the teaching ability and work habits of the potential trainer should be evaluated. The trainer is very important, as he teaches the worker to do the job in the same order in which he, the instructor, performs the job. This may not be the best sequence for the beginner, for the trainer may confuse rather than teach the worker.

Before beginning any new training program, the trainer must develop a training plan and schedule. The training plan answers the question of the four-step method of training. This method consists of who is to be trained, what is to be taught, where the training will be done, and when the training will begin. Once the training plan has been determined, a job breakdown of the activity should be written. Such a job breakdown can serve as a teaching tool during the period of instruction, as a reference point for the student during his practice session, and as an evaluation tool in checking results.

Effectiveness of a Sanitation Program

No amount of formal sanitation training can be effective if the workers do not have a cooperative attitude toward practicing good sanitation. The food service employee must first learn about sanitation. He must understand what sanitation is, what lack of good sanitation does, and what good sanitation can do. The food service employee must understand he plays an important part in the practice of sanitation. When applying what he has learned, the employee must become convinced of the fact that his supervisor sees and appreciates his practice of good sanitation (12).

Longree (7) states that for a sanitation training program to be effective, it should involve everyone from top management down to each employee in the establishment. Top management and professional food service personnel must be convinced of the importance of a sanitation training program and be interested in maintaining high sanitary standards in their food service operation. Thus, training in sanitation will be incorporated into the total training program for the employees (13). Once management can see the importance of a sanitation program, a self-evaluation of management should be made. This self-evaluation is a very important step in developing an effective training program. Self-evaluation programs may be set up at both municipal and state levels and are self-inspection programs to help managers better understand sanitary techniques in food service. In order to train food service employees, management should be qualified to train in sanitation.

Several cities, including New York City, now have a city law

requiring a course in food sanitation for supervisors or persons in charge of food preparation (7). This law requires proof that persons in charge of food preparation have successfully completed a course in sanitation. The law was developed through the action of the Board of Health in New York City (7). Other cities are also beginning to put more emphasis on sanitation in food service operations. In Wichita, Kansas, a grading system has been set up to motivate food service operators to upgrade their sanitary techniques. This system was set up after the media exposed deplorable sanitation conditions in several of the city's restaurants (14).

The National Observer (14) stated that in Chicago an educational television station's series on dirty restaurants helped in writing new sanitation health codes. These new codes, as well as methods used in upgrading the sanitary conditions in restaurants, emphasize the first step in training food service employees, which is selling the importance of a training program to management. Management must be motivated and must be able to anticipate the effects which training employees in sanitation could have on a food service operation.

Management must keep informed of new trends related to sanitation in food service. They must keep up to date on food microbiology and epidemiology as they relate to food service. Advances are continuously being made in the causes of foodborne illnesses previously classified as unknown (7).

To keep up with the current developments in sanitation in relation to the food service industry is not an easy task for management. Fortunately, the health authorities are interested in upgrading public food service operations and are eager to help in any way they can.

Setting up training programs for food service employees is one way health authorities can assist.

Longree (7) emphasizes the following steps which management should take to develop an effective sanitation program:

1. know the fundamentals of sanitary practices acceptable to the health authority,
2. supply the new employee with background information which will enable him to understand the concept of sanitation,
3. teach the employee the techniques of sanitary food handling--this instruction should start the day the employee begins work,
4. supply proper and adequate equipment, tools, and supplies,
5. supply supervision on the job,
6. supply refresher sessions in sanitation, and
7. give recognition to the employee for information well learned and techniques well performed.

Follow-Up

A follow-up study must be made to make any training program effective. The primary objective of such a program is to collect detailed information pertaining to the quality of the job performance after the training program and the use of the knowledge gained from the program (15).

Tracey (15) indicates that data collected by means of a follow-up program should be used to:

1. validate the system,
2. add to, substitute, delete, or modify the training program's objectives,

3. make appropriate changes in the program's contents, and

4. adapt a system to remedy deficiencies uncovered.

Follow-up programs can, therefore, be important to not only the trainer but to the trainee himself to aid in working toward higher goals and objectives (15).

According to Richardson (16), sanitation follow-up meetings will keep alive and further stimulate employee interest in the formal sanitation program. Materials and information already covered in sanitation training should be reviewed and new topics introduced so as to broaden the employee's scope in the area of food sanitation.

The Need for Evaluation

In recent years in-service training and development programs have grown rapidly. Top management is beginning to demand that such programs show measurable returns in their organizations (10).

Evaluation is important to training activities as a means of determining where the activity is at any given moment and of providing a baseline for measuring progress. In simplifed terms, evaluation can determine whether the time, energy, and money expended in planning and conducting training programs is producing results sufficient to justify the investment. Evaluation is, therefore, a means of testing the training programs to see if the needs of both the organization and the employees are being met (17).

A significant need for evaluation can be found in the stimulus it provides. Few incentives do more to sustain interest and program growth than pinpointing where and how a program is producing the intended results. Such evidence is necessary for motivating those involved in

the training. Evaluation can help the educator feel more secure about decisions and it can also prevent the tendency to draw conclusions on minor evidence (18).

Lack of interest in evaluation is a result of two factors: (1) the structure of training and development programs and (2) the absence of a suitable conceptual framework and adequate instruments for meaningful evaluation (17).

Several reasons for this lack of evaluation of training as presented by Ackerman (11) and Thisdell (19) include: (1) acceptance of the program based on face validity, (2) failure to realize the importance of further evaluation, and (3) fear of the results of the evaluation. However, since any training activity is established to help achieve the goals of the organization, it should be a standard part of the operation to evaluate how well the program has achieved its intended goals (20).

The Concept of Evaluation

Mager (21) states that the first step in evaluation is to decide upon the goals that are to be reached by the end of the program. From this, the procedure, content, and methods that are relevant to the objectives can be selected. An evaluation can then be conducted and the objectives or goals originally selected can be achieved.

Gifft *et al.* (18) in planning for evaluation, state that some form of appraisal is essential in establishing an educational effort. They go on to discuss the concept of evaluation as applying the appraisal process, in a systematic and conscious manner, "to improve the program as it goes along or to measure its ultimate results" (18, p. 313). Any educational effort should include periodic appraisal of its "quality,

suitability, effectiveness, and efficiency with the complexity of the appraisal process adjusted to the need and the practical limitations" (18, p. 314).

According to DePhillips et al. (10, p. 25), "evaluation implies that consideration has been given to certain value standards" and that the end results of measurement have been interpreted in view of the particular situation and the goals which the individual is striving to attain.

Tracey (15) views evaluation as a fundamental task of the educator. It is one of four tasks which should include: (1) determining the objectives which the training program should seek to attain, (2) selecting learning experiences which will help to bring about the attainment of the objectives, (3) organizing the learning experiences so as to provide continuity and sequence for the standards and to help employees remember what might otherwise appear as unrelated experiences, and (4) determining the degree to which the objectives are being attained.

The above tasks of evaluation assume that education is a process for changing behavior patterns of human beings. Katz (22) indicates that if a person is going to change his job behavior, five essential requirements must be met. These requirements include: the employee "wanting to improve, recognizing his own weaknesses, working in a permissive climate, having help from someone who is interested, and having an opportunity to try out his new ideas" (22, pp. 71-72). This is the main reason why the whole program and the concept of training must begin at the top management levels. Top management must support and help the employee in changing his job behavior.

Process of Evaluation

A very important step in an evaluation process is to determine the "specific aspects" of the training program to be evaluated (15). From these "specific aspects", evaluation methods and instruments used in collecting the data can be selected.

Evaluation is one type of problem solving. As such, it involves the same general steps that are followed in other types of problem solving (17). Tracey (17, p. 15) states that "problem solving begins with a felt need, deficiency or inadequacy." This leads to a listing of facts and assumptions that bear on the problem. Supplementary data and evidence can then be compiled and evaluated; alternate solutions can be identified; and criteria for acceptance or rejection can be designed and applied. Finally, "a decision is made and the solution is implemented, tested, and followed up" (17, p. 16).

In evaluation, problem solving steps are followed. First, the need for evaluation is recognized, the areas to be evaluated are defined, and the methods and instruments to be used in the evaluation are selected and developed. Evaluators are then chosen and trained in the procedures and use of the instruments. Once the data are collected and analyzed, conclusions can be drawn and alternate courses can be identified. Finally, the course of action is subjected to trial and the results are checked (17).

In any evaluation method three practical considerations should also be remembered. These considerations, as presented by Wray (23, pp. 150-151), should be:

> (1) Feasibility. The information must be possible to gather without undue imposition on program participants . . .

(2) Simplicity. The questions should require unusual competence.
(3) Understandableness. Questions should be clearly stated so misinterpretation is unlikely. Further, no evaluation system should be imposed without all data gathering participants having full knowledge of what is being collected and how the data will be used.

Evaluation Procedure

Kirpatrick (24) suggests that good evaluation procedures should consider four outcomes of training. These outcomes include reaction, learning, behavior, and results.

In measuring reaction, the evaluators should measure the trainee's feelings about the training program. Next, the evaluator should be concerned with measuring what the trainee has actually learned. Kirpatrick (24) defines learning in this instance as those facts, principles and techniques that the trainee absorbs and understands. The next outcome is the measurement of behavioral changes of the on-the-job behavior. This step is very important in evaluation because a great disparity often exists between what is learned and what is applied on the job. The last outcome Kirpatrick suggests involves the result of the evaluation. The end result is important to the trainer as well as the trainee in deciding the next step in the training process.

Methods of Evaluation

Training and development programs can and should be evaluated from two different but "complementary" perspectives (15). Tracey (17) defines these as the application of external and internal criteria.

"External criteria are used to measure the results of training programs . . ." when the employee returns to the job, according to

Tracey (17, p. 19). Further external criteria include evaluation methods through the use of reports, observations, questionnaires, work samples, and statistics. By applying external criteria the evaluator can determine the degree to which the training program is meeting the goals of the organization (17).

Methods of evaluation through the use of external criteria may also take different forms. Some of the forms Tracey (17, pp. 22-23) includes are:

> . . . comparison of the training program with other institutions, comparison with a hypothetical concept of a quality program, measuring behavioral change, participant reactions, and experimental research.

Experimental research, as applied in internal evaluation, takes the form of logical, reflective, and systematic investigation to find the solution to a specific problem.

Tracey (15) discusses evaluative instruments as being used to obtain results of the effectiveness of the training program. These evaluations can be used to serve three different purposes: (1) system validation, (2) system modification, and (3) system quality control (17).

In system validation, the quality of any training program will depend upon the competence of the trainer. Evaluation instruments are used to determine whether the components of the training program are working as intended and to make sure these components are working to produce the intended goals. In terms of systems and modification, Tracey (15) continues, results of the analyses are derived from the administration of the evaluative instruments used to make needed changes to improve the effectiveness of the total training program.

In discussing system quality control, Tracey (15) views the evaluative instruments as being administered at critical points in the operating system. Evaluative instruments, as seen here, are administered following "validation and implementation" to insure the program continues to operate as it originally did (15). Quality control, therefore, is used to prevent any breakdown of the program that might occur.

In measuring the effectiveness of any evaluation system, a judgment must be made. According to Tracey (15, p. 108), judgment involves the "correlation, collection, and interpretation of facts and impressions to arrive at an estimate or opinion about a trait, object, or situation." These rating systems are designed to be used in evaluating effectiveness where tests cannot be designed. Since ratings are necessary, every effort must be made to make the rating as objective as possible. Rating systems are the most widely used method of evaluating behavioral data. A rating represents an estimate of the degree to which a particular characteristic is manifest.

Ratings can be formal or informal, depending on the use of the data. A rating scale is generally presumed to represent a continuum from complete absence to complete presence of a given trait. Rating scales seem relatively simple to construct and fill out, requiring only the naming of traits to be rated and placing a check mark to represent one's estimate of the observed traits. When ratings are used for scientific purposes, however, validity is often highly questionable. Frequently ratings will reflect more about the subjective state of the rater rather than the true nature of the rates. Trait ambiguity can be reduced by providing illustrative "operational descriptions which distinguish between the specific kinds of behavior included and excluded from the

meaning of particular characteristics" (15, p. 108).

Another method of evaluation is observation. Observation, as Tracey (15, p. 343) defines it "is a method of determining the overt behavior of people as they act, interact, and express themselves in a situation selected to typify normal conditions." Observation is the most direct method for the purpose of studying trainees and the conditions that surround learning. Tracey (15, p. 343) discusses specific characteristics of an observation:

> (1) It is specific. Observation is not just looking around or seeking general impressions. To be useful, there must be carefully defined things to look for.
> (2) It is systematic. Observation is not just dropping in on a training situation. The timing of observations, the length of the periods, and the number of observations must be carefully planned and scheduled.
> (3) It is quantitative. Insofar as is possible, measurable characteristics are the object of study in observation used for evaluation.
> (4) It is recorded. A record is made of observation either during or immediately following the visit to the classroom or training area . . .
> (5) It is expert. Observation is conducted by fully qualified personnel who have been especially trained for the task.

Amiss and Sutton (6) imply that knowledge is gained through observation. Their definition of observation further implies that observation is a combination of the ability to see what is looked at accurately and the possession of the memory to recall what has been observed. All observation requires some degree of concentration. Items possessing distinctive characteristics may be observed at a glance; however, good observation must be accurate and free from error. Accuracy of observation is required because it is the foundation of dependability. Lack of reliable information or inaccurate observations is likely to show up in mistaken beliefs and opinions. Accurate thinking is based on facts

rather than emotions.

Wilks (25) discusses a procedure known as random observation. In this method of observation, preliminary work is outlined to determine the elemental breakdown of the job and to select random numbers (determining the times of the observations). When the required number of observations are taken, the results are tabulated.

Schwetter and Davis (25) have also suggested obtaining observation times by developing a series of random times from tables of random numbers. The random times selected designate when observations are to be made and eliminate the possibility of bias on the part of the observer in selecting the observation times. These selected numbers are then converted to time values by ignoring any digits in a table of random numbers from 60 to 99 using only digits from 00 to 59. For example, if the numbers were 03 or 45, these would be assigned to the hour of the work day as 6:03 or 7:45, respectively. This procedure is continued by assigning each hour of the work day with a random number.

Validity and Reliability

Gifft et al. (18, p. 316) discuss reliability and validity as "measurements determining the soundness of a system from a theoretical point of view." Suchman (27, p. 116) goes on to define reliability as the degree to which a "measure can be depended upon to produce consistent results when used repeatedly."

All measurements have some sources of error. The important test is how much error can be tolerated in an evaluative instrument without invalidating the results. Suchman (27) defines validity as the degree of dependability the resulting data measures. For example, Suchman (27,

p. 316) states that "any valid measure is reliable but a reliable instrument is not necessarily valid." In testing reliability and validity the findings must be designed to give immediate feedback to program personnel and participants. This requires putting priority on the purpose of improving the program (18).

CHAPTER III

PROCEDURE

Review of Literature

A review of literature was done in the area of education and training in the food service industry. Literature was also reviewed in the areas of sanitation, developing sanitation training programs, evaluation and observation.

Observation

An observation tool of four parts was devised to be used to measure the effectiveness of the Oklahoma Restaurant Association's Sanitation Training Program (Appendix A). A panel of observers was chosen by the researcher to observe the selected sample. This panel was selected and those observations done by each panel observer were chosen randomly to avoid any biasness. The panel of observers noted the following items related to sanitation: personal hygiene; sanitary techniques in preparing, storing and handling food; proper cleaning procedures for equipment and utensils; and proper dishwashing temperatures. The observation tools included items which had been covered in the five sanitation lesson films.

Observation Training

The observation statements below were taken from the four observation sheets to give further information to the panel of observers about items to be observed. Each statement is followed by a further explanation of the terms used in the observation sheets.

General Observation Statements

1. Wears a cap or hairnet to restrain hair while on duty. Hair should not be in the face or eyes and should be covered by a hairnet or cap. If hair is long it should be under a hairnet or cap both for males and females.

2. Follows proper sanitary standards while on duty with regard to wearing jewelry, smoking, and drinking. In the Oklahoma Restaurant Association's Sanitation Training Program, employees are taught not to wear an excess of jewelry. This excess pertains to large dangling earrings and all other jewelry such as rings, necklaces, bracelets, etc., except wedding bands or wedding ring sets and a watch.

3. Washes hands frequently while on duty to keep from contaminating the food. Hands should be washed after handling any food or other item before preparing or serving food (1).

4. Refrains from eating any food or from putting the fingers in the mouth while preparing or serving the food. Hands and fingers should be kept out of food. Food should not be tasted on the serving lines unless authorized by a supervisor and tasted with a clean tasting spoon. Employees should use clean spoons before tasting any foods in the kitchen and should not use cooking utensils to taste the food. Food

should never be tasted from the fingers (1).

5. Refrains from handling food unless absolutely necessary while preparing or serving the food items. Employees should use tongs, spoons, forks, etc., for handling or serving food. Plastic disposable gloves may be used in preparing or serving food (1).

6. Preparation areas should be clean and neat. Preparation areas should be generally clean even during preparation times when counters may be filled with preparation items. Please keep in mind here that prepearation areas will be messy during peak periods of production, however, areas should not have "old" dirt.

Salad Production Observation Statements

1. Keeps perishable foods under proper refrigeration except during actual preparation and serving. Proper refrigeration as used in the statement above means keeping perishable foods in the refrigerators at a temperature below 45° F at all times except during actually using the food items.

2. Thoroughly cleans and washes fresh fruits and vegetables before serving to the customer. Longree (1) recommends washing fruits and vegetables in lukewarm water and rinsing washed products in cold water and draining on clean surfaces.

Line Servers' Observation Statements

1. Refrains from touching food contact surfaces when handling dishes, plates, or serving utensils. Line servers should handle plates in a sanitary manner; the thumb should touch the rim of the plate only, never the plate itself or the food on the plate. Serving utensils

should not be touched by the fingers except where the utensil will not come in contact with the food (1).

Sanitation Observation Statements

1. Properly handles clean dishes, plates, silverware and utensils. Employees should avoid touching food contact surfaces. These food contact surfaces include: tops of plates, fork tines, top portion of knives, top portion of spoons, and glass rims. Only the handles of utensils should be touched (1).

2. Checks dish machine temperatures frequently to insure proper sanitization of dishware and silverware. Proper dish machine temperature include: prewash, 120° F; wash, 130° F to 140° F; and rinse, 170° F to 185° F.

3. Follows recommended procedures of cleaning and sanitizing pans and cooking utensils. Pots, pans, and cooking utensils should be washed in a detergent and rinsed in hot water with a chemical sanitizer added to the rinse water. Water should be hot; however, with the chemical rinse sanitizer water does not have to be above 170° F (1).

4. Properly disposes of all garbage and waste material. Garbage and waste material should be discarded after each meal or several times a day. Garbage disposals can be used to dispose of bulk garbage; however, cans with trash can liners should be used when garbage disposals are not available. Garbage cans should be rinsed and scrubbed thoroughly after emptying and new trash can liners placed in the cans. Employees should avoid spilling garbage when emptying and any spills should be wiped up (1).

Observation Tool

The following rating scale was used in rating the employees each person observed. The rating scale was explained in relation to the meaning of each rating category from excellent to not applicable. The following list explained the meaning of each rating category.

Excellent--Free from error. Goes beyond what is to be expected from a food service employee in the area of food sanitation.

Good--Has desirable or suitable qualities; carries out proper sanitary techniques one-half to three-fourths of the working time.

Fair--Carries out favorable sanitary techniques up to one-half of the working time. This employee is less than average.

Poor--Unproductive, inferior in practicing the sanitary techniques.

Not applicable--Does not apply to the particular situation at the time of the observation.

Training the Managers

On November 29, 1973, the Oklahoma Restaurant Association's Certification Training Program in sanitation was held at Oklahoma State University for 10 residence hall food service staff members and two Oklahoma State University Student Union staff members. Included in this training session was one Registered Sanitarian from the State Health Department.

The training program consisted of a series of five films based on different areas of sanitation. Each film had a true-false test following the 10-minute film. Films were shown, reviewed, and tests were given. At the conclusion of the program a Manager's Sanitation test was

given to each person at the session. The Manager's Sanitation test was a detailed test covering all aspects of sanitation included in the lessons. The Oklahoma State University staff members and the sanitarian received their Registered Food Manager Certifications and pins after successfully completing the Manager's Sanitation test and the five unit lesson tests. During the November 29, 1973 meeting, the researcher was allowed to participate in the training program and also successfully completed the Manager's Sanitation test. The pins given to those completing this program were registered with the Oklahoma Restaurant Association and assigned a specific number corresponding with each person's name (see Appendix B). The training program given to the Oklahoma State University food service staff members, the Student Union staff members, the sanitarian, and the researcher included the same five films and five true-false tests that were administered to the Oklahoma State University food service employees at a later date. The difference between the two programs was that the Manager's Sanitation test was not given to food service employees.

Training the Employees

The organization necessary to involve all Oklahoma State University food service personnel into the Oklahoma Restaurant Association's sanitation training program began after the November 29, 1973 meeting. This organization was done by the researcher and included compiling lists of all full-time food service employees from the cafeteria unit work complements, analyzing each employee's schedule of work hours and days off, and working out the schedule of lesson times so as not to have more than one employee out of an individual food service area at a time.

Since there were nine areas to be covered, this was no small task. Lesson schedules were then made out for the 148 employees. Lessons for each employee were scheduled to take place approximately one week apart with one week set aside for makeup lessons (Appendix C). Sessions were scheduled with 13 to 23 employees at a session. All sessions were held at Bennett Cafeteria on the Oklahoma State University campus. Times of the session are shown on the two one-month calendars in Appendixes D and E. A brief review of each lesson is shown in Appendix F.

Phase I of the Oklahoma Restaurant Association's Sanitation Training Program consisted of five lessons on sanitation in food service and a true-false test covering sanitary techniques shown in the films. The first session was held on Wednesday, March 20, 1974. Each first session included a brief explanation by the researcher about the sanitation training program, the contents, the importance of the program, and what each employee would hope to gain after successfully completing the program. Following the orientation, the first lesson was presented. A film was shown to the employees, instructing them in some aspect of sanitation. After the film, a short review was given and answers to any questions were discussed. Once all questions were answered, a written test of 20 true-false questions was given. The test questions were based on information given in the film. After completing the review quiz, test papers were exchanged among the employees and answers to the questions were discussed. Employees receiving a 75 percent or above on the test were advanced to the second lesson. Those employees not qualifying for the next lesson were allowed to repeat the lesson until they were able to pass the examination. This format of a session was followed throughout the other four sessions, with the exception of the

orientation period which was not repeated. Mean scores on each lesson are shown in Appendix G.

Friday, May 10, 1974, was a big day for the food service employees at Oklahoma State University. One hundred forty-three of the employees completed the first phase of the Oklahoma Restaurant Association's Sanitation Training Program. A general food service employees' meeting was held after this first step toward becoming Registered Food Technicians and each of the employees (143) was presented a letter of commendation signifying their mark of achievement.

Phase II of the Oklahoma Restaurant Association's Sanitation Training Program consisted of a 30-day on-the-job performance evaluation. Managers in the eight Residence Hall cafeteria units and the Student Union food department (who had previously completed the course) conducted the evaluations. Those employees who had successfully completed Phase I of the sanitation training program were rated on actual sanitary techniques used while working in the food service areas. The sample included employees from the range area, the sanitation area, the salad area, and the line service area. Final numbers of employees from each area that was observed were: 21 from the range area, 16 from the salad area, 15 from the line service area, and 14 from the sanitation area. A sample of the Oklahoma Restaurant Association's evaluation used in Phase II is shown in Appendix H. Employees whose total score on the evaluation was 75 percent or above were advanced to Phase III of the sanitation training program.

Phase III of the Oklahoma Restaurant Association's Sanitation Training Program also consisted of a 30-day on-the-job performance evaluation. Managers in each of the eight Residence Hall cafeteria

units and the Student Union food department again rated each employee on the basis of sanitary techniques used while on the job. Employees scoring 75 percent or above on Phase III of the program successfully completed the training.

Each employee completing all three phases of the Oklahoma Restaurant Association's Sanitation Training Program was honored at an employee awards program. Employees were certified as Registered Food Technicians and lapel pins, registered by the Oklahoma Restaurant Association, were given to those qualifying. Each employee also received a billfold size certificate stating name, the date of certification and the registered number of their lapel pin. This card validated the certification for a period of one year from the date of issue. The plan is to have an annual renewal of the certification.

Employee Questionnaire

In 1975-76, a year after the first training, the researcher checked the names of Oklahoma State University food service employees having had the Oklahoma Restaurant Association's Sanitation Training Program. It was found that only 72 out of the original 143 who had successfully completed the program were still employed at Oklahoma State University. In order to determine the feelings of the 72 employees toward the sanitation training program, the researcher made up an employee questionnaire (Appendix H). This questionnaire was handed out to the eight Residence Hall cafeteria managers and the Student Union food department manager for them to give to the designated employees and then return to the researcher. The Student Union food department did not send any of the questionnaire responses back to the researcher, therefore, only 50

responses were received and evaluated (Appendix I).

Sample

Seven Residence Hall food service units and the Student Union food department at Oklahoma State University were selected to supply a sample of 72 food service employees to participate in this study. This sample represented those food service employees of the Oklahoma State University who participated in the 1974-75 Oklahoma Restaurant Association's Sanitation Training Program.

CHAPTER IV

RESULTS

In measuring the effectiveness of the Oklahoma Restaurant Association's Sanitation Training Program, observation statements have been broken down and rated on a percentage scale. Each observation has been rated on a scale of five possible responses: excellent, good, fair, poor, and not applicable. Percentages have been assigned corresponding numbers to each item on the rating scale. These numbers were assigned in order that a total score could be figured and a percent score could be given. The assigned numbers included: excellent--1, good--2, fair--3, poor--4, and not applicable--5. An example of the method of computing the observation total scores and the percent scores is as follows: Observation One in the sanitation area had a total of 14 responses with a total of 19 points from the assigned numbers, which figured out (14 ÷ 19) a percent score of 74 percent. A written review of each observation area can be found in Appendix F. Each individual observation in each of the four observation areas was calculated and graphed (Appendix G).

Range Area

Twenty-one employees in the range area were observed following the sanitation training program. Observation One, dealing with employees wearing hairnets or caps, showed the highest percent score of 60 percent.

Observation Five also scored a high of 75 percent. This observation dealt with employees not placing their hands on their face or hair while working in the food service areas. The lowest percent score was 33 percent. This observation was concerned with employees washing their hands frequently while on duty to prevent contamination of food. Observation Nine was also weak in total scoring points. This observation scored 37 percent. The area of weakness showed by this observation dealt with employees keeping foods prepared below 45° F or above 145° F while holding for line service. The six other observation scores fell between 33 and 60 percent; the majority of the scores falling between 41 and 50 percent (Figure 2).

Salad Area

Sixteen salad employees were observed following the sanitation training program. The highest score was 70 percent. This 70 percent score was related to employees wearing hairnets or caps to restrain their hair while on duty. There were several low observation scores; the lowest score was 37 percent. This observation dealt with properly covering and storing leftover foods. Two other low observation scores dealt with keeping perishable foods under proper refrigeration except during actual preparation and serving, and eating food during actual food preparation. These observation scores were 40 and 44 percent, respectively. Other observation scores fell between 47 and 52 percent (Figure 3).

Sanitation Area

In the sanitation area, 14 employees were observed following the

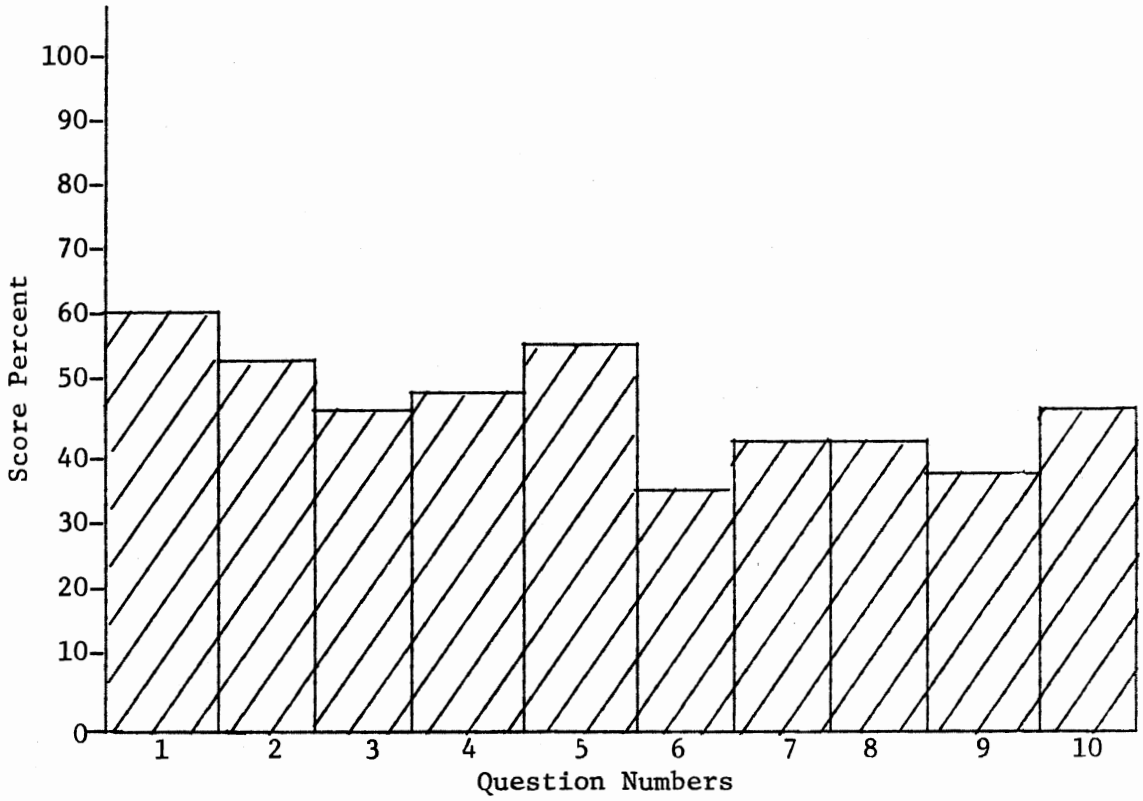

Figure 2. Observation Results--Range Area

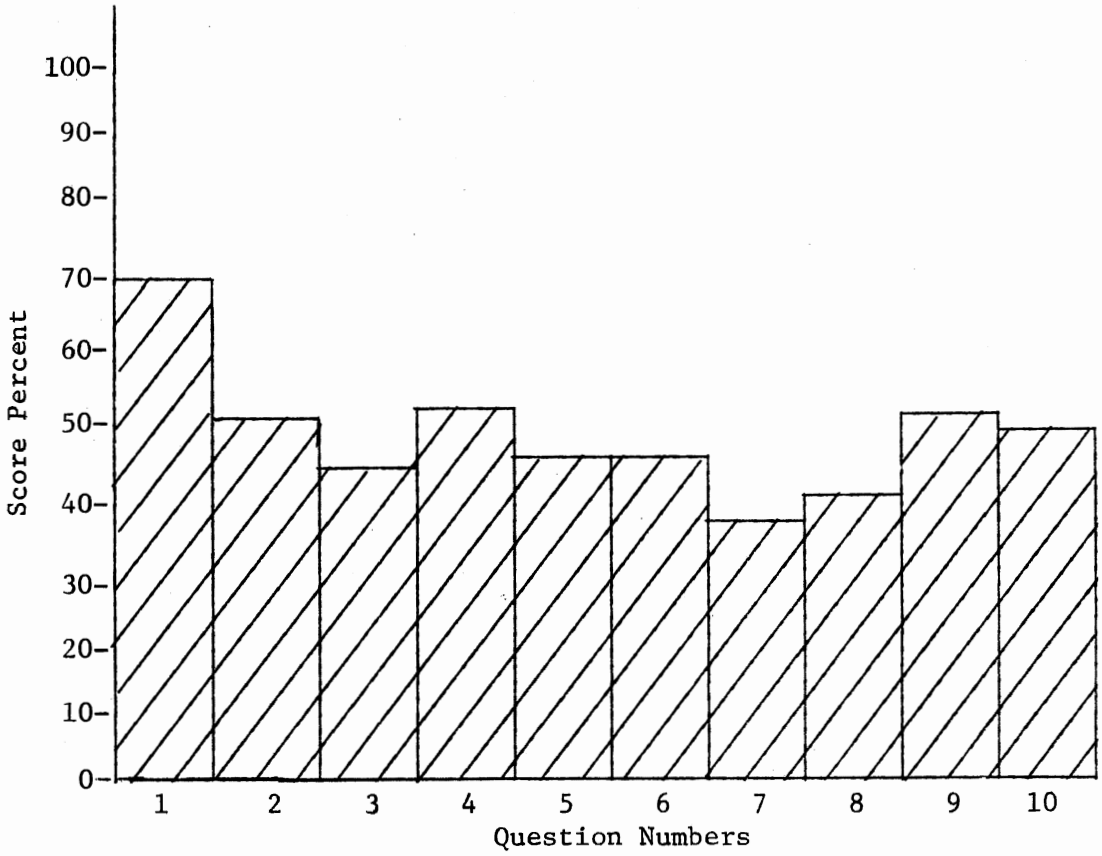

Figure 3. Observation Results--Salad Area

sanitation training program. Rating highest among the 10 observations was again the observation dealing with employees wearing a hairnet or cap to restrain hair while on duty. This score was 75 percent. Another high observation score dealt with wearing too much jewelry while on duty and smoking or drinking in food service areas. This percent score was 70 percent. The lowest observation score dealt with frequent checking of dish machine temperatures while operating the dish machine. This score was a low score of 35 percent. Another low observation score dealt with employees washing their hands after touching contaminated food or plates, and so on. This score was 39 percent. All other observation scores fell between 46 and 58 percent (Figure 4).

Line Serving Area

Fifteen line serving area employees were observed following the sanitation training program. In the line serving area, the highest observation score of 75 percent again pertained to wearing hairnets or caps while on duty. Another high observation score among the line serving employees dealt with line servers not eating food while working on the serving line. This score was 69 percent. The lowest percent score in this area dealt with touching plates of persons being served second portions of food with the clean serving utensils. This percent score was 42 percent. Other observation scores in the line serving area fell between 52 and 62 percent. Scores in this area were generally higher than scores from the range area, the salad area, or the sanitation area (Figure 5).

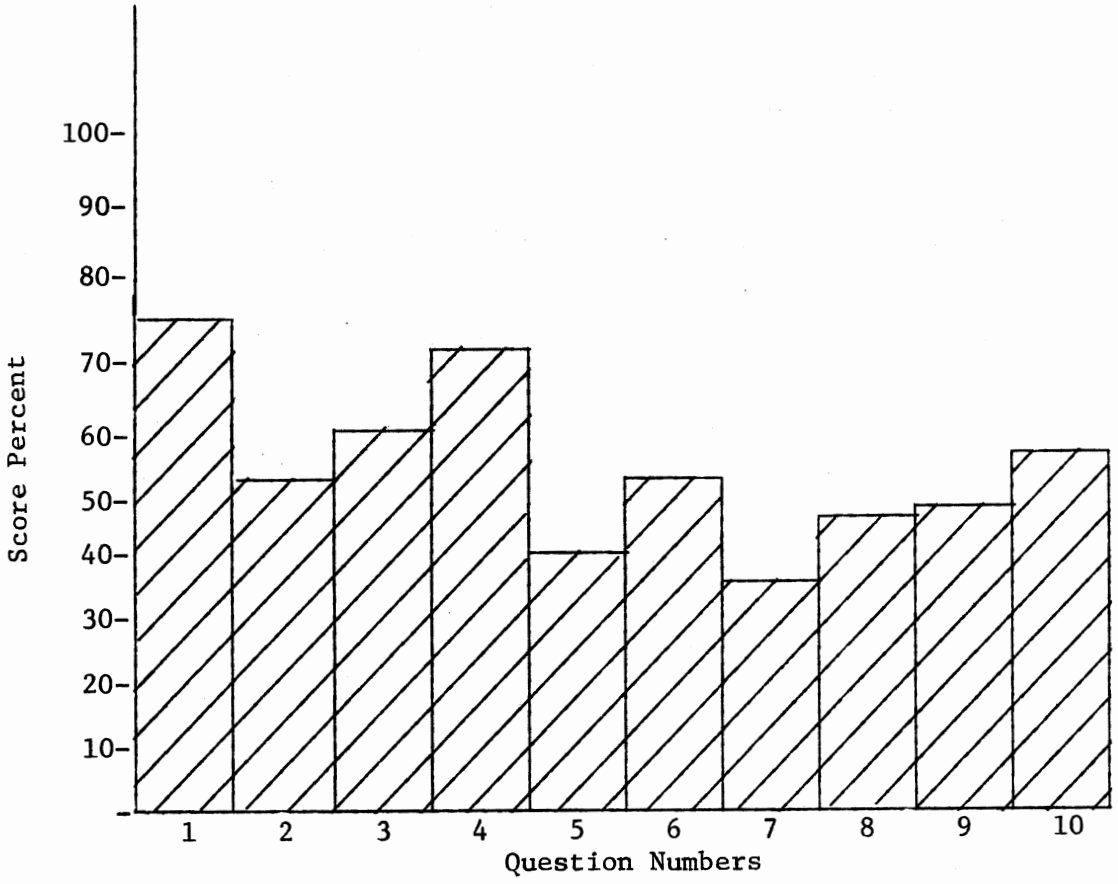

Figure 4. Observation Results--Sanitation Area

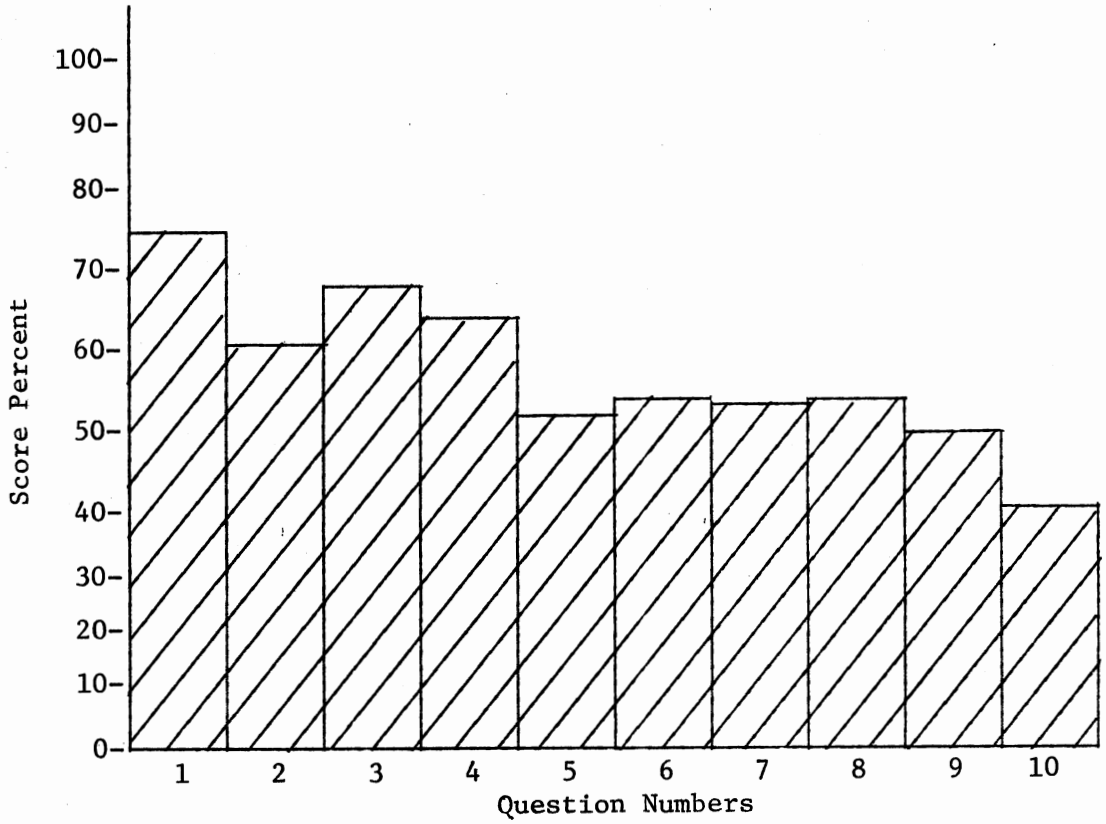

Figure 5. Observation Results--Line Service Area

Recommendations

Observation data was collected and recommendations for the future use of the certification training program was completed. These recommendations may be useful to the Oklahoma Restaurant Association as well as other food service operators.

CHAPTER V

SUMMARY

The following recommendations are offered as guidelines of strong points and weak points in the Oklahoma Restaurant Association's Sanitation Training Program. Individual food service operators may or may not find the same results.

From the total results of the ten observations from each of the four areas (the sanitation area, the range area, the line serving area, and the salad area), recommendations are as follows:

The first five observations in each area were the same.

1. The first observation was found to be the highest scoring observation. The majority of employees of Oklahoma State University food service seemed to wear a hairnet or cap. Therefore, emphasis on this was not necessary.

2. The second observation, dealing with employees' personal hygiene had average scores. It did seem apparent that employees were aware of this phase of the training program and they seemed to be offended by being reminded of personal hygiene habits. Emphasis, unless there is an individual problem, should not be necessary.

3. A point of special concern in the range area and salad area was that of eating while preparing food. Emphasis must be placed on not eating food while in the food preparation areas. Eating food while preparing or serving does contaminate customer's food. Tasting food

while preparing it should be done in a separate bowl and using a clean teaspoon. Tasting should not be done on the serving line unless absolutely necessary to avoid offended customers being served.

4. The fourth observation again scored low in the range and salad areas. Emphasis does need to be placed on not wearing jewelry, smoking, and/or drinking while in the food preparation areas. From the observations, the range and salad employees seemed to wear rings, jewelry, and so on while preparing food. The point was emphasized in the films of not wearing rings, jewelry, and so on while preparing and handling food because of contamination. Germs can harbor in areas of rings and other jewelry and comtaminate food with which it may come in contact.

5. From the results shown, more emphasis needs to be placed on employees washing their hands thoroughly before touching food. This fifth observation totaled especially low in the sanitation and line serving areas.

The other five observations in each of the four areas dealt directly with specific duties in each area. Recommendations from the results of these observations are divided into each area.

Range Area

The remaining five observations in the range area were all weaker points that seemed to need more emphasis. Range area employees seem to need more emphasis on the proper way of handling food during preparation and covering leftover foods which can be used again. These employees especially need more training in the proper temperature at which food is cooked and held for serving and in the cleaning of preparation equipment, mainly meat slicers, between each use. In-service training needs

to emphasize the importance of food temperatures and the employees should be taught to use thermometers while cooking meats or working with other potentially hazardous foods.

Salad Area

Of the five remaining observations in the salad area, the weakest point involved properly covering leftover foods which can be used again. Other points emphasized in the salad area seemed to be adequately covered in the sanitation training program.

Line Serving Area

The remaining five observations in the line serving area were weaker than the first five observations but in general did not seem to need more emphasis. The weakest points in all of the line serving observations dealt with touching with the clean serving utensils, the contaminated plates of persons who returned for second portions. This point did not seem to be emphasized enough to employees who work in the line serving area.

Sanitation Area

Of the remaining five observations in the sanitation area the point that needs more emphasis dealt with checking dish machine temperatures frequently to insure proper washing and sanitizing of dishes and silverware. Employees seem to not understand and remember dish machine temperatures. It seemed apparent that more in-service training on the proper dishwashing temperatures is needed to help strengthen this weaker area.

So, in general summary, it is evident that more in-service training in all areas is necessary. The Oklahoma Restaurant Association's Sanitation Training Program is very elementary and basic. Therefore, the researcher emphasizes repeating sanitation training and up-grading each series of lessons.

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APPENDIXES

APPENDIX A

EMPLOYEE OBSERVATION SHEETS

OBSERVATION SHEET

Sanitation

Excellent _____ Good _____ Fair _____ Poor _____ NA _____	1.	Wears a cap or hairnet to restrain hair while on duty.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	2.	Is clean and well groomed, with fingernails clean and trim, and with shoes and hose neat and clean.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	3.	Refrains from eating food or putting fingers in the mouth while working in the food service areas.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	4.	Follows proper sanitary standard with regard to wearing jewelry, smoking, and drinking.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	5.	Thoroughly washes hands after touching contaminated food for protection of own as well as other's health.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	6.	Properly handles clean dishes, plates, silverware and utensils.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	7.	Checks dish machine temperatures frequently to insure proper sanitization of dishware and silverware.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	8.	Follows recommended procedures of cleaning and sanitizing pans and cooking utensils.

Excellent _____
Good _____
Fair _____
Poor _____
NA _____

9. Properly disposes of all garbage and waste materials.

Excellent _____
Good _____
Fair _____
Poor _____
NA _____

10. Keeps dishroom area clean and neat.

ADDITIONAL COMMENTS:

OBSERVATION SHEET

Salad Production

Excellent _____ Good _____ Fair _____ Poor _____ NA _____	1.	Wears a cap or hairnet to restrain hair while on duty.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	2.	Is clean and well groomed with fingernails clean and trim and with shoes and hose clean and neat.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	3.	Refrains from eating food or putting the fingers in the mouth while preparing or serving the food.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	4.	Follows proper sanitary standards while on duty with regard to wearing jewelry, smoking, and drinking.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	5.	Refrains from placing hands about the face or hair while working in the food preparation areas.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	6.	Refrains from handling food except when necessary during the preparation of the food.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	7.	Promptly covers and stores leftover food which can be used again.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	8.	Keeps perishable foods under proper refrigeration except during actual preparation and serving.

Excellent _____
Good _____
Fair _____
Poor _____
NA _____

9. Thoroughly cleans and washes fresh fruits and vegetables before serving to the customer.

Excellent _____
Good _____
Fair _____
Poor _____
NA _____

10. Keeps salad area clean and neat.

ADDITIONAL COMMENTS:

OBSERVATION SHEET

Range Production

Excellent _____ Good _____ Fair _____ Poor _____ NA _____	1. Wears a cap or hairnet to restrain hair while on duty.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	2. Is clean and well groomed, with fingernails clean and trim, and with hose and shoes neat and clean.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	3. Refrains from eating any food or from putting fingers in the mouth while serving or preparing the food.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	4. Follows proper sanitary standards while on duty with regard to wearing jewelry, smoking, and drinking.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	5. Refrains from placing the hands about the face or hair while working in the food service areas.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	6. Washes hands frequently while on duty to avoid contaminating the food during preparation.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	7. Refrains from handling food unless absolutely necessary while preparing the food.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	8. Promptly covers and stores leftover foods which can be used again.

Excellent _____
Good _____
Fair _____
Poor _____
NA _____

9. Keeps all prepared foods below 45° F or above 140° F while holding food for service.

Excellent _____
Good _____
Fair _____
Poor _____
NA _____

10. Cleans slicers, grinders, and other preparation equipment and utensils between each use.

ADDITIONAL COMMENTS:

OBSERVATION SHEET

Line Servers

Excellent _____ Good _____ Fair _____ Poor _____ NA _____	1.	Wears a cap or hairnet to restrain hair while on duty.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	2.	Is clean and well groomed, with fingernails clean and trim, and with hose and shoes neat and clean.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	3.	Refrains from eating food or putting fingers in the mouth while serving food.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	4.	Follows proper sanitary standards while on duty with regard to wearing jewelry, smoking, and drinking.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	5.	Refrains from placing hands about the face or hair while working in the food service areas.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	6.	Refrains from touching food contact surfaces when handling clean dishes, plates, or serving utensils.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	7.	Uses serving utensils or plastic gloves when necessary to avoid touching the food.
Excellent _____ Good _____ Fair _____ Poor _____ NA _____	8.	Keeps line serving area clean and neat.

Excellent _____
Good _____
Fair _____
Poor _____
NA _____

9. Wipes up food spills or food particles in the serving area promptly.

Excellent _____
Good _____
Fair _____
Poor _____
NA _____

10. Is careful not to touch plates of persons wishing to have seconds on entrees or vegetables with the serving utensils.

ADDITIONAL COMMENTS:

APPENDIX B

REGISTERED FOOD MANAGERS

REGISTERED FOOD MANAGERS

The first 25 people to be instructed in the Oklahoma Restaurant Association's Certification Training Program for food service managers are listed below. These people completed their instruction and received their Registered Food Manager's Certification. Included in this list are the managers of the food service staff and two members of the food service union staff at Oklahoma State University.

Name	Individual Pin Registration Number
Robert N. Smith	1
Walter B. Cherry	2
Joe Dodson	3
Randolph Shaw	4
Bill Geist	5
Justin Hill	6
Randolph Shaw, Jr.	11
Judy C. Miller	12
Melanie Childress	13
Jerry Autin	14
A. K. Rahman	15
Carolyn Fair	16
Roger L. Sneed	17
David James	18
Norma J. Wickstrom	19
Oleta Pattillo	20
John Wills	21
Naomi VonGunten	22
Richard Brown	23
Tony O'Bryan	24
Jack D. Laughlin	25

APPENDIX C

UNIT LESSON SCHEDULES

Group	Kerr Drummond	Willham	Scott Parker	Willard	Bennett	Cordell	McElroy	Bakery	Meat Supply	Hospital
I	Butler Crow Bloom	Anderson Trice	Hagler Cawley	Sellers	Bellma	Majors Bradley		Porter	Gardner	
II	Hensley Kennedy Gowing	Arrington Armine Nichols	Walker	Pricer Chapman	Collins Akin	Shavely Sloan	Wilson Hall	Slaymaker	Ingram	Hukill
III	Newbold Wallace Clodfelter Porter	Estes White Presley Allen Boblit	Bounds Watts Short	Mathes	Ceaser Nance Raper	Shields Wallace	Todd Robbins	Flood	Burrow	Jewell
IV	Howard Spicer	Boyd Dawes Morris Leath	Stone Sutliff	Jackson Gray	Robinson Smith	Richards Medina	Keith Johnson Culp	Davis Nieto		
V	Bunton Swisher Boyles Riggs	Williams Oliver Linzy Lee	Collins Cuningham	Miller	Gunn Goforth	Hemphill	Smith	Johnson	Gardner	
VI	Asher Wright	Watts Frick Taylor Norton Greenfield	Caldwell Mayberry	Nickelson		Evers Sutton	Grubbs Johnson	Caster	Gray	
VII	Cronk Dearborn Gaaya Harkleroad	Lawson Miller Marcoux Wei	Riggs French	Gardner Smith Dennis	Collins Caldwell Clark	Goodson	Goddard Naff Soutee	Uhlich		
VIII	Proctor Combs	Wagner Williams Cronk Warden Wallace	Biby Heusel Martin	Phillips Hopkins	Quillen Strotter		Wilson Geskins			Linduff

APPENDIX D

GROUP CLASSES

MARCH

					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20 Group I - 8:30 a.m. Group II - 1:30 p.m.	21 Group III - 1:30 p.m.	22 Group IV - 8:30 a.m. Group V - 1:30 p.m.	23
24/31	25 Group VI - 8:30 a.m.	26 Group VII - 10:00 a.m. Group VII - 1:30 p.m.	27	28 Group III - 1:30 p.m. Group I - 8:30 a.m. Group II - 10:00 a.m.	29 Group IV - 8:30 a.m. Group V - 10:00 a.m.	30

APPENDIX E

GROUP CLASSES

APRIL

	1 Group VI - 8:30 a.m.	2 Group VII - 10:00 a.m. Group VIII - 1:30 p.m.	3 Group I - 8:30 a.m. Group II - 1:30 p.m.	4 Group III - 1:30 p.m.	5 Group IV - 8:30 a.m. Group V - 1:30 p.m.	6
7	8 Group VI - 8:30 a.m. Group VII - 10:00 a.m. Group VIII - 1:15 p.m.	9	10	11	12 Group IV - 8:30 a.m. Group V - 10:00 a.m.	13
14	15 Group VI - 8:30 a.m.	16 Group VII - 10:00 a.m. Group VIII - 1:30 p.m.	17 Group I - 8:30 a.m. Group II - 1:30 p.m.	18 Group III - 1:30 p.m.	19 Group IV - 8:30 a.m. Group V - 1:30 p.m.	20
21	22 Group VI - 8:30 a.m.	23 Group VII - 10:00 a.m. Group VIII - 1:30 p.m.	24 Group I - 8:30 a.m. Group II - 1:30 p.m.	25 Group III - 2:00 p.m.	26	27
28	29	30	MAY 1 Makeup Lesson 8:30 a.m.	MAY 2 Makeup Lesson 10:00 a.m. 2:00 p.m.	MAY 3 Makeup Lesson 10:00 a.m.	MAY 4

APPENDIX F

LESSON REVIEWS

LESSON REVIEWS

Part I, Protecting the Public, is a three-part sound filmstrip training program on food sanitation and protection. It explains what germs are, where they grow, how to stop their growth, professional methods of sanitatizing and personal habits of cleanliness.

Lesson I, The Personal Side, illustrates the individual's role in safeguarding food through good personal hygiene habits and safe food handling practices. Important points in this lesson included:

1. Germs spread disease.

2. Anyone can harbor germs.

3. Anyone can help prevent the spread of germs by following simple health practices such as, bathing daily, keeping hands clean, keeping hair and uniforms neat and clean, handling food as little as possible and not touching food contact surfaces.

4. Anyone who is ill or who has a cut or burn should not handle food.

5. It emphasizes that germs are everywhere and that everyone has germs.

Lesson II, Food Protection, gives rules for handling food in cooking, reheating, serving and storing. It also brings to mind the time and temperature at which germs grow and survive best and how these temperatures affect handling food. Significant points brought out in this lesson included:

1. Food can be contaminated in processing, shipping, cooking, reheating, storing, thawing and holding.

2. Safe temperatures for storing food are below 45° F.

3. Safe temperatures for hot holding foods are 140° F or above.

4. Most bacteria are killed or destroyed when food is cooked to a minimum of 150° to 160° F.

5. The danger zone for food safeness refers to the temperature range between 45° and 140° F. This range of temperatures is the range at which germs grow and survive best.

6. Never store or thaw food at room temperature.

7. Treat food that has been served to the customer as contaminated food.

8. Food may be contaminated by other contaminated foods or from cooking utensils or persons handling the food.

Lesson III, Establishment and Equipment Sanitation, explains the difference between sanitizing and cleaning and that every member of a food service establishment has a part in either cleaning or sanitizing. Emphasis points brought out in lesson III included:

1. Germs become dangerous when given the proper conditions in which to grow.

2. Most germs require food, water, warmth, and time to grow.

3. Dirty hands, mops, rags, and dishes should be kept away from clean food areas.

4. Sanitized restrooms aid in food protection in the kitchen.

5. Cleaning compounds and pesticides must never be stored near food.

Part II, Lesson IV, The Unwanted Four, emphasizes how malpractices and bacteria can result in customer illness, costly claims, and reputation. This film familiarizes the employees with several foodborne bacteria, prticularly emphasizing Salmonella, Staphylococcus,

Clostridium Perfringens, and Streptococcus. It again demonstrates the correct way of handling food. Important points brought out included:

1. Salmonella increase rapidly at room temperature. They enter the food service establishment on raw food delivered at the back door and the contamination can be transferred to cutting boards, tables, and utensils. Contamination can also be spread from other food or to another food.

2. Staphylococcus is a bacteria which produces a toxin (poison) which cannot be destroyed by cooking. It comes from cuts and infections which come in contact with food.

3. Clostridium Perfringens strike primarily when large quantities of food are prepared and transported to other locations. It is important that food prepared in kettles and large stock pots be divided into smaller serving containers so that safe hot or cold holding temperatures can be maintained throughout the food to prevent the growth of bacteria.

4. Streptococcus germs are spread from oral or nasal discharges of people who are sick or have streptococcus infections.

5. Personal hygiene is essential in preventing the spread of disease. This includes scrubbing hands, attending to cuts, burns, infections, and illnesses. Ill or infected persons should not handle food.

6. Food contact surfaces of tableware, dishware, glassware, silverware, and food preparation equipment must be washed and sanitized between each use.

7. Cook food quickly, cool quickly, and reheat food quickly.

8. Safe food handling temperatures are above 165° F for cooking and above 140° F or below 45° F for holding.

Lesson V, The Freeloaders, depicts the most common restaurant pests. In this lesson the employee learns of these pests, how they enter a food service establishment and how they survive. This lesson also teaches how to get rid of these pests and how to keep them out of the food service establishment. Emphasis points included:

1. Pests are not only disgusting to customers but they are also dangerous because they spread diseases from their contact with filth, and because they may lay their eggs in food. Rats and mice increase the danger of electrical fires by gnawing at wiring.

2. Pests enter the restaurant in packing cases and crates or through broken windows and walls which give access to the outside. They thrive on food and nesting provided them by poor cleaning habits.

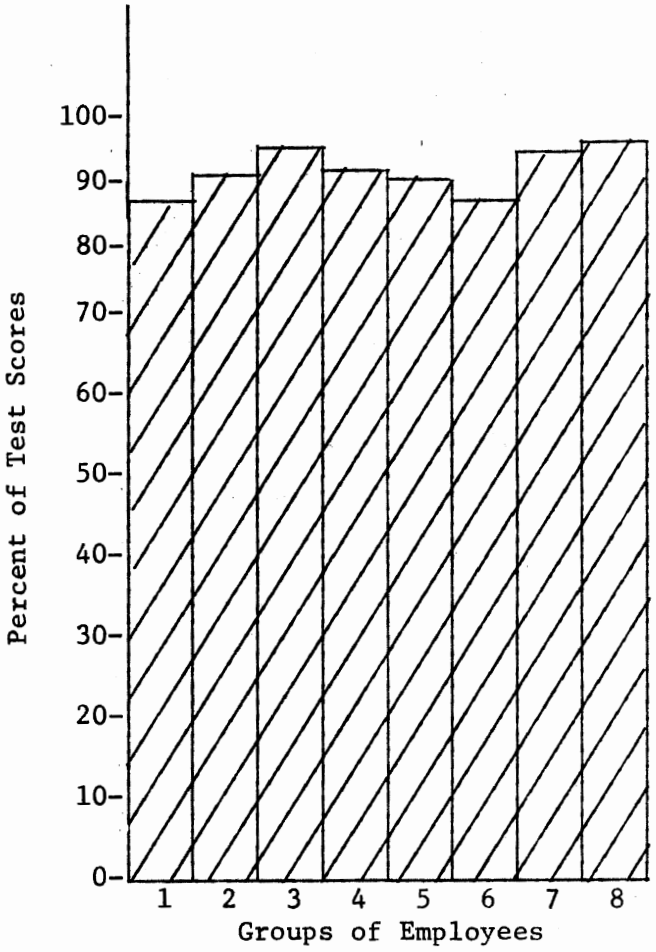
3. To survive, pests need food, water, warmth, and time to grow. Most pests also want darkness. Elimination of all or any of these conditions can help prevent their appearance and aid in getting rid of them.

4. The places to look for pests are in packing crates and containers, open food containers (even when they are empty), trash collection places, wet rags and mops, places where water may be leaking or standing or in booths or other areas in the front of the house where crumbs might collect.

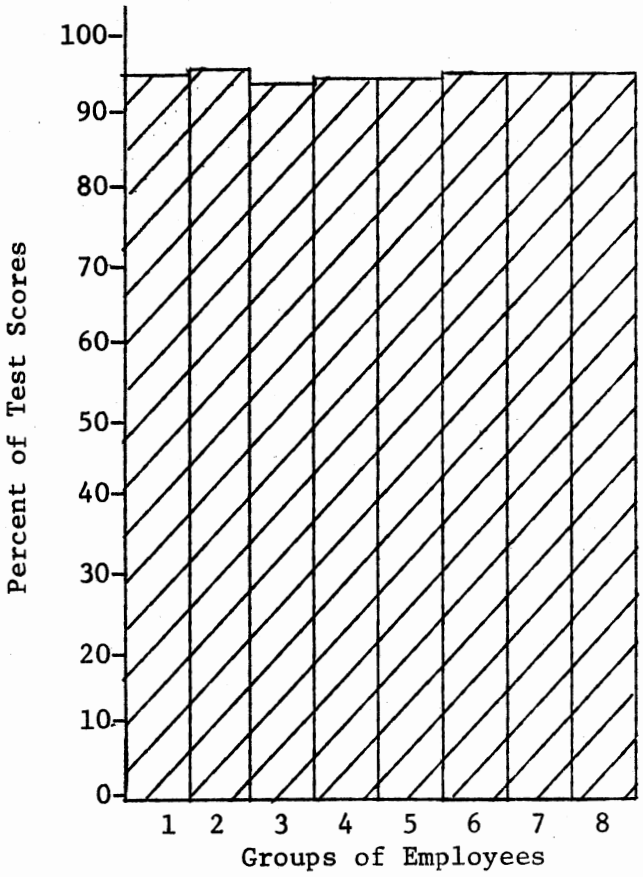
APPENDIX G

GRAPHS

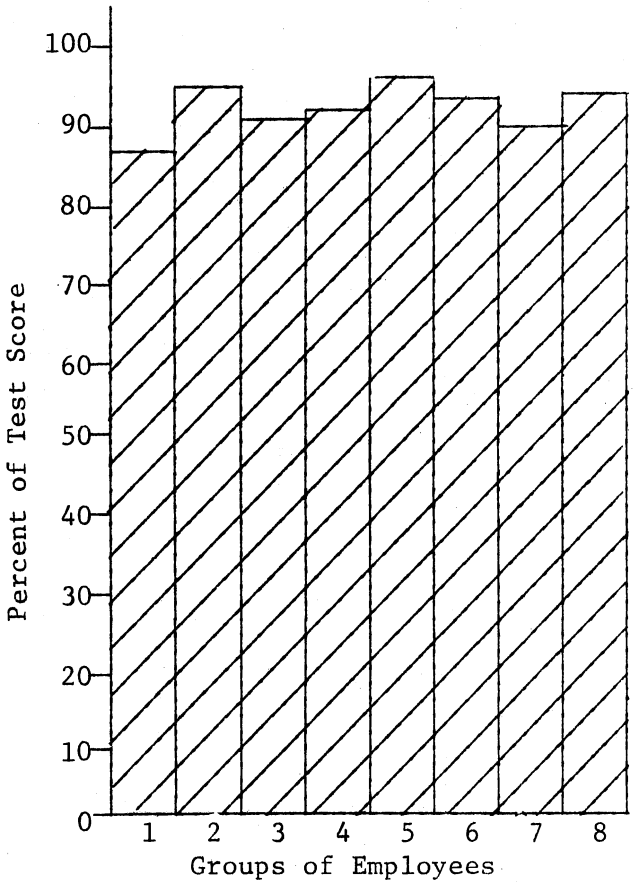
Mean Score--Lesson I



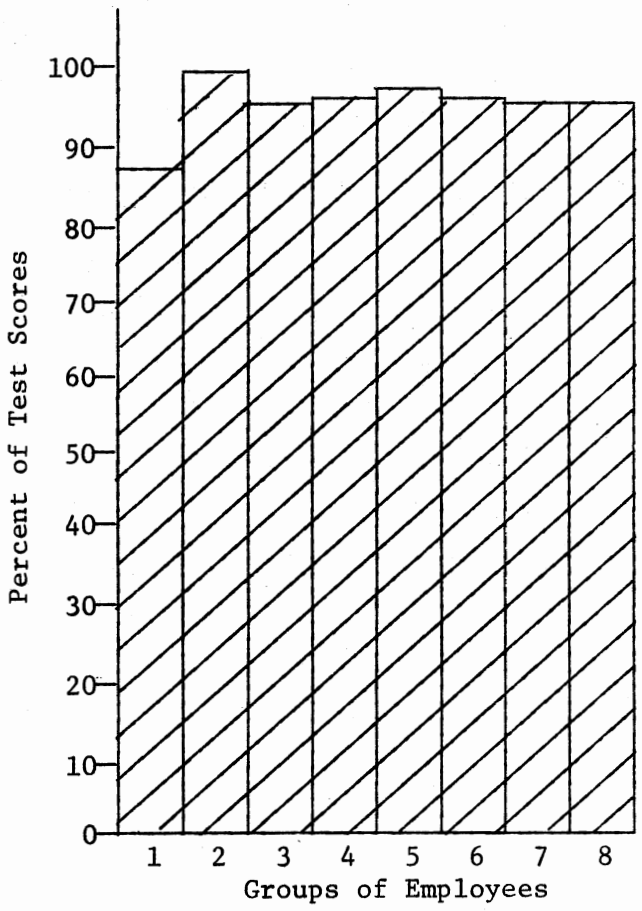
Mean Score--Lesson II



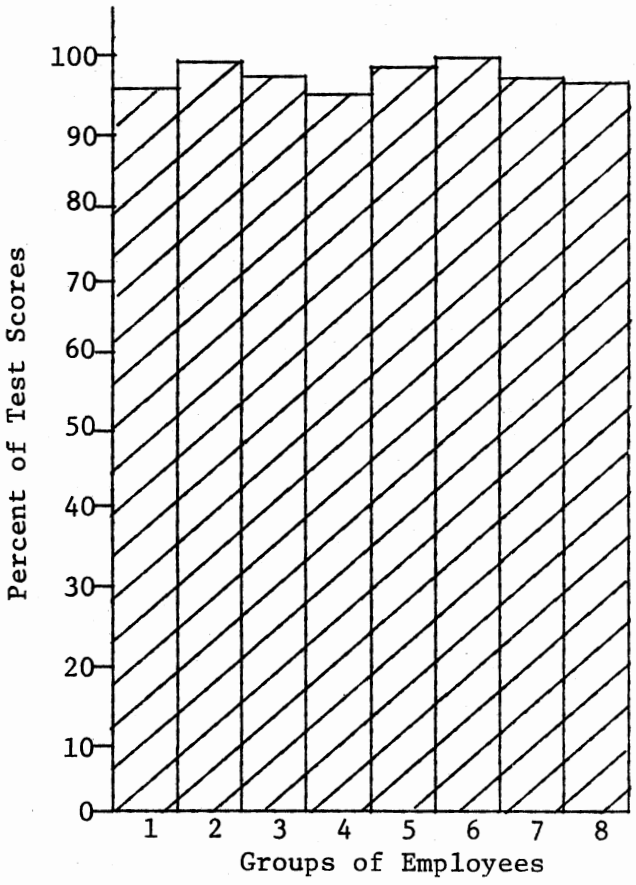
Mean Score--Lesson III



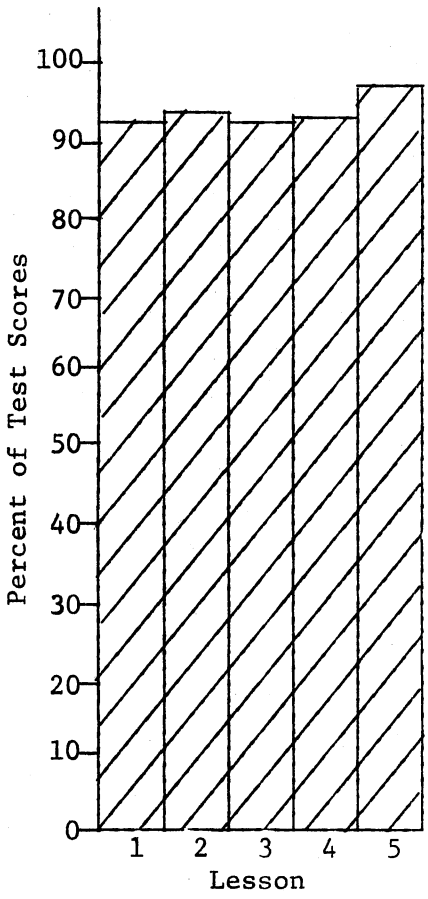
Mean Score--Lesson IV



Mean Score--Lesson V



Mean Test Score



APPENDIX H

EMPLOYEE QUESTIONNAIRE

EMPLOYEE QUESTIONNAIRE

Please answer the following questions with a check mark in the yes or no blank.

Yes	No		
___	___	1.	Have you ever had training in sanitation before?
___	___	2.	Has the Oklahoma Restaurant Association's Sanitation Training Program helped you as a food handler?
___	___	3.	Do you feel this program was adequate in bringing out information in the area of food sanitation?
___	___	4.	Was this training program too long?
___	___	5.	Were the films and quizzes included in this program easy enough to understand?
___	___	6.	Do you feel the sanitary practices you have been taught have helped you become a better food service employee?
___	___	7.	Have your sanitary habits as a food handler changed after completing this training program?
___	___	8.	Did the discussion periods before and after each film-strip help you to better understand the points brought out in the films?
___	___	9.	Do you feel there were any areas in food sanitation not covered in this training program? If so, please list these areas below?
___	___	10.	Do you have any suggestions on how to improve this training program? If so, please list these suggestions below.

APPENDIX I

QUESTIONNAIRE RESULTS

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In reviewing the employees' questionnaires, a review of the 10 questions are below. There were 50 responses to the 72 questionnaires that were sent out.

1. Four of the employees had been involved in some type of sanitation training before.

2. One employee felt this particular sanitation training program had not benefited him.

3. Two employees felt this training program was not adequate in bringing out information in the area of food sanitation. There were, however, no suggestions on how to improve the program and provide more adequate training.

4. Nine employees felt the Oklahoma Restaurant Association's Sanitation Training Program was too long.

5. All the employees who responded felt this particular sanitation training program included material which could be understood easily.

6. One employee felt that the sanitary practices he had been taught helped him to be a better food service employee.

7. Ten employees felt their sanitary habits as a food handler had not changed after completing the sanitation training program.

8. Three employees felt the discussion period before and after the filmstrip did not help them understand the sanitation material shown in the filmstrip.

9. Ten employees felt there were definite areas in the training program that were omitted and should have been covered.

10. Five employees had suggestions on how to improve this type of

sanitation training program. Some of these examples included:

(a) One employee stated he would like sanitation training more often.

(b) Another employee stated she felt the sanitation films should be more difficult and that the entire length of the training program should be longer.

(c) One employee felt more emphasis should be placed on the implementation of the sanitation training program. He felt employees fell back on their old work habits, in regard to sanitation, when not constantly supervised.

(d) One employee felt that each specific cafeteria area, such as the salad area, needed more sanitation training pertinent to the area.

APPENDIX J

OKLAHOMA RESTAURANT ASSOCIATION'S

PERFORMANCE EVALUATION

OKLAHOMA RESTAURANT ASSOCIATION'S SANITATION AND CERTIFICATION PROGRAM

On-the-Job Performance Evaluation

The following is an example of the on-the-job evaluations included in Phases II and III of the Oklahoma Restaurant Association's Sanitation Training Program. Each evaluation has a list of items for all food handlers in every area to be evaluated (Part A) and a specific work area evaluation (Part B). Both Part A and Part B have a rating scale from "always" to "unsatisfactory".

	Always	Most Always	Fair	Careless	Unsatisfactory
Part A					
The food handler:					
Comes to work well groomed, with clean outer garments free of offensive body odors, with fingernails clean and trim, and with shoes and hose clean and neat.					
Wears hat, cap, hairnet, or other effective hair restraint.					
Shows interest and concern by making suggestions on how to improve procedures.					
Part B					
The cook:					
Handles clean dishes, glasses, silverware, etc.					
Cooks "hot" foods to 165° F or above.					

VITA[2]

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Candidate for the Degree of

Master of Science

Thesis: THE EFFECTIVENESS OF THE OKLAHOMA RESTAURANT ASSOCIATION'S SANITATION TRAINING PROGRAM

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Professional Experience: Dietetic Summer Trainee, Tripler General Army Hospital, 1971; Assistant to the Dietitian at Bowling Green Warren County Hospital, 1972-73; Production Manager, Oklahoma State University Food Service, 1974-75, Food Unit Manager, Oklahoma State University Food Service, Fall, 1975; Therapeutic and Administrative Dietitian, Madison State Hospital, 1976 to present.