

EVALUATION OF LABORATORY EXPERIENCE IN
FOOD PRODUCTION MANAGEMENT

by 1264

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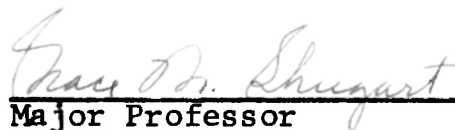

Major Professor

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INTRODUCTION

During the past 20 years the American public has been eating an increasing number of meals away from home. This trend has offered a challenge to leaders of the food service industry and to the institutions that prepare its managers.

Colleges and universities, through their professional programs for food service management, are playing an important role in identifying and developing management personnel. The degree to which the curricula are effective in preparing students is being evaluated by educators and by leaders in the industry.

In a study of academic preparation for food service management, Miller (1960) found that instructional staff had become increasingly aware of the urgent need for critical analysis and realistic evaluation of the total curriculum offered. Faculty members in each institution were diligently searching for effective means of improving the curriculum.

Miller (1960) concluded that although many colleges are more effective in their coverage and development of technical skills than of managerial skills, a few areas of technical knowledge need specific attention in respect to curriculum revision. Graduates and employers agreed there was a need for more intensive coverage in the purchasing of supplies and equipment and maintenance of the physical plant and equipment. Graduates believed they needed more training in purchasing, menu planning, and service. Employers indicated that

principles of large quantity food preparation and factors affecting preparation and service of quality food also required further consideration at the college level.

Mongeon (1964) studied the adequacy, degree, and place of emphasis in attainment of management competences by dietetic students. It was the consensus of internship directors and professional educators that technological operations were best taught at the college level and management competences should receive greatest emphasis during the year of internship or through practical experience.

Finding ways of providing sufficient coverage of these areas has been the concern of educational and professional groups. As a result, the American Home Economics Association and the American Dietetic Association jointly sponsored four conferences between 1962 and 1967 for college and university faculty of Institution Management. For the purposes of these conferences, objectives were defined as the ultimate outcomes of a professional program stated in terms of expected behaviors of newly employed professional persons capable of adjusting to change (Proceedings, 1967).

Ostenso et al. (1967) reported concepts and sub-concepts, as developed by a special committee, that identified categories of learning in institution management curricula.

In 1967, the American Dietetic Association established a committee on Goals of Education to identify those qualities which, to some degree, should be characteristic of every

dietitian. The resulting Goals of the Lifetime Education of the Dietitian, including fundamental definitions, will be used as a framework for the interpretation of the profession of dietetics. (Appendix A).

Dietetics, as defined by the committee, is a profession concerned with the science and art of human nutritional care, an essential component of the health sciences. It includes the extending and imparting of knowledge concerning foods which will provide nutrients sufficient for health and during disease throughout the life cycle and the management of group feeding for these purposes. The dietitian is defined as a specialist educated for a profession responsible for the nutritional care of individuals and groups. It is in the area of management of group feeding that institution management is particularly concerned.

Goals identified by this committee denote qualities that beginners in the profession have attained to some degree and that should continue to grow with experience. It is recognized that some individuals may arrive at various degrees of progress toward the goals at different times in life.

The nine goals are stated in terms of achievement and relate to the total education of the dietitian. Two goals in particular have implications for undergraduate education in the area of institution management.

Goal III states that the dietitian must understand the significance of scientific inquiry and interpretation in

advancing professional knowledge and improving standards of performance; that she have an understanding and appreciation of research and the ability to evaluate and interpret findings in order to have an effective professional practice. The scope of this research includes such areas as nutritional, behavioral, and managerial sciences; technologic developments in food production, processing, and marketing; food service systems and equipment; automation and information processing. Goal VII deals with the area of management skills. These skills include the ability to manage resources, physical facilities, finances, and people to meet the objectives of the institution.

The Institutional Management faculty at Kansas State University, like those in many other colleges and universities, have been cognizant of the need for continuing evaluation and improvement of the curriculum. In 1967 a curriculum committee undertook a study of the major courses offered in the Department of Institutional Management.

One concern of the committee was the extent of laboratory experience necessary to help students understand the technical operations of a food service. Three hour laboratory periods were not considered adequate to show the total operation. As a result, the course Food Production Management, concerned with technical operations, was revised to include additional laboratory experience.

The objective of the present study was to develop and

evaluate a laboratory experience for the revised course in Food Production Management that would make available to students an overview of the technical operations of a food service system.

REVIEW OF LITERATURE

Curriculum Development

Curriculum Structuring. The curriculum, according to Dressel (1963), has been defined by modern day educational theorists as all experiences of the learner that are controlled by the school. Urgencies of the changing world guarantee that organization and revision of curricula are, and will be, a perennial problem. He indicated that working on curriculum, therefore, is of crucial importance not only for the school and its teachers but for the society that exerts pressure on the school.

The college performs many functions but, according to King (1966), its chief one is curricular. Most universities offer a wide array of studies in their curricula but require a high degree of study in an assigned or selected field. These fields are made up of areas of knowledge organized into levels of learning: knowledge, comprehension, application, analysis, and synthesis. The heart of the general curriculum is the discipline of knowledge. The individual's performance in a discipline is measurable by the objectives or goals set up through a curriculum.

Dressel (1963) asserted that curriculum writing and revision have become increasingly difficult in the last few years, especially in state universities with their greater numbers of divisions, departments, schools, colleges, institutes, and centers and their wide range of professional and technical curricula. The university made up of a number of equal colleges is finding it difficult to establish general undergraduate requirements.

The presence of graduate schools is thought by Dressel (1963) to further complicate the problem. Any growing university vigorously promotes its master's and doctoral programs, for it is through them that new and strong faculty are developed and ties are strengthened with professional organizations. Many colleges within a university may express their independence and gauge their success by the number of students they enroll in the graduate program. As a result, offerings at the junior and senior levels often reflect a high degree of specialization to prepare students for future graduate study.

Trends in Curriculum. Introduction of a lower division of one or two years of study in some colleges has made it possible to give more attention to the quality of freshman and sophomore work (Dressel, 1963). This not only aids in curriculum development but tends to provide competent counseling and faculty advising.

One problem facing the educator and the student of science

based courses is that of simultaneous demand for technical mastery and literal understanding. According to Hall (1963), current problems in teaching scientific courses emphasize a lack of continuity between purpose and achievement. King (1966) believes that some gaps between theory and practice occur because teachers or administrators are not willing to carry out the actual dictates of theory. He indicated that committees formed to establish programs may be frustrated because the school structure is not organized to accept their ideas. An important part of closing the gap is how well the stated objectives relate each unit and course to other courses and to the curriculum. If this relationship does not exist, it degenerates into emphasis on isolated bits of information, the importance and ultimate unity of which may remain unknown and unquestioned. The difficulty is not lack of objectives but the failure to pursue them. According to Dressel (1963), objectives that are to give direction and coherence to the educational process first must be carefully selected and then defined as the basis for selection of materials and methods and ultimately as the basis for evaluation.

The general conclusion of analysis of professional technical curricula, according to Dressel (1963) and King (1966), is that reorganization of curricula based more firmly on broad understandings and principles of related courses is necessary. The University of Florida and Michigan State University have established University Colleges that contain

general education courses required of all students before pursuing further studies or specialized fields.

Curricula in Dietetics and Institution Management.

Miller (1960) found marked similarities in general philosophy and overall purpose in the colleges and universities selected for her study on academic preparation of food service managers. All of these programs for the institution management graduate were planned to provide for: personal development; preparation to function effectively and creatively as an individual, as a family member, and as a responsible citizen; and for a professional career.

Educational requirements leading to the bachelor's degree were classified by Miller (1960) into five areas: sciences; humanities; communication arts; home and family life; and subject matter basic to careers in food service management, including both managerial and technical skills. Although the total academic requirements for each college or university contained the same basic elements, she found many variations between institutions. These were: the sequence in which required subjects were taken; whether the subjects were taught by instructors from related fields or in Home Economics; the educational maturity of the student when taking the course; and the flexibility of specific course selection or substitution related to the individual student's background, experiences, and interests.

An experimental approach to dietetic education in the

College of Medicine at Ohio State University was reported by Ashe and Lewis (1965). A four-year curriculum, approved by college and professional groups, leads to a Bachelor of Science degree in Medical Dietetics. Prospective students complete the freshman year in the college of their choice, then apply for transfer to the College of Medicine. Basic education such as English, chemistry, humanities and social sciences, and some professional courses comprise the major portion of the first two years. The third and fourth years incorporate clinical experience and study in management, teaching, and advanced nutrition.

Studies of the first graduates of this curriculum by Wenberg and Ingersol (1964) indicated a greater degree of achievement of purpose than graduates of a standard four year Bachelor of Science Degree in the Department of Institution Management.

Selected communication processes, problem-solving, and personality attributes of students in seven approved dietetic internships were evaluated by Wenberg and Ingersol (1969) at the beginning and the end of a one-year internship. There was little variation in test scores and it was assumed that these qualities are not measurably affected by the one year internship.

Laboratory Experience

Role of the Laboratory. Reaves (1965) described a science

based college curriculum as a program of study in a technical field designed to educate a student so that he gains specific knowledge in a particular practical field, secures basic and supportive information, and receives a broad liberal education. This allows him to develop as an integral part of his community while making a living from his special field of work. He supported his definition by adding, "Students need to be motivated through laboratory experiences so they may relate their class work to the things they already know and to their future professions."

Butterworth (1966) stressed the active involvement of the student in the learning process and stated that participation is the fundamental principle involved. A teacher needs to be more concerned with helping to create learning situations than with intensifying efforts to teach subject matter.

At the Second Conference on Institution Management, Cross (1963) and Daniels (1963) reported on two types of laboratory experience for institution management students. Cross believed that students in the structured laboratory situation at Carnegie Institute gained a concept of the food service as a whole. Daniels cited an outside affiliation for laboratory in which students gained experience with personnel, in handling large quantity foods, and observing and working in a real situation. At the same conference Riggs (1963) identified end results of the laboratory as acquisition of needed information, development of thinking, and development of the

skill of observation. She believes methods must be changed to incorporate available scientific, technological, and social advances.

According to Hall (1963) the present treatment of teaching material in Home Economics is basically scientific in nature but does offer a bridge to other areas of non-scientific knowledge. Umstattd (1964) stated that if science is to be coordinated with non-sciences, laboratory experience must be an essential element; otherwise it would be like having a course in music without actually hearing any music.

The strongest support for laboratory work in the biological sciences just prior to this century, according to Hurd (1961), came from the psychological theory of mental discipline. As this theory gave way to more modern thinking Watkins (1952) suggested that laboratory instruction should be provided for development of simple laboratory techniques, provide and establish principles for the pupil, provide object teaching, develop better understanding and interpretation of scientific principles, train in science methods, develop experimental solutions of the pupil's own problems, and to study problems arising in class or in life.

It was pointed out by Stollberg (1953) as a result of experience in laboratory that students might become increasingly adept at critical thinking; become increasingly proficient in their powers of observation; develop keenness of initiative, versatility of resourcefulness, and effectiveness

of cooperation; gain deeper insight into the work of a scientist and the role of the laboratory in mankind's progress; acquire an improved understanding of basic concepts, principles, and facts; increase proficiency in general useful skills; and develop an interest in and curiosity about principles and processes related to scientific fields.

Umstatted (1964) noted that although the laboratory has become standard practice integral to most science based courses, it has been subjected to much criticism and there has been little evaluation of its effectiveness. These critics say that much laboratory work consists of repeating a series of exercises the result of which are already known to the student before he begins; thus he lacks the motivation necessary for learning. They see no need to spend time going through the motions of discovering that which is already known. The exercises are regarded merely as hurdles that must be overcome to get the necessary credit.

Watkins (1932) believed that demonstration was a better way of providing the necessary perceptual experience for students. He further stated that as much learning may be accomplished by demonstration in a few minutes as occurs in hours of laboratory exercises. In an experimental study by Postl (1965), no significant difference was shown to exist between the student group having individual laboratory work in a specific course, and those without it. There was no conclusive evidence that the laboratory contributed directly

to the goals of the course tested. Results of this study were not to be considered a definite solution to the problem, however, and in view of the admitted indirect benefits accruing from individual laboratory work, Postl did not think it should be eliminated.

In spite of obvious shortcomings and criticism of time and money wasted on laboratory facilities, most educators who have studied this area of learning do not recommend its elimination, according to Hurd (1961). Many advocates have earnestly sought more effective ways of improving laboratory experiences.

Trends in Laboratory Structure. One method advanced for laboratory structuring was an interdisciplinary course. Graty (1966) stated that the need for laboratory work is widely acknowledged by teachers of general education courses of a scientific nature. She further cited a tendency to veer away from the "cook book" experimentation to that which emphasizes an understanding of scientific inquiry, either by duplication of classical experiments or by development of open-ended experimentation through the problem solving approach. One method advanced by Graty was an interdisciplinary course in which laboratory time would be used to assist students in perceiving problems of living in the widest range possible. This includes an historical viewpoint, a comprehension of the community, and the realization of self as a citizen in a world-wide setting. It has become increasingly evident that

man has been unable to solve many of his problems despite the overwhelming growth of knowledge. These tremendous advances must be understood in principle and application.

Rutledge (1966) advocated a definite distinction between laboratory exercise, experimentation, and experience gathering. Within the last decade, there has been renewed emphasis on problem solving to give meaning to the laboratory experience. This tends to create greater integration between laboratory and classroom. With more emphasis on problem-solving there has been a decline in the stress on the laboratory exercise as such. The term being used at present for problem-solving in laboratory is "inquiry" or "scientific process" according to Rutledge.

Schwab (1962) described the laboratory as having two major functions: (1) to provide a tangible experience or problem to be dealt with and valid data acquired; and (2) to provide occasions for and investigation into the conduct of small but exemplary programs of importance. A third but minor function was mentioned by Schwab as the erasing of artificial distinction between classroom and laboratory, between mind and hand, between knowing and doing. To achieve these functions the laboratory work should be done before class discussion or should deal with areas not discussed in class at all. Although he agreed to some degree of structuring for the laboratory phase he suggested presentation of a phenomenon only, with identification of the problem and devising of

procedures left to the student.

The most meaningful and highly motivated situations have come from experiences in which laboratory instructors suggested problems and ways for the student to seek an unknown relationship or had presented a general phenomenon with formulation of problems and procedures left to the student (Schwab, 1962).

A course designed to emphasize inquiry is an introductory course in botany taught by Davidson (1959) at The University of Nebraska. He introduced the course on the basis of experience in the laboratory without prejudices such as text, laboratory manual, or lecture. His introductory statement on the first day of class pointed to the heart of his belief. He stated "Our conclusions must be based upon our observations in the laboratory. Books may serve well as a source of ideas, but let us not use them as a source of facts. These come from the plants studied in the laboratory." Students are supplied with materials and space to work. The work of the course stresses observations and student discussion, but the student is required to keep a laboratory journal. According to Davidson, the instructor must establish basic ground rules of procedure, raise pertinent questions, act as moderator for student discussions, and assist students in determining what they wish to do in the laboratory. He does not direct, lecture, or give formal answers to questions. Davidson found this method helped students cover more materials, cover them

more intensively, and retain the information more effectively than the usual classroom and laboratory procedures.

Another prominent advocate of problem solving through inquiry is Hatch (1957). He explained inquiry as a process used by professors as background for teaching and research, and he related this process to students in that they should also be allowed to inquire. By denying them a part in the problem-solving conversation they are denied the "enrichment" and the "development" they should expect from a university.

Hatch's (1957) approach demands a great deal of time and versatility. The teacher must help the student find his way through difficult material while refraining from telling the student what he thinks or knows. Hatch recognized that teachers of little energy or scholarship are not likely to encourage their students to inquire. In competent hands the most intellectual material can be presented to students at almost any level so they will be motivated. Mass manipulation and observation in which students follow instructions line by line, obediently but uncritically, should be replaced by laboratories of experimentation and observation by individual students inquiring on their own.

How inquiry can be used in the laboratory alone to impel the student to think is described by Hatch (1957). The instructor announces the problem and students are free to observe, test, or experiment as the problem requires. There is no laboratory manual or instruction sheets but students

must devise some method of obtaining an answer to the problem with the background knowledge and materials he has. The instructor then asks such questions as: "What are you looking for? Why did you do what you did?" If different responses are given, then the entire class is asked to evaluate the responses.

The same idea of presenting laboratory materials was described by Miller (1956) in the teaching of physics. He advocated the use of demonstration, discussion, and observation as means of laboratory instruction. He uses no laboratory manual or instructional sheets but devotes 20 to 30 minutes discussing problems and materials, then sketches any needed set-ups and calls attention to observations to be made. Formal instruction is reduced to two or three lines written on the blackboard. From here on the student must experiment. A brief write-up is required at the end of each laboratory period and the next lecture is spent in discussion. Miller feels that the spirit of exploration and investigation is more highly motivated in this atmosphere and this is reason enough to overcome many shortcomings that could be pointed out.

Value of Laboratory Experience. According to Hatch (1957) the structure of society is not static and people must adjust to changing conditions. He recognized that educational programs must enable young people to adjust to modified conditions. Laboratory activities can aid in this function by stressing practice in inquiry, in investigation, in the

collection of evidence, and in reaching decisions. Critical thinking fostered in the laboratory can be transferred to many areas of living and social problems of everyday life. Laboratory activities can afford excellent opportunities for the student to think reflectively and to be able to work through problems. In addition, laboratory activities promote respect for the individual and his ability as well as group responsibility, according to Miller (1956). The laboratory is a place where problems may be attacked by an individual or by several individuals working toward a common goal.

Hatch (1958) found that educators criticized the usual laboratory experience because they believed it to be problem-doing and not problem-solving. Some are still of this type but for the most part recent research has advocated the continuance of laboratory work based on problem-solving type projects in three main categories: (1) the problem suggested by research as it is carried on in industrial and university laboratories, (2) ideas borrowed from history, and (3) ideas suggested by teaching.

The great debate of the value of laboratory experience is gradually being won by those in favor of its continued existence (Miller, 1956). This has come about, however, only after much evaluation and change in the methods being used. Emphasis on inquiry in the laboratory will obviously continue to grow, if for no other reason than that course materials and ideas have been developed to support it.

Recent studies of educational preparation for the dietitian emphasize that managerial skills are influenced by the extent of coordination of professional courses with actual experience (Lewis and Lachner, 1963).

Evaluation

Basic Elements of Evaluation. Gronlund (1968) indicated that measurement and evaluation, although frequently interchanged, have distinct meanings. Measurement refers to quantitative descriptions of behavior, things, or events. Evaluation is a broader concept that involves quantitative as well as qualitative descriptions. In addition to numerical and verbal descriptions, evaluations include value judgements. In evaluating the achievements of a student, the effectiveness of an institution, or the appropriateness of a curriculum, one is concerned with judging their value. These evaluations, then, are the objectives by which value is determined, and a clarification of these objectives is the first step in the evaluation process.

Evaluation of Instructional Objectives. Teaching effectiveness or success in teaching, according to Phillips (1968), is measured in terms of a goal or objective. If the program or evaluation is to be effective, attention must be given to defining carefully goals of instruction. The three basic steps in the educational process--establishing goals, teaching, and evaluation--should be planned together.

The initial step in an evaluation program consists of identification of objectives of education and translation of these objectives into specific educational outcomes (Phillips, 1968). The second step involves testing, measuring, and appraising of growth adjustment and achievement of the student in relation to the desired educational outcomes. The final step focuses all evaluative data into an over-all appraisal of the individual, class, or learning situation.

Any procedure that appraises the extent to which specified educational objectives have been achieved is called educational evaluation by Lindvall (1967). He indicated the essential purpose of teaching is to produce changes in pupils. A program of instruction must be based upon and guided by information concerning pupil attitude, interest, and achievement.

Evaluation is involved in many phases of planning and operating educational institutions, according to Dressel (1968). It can be used to maintain and improve the quality of instruction. Tests, grades, student opinionaires for appraising teaching, and research are means of assessing and possibly improving the quality of teaching. Evaluation also is a means of improving student learning. The relationship between evaluation and the nature of the learning process emphasizes the development of objectives for guidance of student learning, according to Hill and Dressel (1961). The instructor uses objectives to evaluate progress made by the student.

Objectives must be meaningful to the student and be both attainable and related to day-to-day requirements of the course. To the student, evaluation processes present tangible evidence of the objectives considered important by the instructor. Objectives, instruction, and evaluation must be in accord if students are to be motivated to progress in the desired direction.

Course Evaluation. Cronbach (1968) asserted that course evaluation often is visualized as administration of a formal test at the close of the course. Other approaches proven valuable include progress studies, proficiency measures, attitude measures, and follow-up studies. A progress study is concerned with events taking place in the classroom, studies of careers of those who participated in the course. The follow-up study comes closest to observing ultimate educational contributions, but the completion of such a study is so far removed in time that it is of minor value in improving the course. An ideal evaluation would include measures of all types of proficiency that might be desired in a specific area, not just selected behavioral outcomes.

Curriculum Evaluation. This term has tended to mean different things to different educational groups. To the people in the field of education it has meant the use and interpretation of achievement tests. A more commonly held idea, according to Hastings (1968), starts with the act of stating objectives of a set of materials, as in a full course,

followed by definitions of objectives in expected behavioral outcomes. Items or situations that call for a defined behavior are developed and combined into scorable units. Scores are obtained from appropriate samples of students. The sequence ends with an attempt to interpret scores in terms of extent to which the new materials have developed expected behaviors. It is the framework of this second procedure upon which curriculum developers outside the field of education rely.

Curriculum innovation has two general purposes for evaluation, according to Hastings, (1968). One concerns collection of information to be used as feedback to innovators for further revision. The second purpose is to provide information as input for decisions concerning adoption of course-content improvements. Without such feedback the decision to revise and how to revise must be based upon personal preferences or other less valid methods.

Curriculum investigators usually are concerned with a specific set of curriculum materials, with the concepts of retention, transfer of learning, and concept formation. At this point, they must identify various levels of learning so that broad principles or generalizations can be made. From these principles come specific courses, units, and lessons to complete the cycle.

Dalrymple (1967) delineated three major stages in developing a teaching program for institution management: curriculum structuring, course structuring and unit or lesson planning.

The following necessary steps are:

Identify expected behavioral outcomes of students.

Identify concepts or key ideas students are expected to know.

Identify major generalizations or understandings students must have.

Identify specific abilities students must gain.

Identify sequential stages in gaining an understanding of these expected outcomes.

Identify courses needed in order to provide developmental stages of learning of students.

Identify faculty and staff members who will assume responsibility for developing appropriate courses.

Identify each lesson in your course that can lead students to gain understandings and abilities appropriate at that particular stage.

Identify means of assessing the extent to which sub-concepts and abilities appropriate to this stage of development are being obtained.

The evaluation process provides a means of determining the extent to which the student has developed expected behavioral outcomes, assesses the value of the total curriculum, and indicates when and where revision or change is necessary.

Dietetics and Institution Management Conferences

Aware of the need for improvement of curricula and methods of evaluation, conferences of educators have been held to assist colleges and universities in focusing on the total educational program for dietetic students.

A group of home economics and dietetic internship faculties convened at the University of Wisconsin in 1962 to

consider the education of the dietitian. Among the expressed objectives of this conference were: (1) to evaluate the total educational preparation and experiences of the dietitian in view of changing conditions in institutions of higher education and the changing role of the dietitian and (2) to explore methods of learning and programs of professional experience to allow for acceleration and enrichment of the dietitian's education (Robinson, 1963). Some of the questions presented for discussion as indicated by Cederquist and Shugart (1962) were:

Do we need to shorten the time that it takes to educate the dietitian?

Would integration of the internship in the curriculum help to attract students in the field of dietetics?

Is there too much variation in the basic preparation of students entering internships?

These questions and others helped to stimulate educators in the field of institution management to take a closer look at student education.

Following these meetings a "working" conference for institution management teachers was held at Kansas State University (Proceedings, 1962). The objectives were to evaluate the present curriculum and course content in various institution management programs and to develop plans for future meetings. In conclusions drawn at the conference, Robinson (1963) noted:

There was an awareness throughout the meeting that students need to be so prepared that they are able to adapt to a rapidly changing world. Teachers were

cautioned that they should be aware of distant meanings of present trends and flexible enough to adapt and change.

The second conference (Proceedings, 1963) was convened at the University of Illinois in 1963. The theme of this meeting was "A new approach to our teaching."

The third conference (Proceedings, 1965) had as its theme "Curriculum development for the profession", and its objectives were:

To identify and clarify the concepts, generalizations, and principles that are vital in the teaching of institution management on the college and university level; to formulate the structural framework that will serve as a basis for curriculum planning and teaching.

It was within the framework of this conference that the guidelines for developing a curriculum in institution management were initiated. This structural framework began with definitions and statements of needs for concepts and generalizations. Simpson (1965) wrote:

Concepts are abstractions which are used to organize the world of objects and events into a smaller number of categories. These, in turn, can be organized into hierarchies.

A 'generalization' is a complete thought which expresses an underlying truth, has an element of universality, and usually indicates relationship.

The fourth conference was held at the University of Chicago in 1967 to discuss "Curriculum planning: formulating generalizations" (Proceedings, 1967). The objective was to formulate generalizations of previously identified concepts in institution management that form the structural framework for curriculum planning on the college and university level.

As a result of this conference (Ostenso and Hunzicher, 1967) a tentative structural framework for curriculum development was established. Teachers were encouraged to experiment with this guide in developing and revising programs.

A guide was set up for all decisions made in relation to determining stages of development leading to professional competence, courses required for developing competence, and sequence of course experiences that lead to expected behavioral outcomes. This working material included three aspects of a program structure: (1) a statement of expected outcomes (objectives), (2) identified major concepts and sub-concepts, (3) a statement of major generalizations of the identified concepts.

Definitions basic to the use of this guide are:

Expected outcomes (objectives) are the end result of a professional program for institution management students stated in terms of behaviors.

Concepts are the large over-arching categories of ideas essential to successful performance by professional persons in the field of institution management.

Generalizations are the all-encompassing understanding that form the framework of learning involved within the major concepts.

The extent to which students have attained the expected outcomes in a course is the assessment of the extent to which the teacher has been successful in guiding the student. If skillful, the teacher will have led the students to discover knowledge, develop concepts, and become competent professional beginners who can adapt to changing conditions as they assume

a professional role (Dalrymple, 1967).

The committee of the Fourth Conference of College and University Faculties of Institution Management (Proceedings, 1967) cautioned that the educational organization should be designed to carry out the curriculum theory, not the other way around. Skillful leadership and foresight can eliminate many problems associated with implementing a program. The true test of a completed program must ultimately be the extent to which the student is able to attain the expected outcome in any course of study.

PROCEDURE

Preliminary Review

Structural Framework from Institution Management Conference. The structural framework for an institution management curriculum as developed at the Fourth Conference for College and University Faculties of Institution Management (Proceedings, 1967) was used as a basis for reviewing and revising the major institution management courses at Kansas State University.

Three aspects of a program structure were identified at the conference as:

1. A statement of expected outcomes (objectives) of the instructional program for Institution Management graduates.
2. Major concepts and sub-concepts identifying the categories of learning significant or basic to the attainment of behaviors or abilities needed by professional persons.

3. Major generalizations or understandings of the identified concepts necessary for high quality performance in the professional role.

Definitions basic to the use of the structure, also adopted for use by the institution management faculty, were:

1. Expected outcomes (objectives) are the end result of a professional program for institution management students stated in terms of behaviors.
2. Concepts are the large over-arching categories of ideas essential to successful performance by professional persons in the field of institution management.
3. Generalizations are the all-encompassing understanding that form the framework of learning involved within the major concepts in the institution management field of study.

Concepts for institution management as identified at the fourth conference were: institution, management, and technical operations. Technical operations were selected as the basis for this study.

The sub-concepts applicable to technical operations were identified by the conference as: menu planning, purchasing, production, service, distribution, facilities, and finance. Generalizations for these sub-concepts were developed by the conference and are included in Appendix A. Expected outcomes (objectives) for Institution Management graduates pertaining to technical operations were:

1. Recognizes the significance of the fact that a food service system is a unified, complex organization performing highly dependent and specialized functions.
2. Understands the technical operations involved in the production, distribution, and service of high quality food in food service systems with varying organizational structures and objectives.

Institutional Management Course Revision. The Curriculum Committee of the Department of Institutional Management at Kansas State University accepted these concepts and sub-concepts as a basis for planning curriculum revision. The committee identified the total body of knowledge in institution management and divided it into subject areas from which five courses were developed (Appendix A). Behavioral objectives were written for each of the courses (Appendix A) and course content and laboratory experience developed. The resulting courses were similar in name to those currently being offered, but subject matter content was adjusted to conform to the new objectives.

Laboratory experience was assigned to two courses: Quantity Foods, emphasizing principles of food preparation in quantity; and Food Production Management with emphasis on technical operations.

To provide more meaningful experiences in technical operations and give the students an opportunity to see a food service operation as a whole, the decision was made to lengthen the laboratory periods for Food Production Management.

To make this possible plans were made to coordinate Food Production Management with Quantity Food Purchasing and Control and Food Service Equipment and Layout as a teaching "block". The total course content of the last two courses and the theory portion of Food Production Management were planned for the first nine weeks, laboratory experience for

Food Production Management the second nine weeks.

Study of Food Production Management Laboratory

Purpose. The objective of this study was to develop and evaluate the laboratory experience for the revised course Food Production Management previously identified as the major course in which technical operations would be emphasized.

Investigation was conducted in three phases: (1) identify objectives, concepts, sub-concepts and generalizations necessary for the development of competences in technical operations by Institutional Management students, (2) develop laboratory experience for the course Food Production Management that would provide an opportunity for the student to attain expected behavioral outcomes, and (3) evaluate the amount and degree of transfer of learning from theory to practice attained through the laboratory experience.

Concepts, Sub-concepts, and Generalizations. Objectives for the laboratory portion of the course Food Production Management were written (Appendix B). Technical operations, as identified by the Fourth Conference of Institution Management Faculties, was accepted as the concept for the laboratory. Sub-concepts accepted were: menu planning, purchasing, production, service, distribution and facilities. Training was added as a seventh sub-concept for this laboratory experience. Generalizations from the Conference were accepted by the instructors and used as a basis for selecting student

laboratory experiences. These generalizations were not specifically identified for the student.

Development of Laboratory Experiences. A general outline was developed for the complete experience and each laboratory section was divided into units. Experiences for each unit were developed. Examples of this material may be found in Appendix B.

Scheduling of Laboratory. The three courses in the teaching block were scheduled on two days of each week (Tuesday and Thursday) from 8:30 to 11:30 and from 1:30 to 3:30 the first nine weeks of the fall semester. Students were asked to schedule no other classes on these two days so that the time would be free for Food Production Management Laboratory the second half of the semester.

Subjects for this study were junior and senior students enrolled in the Food Production Management class. Twenty were majors in Dietetics and Institutional Management and four were in the Restaurant Management curriculum. Students were assigned for the entire nine weeks to one of the four residence halls designated by the Department of Housing and Food Service to be used for this experience. Students were scheduled for two days in each unit according to a rotating schedule (Appendix B). General assignments were provided for Unit IV Supervision and Unit V, Food Production Management. Daily assignments were made in all other units according to the day's menu. (Appendix B)

Although the laboratory experience contained some degree of structuring students were given an opportunity to exercise their own initiative to accomplish assignments and to take advantage of opportunities for self development.

Saturday and Sunday of the last week were set aside for a practical final examination. Each student drew the weekend assignment for which he was responsible. All Civil Service personnel were excused from two residence halls and the students accepted responsibility for the complete operation. One dietitian was present on each shift for observation and guidance if needed but did not participate in the operation.

Evaluation

Competences gained in technical operations were evaluated by: (1) a daily evaluation by students, (2) an anecdotal record, (3) a professional development form (Evaluation Form "A") used at The Ohio State University for the evaluation of students in their Medical Dietetics Program, and (4) a general information, multiple choice test. Copies of these forms are included in Appendix C.

Daily Evaluation by Students. These forms, filled out at the end of each laboratory period by the student, indicated specific areas of learning with each new experience. Also noted by the student was any previous experience in that particular area and if so, whether the job was accomplished in a different manner. These evaluations, which were read by the

two dietitians and a supervisor from each of the halls, indicated areas of greatest need for the student and weaknesses in the experience.

Anecdotal Record. In addition to the more conventional classroom tools of evaluation, anecdotal descriptions of students' behavior during actual experience were kept by the dietitians directing the laboratory and by the head supervisor in the assigned hall. These behaviors also were compared with the descriptive graphic rating scale from The Ohio State University to determine its compatibility with the laboratory objectives for Food Production Management.

Evaluation Form "A". Professional development of students was measured by Evaluation Form "A" after one week of laboratory and again after completion of nine weeks of laboratory experience. Each student was rated on 12 factors on a scale of one to five.

Test. A test was developed with the assistance of faculty members in the College of Education and the Department of Institutional Management at Kansas State University. The test contained 101 general information, multiple choice questions pertaining to quantity food production management. They were arranged in five general subject areas: food production management and control, menu usage and service, ordering and recipe standardization, quantity food production, and sanitation. The material was pretested by a class of graduate students. The test required approximately one hour to

complete.

The test was given to the 24 students in Food Production Management at two different times; once before starting the laboratory and a revised form (Appendix C) of the same test upon completion of the class.

Fourteen students in Quantity Foods, the beginning course for majors in the Department of Institutional Management, were selected as a control group. They were given the same test at the beginning of the course and the revised test again nine weeks later.

Students were asked to list kind, location, and amount of previous food service experience. This experience was divided into three categories. Category "A" denoted a form of structured or supervised experience, "B" was minimal experience with no supervision, and "C" indicated no experience.

Statistical Analysis

Test scores for the 101 multiple choice questions were tabulated and recorded on computer cards by groups according to amount of experience. Data were analyzed by the Kansas State University Statistical Laboratory. Analysis of variance using least squares was used to ascertain significant differences.

Statistical analyses were designed to: (1) compare the experimental group after nine weeks of lecture and recitation with the control group having had none, (2) compare the two

groups after the experimental group had completed nine weeks of lecture and recitation and nine weeks of laboratory in the course Food Production Management and the control group had completed nine weeks of lecture and recitation in the course Quantity Foods, (3) compare the gain in correct answers for the experimental group between pre- and post-tests with the gain in correct answers of the control group between pre- and post-tests, (4) measure homogeneity of the groups after nine weeks of lecture and recitation in Food Production Management for the experimental group and nine weeks of lecture and recitation in Quantity Foods for the control group, and (5) if final rating, based on the Evaluation Form "A", was influenced by amount of previous practical experience in the field.

RESULTS AND DISCUSSION

Evaluation

Daily Evaluations. Most students had not previously participated in the assigned experiences outside the classroom. Those who had previous experience, in most cases, reported using different methods. Instructors concluded that students felt the need for more emphasis in purchasing and supervising. Final evaluations showed that students believed the greatest gain from the laboratory was in working with other people.

Anecdotal Records. Instructors, in consultation with the College of Education, determined that Evaluation Form "A" could be used to measure professional development of students

in the class. This decision was made on the basis of comparison of the anecdotal records with Evaluation Form "A".

Comparable areas are listed in Appendix C.

Evaluation Form "A". Average ratings for the 24 students on each of the 12 factors from Evaluation Form "A" are shown in Table 1. Tabulations and statistical analyses of individual student evaluations are given in Tables 11, 12, and 13 (Appendix D). Results showed a gain between the first week of laboratory experience and nine weeks later in all factors rated. Areas of greatest gain were: verbal communication and ability to work with others. Least gains were in the areas of personal appearance and written communication. Ratings in personal appearance were higher at the beginning of the laboratory than in other areas which may account for the small gain.

Test. Test scores by number of questions missed were evaluated in the three categories indicating amount of previous experiences. Table 2 shows the difference between the experimental group with nine weeks lecture compared to the control group with no lecture. The control group answered more questions incorrectly than did the experimental group. There was a significant difference at the 5 per cent level between the ability of the groups to answer questions correctly at this point. Previous experience did not influence the test scores of either group (Table 3).

Table 1. Pre and post student ratings of the experimental group from Evaluation Form "A" at the end of one week and nine weeks laboratory experience.

Areas scored	Maximum points	Average rating 1 week	Average rating 9 weeks	Increase average	%
Application of knowledge	5	2.42	3.25	0.83	16.6
Organization of work	5	2.83	3.79	0.96	19.2
Verbal communication	5	2.46	3.67	1.21	24.2
Written communication	5	2.83	3.30	0.67	13.4
Work with student and peers	5	2.46	3.58	1.12	22.4
Work with others	5	2.46	3.58	1.12	22.4
Decision making	5	2.50	3.42	0.92	18.4
Industry	5	2.75	3.54	0.79	15.8
Self development	5	2.88	3.42	0.54	10.8
Work performance	5	2.63	3.46	0.83	16.6
Personal appearance	5	3.88	3.96	0.08	1.6
Emotional maturity	5	2.58	3.54	0.96	19.2

Table 2. Analysis of variance (least square) comparing experimental group after nine weeks lecture with control group with no lecture.

Factors	Degrees of freedom	Sums of squares	Mean squares	F value
Groups	1	226.4589140246	226.4589140246	5.25*
Experience	2	14.8571928874	7.4285964437	0.172
Group x Exper.	2	43.0629560915	21.5314780458	0.050
Error	32	1381.4268398269	43.1695887446	

*Significant at the 5 per cent level.

Table 3. Least square means for number of questions missed by experimental and control groups with different levels of experience.

		Experimental Group I	Control Group II	Mean
Experience	A	38.18	45.99	42.09
	B	39.80	47.14	43.47
	C	42.67	44.33	43.30
Mean		40.22	45.83	All over mean 43.02

Table 4 shows a comparison of the experimental group after nine weeks of lecture and nine weeks laboratory and the control group following nine weeks of lecture. The control group again answered more questions wrong than did the experimental group. A significant difference at the 5 per cent level was found between the groups, indicating an increase in learning due to the laboratory experience. No significant difference was indicated due to experience (Table 5).

Table 4. Analysis of variance (least square) comparing experimental group after nine weeks lecture and nine weeks laboratory with control group having only nine weeks lecture.

Factors	Degrees of freedom	Sums of squares	Mean squares	F value
Groups	1	367.4943018928	367.4943018928	5.69*
Experience	2	29.0280902351	14.5140451175	0.22
Group x Exper.	2	20.6997251812	10.3498625906	0.16
Error	32	2063.6673160173	64.4896036255	

*Significant at the 5 per cent level.

Table 5. Least square means for comparing experimental groups after nine weeks lecture and nine weeks laboratory with control group having only nine weeks lecture.

		Experimental Group I	Control Group II	Mean
Experience	A	33.83	43.25	38.53
	B	35.91	42.57	39.24
	C	34.02	39.33	36.67
Mean		34.58	41.72	Over all mean 38.15

A gain in ability to answer questions correctly by the experimental group between pre- and post-tests was compared with the same gain by the control group. Table 6 shows there was no significant difference in their abilities to answer questions correctly. There was no significant difference due to experience, as shown in Table 7.

Table 6. Analysis of variance (least square) comparing difference in number of questions missed between pre- and post-tests for both experimental and control groups.

Factors	Degrees of freedom	Sums of squares	Mean squares	F value
Groups	1	16.9874959067	16.987959067	1.01
Experience	2	44.1960458749	22.0980229375	1.32
Group x Exper.	2	23.1375730476	11.568765238	0.69
Error	32	536.5764069264	16.7680127165	

Table 7. Least square means for comparing experimental group and control groups in number of questions missed between Pre and Post tests.

		Experimental Group I	Control Group II	Mean
Experience	A	4.37	2.75	3.56
	B	3.91	4.57	4.24
	C	8.67	5.00	6.84
Mean		5.65	4.11	Over all mean 4.87

The experimental group was compared with the control group after each had completed nine weeks lecture to determine the homogeneity of the two groups (Table 8). No significant difference was evident in the two groups. They were close in number of questions missed with no significant difference due to experience (Table 9). Complete tabulation of test scores are given in Table 14 (Appendix A).

Table 8. Analysis of variance (least square) to measure homogeneity of the experimental and control groups at the end of nine weeks of lecture.

Factors	Degrees of freedom	Sums of squares	Mean squares	F value
Groups	1	16.2396022217	16.2396022217	0.333
Experience	2	1.5128337954	0.7564168977	0.0155
Groups x Exper.	2	70.6908510697	35.3454255349	0.725
Error	32	1559.0339826840	48.7198119589	

Table 9. Least square means comparing experimental and control groups at the end of nine weeks lecture.

		Experimental Group I	Control Group II	Mean
Experience	A	38.19	43.25	40.72
	B	39.81	41.82	41.19
	C	42.67	39.33	41.00
Mean		40.22	41.72	Over all mean 40.96

Students in the experimental group missed fewer questions in all subject areas than did those in the control group as shown in Table 10. In the post-test both groups showed improvement in percentage of questions answered incorrectly. This gain for the experimental group apparently related to laboratory experience in Food Production Management. The improvement for the control group apparently resulted from the nine weeks lecture in Quantity Foods. The experimental group showed greatest increase in: menu usage and service, and in food production management and control. Least gain was in sanitation. The control groups' greatest gain was in the area of sanitation while least gain was shown in food production management and control. Test results are indicative of different subject matter emphasis in the two classes.

Table 10. Percentages of questions missed by experimental and control groups on Pre- and Post-tests by subject areas.

Subject areas of test questions	Experimental group			Control group		
	Pre-test % missed	Post-test % missed	Difference %	Pre-test % missed	Post-test % missed	Difference %
Food production management and control	40.6	36.2	4.4	54.4	52.7	2.2
Menu usage and service	31.8	26.9	4.9	45.4	42.9	2.5
Ordering and recipe standardization	32.3	31.2	1.1	35.7	39.3	3.6
Quantity food production	42.2	38.0	4.2	45.9	40.7	5.2
Sanitation	23.7	23.3	.4	39.3	27.9	11.4

Practical Final

Student evaluations at the end of the nine weeks' laboratory experience indicated that the practical final was a valuable experience for them. Students believed that the opportunity to implement an assignment on their own and to gain confidence in their ability to accept responsibility was most valuable to them. They could test their ability to make decisions and carry through on the job. A few indicated they would like to have had this particular experience extended and include a wider range of responsibilities. Instructors for the laboratory section believed the practical final gave them a valuable chance to assess transfer of basic principles by the students. Evaluation of this portion of the laboratory was included in the final rating on Evaluation Form "A".

Student Reaction to Laboratory Experience

Daily evaluations and final reports from students revealed a number of interesting and valuable observations. During the first two weeks of laboratory several students indicated a sense of frustration in not knowing exactly how to react to certain new situations. Another reaction revealed by many was the fear of working with people they did not know. Many students expressed approval of the time assigned to each unit, with the possible exception of the food production management week. Most students believed that the week of supervision, the four days of food production management, and

the practical final examination were the most difficult but most rewarding experiences in the laboratory.

Three observations were outstanding in the majority of final evaluations. These were: an opportunity to apply principles to real situations, to be able to work with and respond to someone outside their own peer group, and to see the varied operations of a food service coordinated into a total operation. One student summarized comments for many when she wrote:

The experiences were excellent. I was given the opportunity to learn on the job, to apply what I had studied in books, to gain confidence in myself and others, to understand those with whom I worked and how to deal with them, to listen to employees' ideas and to accept some of them, to see what food production really is and how each area works together as a whole, to see some of the everyday problems in food production, to appreciate "good" food and service, to observe customers pleasures and displeasures, and to know what makes quality food service.

Instructors received many suggestions from the students on how the experience might have been more valuable. Some of these were: concentrate the laboratory experience into four weeks and give full responsibility to students for one half during this time, have laboratory with some lecture time included, have orientation throughout the entire first nine weeks instead of the concentrated two days, and include ordering of food and supplies prior to the laboratory experience. Instructors and students found the practical final examination a rewarding experience. Instructors observed that most students accepted responsibilities with confidence during this

experience.

Instructors' recommendations for future laboratory experience coincide with suggestions offered by the majority of students that there be more coordination between lecture and laboratory, more time spent in orientation earlier in the semester, and more laboratory time in the area of supervision.

SUMMARY

College and university departments of Institution Management are being challenged, by expanding demands in the food service industry, to provide capable management personnel. The Fourth Conference for College and University Faculties of Institution Management (Proceedings, 1967) developed a structural framework to help college and university faculties in efforts to revise curricula.

The Curriculum Committee of the Department of Institutional Management at Kansas State University accepted this framework as a basis for planning revisions. The total body of knowledge was identified by the committee and divided into subject areas from which five courses were developed. Objectives were written for each course and laboratory experience was assigned to two courses. Food Production Management, with emphasis on technical operations, was selected to provide the major laboratory experience. Three of the five revised courses were blocked to provide two days each week with no other classes scheduled on these days during the semester.

Theory in all three courses was concentrated into the first nine weeks. The last half of the semester was devoted to laboratory experience in Food Production Management in Kansas State University residence halls.

Objectives, concepts, sub-concepts, and generalizations as identified by the Conference Committee were adapted for use in developing the laboratory experience. A general outline, experiences for each unit and a rotating schedule were developed. Written assignments were made for each unit.

Twenty four students in Food Production Management were used as the experimental group and 14 students in Quantity Foods as a control group. A testing program was set up to evaluate and compare progress through these courses.

Four means of evaluation were used to determine competences gained in technical operations: (1) daily evaluations by students, (2) anecdotal records, (3) professional development rating scale (Evaluation Form "A" from The Ohio State University), and (4) a general information, multiple choice test.

Daily evaluations indicated specific areas of learning for the student with each new experience. They also indicated areas of need for the student and weaknesses in the experience. The anecdotal record, kept by instructors, was used to determine student behaviors in the laboratory comparable with Evaluation Form "A" rating scale. This rating scale was used before and after the laboratory experience to rate the 24

students in the experimental group.

A test, containing 101 general information questions, was presented to the experimental group before and after the nine weeks' laboratory experience and to the control group before and after the nine weeks' lecture and recitation period. The first test provided space for listing previous food service experience. Statistical analyses were tabulated on test scores and ratings from the Evaluation Form "A".

Instructors concluded from the student daily evaluations that more emphasis on purchasing and supervision was needed. Greatest gain resulted from working with other people.

Anecdotal records were compared with Evaluation Form "A" and the decision was made that it could be used as an evaluation tool for this experience. Areas of greatest gain by the experimental group, as determined by the Evaluation Form "A", were in verbal communication and ability to work with others; least gains were in written communication and personal appearance. Statistical analysis of results showed no significant difference due to experience for the experimental group.

Statistical analysis of test scores showed a significant difference between experimental and control groups due to the effects of nine weeks' lecture and a significant difference due to nine weeks' laboratory. There was no significant difference due to experience. Analysis of scores after nine weeks of lecture for both groups showed that the difference at this point was not significant but did indicate a small

difference due to experience.

Final evaluations from students in the experimental group reflected a favorable attitude toward "blocking" of the courses. Some students suggested less rigidity in the division between lecture and laboratory. Most students enumerated reasons why this experience would be valuable to them in the future and recommended that the expanded laboratory continue.

CONCLUSIONS AND RECOMMENDATIONS

Results of this study indicated that:

1. Students showed a significant increase in learning as a result of the laboratory experience, as determined by test scores.
2. Progress in professional development varied among individual students but most showed advancement, according to ratings from Evaluation Form "A".
3. Previous experience had little effect on advancement in learning or professional development during the nine weeks.
4. Instructors observed that students gradually assumed more responsibility for their own assignments during the nine weeks.
5. Students believed they could recognize the individual specialized units as parts of a total food service system.

Student evaluations were for the most part favorable toward the longer laboratory experience made possible by "blocking" of three major courses. Instructors generally agreed with students on the value of this extended laboratory.

On the basis of favorable evaluations in this study it is recommended that the three courses again be blocked and

that the extended laboratory be continued.

Suggested changes for improvement of the course agreed on by students and instructors are:

1. Orientation to laboratory be incorporated in the first nine weeks of lecture.
2. Some recitation time be included in the nine weeks of laboratory to provide an opportunity for class to discuss experiences to aid in transfer of theory.
3. The purchasing course be coordinated with the laboratory.
4. More laboratory time be spent in the supervision unit.

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REFERENCES

- Ashe, W. F., and Lewis, M. N. 1965. Medical Dietetics: Part I, J. Amer. Dietet. Assoc. 47, pp. 297-298.
- Bloetjes, M. K., Couch, M. A., and Gottlieb, R. 1962. A study of dietetic training. J. Amer. Dietet. Assoc. 41, p. 550.
- Bloom, B. D. 1956. Taxonomy of Educational Objectives. Handbook I: Cognitive Domain. David McKay Co., Inc., New York.
- Butterworth, T. H. 1966. Learning-principles, practices and results. J. Amer. Dietet. Assoc. 49, pp. 15-19.
- Cederquist, D. C. and Shugart, G. M. 1962. Education of the dietitian--a dietetic conference. J. Home Econ. 54, p. 721.
- Committee on Goals of Education for Dietetics. 1969. Goals of the life-time education of the dietitian. J. Amer. Dietet. Assoc. 54, pp. 91-93.
- Cronbach, L. F. 1968. Course Evaluation. pp. 37-52. Merrill Co., Columbus, Ohio.
- Dalrymple, J. I. 1965. Current structuring of home economics curriculum. J. Home Econ. 57, pp. 431-433.
- Dalrymple, J. I. 1967. Proceedings--Fourth Conference College and University Facilities of Institution Management. pp. 11, 51-52. Univ. of Chicago, Chicago.
- Daniels, E. and McCullough, J. F. 1962. As teachers--what type of person do we want to produce? Proceedings of the First Conference of Institution Management. pp. 53-57. Sponsored by American Home Economics Association and American Dietetic Association, Kansas State University, Manhattan.
- Davidson, J. F. 1957. An experimental approach in teaching elementary botany. American Biology Teacher. 19, pp. 1948-1951.
- Dressel, P. L. 1968. Measurement and Evaluation of Instructional Objectives. pp. 11-17. Houghton Mifflin Co., Boston, Mass.

- Dressel, P. L. 1963. The Undergraduate Curriculum in Higher Education. Ch. 1-8. The Library of Education, Center of Applied Research in Education, Inc., Washington, D.C.
- Graty, P. 1966. An interdisciplinary approach to science teaching for general education on the college level. Science Ed. 50, pp. 285-292.
- Gronlund, N. E. 1968. Constructing Achievement Tests. Ch. 8-9. Prentice-Hall Inc., New York.
- Gronlund, N. E. 1968. Readings in Measurement and Evaluation. Ch. 1-2. MacMillan Co., New York.
- Hall, O. A., and Paolucci, B. 1963. Teaching Home Economics. pp. 153-158. John Wiley and Sons, New York.
- Hastings, J. T. 1968. Curriculum Evaluation. pp. 53-60. Merrill Co., Columbus, Ohio.
- Hatch, W. R. 1957. Inquiry into Inquiry, Improving College and University Teaching. 5 (4), pp. 93-99.
- Hatch, W. R. 1957. The Socratic method in modern dress. Improving College and University Teaching. 5 (3) pp. 60-62.
- Hatch, W. R. 1958. The laboratory. Improving College and University Teaching. 6 (2) pp. 51-52.
- Henderson, G. M. 1965. Issues confronting Home Economics in colleges and universities. J. Home Econ. 57, pp. 759-764.
- Hill, W. H. and Dressel, P. L. 1961. Evaluation in Higher Education. pp. 27-53. Office of Instructional Research, Michigan State University, East Lansing, Mich.
- Hurd, P. D. 1961. American Instructor of Biological Sciences. p. 18. University Press of Washington, Washington, D.C.
- King, A. R., and Brownell, J. A. 1966. The Curriculum and the Disciplines of Knowledge. pp. 158-183. John Wiley and Sons, New York.
- Labosky, D. P. 1960. College students' attitudes toward the professions. J. Amer. Dietet. Assoc. 37, p. 13.
- Lewis, M. N., and Lanchner, B. J. 1963. New medical dietetic program coordinates classroom and clinical experience. J. Amer. Hospital Assoc. 37, pp. 94-100.

- Lindvall, C. M. 1967. Measuring Pupil Achievement and Aptitude. pp. 1-11. Harcourt, Brace and World Inc., New York.
- Miller, G. A. 1960. Academic preparation for food service management. I. Evaluation of curricula. J. Amer. Dietet. Assoc. 37, p. 21.
- Miller, G. A. 1960. Academic preparation for food service management. II. Recent graduates evaluate their education. J. Amer. Dietet. Assoc. 37, p. 27.
- Miller, G. A. 1960. Academic preparation for food service management. III. Employers assess collegiate programs. J. Amer. Dietet. Assoc. 37, p. 121.
- Miller, G. A. 1960. Academic preparation for food service management. IV. Views of educators and conclusions. J. Amer. Dietet. Assoc. 37, p. 124.
- Miller, J. S. 1956. An attempt at elementary laboratory without a manual. School Science and Mathematics. 56, p. 516.
- Mongeon, M. 1964. Adequacy, Degree, and Place of Emphasis in Attainment of Management Competences by Dietetic Students, Masters Thesis, pp. 51-55. Kansas State University, Manhattan.
- Ostenso, G., and Hunzicker, B. 1967. Institution management curriculum-structural framework. Proceedings of the Fourth Conference on Institution Management. Sponsored by American Home Economics Association and American Dietetic Association, pp. 40-48. University of Chicago, Chicago.
- Phillips, R. C. 1968. Evaluation in Education. pp. 1-25. Foundations of Education Series. Bell and Howell Co., New York.
- Postl, A. 1965. The value of lab work in the natural sciences for students in programs of general education. Science Ed. 49, pp. 111-116.
- Proceedings--Institution Management Conference. 1962. Kansas State University, Manhattan.
- Proceedings of the Second Conference on Institution Management. 1963. University of Illinois, Chicago.

- Proceedings of the Third Conference--College and University Teachers of Institution Management. 1965. University of Chicago, Chicago.
- Proceedings--Fourth Conference--College and University Faculties of Institution Management. 1967. University of Chicago, Chicago.
- Reaves, P. M. 1965. Views on curriculum organization and development discussion. Conference on undergraduate education in dairy science. J. Dairy Science. pp. 563-564.
- Riggs, J. 1963. Changing laboratory experiences. Proceedings of the Second Conference on Institution Management. Sponsored by American Home Economics Association and American Dietetic Association. pp. 57-59. University of Illinois, Urbana.
- Robinson, W. F. 1963. Dietetic education. J. Amer. Dietet. Assoc. 43, p. 110.
- Rutledge, J. A. 1966. Inquiry in the high school science laboratory. Science Education. 50, pp. 411-417.
- Sabine, G. 1963. The college student, 1963. J. Amer. Dietet. Assoc. 43, p. 95.
- Schwab, J. J., and Brandewein, P. F. 1962. The teaching of Science. pp. 53-56. Harvard University Press, Cambridge, Mass.
- Simpson, E. 1965. Concepts and Generalizations. Proceedings of the First Conference on Institution Management. Sponsored by American Home Economics Association and American Dietetic Association. pp. 26-28. Kansas State University, Manhattan.
- Stollberg, R. 1953. Learning in the laboratory. Bulletin of the National Association of Secondary School Principles. 37, pp. 102-103.
- Umstatted, J. B. 1964. College Teaching. pp. 190-201. University Press of Washington, Washington, D.C.
- Watkins. 1932. A Program for Science Teaching. pp. 270-271. The Thirty First Yearbook of the National Society of the Study of Education. University of Chicago Press, Chicago.
- Welch, J. M. 1962. Prior planning pays. J. Amer. Dietet. Assoc. 41, p. 45.

Wenberg, B. G., and Ingersoll, R. W. 1964. The development of evaluating techniques for medical dietetics. J. Amer. Dietet. Assoc. 47, pp. 298-300.

Wenberg, B. G., Ingersoll, R. W., and Dohner, C. W. 1969. Evaluation of dietetic interns. J. Amer. Dietet. Assoc. 54, pp. 297-301.

APPENDIX A

Goals of the Lifetime Education
of the Dietitian

COMMITTEE ON GOALS OF EDUCATION FOR DIETETICS,
DIETETIC INTERNSHIP COUNCIL,
THE AMERICAN DIETETIC ASSOCIATION

These goals for Lifetime Education of the Dietitian define, unify, and give direction for basic professional and continuing education and personal development. These statements can be effective when used as a framework for the interpretation of the profession of dietetics. They serve as a basis for (a) recruitment of youth to the undergraduate education through understanding of the profession by counselors, parents, and youth, (b) college curriculum for understanding of objectives by students, faculty, and administrators, (c) internships for pointing the way in their programs, and (d) the ongoing continuing education and development throughout the lifetime of each dietitian. They have been accepted as the current goals for all in the profession of dietetics.

Many professions are studying, reassessing, defining, redefining, and restating goals of education and function. With the new and the altered programs and legislation in health and medical care systems, as well as the explosion of knowledge in science, technology, management, and behavioral sciences, medical and allied health professions are at work singly and together on goals of education, both basic professional and continuing.

The charge to the Committee on Goals of Education for Dietetics was to identify those qualities which, to some degree, should be characteristic of every dietitian. If we are to designate dietetics as one profession, there must be a unifying core of characteristics for anyone or all in the

profession. The task of the Committee was not to identify those special responsibilities needing specialized education or experience. Subsequent statements are necessary on the educational requirements and desirable achievements in specialty responsibilities in dietetics.

The Committee believes that his set of lifetime goals of the dietitian has some valuable contributions to the profession of dietetics:

(a) It has identified the unique role of the dietitian as being nutritional care. Every profession must identify its own unique contribution. The goals perform this function for our profession.

(b) It denotes qualities that beginners in the profession should have attained to some degree and that should continue to grow with experience. It is recognized that some individuals may arrive at various degrees of progress to the goals at different times in life.

(c) It constitutes a pattern for progressive future efforts in educational programs, and it provides a guide for individual self-improvement.

(d) It stresses an attitude of progressive development of the profession and its members with the changing environment, knowledge, and health care programs.

The development of the statement of goals has also necessitated the writing of fundamental definitions to clarify and unify terminology which is currently and confusingly used

regarding dietetics in dictionaries and other publications.

The assessment of the value and soundness of these general lifetime goals of the dietitian can be made solely through putting them into practice in professional life in all situations. Methods for achieving these or any such goals necessitate construction, review, and revision of programs, procedures, and ideas.

Fundamental Definitions:

(a) "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." - World Health Organization.

(b) Science and art includes science as systematized knowledge derived from exact observations or experimentation and evaluation carried on to identify facts, phenomena, laws, and proximate causes; and art as skill in performance acquired by study, observation, and experience.

(c) "Nutrition is the science of food, the nutrients and other substances therein, their action, interaction, and balance in relation to health and disease and the processes by which the organism ingests, digests, absorbs, transports, utilizes, and excretes food substances. In addition, nutrition must be concerned with certain social, economic, cultural, and psychological implications of food and eating." - Council on Foods and Nutrition, American Medical Association, 1962.

(d) Nutritional care is the application of the science and art of human nutrition in helping people select and

obtain food for the primary purpose of nourishing their bodies in health or in disease throughout the life cycle. This participation may be in single or combined functions: in feeding groups involving food selection and management; in extending knowledge of food and nutrition principles; in teaching these principles for application according to particular situations; and in dietary counseling.

(e) Profession is a calling requiring specialized knowledge and often long and intensive preparation including instruction in skills and methods as well as in scientific, historical, or scholarly principles underlying such skills and methods, maintaining by force of organization or concerted opinion high standards of achievement and conduct, and committing its members to continued study and to a kind of work which has for its prime purposes the rendering of a public service. - Webster's Third International Dictionary.

(f) Dietetics is a profession concerned with the science and art of human nutritional care, an essential component of the health sciences. It includes the extending and imparting of knowledge concerning foods which will provide nutrients sufficient for health and during disease throughout the life cycle and the management of group feeding for these purposes.

(g) A dietitian is a specialist educated for a profession responsible for the nutritional care of individuals and groups.

Goals of Lifetime Education - In Terms of Achievements:

The Dietitian:

I. IS COMMITTED TO EXCELLENCE IN THE NUTRITIONAL CARE OF INDIVIDUALS AND GROUPS. All dietitians contribute to nutritional care. The dietitian is dedicated to excellence in professional service. In the achievement of excellence, he is responsible for the establishment of goals for service and the assessment of progress towards these goals.

II. COMPREHENDS, INTERPRETS, AND APPLIES THE SCIENCE AND ART OF NUTRITION IN THE PROMOTION OF INDIVIDUAL, GROUP, AND COMMUNITY HEALTH. Requisite for the dietitian is a thorough knowledge of the scientific bases of human nutritional needs, including biochemical, physiologic, and psychologic relationships throughout the life cycle in health and in disease. Interpretation and application of the science of nutrition involves creative dealing with people and situations, with knowledge of food in its many implications for health, and with communications directly to people or indirectly through the efforts of others for nutritional care.

III. UNDERSTANDS THE SIGNIFICANCE OF SCIENTIFIC INQUIRY AND INTERPRETATION IN ADVANCING PROFESSIONAL KNOWLEDGE AND IMPROVING STANDARDS OF PERFORMANCE. Understanding and appreciation of research and the ability to evaluate and interpret findings are essential for effective

professional practice. The scope of this research is broad. It includes such areas as nutritional, behavioral, and managerial sciences; technologic developments in food production, processing, and marketing; food service systems and equipment; automation and information processing. The dietitian evaluates new research findings and utilizes those that are valid and appropriate for the nutritional care of people.

IV. SHARES RESPONSIBILITY WITH ASSOCIATED PROFESSIONALS BY CONTRIBUTING HIS SPECIALIZED KNOWLEDGE OF NUTRITION.

The dietitian on the multidisciplinary team collaborates with others in planning, executing, and evaluating his contributions to comprehensive health care programs.

These are components of nutritional care in the prevention, treatment, and control of health problems of individuals and families, groups, or communities. This care may be given in a variety of settings; hospitals, extended care facilities, government or voluntary health agencies, industries, business, or schools.

V. ADAPTS PLANNING AND PERFORMANCE TO ENVIRONMENTAL FACTORS AND CHANGES, RECOGNIZING PHYSIOLOGIC, PSYCHOLOGIC, SOCIAL, POLITICAL, CULTURAL, AND ECONOMIC INFLUENCES.

The dietitian is alert to the emerging concepts in science and technology and the environmental influences within society which will require alterations in the goals of health care and the methods of achieving them.

At the same time, he is prepared to accept and work with individual differences in food practices and varying attitudes toward the role of nutrition in the promotion of health and the control of disease.

VI. DEMONSTRATES RESPECT AND EMPATHY FOR PEOPLE AND APPRECIATION OF AN INDIVIDUAL'S CAPACITY TO CHANGE AND DEVELOP. Sensitivity to and acceptance of the attitudes and behavior of individuals is essential for teaching, guiding, and directing. The dietitian is responsible for providing an atmosphere in which an individual may be motivated to learn and profit from his learning. Such experiences, in which the teacher and the learner are mutually involved, increase reciprocal understanding and permit both to become better and more responsive individuals.

VII. IS COMPETENT IN MANAGING AVAILABLE RESOURCES IN THE PROVISION OF NUTRITIONAL CARE. Management is the coordination of available resources for decision-making to achieve specified goals. Managerial competency is essential for all dietitians in their particular spheres of endeavor. The provision of nutritional care requires effective management of resources--physical facilities, finances, and people--to the end that people needing care receive it. The emergence of new management theories in personal-interactions and the dynamic evolution of health care emphasize a need for anticipatory

management to meet the needs of a rapidly changing demand for professional services.

The dietitian recognizes that one of his most important resources is himself. Competency in management includes ability to assess and use his own time and talents effectively.

VIII. MANIFESTS PROFICIENCY IN COMMUNICATION. Skill in communicating with those whose work or well-being are the dietitians' responsibility necessitates effective listening, speaking, reading, and writing. The dietitian, with an awareness of modern communication theory and methods, selects the channels through which he can best communicate.

IX. MAINTAINS THE DISCIPLINE AND SELF-AWARENESS OF THE PROFESSIONAL PERSON AND ACCEPTS RESPONSIBILITY FOR THE CONTINUING DEVELOPMENT OF HIS OWN COMPETENCE. Recognition of the meaning of being professional through self-appraisal, self-discipline, and continuing education is essential for the dietitian. Planning for excellence necessitates formulating short- and long-term goals for professional development. Personal motivation, initiative, resourcefulness, and judgment need to be exercised by the dietitian continuously to improve leadership and inspiration by demonstrating the value and commitment to lifetime learning and participation in professional advancement.

The development of receptiveness to new experiences and the need to cultivate oneself as an instrument of inquiry are integral requisites for continuing development. With increasing breadth of experience comes enhancement of self-confidence and potential. Together with increasing flexibility, these attributes will contribute immeasurably to a lifetime of creative productivity.

From: Journal of The American Dietetic Association.
1969. 54, 2, 91-93.

SUB-CONCEPTS AND GENERALIZATIONS FOR TECHNICAL OPERATIONS
AS IDENTIFIED BY INSTITUTION MANAGEMENT CONFERENCE 1967

Menu Planning

The menu is the focal point from which evolve technical operations performed in the institution.

The menu is a management tool used to control resources to meet the institution objectives.

Consideration of customer food needs and preferences in menu planning influences customer satisfaction.

Menus of adequate nutritive value can be planned at various cost levels.

An effective operational menu is affected by the type of food service and the available resources.

Use of technological development in methods and techniques of menu planning are related to resources of the institution.

Purchasing

Purchase of food, supplies and equipment by specification contributes to the assurance of materials economy, high standards and quality controls.

A working knowledge of ethical procedures, technological changes, economic trends, marketing conditions, consumer preferences, budgetary limitations lead to rational and discriminatory purchasing.

Consideration of menu pattern, seasonability, storage facilities and specific operation logistics determine the quantities to be purchased for efficient production.

Production

The efficient flow of production is maintained by following efficient procedures for ordering, receiving, checking, storing and issuing of food, supplies and equipment.

Effective use in technical operations of the principles developed by the natural and behavioral sciences can contribute to the production and service of food to maintain and/or restore health.

Organization of activities considers the identification and grouping of work and the definition and delegation of responsibility for the efficient flow of production.

Balancing, timing and integrating job functions and personnel influence proper work flow and desirable utilization of efforts.

Knowledge and application of basic principles of food preparation influence maintenance of food standards.

Technological developments may affect production by changing resources and methods used to achieve high quality food.

The manner of handling food during production influences achievement of standards of sanitation and safety.

Past records and experience may be correlated with forecasting for production.

Equipment and materials are protected through an effective program of preventive maintenance.

Evaluation of results of production against established standards can control utilization of resources.

Service

Definitions:

Service is an activity carried on to provide people with some thing.

Merchandising is the presentation of a product in an environment to encourage acceptance.

Sales is tangible exchange involving the customers acceptance of food and service.

Generalizations:

Service is evaluated in terms of the satisfaction of the needs of the clientele, management and employee.

Techniques of service and creative food merchandising influence success and/or sales.

Impact of environment affects acceptance of food.

Methods of service are adapted to the need of the institution.

Good public relations are built through good service.

Distribution

Distribution of high quality food is related to use of proper equipment, appropriate timing, method of handling which would result in acceptable and safe food for the consumer.

Facilities

Plans should be developed by the concerted efforts of the dietitian, the administrator, the architect and a reputable food service consultant to achieve an effective design for efficient and functional food service systems.

Facility design based upon effective work flow patterns from the point of receiving through production, distribution and waste disposal processes promotes economical and efficient operation.

Selection and purchase of equipment by specification based upon trends in equipment design, contemplated automation, predicted use, requirements for space, maintenance, safety and sanitation contributes to effective and economical investment of capital and labor.

Correct operation and a program of maintenance of equipment assures maximal returns of investment and the safety of the workers.

Finance

To implement a financially successful system of controls it is essential to keep accurate records; then analyze, interpret and evaluate them in relation to the guides established by the budget.

COURSE TITLES AND DESCRIPTIONS
KANSAS STATE UNIVERSITY,
FALL SEMESTER 1968

- 660 600 Quantity Foods. (3) Menu planning in food services: principles and methods of preparing food in quantity, emphasizing importance of standardized recipes and use of institutional equipment as related to physical layout. One hour rec. and six hours lab a week. Pr.: F & N 601.
- 660 605 Food Production Management. (4) Production planning and controls in food service systems, with management experience in campus food services. Two hours rec. and six hours lab a week. Pr.: F & N 430.
- 660 625 Quantity Food Purchasing and Control. (2) Principles and methods of purchasing food in quantity; use of specifications; food cost control through estimating, buying and storage. Pr.: Ins. M. 600.
- 660 635 Food Service Equipment and Layout. (2) Factors affecting the selection and arrangement of equipment in food service systems. Pr.: Ins. M. 430.
- 660 640 Organization and Management of Food Services. (3 or 2) Principles of management as applied to food services; study of food service policies, budgets, supervision and personnel. Three hours rec. a week. Field trip required. Pr.: Ins. M. 605 or consent of instructor.

OBJECTIVES FOR MAJOR COURSES IN INSTITUTIONAL MANAGEMENT,
KANSAS STATE UNIVERSITY

660 600 Quantity Foods:

1. Develops an understanding of the philosophy of the food service industry, including factors affecting quality and the consumer.
2. Gains and applies knowledge of the scientific, economic and artistic aspects of preparing quality food in quantity.
3. Acquires proficiency in evaluation of quality food products.
4. Develops an awareness of problems involved when quantifying and standardizing recipes.
5. Understands concepts for the physical arrangement of equipment as related to the total layout.
6. Develops an understanding of food service as a coordinated system.
7. Understands the role of the menu in a food service system and develops ability to apply principles of menu planning.
8. Acquires knowledge of the principles of sanitation, motion economy and safety.
9. Becomes familiar with the sources of information including current research and develops the ability to use these materials.

660 605 Food Production Management:

1. Develops understanding of and ability to apply such production controls as scheduling and forecasting to produce quality food.
2. Develops understanding of food and labor cost factors as related to total cost control.
3. Develops an understanding of and ability to apply principles of efficient work methods to food production and employee training.

4. Understands procedures for optimum materials handling and develops ability to apply principles involved in service of food.
5. Gains ability to develop standardized recipes.
6. Develops an awareness of the importance of human relations. (employee-employer and consumer).
7. Develops the ability to apply principles of sanitation and safety.
8. Gains experience in the application of food production methods in different types of food services.

660 625 Quantity Food Purchasing and Control:

1. Develops an understanding of and ability to apply scientific principles and methods of selecting and purchasing food in quantity.
2. Acquires knowledge of purchasing procedures including specifications, contracts, ethics, and centralization.
3. Acquires knowledge of data processing as related to food purchasing and control.
4. Acquires knowledge of materials handling including receiving, storing, essential records, and issuing of food and supplies.

660 635 Food Service Equipment and Layout:

1. Acquires knowledge of materials, construction, use, care, and maintenance of equipment.
2. Develops ability to design an effective flow of work.
3. Develops ability to determine space allowances and the layout of equipment for specific areas within the food service units.
4. Acquires knowledge of factors affecting layout, selection, and purchase of equipment for different types of food service units.
5. Develops ability to evaluate layouts.

6. Develops ability to evaluate different types of equipment in relationship to a specific circumstance.

660 640 Organization and Management:

1. Develops an understanding of the functions and roles of management as applicable to food services.
2. Understands the importance of communications in food service management.
3. Develops an appreciation for a well defined organization plan, goals, objectives, and practices.
4. Acquires ability to utilize tools of management.
5. Acquires knowledge of the basic policies and procedures used in food service management for effective financial control.
6. Gains knowledge of federal, state, and local laws governing food service operations.
7. Understands the importance of satisfactory employer-employee relations by applying current techniques to select, train, motivate and appraise personnel.
8. Comprehends the meaning and scope of authority and delegation at various levels.

APPENDIX B

OBJECTIVES FOR LABORATORY IN FOOD PRODUCTION MANAGEMENT

Technical Operations:

1. Demonstrates ability to apply previously learned knowledge to new and changing situations.
2. Understands the technical operations involved in the production, distribution, and service of high quality food.
3. Recognizes the significance of a food service system as a unified, complex organization, made up of dependent and specialized functions.
4. Demonstrates ability to apply principles of sanitation and safety.
5. Exhibits awareness of importance of decision making in Food Production Management.
6. Shows ability to analyze situations and to organize time and materials.
7. Exhibits acceptance of responsibility and demonstrates ability to follow through.
8. Exhibits skill in (using) effective written and verbal communication (principles).
9. Demonstrates ability to work with customers, peers, professional, and non-professional employees.
10. Shows evidence of continuing self-development.
11. Demonstrates emotionally appropriate responses to the requirements of the institution.
12. Subscribes to a professional appearance including the required code of dress, grooming, and conduct.

FOOD PRODUCTION MANAGEMENT LABORATORY

Laboratory Units

- I. Orientation
- II. Quantity Food Production
 - A. Cooks Unit - early shift
 - B. Cooks Unit - late shift
 - C. Salad Preparation
 - D. Bakery
- III. Sanitation and Maintenance
 - A. Dish and warewashing
 - B. Maintenance
- IV. Supervision
 - A. Estimating and controlling
 - B. Personnel
 - C. Equipment
 - D. Training
 - E. Service
- V. Food Production Management
 - A. Planning
 - B. Ordering
 - C. Scheduling
 - D. Evaluating
- VI. Practical Final

FOOD PRODUCTION MANAGEMENT LABORATORY

General Outline

UNIT I Orientation (2 days)

Tues. Oct. 29, 1968

Orientation to Residence Hall Food Service.

Thurs. Oct. 31, 1968

Orientation to food service units.

UNIT II Quantity Food Production

A. Cooks Unit - Early Shift (2 days 5:45 - 2:10)

Tuesday

Thursday

Breakfast: Juice
Hot cereal
EntreeLunch: Entrees
Potato or potato substitute
Soup
VegetableService
Clean up
Pre-preparation
Storage and use of left-overs
Daily evaluation

B. Cooks Unit - Late Shift (2 days 10:35 - 7:00)

Tuesday

Thursday

Dinner: Entree
Potato or potato substitute
VegetableService
Clean up
Pre-preparation
Storage and use of left-overs
Daily evaluation

C. Salad Preparation (1 day 7:00 - 3:25)

Tuesday

Salad Area

Placed Salad

Tossed Salad

Gelatin Salad

Bulk Salad

Vegetable pre-preparation

Service

Clean up

Storage and use of left-overs

Daily evaluations

D. Bakery (2 days 6:30 - 2:55)

Tuesday

Thursday

Lunch and Dinner Desserts:

Puddings

Cookies

Pies

Cakes

Hot Rolls

Dish up

Service

Clean up

Pre-preparation

Storage and use of left-overs

Daily evaluation

UNIT III Sanitation and Maintenance (1 day 11:05 - 7:30)

Thursday

A. Dish and Warewashing

Lunch Clean up

Dinner Clean up

B. Maintenance

Receiving

Close up procedure

UNIT IV Supervision (2 days)

Tuesday (6:30 - 2:55)

Thursday (1:00 - 3:00)

- A. Estimating and controlling: Production sheets and inventories.
- B. Personnel: Problems, rating, scheduling.
- C. Equipment use, care, and scheduling.
- D. Training: Demonstration with written procedures (lesson Plan).
- E. Service: Special activities.

UNIT V Food Production Management (4 days)

- A. Planning
- B. Ordering
- C. Scheduling
- D. Evaluating

UNIT VI Practical Final (2 days)

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit I: Orientation

Tuesday - 8:30 - 4:30

1. "Residence Hall Food Service: Philosophy of Organization"
2. "Central Stores"
3. "Operations: Standards, Procedures, and Menu Planning"
4. "Personnel"
5. "Recipes and Developmental Kitchen"
6. "Fiscal Operation: Inventory and Reports"

Wednesday 9:00 - 5:00

1. Tour of food services on campus.
2. Students' orientation to assigned hall.
3. Managers work on supply orders.

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit II: Cooks Unit

Student will have experience in:

A. Use of equipment

1. Use of food preparation equipment: ovens, steamers, steamjacketed kettles, deep fat fryer, grills.
2. Use of mixers.
3. Use of portion control equipment: scales, dippers, ladles, etc.
4. Observing draining and cleaning French frier, grills, steamjacketed kettles, and other large equipment.

B. Quality control

1. Use of standardized recipes.
2. Preparing, tasting, and judging hot foods for quantity service.

C. Production scheduling

1. Recognizing the role of the work sheet in a food service system.
2. Reading and following work sheets in the cooks' area.
3. Scheduling of cooks for preparation of meals on time.
4. Evaluating the importance of cooks' department in the overall production and sanitation in a kitchen.
5. Planning ahead for future meals.
6. Preparing storeroom orders.
7. Recording on a work sheet the foods prepared and left over.

8. Discussing the utilization of left-overs with the supervisor and cooks.
9. Proper storage of prepared foods until served.

D. Food production

1. Combining ingredients for meat and casserole items.
2. Placing roasts into ovens so that the meat will be finished at the proper time to meet serving line requirements.
3. Preparing soups and gravies.
4. Cooking vegetables: timing, seasoning, storage until serving time; placement in serving pans for eye appeal.
5. Preparing beverages.

E. Service and sanitation

1. Actual setting up of lines with hot food; appearance, temperatures, quantity on a line at a time.
2. Preparing condiments for serving line, how served, quantities, where placed; their affect on the speed of the cafeteria lines.
3. Serving cooked foods on the cafeteria line; guest acceptance; portion control.
4. Observing finishing serving of a meal; proper recording of left-overs; proper storage of left-overs; how and which employees clean the serving counter.
5. Techniques used to insure good sanitation.

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit II: Fresh Vegetable Preparation

Student will have experience in:

A. Use of equipment

1. Operation of potato peeler, chopping and slicing equipment.
2. Proper way to handle knives and chopping boards for safety and efficiency.

B. Purchase and storage

1. Observing raw vegetables: as purchased with servable quantities.
2. Proper vegetable storage: potatoes in water, leafy vegetables with air circulation.
3. Observing dating of fresh vegetables for proper turn over: first in, first used.

C. Preparation

1. Developing an appreciation of time required to prepare fresh vegetables, as leaf lettuce, tomatoes, cabbage, celery.
2. Observing difference in peeling potatoes too long, weight loss variance in methods.
3. Observing various methods for cutting vegetables so that more attractive foods may be prepared: slicing, cubing, quartering, for example.
4. Preparing vegetables in advance of use.
5. Estimating and observing yields for fresh and cooked vegetables.

D. Sanitation

1. Developing standards of sanitation in vegetable preparation, storage, and equipment.

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit II: Salad Preparation

Students will have experience in:

A. Use of equipment

1. Use of knives and other chopping equipment.
2. Organization, placement, and storage of small equipment for this department.
3. Different methods and equipment used for slicing, chopping, dicing, and peeling.

B. Quality control

1. Use of large quantity salad recipes.
2. Using quality products: crisp, fresh salad greens, carefully prepared fruits and vegetables.
3. Recognizing well-arranged, attractive salads: color, shape, size, and texture of ingredients used.
4. Using portion control.
5. Proper storage of salads during preparation and serving.
6. Observing the importance of refrigerator temperatures: tolerance of individual items, such as lettuce; effect of fans on salads.
7. Tasting finished products; scoring appearance, quality, and quantity, judging appearance on the counters as they complement the remainder of the menu.

C. Production

1. Checking work sheet with menu for instructions of quantities to prepare.
2. Observing the importance of checking quantities actually prepared with the work sheet instructions.
3. Ordering daily supplies for Salad Department.

4. Breakfast preparation and serving. Mixing, serving juices, fruits. Preparation of Breakfast hot foods.
5. Preparation of basic salad dressings.

D. Service and sanitation

1. Some serving on the cafeteria lines for customer reactions and to realize appearance of salads from customer viewpoint.
2. Preparing salad dressings for serving lines. How served. Quantities. Where Placed. Their affect on the speed of the cafeteria lines.
3. Proper utilization of left-over salad products. Time of keeping--where--temperature.
4. Observing finishing serving of a meal--proper recording of left-overs, proper storage of left-overs. How and which employees clean the serving counter.
5. Recording "left over" salads or "run outs."
6. Helping with and see the various daily cleaning requirements.
7. Reviewing the overall cleaning of refrigerators, carts, etc. How often, when, why, how.

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit II: Bakery

Students will have experience in:

A. Quality control

1. Use of large quantity recipes.
2. Use of scales - importance of accurate measurements.
3. Importance of reading and understanding the recipes.
4. Importance of correct temperatures and accurate timing.
5. Using methods for testing doneness of cooking, (cake baking, pie baking - pudding thickness.)
6. Recognizing and using good quality ingredients (eggs, flours, shortenings, flavorings, etc.)
7. Scoring, tasting, and evaluating products.
8. Observing procedures for thawing and storage of frozen ingredients, (fruits, etc.)
9. Recognizing the importance of refrigerating puddings, desserts.

B. Preparation

1. Organization of materials.
2. Rolling pie doughs, shaping, filling.
3. Combining ingredients for pies.
4. Combining cake batter.
5. Combining roll or yeast doughs - measuring, proper mixing-handling yeast dough. Proofing. Baking-times, temperatures.
6. Preparation of puddings.

C. Use of equipment

1. Using steamjacketed kettle, mixer with various beaters and whips, scales, ovens.

D. Service and sanitation

1. Observing uniform and attractive methods for serving baked products. China, crystal, garnishes.
2. Developing attractive displays of individual servings on cafeteria lines.
3. Observing finishing serving of a meal - proper recording of left-overs, proper storage of left-overs. How and which employees clean the serving counters.
4. Cleaning utensils and work areas.
5. Recognizes the importance of sanitation standards.
6. Recognizes importance of proper location of ingredients, utensils, and equipment.

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit III: Sanitation and Maintenance

Students will have experience in:

A. Dish and warewashing

1. Observing proper washing and sanitizing temperatures for dishwashing.
2. Observing proper use of detergents.
3. Preparing dish machine for operation.
4. Scrapping, presoaking, or prerinsing soiled dishes; special attention needed for some pieces as egg on plates.
5. Sorting and racking soiled dishes, silver, and glasses.
6. Feeding flite type dishwasher or conventional machine.
7. Removing clean dishes from dishwasher.
8. Storing clean dishes in carts and noting where covered carts are stored.
9. Filling lowerators and dispensers for good dish dispensing at location to be used.
10. Cleaning soiled dish area and dish machine at end of meal.
11. Sorting and cleaning of silverware.
12. Observing dishwashing personnel on their related duties when not actually performing as dishwasher.
13. Using proper procedure for scraping pans, soaking any pans requiring it.
14. Use of various detergents and their specific functions.
15. Use of proper pan washing procedures (by hand and by machine); temperatures; times.

16. Proper handling and storage of pans during and after washing.
17. Using safety procedures for employees handling heavy utensils.

B. Maintenance

1. Observing use of various cleaning supplies for maximum sanitation.
2. Using safety measures or equipment for protection of employees.
3. Observing removal of soiled dishes in dining room.
4. Observing washing of tables, chairs, and preparation of dining room for the next meal.
5. Use of procedures for controlling breakage.
6. Observing of changing jobs for efficient use of employees during peak rush periods.
7. Observing of evening clean-up and checking of equipment and refrigeration.

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit IV: Supervision

Students will have experience in:

- A. Estimating and controlling
 - 1. Coordinating use of equipment, employee time and preparation time of menu items.
 - 2. Making out production sheets.
 - 3. Supervising production of food items in all areas.
 - 4. Observing and using techniques of quality control.
 - 5. Observing and using portion control.
 - 6. Proper care and storage of leftovers.
- B. Personnel
 - 1. Scheduling of employees in all areas.
 - 2. Planning emergency measures in care of accident or illness.
- C. Equipment
 - 1. Supervising use and care of equipment.
 - 2. Planning emergency measures in case of breakdown.
- D. Training
 - 1. Training of employees through specific planned lessons.
 - 2. Working with new personnel.
- E. Service
 - 1. Organizing service area.
 - 2. Making out cafeteria work sheets.
 - 3. Timing food production to coordinate with service.

4. Placing food on cafeteria lines.
5. Assembling correct condiments and serving utensils.
6. Implementing sanitation standards in production and service areas.
7. Evaluate clean up and arrangements in service area.

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit V: Food Production Management

Students will have experience in:

A. Planning

1. Use of menu as focal point in planning.
2. Use of menu in estimating.
3. Observing importance of portion control in planning.
4. Use and adjustment of standardized recipes.
5. Use of production sheets.
6. Planning and organizing special activities involving food service.
7. Coordinating all units into one organization.
8. Planning methods of quality control in production and service.
9. Meeting emergency situations in production.

B. Ordering

1. Use of ordering materials and information.
2. Use of menu in ordering.
3. Use of order forms.

C. Scheduling

1. Personnel scheduling and management.
2. Scheduling of equipment and of production.
3. Emergency scheduling.

D. Evaluating

1. Checking in and evaluating food orders received.
2. Evaluating quality and merchandising finished food products.

3. Observing production process in relation to planned schedule.
4. Checking dishroom procedures and results.
5. Observing employee ratings.
6. Evaluating how well units functioned toward a total operation.
7. Participation in establishing good consumer relations.
8. Observing consumer reactions to food and service.

ROTATING SCHEDULE FOR STUDENTS IN FOOD PRODUCTION MANAGEMENT LABORATORY¹

HALL	UNIT II EARLY COOK	UNIT II LATE COOK	UNIT II SALAD	UNIT II BAKERY	UNIT III SANITATION	UNIT IV SUPERVISION	UNIT V MANAGEMENT
	Student no.	Student no.	Student no.	Student no.	Student no.	Student no.	Student no.
<u>Putnam</u>							
Nov. 5- 7	1	2	3	4	5	6	7
Nov. 12-14	2	3	4	5	6	7	8
Nov. 19-21	3	4	5	6	7	8	1
Nov. 26-28	4	5	6	7	8	1	2
Dec. 3- 5	5	6	7	8	1	2	3
Dec. 17-19	6	7	8	1	2	3	4
Jan. 7- 9	7	8	1	2	3	4	5
<u>Boyd</u>							
Nov. 5- 7	9	10	11	12	13	14	15
Nov. 12-14	10	11	12	13	14	15	16
Nov. 19-21	11	12	13	14	15	16	9
Nov. 26-28	12	13	14	15	16	9	10
Dec. 3- 5	13	14	15	16	9	10	11
Dec. 17-19	14	15	16	9	10	11	12
Jan. 7- 9	15	16	9	10	11	12	13
<u>Van Zile</u>							
Nov. 5- 7	17	18	19	20	21	22	23
Nov. 12-14	18	19	20	21	22	23	24
Nov. 19-21	19	20	21	22	23	24	17
Nov. 26-28	20	21	22	23	24	17	18
Dec. 3- 5	21	22	23	24	17	18	19
Dec. 17-19	22	23	24	17	18	19	20
Jan. 7- 9	23	24	17	18	19	20	21

UNIT I - ORIENTATION - All Students Participate.

UNIT VI - Jan. 11 and 12 - All Students Participate.

¹Each student has one week off to provide extra time for Unit V Food Production Management.

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit IV: Supervision Assignment

Tuesday - 6:30 - 2:55

Supervise production, service, and sanitation in an individual kitchen with regular supervisor.

1. Estimate amounts for future production demands in one area.
2. Complete preparation of one production sheet.
 - a. Adjust recipes
 - b. Schedule pre-preparation
 - c. Give complete information
3. Supervise days food production.
4. Taste all menu items being prepared.
5. Complete one cafeteria sheet giving correct portions, serving utensils, condiments, counter arrangement and storage of salad and dessert left-overs.
6. Run one portion check before meal service.
7. Observe the use of attractive garnishes.
8. Suggest ways to make service more efficient and attractive.
9. Check plate waste after one meal.
10. Check production sheets for left-overs, assigning their use.
11. Follow up on cleaning assignments.
12. Assist supervisor with daily orders.
13. Sit in on daily individual meetings with production personnel.
14. Keep daily record of production from completed production sheets.
15. Observe and assist in planning of special activities, if possible.
16. Assist in receiving deliveries, if necessary.

Thursday 11:00 - 3:00

1. Conduct training meeting with employees. Lesson plan required.
2. Take storeroom inventory.
3. Assist in personnel problems.
4. Discuss employee ratings with employees and Dietitian.

FOOD PRODUCTION MANAGEMENT LABORATORY

Unit V: Food Production Management Assignment

1. Observe assembling of recipes for week of management and ordering 2 weeks before management week.
2. Estimate quantities to be produced for entire week.
3. Itemize ingredients on menu for ordering. Record exact amounts.
4. Make out orders for week of management.
 - a. Fill out forms, listing:
 - (1) Quantity ordered and central stores code
 - (2) Specific sizes
 - (3) Date to be delivered
 - (4) Date and meal to be used
 - (5) Desired receiving condition
 - (6) Desired delivery date
5. Check in orders using:
 - (1) Order form
 - (2) Receiving report
 - (3) Invoice
6. Make out production sheets
 - a. Increase or decrease recipes to desired amount.
 - b. Fill in all pertinent information (Garnishes, amount on hand to be used, back-up and details.)
7. Schedule preparation and pre-preparation:
 - a. Equipment
 - b. Time element
 - c. Quality control
 - d. Back-up items
8. Observe:
 - a. Portion control
 - b. Merchandising
 - c. Consumer relations
 - d. Substitutions
 - e. Clean-up and storage of left-overs
9. Plan use of left-overs
10. Plan and implement special functions.

FOOD PRODUCTION MANAGEMENT LABORATORY

Sample Assignment

Unit II: Cook Unit - Early Shift

Tuesday (5:45 - 2:10)

Breakfast:

Prepare: Oatmeal
 Orange Juice
Cook: Scrambled Eggs
Eat breakfast after meal service
Clean-up: Store left-overs.

Lunch:

Prepare: Eggs and tomatoes for K-State Salad Bowl
 Gravy
 Whipped Potatoes
 Wax Beans with Herb Butter
Assemble: K-State Salad Bowls
Eat lunch after meal service
Clean-up: Storage and recording of left-overs
Pre-preparation: Celery for Braised Celery
Daily Evaluation

Thursday

Breakfast:

Prepare: Syrup
 Pancakes
Eat breakfast after meal service
Clean-up: Store left-overs

Lunch:

Prepare: Macaroni Salad
 Tomato Bouillon Soup
Assemble: Cold Plates
Assist: Special dinner preparation
Eat lunch after meal service
Clean-up: Storage and recording of left-overs.
Daily Evaluation

APPENDIX C

FOOD PRODUCTION MANAGEMENT LABORATORY

Guide for Writing Daily Evaluations

Part I.

What did you see?
What did you learn "how" to do?
What did you actually do yourself?

Part II.

Compare the complete procedure of one of the things you saw today with the way you have seen a similar task done before.

Part III.

Ask Yourself:

1. Was what you saw new to you or perhaps "old stuff"?
2. How else could the job have been done? What other ideas do you have?
3. Why were the things done the way they were?

Part IV.

List any ideas you have on how this day could have been more valuable to you.

Scale 10. WORK PERFORMANCE: Did the student *follow-through on assignments? Were adjustments* to changing situations easily made?

1	2	3	4	5
Required close supervision. Adjusted slowly to changing situations.	Required close supervision. Slowly accepted and adjusted to changing situations.	Required periodic supervision. Could accept and adjust to changing situations.	Required periodic supervision. Did accept and adjust readily to changing situations.	Required occasional supervision. Did accept and adjust readily to changing situations.

Comment:

Scale 11. PERSONAL APPEARANCE: Did the student subscribe to a professional appearance including the required *code of dress, grooming and conduct?*

1	2	3	4	5
Usually correctly dressed. Needed occasional reminders concerning grooming and conduct.	Correctly dressed. Needed occasional reminders concerning grooming and conduct.	Correctly dressed and usually well groomed. Needed occasional reminders concerning conduct.	Correctly dressed and usually well groomed. Gave evidence of good conduct.	Correctly dressed and well groomed. Gave evidence of good conduct.

Comment:

Scale 12. EMOTIONAL MATURITY: Was the student's *emotional response appropriate* to the requirements of a situation?

1	2	3	4	5
Very little emotional control. Usually reacts emotionally to the situation.	Has difficulty in keeping personal reaction to the situation under control.	Sometimes reacts emotionally to the situation.	Seldom reacts emotionally to the situation. Had some difficulty in critical situations.	Personal and emotional reaction to the situation usually not evident even though the situation critical.

Comment:

Conference Summary

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Comment:

--	--	--	--	--

Date.....
 Course.....
 Student.....
 Rater.....

Comment:

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Comment:

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**PROFESSIONAL DEVELOPMENT
 EVALUATION FORM A
 MEDICAL DIETETIC STUDENTS**

(Consult Manual for use)

Comment:

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Comment:

--	--	--	--	--

Scale 1. APPLICATION OF KNOWLEDGE: Did the student demonstrate the ability to *apply previously learned knowledge to new or changing situations?*

1	2	3	4	5
Minimum application of knowledge with close guidance.	Applied knowledge with close guidance.	Applied knowledge with guidance.	Applied knowledge with minimum guidance.	Applied knowledge without guidance.

Comment:

Scale 2. ORGANIZATION OF WORK: Did the student organize his *time and materials?*

1	2	3	4	5
Seldom organized his materials to complete assignments on time.	Occasionally organized his materials for assignments. Seldom completed them on time.	Occasionally organized his materials for assignments. Sometimes completed them on time.	Generally organized materials for assignments. Sometimes completed them on time.	Generally organized his materials and time to complete assignments on time.

Comment:

Scale 3. COMMUNICATION SKILL-VERBAL: Did the student exhibit skill in *using effective verbal communication principles?*

1	2	3	4	5
Rarely responded to a situation. Thoughts or ideas rarely expressed correctly and clearly.	Rarely responded to a situation. Thoughts or ideas sometimes expressed correctly and clearly.	Sometimes responded to a situation. Thoughts or ideas sometimes expressed correctly and clearly.	Sometimes responded to a situation. Thoughts or ideas usually expressed correctly and clearly.	Usually responded to a situation. Thoughts or ideas usually expressed correctly and clearly.

Comment:

Scale 4. COMMUNICATION SKILL-WRITTEN: Did the student exhibit skill in *using effective written communication principles?*

1	2	3	4	5
Rarely formulated ideas concisely, correctly and understandably. Seldom recognized need for follow-through.	Sometimes formulated ideas concisely, correctly and understandably. Seldom recognized need for follow-through.	Sometimes formulated ideas concisely, correctly and understandably. Sometimes recognized need for follow-through.	Usually formulated ideas concisely, correctly and understandably. Sometimes recognized need for follow-through.	Usually formulated ideas concisely, correctly and understandably. Usually recognized need for follow-through.

Comment:

Scale 5. WORK WITH PATIENTS OR PEERS: Was the student *able to work effectively* with patients or peers?

1	2	3	4	5
Had minimum response to the needs of others. Had difficulty working effectively with most people.	Had some response to the needs of others. Had difficulty working effectively with most people.	Usually responded to the needs of others. Had difficulty working effectively with some people.	Usually responded to the needs of others. Worked effectively with most people.	Easily established rapport with others. Worked effectively with most people.

Comment:

Scale 6. WORK WITH OTHERS: Was the student *able to work effectively* with professional staff and non-professional employees?

1	2	3	4	5
Had minimum understanding of the responsibilities of others. Had difficulty working effectively with most people.	Had some understanding of the responsibilities of others. Had difficulty working effectively with most people.	Had good understanding of the responsibilities of others. Had difficulty working effectively with some people.	Had good understanding of the responsibilities of others. Worked effectively with most people.	Had an excellent understanding of the responsibilities of others. Worked easily and effectively with most people.

Comment:

Scale 7. DECISION-MAKING: Did the student *exhibit intelligent behavior* in making decisions?

1	2	3	4	5
Rarely relied on himself to make decisions.	Sometimes recognized need for making decisions. Rarely made decisions on his own.	Sometimes recognized need for making decisions. Sometimes made decisions on his own.	Usually recognized need for making decisions. Sometimes made decisions on his own.	Usually recognized need for making decisions. Usually made decisions on his own.

Comment:

Scale 8. INDUSTRY: Did the student exhibit *acceptance of responsibility and effort in completing assignments?*

1	2	3	4	5
Rarely does today what he can put off until tomorrow.	Sometimes applied himself to completion of assignments.	Willing to complete assignments to the extent necessary. Sometimes failed to follow-through.	Completed assignments to the extent necessary.	Applied himself thoroughly and energetically to completion of assignments.

Comment:

Scale 9. SELF DEVELOPMENT: Did the student *evidence continuing self-development?*

1	2	3	4	5
Rarely went beyond a specific assignment to seek knowledge. Seldom made appropriate use and interpretation of resources.	Rarely went beyond a specific assignment to seek knowledge. Occasionally made appropriate use and interpretation of resources.	Sometimes went beyond a specific assignment to seek knowledge. Occasionally made appropriate use and interpretation of resources.	Usually went beyond a specific assignment to seek knowledge. Usually made appropriate use and interpretation of resources.	Usually went beyond a specific assignment to seek knowledge. Usually made appropriate use and interpretation of resources. Sometimes exhibited creative ability.

Comment:

EXPERIENCES DEVELOPED AT KANSAS STATE UNIVERSITY APPLICABLE
TO OHIO STATE EVALUATION FORM "A"

Application of Knowledge:

1. Relates principles to procedures of food production and service.
2. Operates institutional equipment.
3. Orders food and supplies.
4. Relates principles and procedures of using and adjusting recipes.
5. Coordinates systems of receiving, storing and issuing food and supplies.
6. Relates production scheduling for optimum utilization of personnel, time, and equipment.
7. Applies teaching methods to employee training.
8. Realizes systems of control in all areas.
9. Uses records and other written means of control.
10. Plans and organizes special events.

Organization of Work:

11. Appreciates time and motion requirements for specific areas.
12. Plans optimum use of time and materials.
13. Organizes materials for completion of assigned work.
14. Has clear organizational plan for all jobs to be completed.

Communications:

15. Uses effective verbal communications principles.
16. Expresses thoughts and ideas correctly and clearly.
17. Uses effective written communications skills.
18. Formulates ideas concisely, correctly, and clearly.
19. Recognizes need for follow through on written communications.

Work Performance:

20. Uses menu in estimating and ordering food and supplies.
21. Uses available order forms for ordering food and supplies.
22. Uses and adjusts recipes for ordering and production.
23. Uses and follows through on written directions.
24. Establishes quality control in production and service.
25. Establishes good personnel and customer relations.
26. Adjusts easily to changing situations.
27. Understands correct use and cleaning procedures of institutional equipment.

28. Follows through on receiving and storing of food and supplies.
29. Cooperates with peers and professionals.

Decision Making:

30. Recognizes need for making decisions.
31. Coordinates all units into one organization.
32. Meets emergency situations in production.
33. Recognizes necessity of dealing with people on different levels.
34. Makes contentious appraisal of food production, sanitation, and safety.

Self-Development:

35. Demonstrates creativity through planning and organizing special events.
36. Does research from available resources.
37. Develops lesson plan for employee training.
38. Applies self to completing assignments.
39. Seeks information from various staff resources.
40. Goes beyond specific assignment to seek knowledge.

Personal Appearance:

41. Recognizes need for professional appearance in dress, grooming, and conduct.
42. Subscribes to code of required dress and conduct.
43. Encourages others to maintain professional appearance.
44. Recognizes need for controlled emotional reaction in critical situations.
45. Keeps personal reaction to a situation under control.

Sample Pre-Test

NAME _____ Phone Number _____

Local Address _____

Home Address _____

Previous Work Experience(s)

What Kind

Where

How Much

Mark one best answer

What percent of the total cost of a meal is allowed for the potato and vegetable when figuring menu costs?

- A. 50 - 55%
- B. 25 - 30%
- C. 10 - 15%
- D. 5%

The control factor having the greatest influence on a successful food service is:

- A. The budget
- B. The menu
- C. Employees schedules
- D. Job specifications

In balancing work loads a good manager will list (a) capacities of equipment (b) knowledge of skills of workers and which of the following?

- A. Type of service
- B. Production time
- C. Kitchen lay-out
- D. Number of employees

The menu planner's responsibility is completed when he has done three of the following things; which statement is not applicable:

- A. The things that did not get done have been accounted for
- B. The food has been served
- C. The relationship of raw food and labor cost to selling price analyzed
- D. The reaction of the customer has been noted

Menu planning is geared to fit which of the following first?

- A. Available facilities
- B. Needs of the guests
- C. Available employees
- D. Budget
- E. Who the manager is

When food is brought to the table in platters or dishes and served by the host to the guests the service is called:

- A. Russian
- B. French
- C. English
- D. American

The word standardization as related to recipes implies:

- A. A recipe that has been extended to the correct amount
- B. Each unit has its own set of recipes
- C. Recipes have been corrected to fit available equipment
- D. Deviations from set standards have been corrected

Acceptable recipes can be obtained from any reliable source and extended to large quantities by:

- A. Simple multiplication
- B. Emphasizing correct methods in order of preparation
- C. Using the correct recipe form so it is easily read
- D. Extending each ingredient in correct proportion

You are running a restaurant with adequate plant facilities in the mid-west. Which of the following factors is the most important in deciding to order a fresh or frozen vegetable?

- A. Shipping
- B. Seasonability
- C. Vendor
- D. Equipment
- E. Nutritive value

If you were running a restaurant in Nome, Alaska under the above conditions which of the following would be the most important to consider in making the same decision?

- A. Shipping
- B. Seasonability
- C. Vendor
- D. Equipment
- E. Nutritive value

Which of these items would you schedule to begin cooking first on a production sheet?

- A. Fried chicken
- B. Baked potato
- C. Green beans
- D. Gravy
- E. Coffee

To insure that you receive satisfactory goods for the price paid you must:

- A. Develop written specifications
- B. Check all deliveries received
- C. Use wise buying procedures
- D. Buy brand names

Quality control begins with which of the following?

- A. Well trained cooks
- B. Good raw products
- C. Adequate personnel
- D. Adequate plant facilities
- E. Portion size

The preliminary preparation of any food item to be served raw has the greatest effect on which of the following?

- A. Nutritive value
- B. Type of labor needed
- C. Type of equipment needed
- D. Final appearance

When food being prepared is not up to quality incorrect methods of preparation can sometimes be overcome by:

- A. Adding the correct seasonings
- B. Reworking it into a different product
- C. Adding something else to the menu
- D. Throwing it out and starting over

In ordering choice cut outside round beef roast for dinner, your cooking and other losses will amount to what per cent of the total weight?

- A. 35%
- B. 10%
- C. 5%
- D. 50%
- E. 12%

When a food item being prepared for service is below quality you should:

- A. Serve it with a garnish
- B. Provide an acceptable substitute
- C. Discard the recipe or timing chart
- D. Explain to the customer that it is below quality
- E. Call a cooks meeting immediately

The best references for forecasting future needs of food is:

- A. Consulting the customer
- B. Inventorying to see what has been used
- C. Consulting past consumption records
- D. Consulting cooks

If actual costs show a wide deviation from the predicted budget what would you do first to find the reasons?

- A. Re-evaluate the menu costs
- B. Take a physical inventory
- C. Check the kitchen operation
- D. Consult the records

Which of the items listed below is the largest controllable item of expenditure?

- A. Food
- B. Labor
- C. Customers
- D. Equipment replacements
- E. Utilities

A perpetual inventory gives immediate information concerning the date of purchase, vendor, brand, price paid, the issues and the amount on hand after the last issue. Its greatest value is:

- A. To keep storerooms and refrigerators in order
- B. To keep the buyer informed of goods needed
- C. To help the cooks find shelf items
- D. To insure the using of old items first

To establish cost control, which of the following is most important in purchasing food items?

- A. Quality of items received
- B. Price paid per unit
- C. Methods of receiving and storing
- D. Methods of using

Planning an all-over labor budget to prevent labor waste means:

- A. Planning the menu so that everyone is busy all the time
- B. Utilizing labor between departments to meet production
- C. Letting employees help plan production schedules
- D. Hiring enough people to cover all possible needs

A cook and a supervisor are discussing the assembling of a casserole for the next day. Which of the following steps should they consider first?

- A. Assembling of ingredients
- B. Assembling of equipment
- C. Determining who would prepare it
- D. Reading the recipe

The baker has always restricted her production to baked goods and refused to help with assembling other dessert items. Which of the following would be the best way to approach re-establishing responsibility?

- A. Stress the importance of doing your own work
- B. Re-evaluate the area in conference with the baker
- C. Insist that she do things your way
- D. Write new job descriptions including all items she is to prepare

To enhance relationships and keep control, a good supervisor will do which of the following?

- A. Stay at her desk and take care of her own work
- B. Wait for employees to come to her with problems
- C. Spend as much time as possible on the floor
- D. Discourage employees from telling her their problems

The training of a new employee in a small operation is better handled by which of the following:

- A. Another employee of equal rank
- B. Another employee of less rank
- C. Let her work things out by herself
- D. Do the initial training yourself

Batch cooking means:

- A. Cooking the total amount in one batch
- B. Cooking in a steam kettle
- C. A process referring only to certain food items
- D. Continuous cooking to the demands of service

An advantage of cooking to the line in cafeteria service is:

- A. You never run out
- B. Greater palatability and nutritive value
- C. The cook has more time for other things
- D. No one has to wait in line

On cafeteria lines service is more satisfactory from all aspects if:

- A. All food is prepared when the line opens
- B. No food is ready until the line opens
- C. Food is prepared on request
- D. Preparation is timed to the demands of service

In dishwashing machines, a solution with high wetting properties helps:

- A. Sterilize
- B. Induce friction
- C. Eliminate spotting
- D. Keep the water clean

Which of the following is the best all-purpose cleaning solution for stainless steel?

- A. Scouring powder
- B. Silver cleaner
- C. Diluted bleach
- D. Soap and water

The U. S. Public Health code recommends that the temperature for wash water in automatic dish machines be:

- A. 140 - 160°F
- B. 100 - 120°F
- C. 200 - 220°F
- D. 98 - 100°F

According to the above question how hot should the final rinse be?

- A. 140°F
- B. 160°F
- C. 180°F
- D. 200°F

A dinner meat was not delivered until later than expected, as a result it will no longer be possible to follow the cooking schedule previously decided on. Which of the following solutions is advisable?

- A. Increase temperature of cooking equipment to be used
- B. Cut the meat in smaller pieces
- C. Substitute a back-up item
- D. Put it in the steamer first

One of the most difficult standards to set and maintain in food service is:

- A. Quality control
- B. Portion control
- C. Sanitation
- D. Recipe

Standardizing serving sizes and which of the following are essential in developing quantity control:

- A. Cooking in batches
- B. Careful employees
- C. Proper forecasting
- D. Good equipment

Which of the following does not affect portion sizes?

- A. Type of food
- B. Type of meal
- C. Type of patron
- D. Cost of food
- E. Number of employees
- F. Portion appearance

Portion sizes must first be established when?

- A. On the cafeteria line
- b. Before making out production sheets
- C. Before pulling recipes
- D. Before making the menu
- E. Before ordering is done

A written description which tells everything one wants to know concerning the qualifications of a person required for the job and the requirements of the job is called which of the following?

- A. Job qualification
- B. Job analysis
- C. Job identification
- D. Job specification
- E. Complexity of job

A written description of a job containing detailed instructions and timing for the purpose of obtaining better performance and a more standardized output is called:

- A. A work sheet
- B. Work simplification
- C. Job specification
- D. Job analysis
- E. Menu

Studies have shown that a worker in quantity food production produces what percent of the time?

- A. 25%
- B. 45%
- C. 80%
- D. 60%

Planning the manpower hours available at any one time limits which of the following?

- A. Need for employee scheduling
- B. Budget
- C. Type of equipment
- D. Need for employee training
- E. Choice and combination of foods

Fresh food left standing at room temperature for no longer than an hour or two will do which of the following?

- A. Quickly recover if put under proper refrigeration
- B. Quickly recover if put in cold water
- C. Cannot be restored to its original quality
- D. Will not lose any of its original quality

Foods that have been frozen then completely thawed can be re-frozen provided which of the following takes place?

- A. They are cooked first
- B. They are properly wrapped
- C. They have not completely spoiled
- D. They are cooled by refrigeration first
- E. They are put in the right kind of container

Frozen meat items if properly handled may be held in the freezer safely for:

- A. 2 - 3 weeks
- B. 6 - 8 months
- C. 2 - 3 years
- D. 1 - 2 months
- E. 2 - 3 months

Most pathogens can be destroyed by moist heat at 145°F for 30 minutes or 161°F for 15 seconds. This process is called:

- A. Steaming
- B. Sterilizing
- C. Pasteurizing
- D. Boiling

Which type of food media resists bacterial growth best?

- A. Neutral foods
- B. Acid foods
- C. Alkaline foods
- D. All are the same

Cooked foods, still hot but ready for storage should be:

- A. Refrigerated immediately in a shallow pan
- B. Left standing until they reach room temperature
- C. Left standing until partially cooled then refrigerated
- D. Cooled in front of a fan first

To make oil stay in suspension when making salad dressings it should be added to the emulsion in which of the following ways?

- A. Very slowly
- B. Very rapidly
- C. All at once
- D. Just before serving time

The proportion of gelatin dessert to liquid for plain gelatin is:

- A. 1/2 cup per gallon liquid
- B. 1/2 cup per quart liquid
- C. 1/2 cup per pint of liquid
- D. 1 cup per pint of liquid
- E. 1 cup per gallon of liquid

Which of the following fruits (fresh or frozen) contains an enzyme that will destroy the setting power of gelatin?

- A. Apple
- B. Raspberry
- C. Plums
- D. Grapefruit
- E. Pineapple

Which of the following salads loses quality most rapidly?

- A. Tossed greens
- B. Mixed fruit
- C. Sliced fresh tomatoes
- D. Wilted lettuce salad

If you want to make 100 - 2/3 cup (2 1/2 oz.) servings of tossed green salad, how many pounds of greens (AP) will you order?

- A. 18-20 pounds
- B. 25-28 pounds
- C. 12-15 pounds
- D. 30-32 pounds
- E. 5-10 pounds

The thin liquid used for bases flavored by soluble substances from meat, poultry or fish, vegetables and seasonings is called:

- A. Broth
- B. Stock
- C. Bouillon
- D. Gravy
- E. Soup

A mixture of half fat and half flour by weight used as a thickening agent is called:

- A. Au jus
- B. Sauce
- C. Emulsion
- D. Roux
- E. Broth

The thickening power of starch is lost when the mixture becomes too:

- A. Hot
- B. Dry
- C. Alkaline
- D. Sweet
- E. Acid

Should an emulsion break (curdle) it can usually be re-formed by:

- A. Boiling rapidly
- B. Slowly adding cold milk or water to mixture
- C. Slowly adding mixture to a small amount of hot water
- D. Adding a small amount of thickening agent

The flavor and aroma of ground coffee is maintained for a longer period if stored at:

- A. 98°F
- B. 50°F
- C. 37°F
- D. -4°F
- E. -32°F

For a better flavor, water used for brewing coffee should be cold and freshly drawn because:

- A. It contains more oxygen
- B. It prevents discoloration
- C. It makes particles stay in suspension better
- D. It prevents oils from coagulating

If two gallons of water and one pound of coffee are used in a coffee urn you can expect to get which of the following amounts of brew?

- A. 3 gallons
- B. 2 1/2 gallons
- C. 2 gallons
- D. 1 3/4 gallons
- E. 1 gallon

When substituting cocoa for chocolate the major difference to remember is:

- A. Color pigment
- B. Fat content
- C. Mineral content
- D. Acidity
- E. Caffeine content

When making cocoas and chocolates for drinking the temperature of the mixture should rise to 200°F to insure which of the following?

- A. To prevent the formation of milk scum on top
- B. To make sure the starch is completely cooked
- C. To insure the correct temperature for customer acceptance
- D. To decrease the possibility of curdling
- E. To gelatinize the starch to more stable solution

Which of the following is not a reason for cream curdling when added to coffee?

- A. Water used in making coffee is too soft
- B. Water used in coffee making is too hard
- C. Cream is too old
- D. Temperature of coffee is too hot
- E. Coffee is high in tannins and acids

Heating milk at below scorching temperatures for a prolonged period of time may do which of the following?

- A. Separate solids from liquid
- B. The emulsification of fat and protein breaks down
- C. Fat globules rise to the top
- D. Darkens and changes the flavor
- E. Enhances color and flavor

Adding soda to acid base milk products is not recommended because:

- A. It will increase chances of curdling
- B. The properties of both are lost through alkaline reaction
- C. Danger of more rapid spoiling of the product
- D. As temperature rises separation begins
- E. Flavor changes and vitamin losses

A more stable product results from dry milk if it is:

- A. Mixed to a thin solution
- B. Mixed and let stand up to two hours
- C. Mixed to a thick solution
- D. Mixed just before using

To insure a satisfactory product made with whipping cream you should:

- A. Be sure that it is as fresh as possible
- B. Age at least 48 hours to insure maximum stability
- C. Be sure it contains at least 50% butter fat
- D. Be sure it has been homogenized
- E. Warm cream and utensils to room temperature before whipping

Which of the following cheeses incorporate more easily with cooked foods and sauces?

- A. Unaged cheese
- B. Aged cheese
- C. Ripened processed cheese
- D. Mold bearing cheese
- E. Medium curd cheese

Vegetables with a high moisture content are best in quality if:

- A. They are soaked in salt water before cooking
- B. Cooking is started in cold water
- C. They are left covered with water until served
- E. Some slight crispness remains
- F. Seasonings are added before cooking

In quantity cookery, vegetables are divided into four categories and each group is cooked by the method that best suits it. The factors determining these categories are:

- A. Intensity of flavor, moisture and starch content
- B. Color, shape and intensity of flavor
- C. Cooking time required
- D. Amount of doneness required
- E. Amount of acidity, color and flavor

Cooking time for vegetables is in direct relationship to the content of which of these?

- A. Vitamins
- B. Starch
- C. Calcium chloride
- D. Cellulose
- E. Sugar

Cooking time and appearance acceptability of a vegetable are both lessened by the action of:

- A. A sugar
- B. An acid
- C. An alkali
- D. A starch

A brownish or muddy color will result for red vegetables or fruit juice if mixed in which of these types of pans?

- A. Copper
- B. Iron
- C. Steel
- D. Teflon

Potatoes high in starch and low in sugar content are best used for which of the following purposes?

- A. Salads
- B. Creamed
- C. Hash brown
- D. French fries
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The drained weight of a standard grade canned vegetable will be what percent of the total can weight?

- A. 60 - 65%
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In meat fiber which of the following is not changed by cooking and must be broken up to make it tender?

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- C. Connective tissue
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Ripening of meat for at least 7 days after slaughter held at 35 - 40°F is desirable because:

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In roasting beef, the thermometer should be placed:

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Fat used in fryers will smoke and break down rapidly if heated above:

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Breading is one of the most common coatings used for food. It consists of:

- A. Flouring and battering
- B. Seasoning and flouring
- C. Flouring, moistening and crumbing
- D. Seasoning, flouring and battering

The difference between soft flour and hard flour is due to the amount of which of the following:

- A. Fat
- B. Minerals
- C. Sugar
- D. Protein

Soft wheat flour is best used for:

- A. Bread
- B. Cake
- C. Pastry
- D. Eclair pastes

Keeping dough mixtures refrigerated affects it which of the following ways?

- A. Kills undesirable bacteria
- B. Causes fat to stay in suspension
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If a cake falls, a pie crust or cookie crumbles too easily then there is probably too much of which of the following ingredients?

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In which of the following products is it desirable to have a large porous interior with strong structural walls?

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- B. Cake
- C. Popover
- D. Biscuit
- E. Pie crust

A cake with an overly dark crust and a high cracked center will result from which of the following?

- A. Incorrect baking temperature
- B. Over mixing
- C. Too much liquid
- D. Too much shortening
- E. Incorrect pan size

Proofing temperatures for bread dough should be:

- A. 50°F
- B. 70°F
- C. 90°F
- D. 110°F
- E. 120°F

Muffin batter, after mixing should appear:

- A. Smooth and silky
- b. Rough and pebbly
- C. Well mixed
- D. Clear and thin

In a butter cake the ingredient of greatest weight is:

- A. Flour
- B. Liquid
- C. Eggs
- D. Shortening
- E. Sugar

In mixing cakes, when fat is creamed, sugar is added, then eggs, the method is called:

- A. Blending
- B. Dumping
- C. Muffin
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The greenish color found in cooked eggs is caused by the combining of sulfur and iron in cooking. This can be avoided by:

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Egg whites cannot be beaten if which of the following is present?

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- A. Adding soda to fresh milk
- B. Adding salt to fresh milk
- C. Adding an alkaline product
- D. Adding an acid product
- E. It must be bought already soured from the dairy

Which of the following types of milk is more stable in constitution and will sour less easily?

- A. Reconstituted dry milk
- B. Evaporated milk
- C. Fresh milk
- D. All are the same

In merchandising food, more food items will be sold if:

- A. Garnishes and dishes are elaborate
- B. Elaborate decorations or displays accompany the food
- C. Garnishes and dishes are complimentary to food items
- D. Garnishes and dishes hold the center of attention

If correct temperatures are maintained, cooked foods can be held without nutritive value and appearance loss for approximately:

- A. One hour
- B. Two hours
- C. Four hours
- D. 40 minutes
- E. 20 minutes

In merchandising food the important factor most often overlooked is:

- A. Arrangement of food on line
- B. Smiling well groomed personnel
- C. Clean dishes and ware
- D. Appropriate garnishes

In making service arrangements for a banquet, the single most important service factor is:

- A. That the atmosphere be correct
- B. That the table arrangements and decorations are attractive
- C. All guests must be served the same course at the same time
- D. That the workers have suitable uniforms

Sample Post-Test

FOOD PRODUCTION MANAGEMENT

NAME _____ DATE _____

Area of work you plan to enter _____

Evaluation comments:

Quality control begins with which of the following?

- A. Well trained cooks
- B. Good raw products
- C. Adequate personnel
- D. Adequate plant facilities
- E. Portion size

The preliminary preparation of any food item to be served raw has the greatest effect on which of the following?

- A. Nutritive value
- B. Type of labor needed
- C. Type of equipment needed
- D. Final appearance

When food being prepared is not up to quality incorrect methods of preparation can sometimes be overcome by:

- A. Adding the correct seasonings
- B. Reworking it into a different product.
- C. Adding something else to the menu
- D. Throwing it out and starting over

In ordering choice cut outside round beef roast for dinner, your cooking and other losses will amount to what per cent of the total weight?

- A. 35%
- B. 10%
- C. 5%
- D. 50%
- E. 12%

When a food item being prepared for service is below quality you should:

- A. Serve it with a garnish
- B. Provide an acceptable substitute
- C. Discard the recipe or timing chart
- D. Explain to the customer that it is below quality
- E. Call a cooks meeting immediately

The best references for forecasting future needs of food is:

- A. Consulting the customer
- B. Inventorying to see what has been used
- C. Consulting past consumption records
- D. Consulting cooks

If actual costs show a wide deviation from the predicted budget what would you do first to find the reasons?

- A. Re-evaluate the menu costs
- B. Take a physical inventory
- C. Check the kitchen operation
- D. Consult the records

Which of the items listed below is the largest controllable item of expenditure?

- A. Food
- B. Labor
- C. Customers
- D. Equipment replacements
- E. Utilities

A perpetual inventory gives immediate information concerning the date of purchase, vendor, brand, price paid, the issues and the amount on hand after the last issue. Its greatest value is:

- A. To keep storerooms and refrigerators in order
- B. To keep the buyer informed of goods needed
- C. To help the cooks find shelf items
- D. To insure the using of old items first

To establish cost control, which of the following is most important in purchasing food items?

- A. Quality of items received
- B. Price paid per unit
- C. Methods of receiving and storing
- D. Methods of using

Planning an all-over labor budget to prevent labor waste means:

- A. Planning the menu so that everyone is busy all the time
- B. Utilizing labor between departments to meet production
- C. Letting employees help plan production schedules
- D. Hiring enough people to cover all possible needs

A cook and a supervisor are discussing the assembling of a casserole for the next day. Which of the following steps should they consider first?

- A. Assembling of ingredients
- B. Assembling of equipment
- C. Determining who would prepare it
- D. Reading the recipe

The baker has always restricted her production to baked goods and refused to help with assembling other dessert items. Which of the following would be the best way to approach re-establishing responsibility?

- A. Stress the importance of doing your own work
- B. Re-evaluate the area in conference with the baker
- C. Insist that she do things your way
- D. Write new job descriptions including all items she is to prepare

To enhance relationships and keep control, a good supervisor will do which of the following?

- A. Stay at her desk and take care of her own work
- B. Wait for employees to come to her with problems
- C. Spend as much time as possible on the floor
- D. Discourage employees from telling her their problems

The training of a new employee in a small operation is better handled by which of the following:

- A. Another employee of equal rank
- B. Another employee of less rank
- C. Let her work things out by herself
- D. Do the initial training yourself

Batch cooking means:

- A. Cooking the total amount in one batch
- B. Cooking in a steam kettle
- C. A process referring only to certain food items
- D. Continuous cooking to the demands of service

An advantage of cooking to the line in cafeteria service is:

- A. You never run out
- B. Greater palatability and nutritive value
- C. The cook has more time for other things
- D. No one has to wait in line

On cafeteria lines service is more satisfactory from all aspects if:

- A. All food is prepared when the line opens
- B. No food is ready until the line opens
- C. Food is prepared on request
- D. Preparation is timed to the demands of service

To make oil stay in suspension when making salad dressings it should be added to the emulsion in which of the following ways?

- A. Very slowly
- B. Very rapidly
- C. All at once
- D. Just before serving time

The proportion of gelatin dessert to liquid for plain gelatin is:

- A. 1/2 cup per gallon liquid
- B. 1/2 cup per quart liquid
- C. 1/2 cup per pint of liquid
- D. 1 cup per pint of liquid
- E. 1 cup per gallon of liquid

Which of the following fruits (fresh or frozen) contains an enzyme that will destroy the setting power of gelatin?

- A. Apple
- B. Raspberry
- C. Plums
- D. Grapefruit
- E. Pineapple

Which of the following salads loses quality most rapidly?

- A. Tossed greens
- B. Mixed fruit
- C. Sliced fresh tomatoes
- D. Wilted lettuce salad

If you want to make 100 - 2/3 cup (2 1/2 oz.) servings of tossed green salad, how many pounds of greens (AP) will you order?

- A. 18-20 pounds
- B. 25-28 pounds
- C. 12-15 pounds
- D. 30-32 pounds
- E. 5-10 pounds

The thin liquid used for bases flavored by soluble substances from meat, poultry or fish, vegetables and seasonings is called:

- A. Broth
- B. Stock
- C. Bouillon
- D. Gravy
- E. Soup

A mixture of half fat and half flour by weight used as a thickening agent is called:

- A. Au jus
- B. Sauce
- C. Emulsion
- D. Roux
- E. Broth

The thickening power of starch is lost when the mixture becomes too:

- A. Hot
- B. Dry
- C. Alkaline
- D. Sweet
- E. Acid

Should an emulsion break (curdle) it can usually be re-formed by:

- A. Boiling rapidly
- B. Slowly adding cold milk or water to mixture
- C. Slowly adding mixture to a small amount of hot water
- D. Adding a small amount of thickening agent

The flavor and aroma of ground coffee is maintained for a longer period if stored at:

- A. 98°F
- B. 50°F
- C. 37°F
- D. -4°F
- E. -32°F

For a better flavor, water used for brewing coffee should be cold and freshly drawn because:

- A. It contains more oxygen
- B. It prevents discoloration
- C. It makes particles stay in suspension better
- D. It prevents oils from coagulating

If two gallons of water and one pound of coffee are used in a coffee urn you can expect to get which of the following amounts of brew?

- A. 3 gallons
- B. 2 1/2 gallons
- C. 2 gallons
- D. 1 3/4 gallons
- E. 1 gallon

When substituting cocoa for chocolate the major difference to remember is:

- A. Color pigment
- B. Fat content
- C. Mineral content
- D. Acidity
- E. Caffeine content

When making cocoas and chocolates for drinking the temperature of the mixture should rise to 200°F to insure which of the following?

- A. To prevent the formation of milk scum on top
- B. To make sure the starch is completely cooked
- C. To insure the correct temperature for customer acceptance
- D. To decrease the possibility of curdling
- E. To gelatinize the starch to more stable solution

Which of the following is not a reason for cream curdling when added to coffee?

- A. Water used in making coffee is too soft
- B. Water used in coffee making is too hard
- C. Cream is too old
- D. Temperature of coffee is too hot
- E. Coffee is high in tannins and acids

Heating milk at below scorching temperatures for a prolonged period of time may do which of the following?

- A. Separate solids from liquid
- B. The emulsification of fat and protein breaks down
- C. Fat globules rise to the top
- D. Darkens and changes the flavor
- E. Enhances color and flavor

Adding soda to acid base milk products is not recommended because:

- A. It will increase chances of curdling
- B. The properties of both are lost through alkaline reaction
- C. Danger of more rapid spoiling of the product
- D. As temperature rises separation begins
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A more stable product results from dry milk if it is:

- A. Mixed to a thin solution
- B. Mixed and let stand up to two hours
- C. Mixed to a thick solution
- D. Mixed just before using

Fresh food left standing at room temperature for no longer than an hour or two will do which of the following?

- A. Quickly recover if put under proper refrigeration
- B. Quickly recover if put in cold water
- C. Cannot be restored to its original quality
- D. Will not lose any of its original quality

Foods that have been frozen then completely thawed can be re-frozen provided which of the following takes place?

- A. They are cooked first
- B. They are properly wrapped
- C. They have not completely spoiled
- D. They are cooled by refrigeration first
- E. They are put in the right kind of container

Frozen meat items if properly handled may be held in the freezer safely for:

- A. 2 - 3 weeks
- B. 6 - 8 months
- C. 2 - 3 years
- D. 1 - 2 months
- E. 2 - 3 months

Most pathogens can be destroyed by moist heat at 145°F for 30 minutes or 161°F for 15 seconds. This process is called:

- A. Steaming
- B. Sterilizing
- C. Pasteurizing
- D. Boiling

Which type of food media resists bacterial growth best?

- A. Neutral foods
- B. Acid foods
- C. Alkaline foods
- D. All are the same

Cooked foods, still hot but ready for storage should be:

- A. Refrigerated immediately in a shallow pan
- B. Left standing until they reach room temperature
- C. Left standing until partially cooled then refrigerated
- D. Cooled in front of a fan first

Which of the following does not affect portion sizes?

- A. Type of food
- B. Type of meal
- C. Type of patron
- D. Cost of food
- E. Number of employees
- F. Portion appearance

Portion sizes must first be established when?

- A. On the cafeteria line
- B. Before making out production sheets
- C. Before pulling recipes
- D. Before making the menu
- E. Before ordering is done

A written description which tells everything one wants to know concerning the qualifications of a person required for the job and the requirements of the job is called which of the following?

- A. Job qualification
- B. Job analysis
- C. Job identification
- D. Job specification
- E. Complexity of job

A written description of a job containing detailed instructions and timing for the purpose of obtaining better performance and a more standardized output is called:

- A. A work sheet
- B. Work simplification
- C. Job specification
- D. Job analysis
- E. Menu

Studies have shown that a worker in quantity food production produces what percent of the time?

- A. 25%
- B. 45%
- C. 80%
- D. 60%

Planning the manpower hours available at any one time limits which of the following?

- A. Need for employee scheduling
- B. Budget
- C. Type of equipment
- D. Need for employee training
- E. Choice and combination of foods

In dishwashing machines, a solution with high wetting properties helps:

- A. Sterilize
- B. Induce friction
- C. Eliminate spotting
- D. Keep the water clean

Which of the following is the best all-purpose cleaning solution for stainless steel?

- A. Scouring powder
- B. Silver cleaner
- C. Diluted bleach
- D. Soap and water

The U. S. Public Health code recommends that the temperature for wash water in automatic dish machines be:

- A. 140 - 160°F
- B. 100 - 120°F
- C. 200 - 220°F
- D. 98 - 100°F

According to the above question how hot should the final rinse be?

- A. 140°F
- B. 160°F
- C. 180°F
- D. 200°F

A dinner meat was not delivered until later than expected, as a result it will no longer be possible to follow the cooking schedule previously decided on. Which of the following solutions is advisable?

- A. Increase temperature of cooking equipment to be used
- B. Cut the meat in smaller pieces
- C. Substitute a back-up item
- D. Put it in the steamer first

One of the most difficult standards to set and maintain in food service is:

- A. Quality control
- B. Portion control
- C. Sanitation
- D. Recipe

Standardizing serving sizes and which of the following are essential in developing quantity control:

- A. Cooking in batches
- B. Careful employees
- C. Proper forecasting
- D. Good equipment

To insure a satisfactory product made with whipping cream you should:

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MULTIPLE CHOICE

Mark one best answer

What percent of the total cost of a meal is allowed for the potato and vegetable when figuring menu costs?

- A. 50 - 55%
- B. 25 - 30%
- C. 10 - 15%
- D. 5%

The control factor having the greatest influence on a successful food service is:

- A. The budget
- B. The menu
- C. Employees schedules
- D. Job specifications

In balancing work loads a good manager will list (a) capacities of equipment (b) knowledge of skills of workers and which of the following?

- A. Type of service
- B. Production time
- C. Kitchen lay-out
- D. Number of employees

The menu planner's responsibility is completed when he has done three of the following things; which statement is not applicable:

- A. The things that did not get done have been accounted for
- B. The food has been served
- C. The relationship of raw food and labor cost to selling price analyzed
- D. The reaction of the customer has been noted

Menu planning is geared to fit which of the following first?

- A. Available facilities
- B. Needs of the guests
- C. Available employees
- D. Budget
- E. Who the manager is

When food is brought to the table in platters or dishes and served by the host to the guests the service is called:

- A. Russian
- B. French
- C. English
- D. American

If correct temperatures are maintained, cooked foods can be held without nutritive value and appearance loss for approximately:

- A. One hour
- B. Two hours
- C. Four hours
- D. 40 minutes
- E. 20 minutes

In merchandising food the important factor most often overlooked is:

- A. Arrangement of food on line
- B. Smiling well groomed personnel
- C. Clean dishes and ware
- D. Appropriate garnishes

In making service arrangements for a banquet, the single most important service factor is:

- A. That the atmosphere be correct
- B. That the table arrangements and decorations are attractive
- C. All guests must be served the same course at the same time
- D. That the workers have suitable uniforms

The most common cause of failure to maintain good quality food is:

- A. Poor employees
- B. Inadequate facilities
- C. Careless purchasing
- D. Low standards

The most important factor in maintaining uniform quality of food is:

- A. Good cooks
- B. Standardized recipes and methods
- C. Efficient kitchen layout and equipment
- D. Good purchasing practices

The determining factor in establishing proper food portions should be:

- A. Customer needs and desires
- B. Cost per unit to produce
- C. Daily budget allowance
- D. Advice of cafeteria workers

The word standardization as related to recipes implies:

- A. A recipe that has been extended to the correct amount
- B. Each unit has its own set of recipes
- C. Recipes have been corrected to fit available equipment
- D. Deviations from set standards have been corrected

Acceptable recipes can be obtained from any reliable source and extended to large quantities by:

- A. Simple multiplication
- B. Emphasizing correct methods in order of preparation
- C. Using the correct recipe form so it is easily read
- D. Extending each ingredient in correct proportion

You are running a restaurant with adequate plant facilities in the mid-west. Which of the following factors is the most important in deciding to order a fresh or frozen vegetable?

- A. Shipping
- B. Seasonability
- C. Vendor
- D. Equipment
- E. Nutritive value

If you were running a restaurant in Nome, Alaska under the above conditions which of the following would be the most important to consider in making the same decision?

- A. Shipping
- B. Seasonability
- C. Vendor
- D. Equipment
- E. Nutritive value

Which of these items would you schedule to begin cooking first on a production sheet?

- A. Fried chicken
- B. Baked potato
- C. Green beans
- D. Gravy
- E. Coffee

To insure that you receive satisfactory goods for the price paid you must:

- A. Develop written specifications
- B. Check all deliveries received
- C. Use wise buying procedures
- D. Buy brand names

APPENDIX D

Table 11. Tabulations from Evaluation Form "A".

Stu- dent no.	Areas evaluated ^a											
	1	2	3	4	5	6	7	8	9	10	11	12
	Pre- and post-test scores ^b											
1	2-4	4-5	3-5	4-4	3-4	3-4	3-4	4-4	5-5	4-4	5-5	3-4
2	2-3	3-4	3-4	3-3	3-3	2-3	2-3	2-3	2-3	3-3	1-1	3-3
3	2-3	2-3	2-3	2-3	2-3	3-4	2-3	3-4	3-3	2-3	2-3	2-3
4	4-4	5-5	4-5	5-5	3-5	3-4	4-5	5-5	5-5	4-5	5-5	4-5
5	1-2	1-1	2-3	1-2	2-3	2-3	1-1	1-2	3-3	2-2	1-1	2-3
6	1-3	3-4	1-3	2-3	2-4	2-4	3-3	3-4	2-3	1-3	5-5	2-4
7	2-3	3-4	2-3	3-4	1-3	1-2	1-3	3-4	2-3	3-3	4-4	2-3
8	3-4	3-5	3-4	4-4	3-4	3-5	3-4	2-4	2-3	3-4	3-4	3-4
9	3-4	4-5	3-5	5-5	2-4	3-5	4-5	5-5	5-5	4-5	4-4	2-3
10	3-3	3-3	2-3	3-3	3-4	3-4	3-3	3-3	2-2	3-3	5-5	2-3
11	3-3	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	5-5	3-4
12	5-5	5-5	4-5	3-4	4-4	4-4	5-5	4-4	4-4	4-4	5-5	4-4
13	2-3	1-3	1-3	2-3	1-3	1-3	2-3	2-2	2-2	2-2	1-1	1-2
14	1-2	1-3	1-2	1-2	1-3	1-2	1-2	1-3	2-2	1-2	4-4	1-3
15	2-4	3-4	2-4	3-4	2-4	3-4	2-4	2-4	3-5	3-4	5-5	2-4
16	1-3	3-4	1-3	2-3	2-4	2-2	1-2	1-3	1-3	2-3	5-5	2-4
17	2-3	2-4	3-3	3-3	3-3	2-4	2-3	2-3	2-3	2-3	4-4	2-3
18	3-4	3-5	4-5	4-5	2-4	2-4	3-4	4-5	4-5	3-4	5-5	3-3
19	3-4	3-4	2-4	2-3	2-3	2-4	2-4	2-3	3-3	3-4	4-4	3-4
20	2-3	2-3	3-4	3-3	3-4	3-4	3-4	3-3	3-3	3-4	4-4	4-4
21	2-2	3-3	2-3	2-3	2-3	2-3	2-2	2-3	3-4	2-3	5-5	3-4
22	3-3	3-3	3-3	3-3	2-2	2-2	2-3	2-2	2-2	2-2	3-3	2-3
23	3-3	2-3	2-3	2-3	4-4	3-4	3-4	3-4	3-3	2-2	4-4	4-4
24	3-3	3-4	3-4	3-5	4-4	4-4	3-4	3-4	3-4	4-5	4-4	3-4

^aSee Evaluation Form "A", Appendix C, for names of areas.

^bScale 1 to 5.

Table 12. Evaluation Form "A" data (Experience group only).

Experience A	B	C	
52	36	38	
58	22	43	
49	49	30	
39	48		
55	50		
39	39		
53	49		
30	53		
30	44		
39	43		
38			
$\bar{x} = \frac{482}{11} = 43.8$	$\bar{x} = \frac{433}{10} = 43.3$	$\bar{x} = \frac{111}{3} = 37.0$	$\bar{x} = \frac{1026}{24} = 42.7$
n=11	n=10	n=3	n=24
			CT = 43861.3
TSS = 45804 - CT = 1942.7			
Ep SS = 21120.4 + 18748.9 + 4107 - CT = 115.0			
Error = 1942.7 - 115 = 1827.7			

Table 13. Analysis of Variance.

Source	Degrees of freedom	Sums of square	Mean	F Value
Experience	2	115.0	57.5	< 1
Error	21	1827.7	87.0	
Total	23			

Conclusion: No difference due to experience.

Table 14. Test scores of experimental and control groups by number missed on pre- and post-tests and scores from Evaluation Form "A".

Experimental group					Control group			
Pre-test ^a	Post-test ^a	Diff.	Exper. ^b	Form "A" ^c	Pre-test	Post-test	Diff.	Exper.
37	33	+ 4	A	52	40	34	+6	B
36	31	+ 5	B	36	48	42	+6	B
40	28	+12	C	38	47	39	+8	B
35	26	+ 9	A	58	46	43	+3	A
51	47	+ 4	B	22	43	38	+5	A
39	31	+ 8	A	49	54	46	+8	B
37	29	+ 8	C	43	50	55	-5	B
36	30	+ 6	A	39	48	44	+4	B
32	32	0	B	49	37	30	+7	C
34	29	+ 5	A	55	55	46	+9	C
26	27	- 1	A	39	50	51	-1	A
34	33	+ 1	B	48	41	42	-1	C
45	42	+ 3	A	53	45	41	+4	A
51	58	- 7	A	30	43	38	+5	B
49	40	+ 9	A	30	647	602		
51	45	+ 6	C	30				
42	32	+10	B	50				
50	49	+ 1	B	39				
41	37	+ 4	B	49				
34	26	+ 8	A	39				
34	31	+ 3	B	53				
36	28	+ 8	B	44				
42	39	+ 3	B	43				
34	30	+ 4	A	38				
946	833							
Mean								
39.4	34.7				46.3	43.0		
Mean for experience group								
A	B	C		A	B	C		
<u>Pre</u>	<u>Pre</u>	<u>Pre</u>		<u>Pre</u>	<u>Pre</u>	<u>Pre</u>		
38.1	39.8	42.6		46.0	47.1	44.1		
<u>Post</u>	<u>Post</u>	<u>Post</u>		<u>Post</u>	<u>Post</u>	<u>Post</u>		
33.8	35.9	34.0		44.0	43.1	41.1		

^a101 points possible on test.

^bExperience: A, structured experience; B, unsupervised C, no experience.

^c60 points possible on Evaluation Form "A".

EVALUATION OF LABORATORY EXPERIENCE IN
FOOD PRODUCTION MANAGEMENT

by

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B.S., University of Arkansas, 1948

AN ABSTRACT OF A MASTER'S THESIS

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MASTER OF SCIENCE

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Expanding demands for dietitians and other management personnel in the food service industry have become the concern of educators and leaders in the field. Colleges and universities offering degrees in this area have responsibility to review curricula to be able to meet the challenge. Concern of educational groups led to a series of conferences for college and university faculties of Institution Management. At the fourth conference in 1967 a framework was structured that can be used by Institution Management faculty for curriculum evaluation. This framework was accepted by the faculty at Kansas State University as a basis for a curriculum review and course revision.

The purpose of this study was to develop and evaluate a laboratory experience for students in Food Production Management, the second of a series of five major courses required for students in Dietetics and Institutional Management and in Restaurant Management. The course was based on Technical Operations, one of the three concepts identified at the fourth conference as basic to Institution Management.

Food Production Management was blocked with two other major courses to be taught two days a week. Theory for the three subjects was taught the first nine weeks of the semester, and the second nine weeks were devoted entirely to the laboratory in Food Production Management.

Laboratory experiences were developed from the generalizations identified by the conference committee and were

scheduled in eight hour periods in Kansas State University Food Service units. Some degree of structuring was included, but students were required to rely on their initiative to accomplish the assignments. A practical final was given on two days of the last week of the course.

Twenty four students in Food Production Management were used for the experimental group and 14 students in Quantity Foods for the control group. Quantity Foods is the beginning course for majors in the Institutional Management Department.

Competences in technical operations were evaluated by:

- (1) a daily evaluation by students in the experimental group,
- (2) an anecdotal record written by instructors of the experimental group,
- (3) a professional development form (Evaluation Form "A") used at The Ohio State University for evaluation of students in their Medical Dietetics program, and
- (4) a general information, multiple choice test. Previous experience in food service was noted.

Students believed they needed more emphasis on purchasing and supervising and that the greatest gain resulted from working with other people. Areas of greatest gain, as determined by Evaluation Form "A", were in verbal communications and ability to work with others.

Test scores showed a significant difference between experimental and control groups due to effects of nine weeks of lecture and a significant difference due to nine weeks of laboratory. There was no significant difference due to

previous experience.

Final evaluations from students in the experimental group reflected a favorable attitude toward the revised courses, and the laboratory in particular. Most of the students recommended that both the "block" and the extended laboratory be continued.