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AUDIO-VISUAL INSTRUCTIONAL TECHNIQUES
FOR DIETETIC INTERNSHIP CURRICULA

Thesis for the Degree of M. S.
MICHIGAN STATE UNIVERSITY
Mary E. Kingsberry
1963

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AUDIO-VISUAL INSTRUCTIONAL TECHNIQUES FOR
DIETETIC INTERNSHIP CURRICULA

By

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A PROBLEM

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the Dean of the College of Home Economics
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TABLE OF CONTENTS

	Page
INTRODUCTION	1
THE DIETETIC INTERNSHIP PROGRAM	5
The Hospital Internship--a Description	5
The Program--Administration	7
The Program--Normal and Therapeutic Nutrition	8
The Curriculum	9
The Curriculum Guide	10
The Minimum Standards	13
AUDIO-VISUAL INSTRUCTION AND THE LEARNING PROCESS	15
AUDIO-VISUAL INSTRUCTIONAL TECHNIQUES	23
Early Development and Present Practice	24
Aural and Visual Effectiveness	31
Graphics	33
Graphic Presentation	34
Materials and Techniques	36
Stick Figures	38
Programmed Instruction	41
Characteristics	41
Effectiveness	45
Other Audio-Visual Communication Media	48
AUDIO-VISUAL INSTRUCTION--AN APPLICATION	50
Graphics and Other Audio-Visual Communication Media	51
Programmed Instruction	62
BIBLIOGRAPHY	76
APPENDICES	81
A. ACADEMIC, EXPERIENCE, ENDORSEMENT, AND SUPERVISION REQUIREMENTS FOR MEMBERSHIP IN THE AMERICAN DIETETIC ASSOCIATION	81
B. MINIMUM STANDARDS FOR A HOSPITAL DIETETIC INTERNSHIP	82

INTRODUCTION

The American Dietetic Association was established in 1917 as a professional organization dedicated to the service of humanity through application of knowledge of the science of nutrition. From a nucleus of thirty-six charter members who were primarily interested in hospital dietetics, the 1963 membership roster has grown to include over 16,000 men and women employed in a wide range of professional positions: administrative or therapeutic dietetics in hospitals; business oriented, extension or public health nutrition; research; college and university teaching; school lunch, college and university, industrial or commercial food administration.

The requirements for membership in The American Dietetic Association are:

1. A bachelors' or advanced degree from an accredited college or university which has included or been followed by required courses and credit hours established by the Executive Board of The American Dietetic Association.
(See Appendix A, p. 81.)
2. A record of satisfactory completion of an internship approved by the Executive Board in a Hospital, in a Food Clinic, or in an internship with emphasis on Food Service Administration; or as an alternative, three years of acceptable experience in the field of dietetics. (If the

applicant has an advanced degree in a field related to dietetics, the experience requirement is modified.)

Approximately 865 applicants were admitted to membership in The American Dietetic Association during the June 1, 1962 - June 1, 1963 fiscal year. The three types of internships, Hospital, Food Service Administration and Nutrition Clinic, prepared seventy per cent of these applicants for membership. The fifty-one approved hospital dietetic internships in 1962-1963 were located in twenty-five states, Puerto Rico, and the District of Columbia. The total number of approved dietetic internships for this period was sixty. Hospital internship programs prepared sixty-five per cent of the 1962-63 applicants for membership in The American Dietetic Association.

The internship program was initiated in October 1927 as a means of developing a professionally qualified membership for The American Dietetic Association, although dietetic internships had existed for some years prior to 1927. The first official dietetic internship listing published in the March 1928 Journal of The American Dietetic Association recognized thirty-three programs (55). Each year the listing of approved internships is revised and published in the Annual Reports and Proceedings of the Association.

The following administrative framework has been developed by the Executive Board to insure course and curriculum standards for the twelve-month internship program:

1. Two members of the Association Headquarters Staff serve as Dietetic Internship Liaison personnel. Their primary responsibilities are to counsel the Internship Directors on program and policy; to evaluate internships biennially;

and to report developments to the Association Executive Board that may indicate the need for consideration of conditional approval or withdrawal.

2. Program planning for approved internships is based on a curriculum guide. The current guide (38) to curriculum planning in dietetic internships presents a series of logically related decisions based on what the intern should achieve; the circumstances that will make the achievement most possible; and how the extent of the achievement can be determined.
3. Minimum Standards established by The American Dietetic Association for the approval of dietetic internships are revised periodically; the revisions are recommended to the Executive Board by the Internship Board, and are approved by the Executive Board. The most recent revision of the minimum standards for a hospital dietetic internship was approved by the Executive Board in June 1962. (See Appendix B, p. 82.) The minimum standards for Food Service Administration and Clinic Internships are currently being revised. These standards are reviewed and discussed at conferences of directors and staffs of approved dietetic internships.

With the growing concern for individual differences, abilities, and needs, recognition that the educational curriculum be individualized to meet the intern needs has become more significant. Audio-visual materials are a useful adjunct to the successful teaching of practically every subject at all levels of instruction, because the normal learner gains

understanding in terms of multiple impressions recorded through the eyes, ears, touch, smell and taste. These functions do not occur in isolation, but through a blended pattern from all or any of the perceptor mechanisms that are stimulated by external occurrences. Since audio-visual materials aid in the learning experiences by permitting a maximum of learning reinforcements, a compilation of these learning techniques should be valuable to the Internship Directors in developing courses and curricula.

This paper will discuss the principles of audio-visual instruction and will present a compilation of audio-visual instructional techniques and utilizations pertinent to courses and curricula in approved Hospital Internship programs.

THE DIETETIC INTERNSHIP PROGRAM

The Dietetic Internship prepares graduates of accredited colleges and universities who have met specific academic requirements for membership in The American Dietetic Association. An integrated program provides class instruction and practical experience in food production and food service administration; personnel management; normal and therapeutic nutrition; and community nutrition.

The Hospital Internship--a Description

The American Dietetic Association has designated standards for the organization sponsoring a dietetic internship. The hospital in which a major portion of the dietetic interns' experience shall be scheduled must meet the following criteria:

1. The hospital shall be accredited by the Joint Commission on Accreditation of Hospitals.
2. The hospital shall have a bed capacity of at least 300, and preferably 500 or more.
3. There shall be a well-developed program for the coordination of the dietetic service with medical, nursing, social service, and other professional services in the hospital. There shall also be effective correlation of the dietetic internship with other educational programs at the professional level in the hospital.

4. The director of the department of dietetics shall be a member of The American Dietetic Association. He or she shall have complete responsibility for food service in the hospital, including all phases of food production and service to patients and personnel.
5. The hospital shall have a full-time dietetic staff of at least five professionally qualified dietitians (five members of The American Dietetic Association).
6. The equipment of the department of dietetics shall be modern and sufficient in variety and in quantity to facilitate the maintenance of high standards of food service.
7. The hospital's personnel policies shall be defined in writing and shall be consistent with accepted practices.

Sponsoring agencies of hospital internships include state university medical centers; voluntary non-profit hospitals; government non-federal hospitals, such as Milwaukee County Institutions; and governmental-federal hospitals, controlled by the Veterans Administration, the U. S. Public Health Service, or the Army Medical Specialist Corps. Hospitals provide meals, room and professional laundry for the dietetic intern, and the internship may carry a modest cash or educational stipend for the twelve-month internship period. Internship quotas, based on staff and program potential, vary from six to twenty-five.

The internship program is primarily concerned with the practical application of knowledge and theoretical learning which the student acquired during her college or university education. Formal class instruction in food service administration and therapeutic dietetics reinforces the learning which is obtained through practical experiences during the internship year.

The Program--Administration

Certain learning experiences basic to the administration of a hospital dietary department are a common denominator for each internship program: personnel selection, training and supervision; sanitation and safety; cost control; department organization and layout; equipment use, specifications and maintenance; menu planning, food purchasing and food storage; and food production and service.

Food is extremely important to hospital patients--the alpha and omega of the progression of hours and days until discharge. Good nutritious meals are necessary not only for physical health and recovery, but also for morale. And food is something the patient leans toward--something important, familiar, a link with his normal life.

The intern is exposed during her college or university education to contrived experiences which prepare her for food production internship experiences. As one Internship Director stated, 'What is done in a nice, orderly school laboratory situation is all slick and smooth; but in large institutions, food centers are no snug little test kitchens.'¹ In the practical situation the white uniformed intern plans menus, peels potatoes, scrubs kettles, checks food shipments, tests recipes, listens to problems in the butcher shop, receiving depots, wards, clinics and nurseries as she helps produce thousands of well-balanced meals daily.

The comments a dietetic intern made as she put a test roast into the oven were reported in The Milwaukee Journal: 'I am blowing up a recipe for quantity use. Training like this is challenging and stimulating because you can learn many things about food preparation on a large scale.

¹Mary K. Waits, Internship Director, Milwaukee County Institutions, The Milwaukee Journal, February 2, 1961.

This internship year gives me a better idea of what to expect when I get a job in my profession. Just as a medical intern uses his classroom training in the hospital wards and clinics, we choose to transfer the know-how from our college courses to food production in hospital kitchens and patient contact on medical floors."²

How to organize the preparation of dinner for several thousand patients; what to do when there are twenty unexpected new patients for supper or the second cook quits in a huff; where to install the new steam tables; how to tell the quality of the pot roast or how to adjust the yield of a favorite small quantity recipe for about 300 hungry but discriminating hospital patients are all part of the internship program. These experiences help stimulate the individual to make critical judgments and evaluations, to use available resources in problem-solving, and to develop the ability to think creatively. The intern's experience in therapeutic dietetics is of equal importance.

The Program--Normal and Therapeutic Nutrition

A background of knowledge in anatomy and physiology, biochemistry, normal nutrition and related subjects gained in the undergraduate program provides a sound basis on which to build into the internship a practical approach to the dietary treatment of the individual patient. The development of insight for working effectively with doctors, nurses, and other members of the medical team is of vital importance in preparing the intern for practice as a dietitian. Of equal significance is patient contact, where she learns how to provide assistance to each patient for meeting his nutritional needs (42).

²The Milwaukee Journal, February 2, 1961.

Experiences in therapeutic dietetics include the study of prescription diet writing and diet calculations, planning modifications of the normal diet, visiting and instructing both adult patients and children, cooperating with other members of the medical team and studying the relationships between diet therapy and total medical care (42). As a result of this optional intensive practical work, supplemented by formal classroom instruction, the dietetic intern has a good understanding of the many ramifications of the profession of dietetics and is qualified for jobs in test kitchens, nutrition research, commercial and industrial food services, and college and university faculties as well as hospital organizations.

The Curriculum

The Executive Board, acting in the name of the membership of The American Dietetic Association, maintains the quality of the internship programs. The Board has the power to approve each internship based on the extent to which the internship succeeds in meeting accepted standards of performance.

The division of the responsibilities for the internship program is such that the Executive Board determines the primary objectives and the internship staff makes most of the decisions concerning means. The objectives are ends which should be achieved by the intern, and the goals are a list of educational opportunities the internship should strive to provide. The responsibility of the internship staff to the Executive Board is the translation of goals or objectives into a workable plan for instruction, a curriculum.

The Curriculum Guide

The first curriculum guide (53) for internship directors was prepared as a part of the master's thesis by Miss Marjorie L. White at Iowa State University in 1953. Miss White is currently Assistant Dietetic Internship Liaison Director for The American Dietetic Association. This guide was an outgrowth of a project carried out for several years by the directors and staffs of approved dietetic internships under the guidance of a Committee of the Professional Education Section of The American Dietetic Association.

The previous guide prepared during the development of this project was titled "Class Instruction for Dietetic Interns in Internships Approved by The American Dietetic Association," and was mimeographed in 1951. Prior to that time the only "course outlines" for approved dietetic internships were earlier versions of the minimum standards.

In 1960 the Executive Board commissioned Arlene Payne, a doctoral student at the University of Chicago and Educational Director of Kansas University Medical Center Internship program, to prepare a report that might serve as a guide for the study and improvement of the internship program curricula.

Basic planning for internship programs can be divided into two levels:

1. The Internship level: the planning which pertains to the educational program in all or several instructional units or classes.
2. The Instructor level: the planning which pertains to a single unit or class, usually done by the instructor or by the instructor and student together.

Miss Payne's curriculum guide coordinates and gives direction to all of the several teaching units and classes at the internship level only.

In developing a guide for curriculum planning for internships, Miss Payne made certain assumptions about the nature of the problems which exist and about the most appropriate solutions. The first assumption was that those persons best qualified to identify the nature and cause of curriculum problems in each internship and to select the most desirable solutions are those most closely involved with the problems; namely, the internship staff.

The decentralization of the curriculum planning gives each internship staff the opportunity to take into account the problems and potential solutions which may exist in their particular internship program. This assumption was that, if some master plan was devised at the national level it would either be too general in nature and would solve few of the specific problems or, if detailed, it would be too inflexible for adaptation to the varying situations which exist. Therefore, the guide was designed to provide assistance to the separate staff in planning their own curricula.

Another assumption was that participation of staff members in the planning process will result in greater understanding of and interest in the changes which result. When carrying out the revised plans, some change in action has to take place on the part of the instructor. Participating in the planning process helps to increase the instructor's understanding of the special contributions of each unit or class, especially her own.

It was further assumed that much of the difficulty in planning the educational program of the dietetic internship lies not in the lack of

answers but in the lack of knowledge needed to formulate the proper questions. The curriculum procedure in the guide offers at least a partial remedy for this problem by posing the major curriculum questions. However, the staff's responsibility is to find appropriate answers to the questions given.

Last, it was assumed that the process of curriculum study is more effective if it is a logical process, based on a curriculum theory or rationale. This procedure provides a systematic way to attack the problems to be solved and indicates the relations among these problems. The suggested procedure for curriculum study and revision was based upon a rationale generally agreed on by most writers in the field.

These assumptions represent the fundamental ideas on which the curriculum guide was based.

Planning a curriculum is a process of making a series of logically related decisions. The decisions made were based on three deceptively simple questions:

1. What is the intern supposed to achieve?
2. What circumstances will make this achievement most possible?
3. How can the extent of achievement be determined?

These questions suggest the importance of the ends-means relations in education. The first question refers to the ends or objectives for interns and the second to the means by which the ends can be attained. The third question relates to both ends and means. This logical order merely says that appropriate means can only be chosen by considering the ends they are to serve. It pertains to determining the effectiveness of a given set of means for the achievement of the particular ends for which

they were selected. This determination is possible only if the ends are clearly defined.

The goals described are ends to be achieved by the internship. Objectives are also ends, but must be achieved by the intern through some description of student behavior and a certain content of subject area in which this behavior is exhibited.

The Minimum Standards

In February 1963, The American Dietetic Association sponsored a workshop for directors and staffs of approved dietetic internships at Kellogg Center, Michigan State University. The purpose of this conference was to revise the Minimum Standards for Hospital Internships by translating the goals presented in the curriculum guide into a more specific statement of objectives. (See Appendix B, p. 82.)

The Internship Directors decided on the operational objectives based on the five criteria which deal with the logical relation between objectives and goals. The first was whether the list of objectives adequately covered all the goals; secondly, if the objectives reflected the meaning and emphasis of the goals; thirdly, the appropriateness of each objective for the internship; the fourth required consideration of each objective on the basis of practicality in the given situation, in terms of teaching staff and facilities and time limitations for both staff and interns. The last criterion referred to how clearly the objectives gave direction for further planning.

Each objective was studied carefully to determine the type of learning activities that seem most appropriate for its achievement, based on flexibility which indicated that for each general activity there should be a variety of specific ways in which it can be offered. This variety

made it available for the program to be flexible enough to adjust to the needs of each intern. An internship, by its very nature, is largely concerned with the practical application of knowledge and theoretical learnings which have been acquired during an earlier period of education. The length of time between the acquisition of knowledge and its application was considered by the Internship Directors in deciding what review or repetition of learning was needed. A flexible arrangement for selecting specific activities was important because of individual differences in ability and achievement, and because of the differing quality and emphasis of undergraduate programs.

Certain "Basic Learning Experiences" are included in all dietetic internships. These experiences are those in which principles are reviewed or learned and basic skills are developed. These experiences also include those related to procedures practiced in the organization sponsoring the internship. The points of emphasis are listed under RECOMMENDATIONS FOR LEARNING EXPERIENCES. (See Appendix B, p. 4 in the Minimum Standards for a Hospital Dietetic Internship.)

In addition to the "Basic Learning Experiences" which provide the foundation of an internship program, "Intensive Learning Experiences" to further develop the interns' knowledge and skills are required. In respect to "Intensive Learning Experiences," only general recommendations are made as the planning for the experiences should be based on staff review of all of the resources available within the organization sponsoring the internship and other resources in the community. These assignments should stimulate the interns to analyze, evaluate, and to think creatively. (See Appendix B, p. 6.)

AUDIO-VISUAL INSTRUCTION AND THE LEARNING PROCESS

Harris and Schwahn defined learning as "a process that emphasizes what happens during the course of a learning experience in attaining a given learning product or outcome."³ The sequence and pattern of change in behavior becomes the focus of attention. Learning as a product was further defined by the same authors as "a product that emphasizes the end-result or outcome of the learning experience."⁴ The focus of attention in this case is upon the characteristics of learned behavior. Learning as a function "emphasizes certain critical aspects of learning which presumably make behavioral change in human learning possible."⁵ Motivation is a functional concept which is useful in describing certain preparatory dynamic and directive characteristics of learning.

In acquiring knowledge, the teacher is responsible for the management and direction of learning, in a way that brings about certain desired results or outcomes. A point repeatedly emphasized by John Dewey and his interpreters was that "an understanding of learning, focused primarily upon the nature of the end-result or product, contributes little to the effective functioning of the teaching-learning process."⁶ The teacher

³T. Harris and W. Schwahn, Learning Process (New York: Oxford University Press, 1961), p. 1.

⁴Ibid. . . .

⁵Ibid., p. 2.

⁶John Dewey, "John Dewey and Creative Education," The Saturday Review, XLII (November 21, 1959), pp. 22-23.

also basically needs to know how and why changes in behavior occur and to determine what can be done to bring about desired changes, by considering the implications of the learning process for the management and measurement of the learning experience.

Learning and motivation are inseparable. Any arrangement designed to encourage learning must provide for motivation as well. Parents are responsible for training their children, teachers their pupils, and dietitians their interns. Anyone who finds himself responsible for training or instruction, whether at home, school or hospital, has to make decisions about the motives to rely upon. The instructor usually has access, through her position of responsibility, to rewards and punishments. Part of her success will depend upon her skill in using them to encourage the learning she wishes, with a minimum of the by-product that she prefers to avoid. The learner experiences satisfaction that comes from making progress, from doing a good job, from working with others, and from living up to expectations.

All learning implies retaining, for if nothing were carried over from previous experiences, nothing would be learned. We think and reason largely with remembered facts; the very continuity of our self-perceptions depends upon the continuity of our memories. We are able to deal with the concept of time as no other animal can because of the availability of memories, relating the present to the past and making predictions about the future.

Experience has long been called the best teacher. Through seeing, smelling, tasting, feeling, and hearing we receive and interpret the range of stimuli which impinge upon our sense organs. The problem is to understand the ways in which different experiences bring about changes in

response and behavior in human beings and to perceive what experiences cause what learning under what circumstances. One way is through the use of audio-visual materials.

In order to understand the behavior and actions, the interest and attitudes, the ideals and beliefs, and the skills and knowledge which characterize any human being, it is essential to understand the learning process for it and maturation comprise the two major influences affecting human behavior.

As the intern learns she attacks a problem through thinking; she may be influenced by an attitude of mind that is well established if only on an emotional basis. She will probably begin to search for additional understandings. She may gain these through interviews, reading, discussion, or through concrete experiences. If she is an orderly thinker, she will then select the data that fit her purpose and apply them in the solution of her problem.

The teacher has an opportunity to approach the problem of modifying, influencing, and actually building socially desirable attitudes. This can be accomplished through carefully planned learning situations.

Effective instructional techniques depend upon providing the intern with wide varieties of participatory experiences. When the dietetic intern begins her hospital internship, she has the opportunity of examining the hospital through direct observation by touring the dietary department, medical floors, emergency room, out-patient clinic and personnel department. All this effective learning is accomplished through seeing, hearing, feeling, manipulating and examining. It is nature's own way of learning, by seeing and hearing simultaneously through the interdependent functioning of the two primary sensory receptor

mechanisms, the eye and the ear. Through concrete, first-hand impressions the new intern becomes familiar with the complete hospital. Thus, real 'experience' is perhaps the instructor's most hopeful avenue through which she can help influence the intern in learning; the use of audio-visual materials will help to make these real experiences more meaningful.

These learning aids perform three definite functions: motivation, clarification and stimulation. The novelty and variety of the devices will arouse the curiosity of the intern and focus her attention on the lesson, because the audio-visual materials will appeal to the senses. Interest will also be sustained. The proper use of aural and visual materials will aid in instruction and will stimulate further thought, but they are ineffective if they are not properly utilized. It is not enough to collect, prepare, catalogue and display the teaching aids. They must be used and use properly. The audio-visual aids should be selected on the basis of economy, students and subjects for which they will be used.

Audio-visual instruction supplies concrete experiences which are essential in enriched learning. In providing the concrete experiences that are requisite to learning, audio-visual materials are valuable on the associative level of instruction, not only to give meaning to words and to symbols such as numbers and map signs, but to clarify ideas involving higher abstractions. Audio-visual instruction is a term which designates the extensive use of devices such as moving pictures, slides, transcriptions, radio, recordings, dioramas, slide-films and television by teachers to transmit ideas and experiences through the eye and ear. However, in education, the term audio-visual instruction has taken on a broader meaning. In addition to the teaching materials listed in the

previous sentence, audio-visual instruction includes the use of charts, diagrams, field trips, models, exhibits, mock-ups, demonstrations, posters, stereographs, photographs, objects, specimens, blackboard sketches, the bulletin board and programmed instruction. The chief distinction between audio-visual instruction and other forms of instructional technique is a matter of emphasis. Audio-visual instruction emphasizes the value of concrete or non-verbal experience in the learning process, whereas other forms of instruction stress verbal experience.

The distinction between non-verbal or concrete experience on the one hand and verbal experience on the other may be shown in the following example. A dietetic intern sees a food cart for the first time. She looks at it, touches it, opens the doors, and gives it a thorough examination. She is experiencing a food cart by the direct stimulation of her senses. This is a concrete experience. She may ask, "What is it?" and hears the reply "a food cart." The sound "food cart" is a verbal symbol. Later she sees the sign FOOD CART. Again she experiences a verbal symbol, this time through the sense of sight. But neither the sound "food cart" nor the sight of the printed word has any resemblance in form to the object it represents.

Consequently, the meaning which the intern derives from the verbal symbols is a function of the associations which she develops between her concrete and verbal experiences. In fact, the intern knows more about the food cart from her concrete experience than can be expressed by words. Once the meaning for the words "food cart" has been established, the intern can use symbols extensively and the depth of meaning will grow with additional experiences.

People are picture minded. When we see something, we tend to file it in our mind as a picture, not as a word. When we think of something, we associate it with a picture instead of a word. Therefore, we tend to remember what we see much longer than what we hear. Concrete experiences help to make vivid impressions and retention is usually better than that which can be realized from verbal discussion alone.

In consciousness, memories from past concrete experiences and verbal experiences are closely linked together. They are also blended with incoming experiences to give meaning to an immediate situation. For example, a dietitian who is always in the habit of greeting her employees and dietetic interns on entering the room with a cheery smile and a "good morning," comes in out-of-breath, scowling and gruffly says, "Good morning." Even though the dietitian says the same words "good morning," her employees and dietetic interns could quickly interpret the non-verbal scowl, gruff tone and out-of-breathness to mean that it is not a good morning with the dietitian. This example also illustrates that the understanding of verbal symbols is a function of the pattern in which they are experienced and in addition that there may be strong non-verbal elements in the pattern which condition or even determine the meaning.

Audio-visual materials and equipment facilitate learning by appealing to the senses which are the connecting link between the individual and his environment and the avenues of learning. Nothing can be found in the mind unless it has passed through the senses. The things the senses bring to the mind are the raw materials on which the mind acts. Learning products and how they are acquired depend upon what and how one perceives, observes, or experiences. One's experiences depend upon the normal functioning of the sense organs and the mental apprehension of the sensory

stimuli. The cognitive process which involves the experience of knowing is concerned with the senses that make us aware of the things around us, enable us to perceive these things, store them in our memory, form images about them, allow us to compare them and form concepts about them, and finally permit us to think and reason about them. The awareness of these sensory experiences, plus meaning, is called perception.

The normal learner gains understanding through a blended pattern of any or all of the perceptor mechanisms that are stimulated by external occurrences. Perception utilizes sensory experiences by arranging them into meaningful configurations. The conscious interpretation of these characteristics represents progression toward thinking. Imagery, memory, conception and background are sometimes thought of as allied activities. Since perception seems to depend almost exclusively upon the completeness of sensations obtained and the fullness of association or appreciation, previous experience is an indispensable factor (45). For example, the same cereal in a kettle might be thought of as too thick, thin, or the right consistency, which indicates the importance of previous experience of the learner. Obviously, this forms the basis for interpretation of pictures, films, filmstrips, recordings and demonstrations.

The final and the highest element of the cognitive process is thinking. A comparison would infer that "perceiving is the process of organizing present sensory data and interpreting them on the basis of past experiences, whereas thinking can utilize exclusively objects not present to the senses."⁷

⁷Floyd L. Ruch, Psychology and Life (Atlanta, Georgia: Scott Foresman and Company, 1948), p. 387.

The orderly process of thinking involves the selection of those understandings which apply, and the discarding of those which do not apply, in the solution of a problem. The basis for thinking is a body of understandings from among which selection may be made. Understandings are the outcomes of perceptual or real experiences with events or things. Thus the basis for thinking is a broad background of perceptual experiences. In a complex world environment where the learner is often unable to have had a wide range of personal perceptual experience, audio-visual materials may be useful in simulating many desirable and needed experiences.

AUDIO-VISUAL INSTRUCTIONAL TECHNIQUES

Learning is a fundamental process of life, and we are living in a world of rapidly changing conditions. There is an urgent need for accurate and definitive reasoning regarding the forces that are affecting our indigenous civilization. There is nothing as constant as change, and one of the changes that has occurred in education is an increased use of audio-visual materials. With this change there is a growing recognition of individual differences, abilities and needs in students. The principle of individual differences has become one of the most widely discussed and practiced ideas that has come into education in the past fifty years (34). Human beings are alike in many respects, yet they are all different. Individual capacities for learning differ enormously. Some individuals are more facile in using language than others. Some are what we call language-minded; some are what we call sensory-minded. Some seem to see relationships more clearly than others. In the past, education has attempted to make all students jump through the same hoops and over the same hurdles. Now that a large variety of audio-visual materials is available for class work, teachers can organize learning situations in various patterns which will appeal to each and every individual.

Audio-visual instruction contributes to accurate thinking by furnishing some of the basic raw materials for thought. It can fill the storehouse of memory with the non-verbal experiences essential to meaning. Audio-visual techniques are helpful in directing attention; analytical

diagrams, sketches and layouts are useful devices for keeping the attention centered on the problem. Training in the accuracy of observation is helpful in keeping the thought from wandering. Audio-visual materials may also be used to clarify symbolic concepts by relating them to concrete situations. Audio-visual instruction should not be regarded as a method of teaching. It is of value only when used as an integral part of the instructional process.

Early Development and Present Practice

Audio-visual instruction may be traced through the educational history of mankind. In primitive times children were taught through imitation, observation, and participation correlated with the necessary language explanations. Man's earliest records were picture records. Neolithic men drew pictures to warn and to inform. The early Egyptian records were almost entirely pictorial. In the Western Hemisphere the Mayans and Aztecs recorded their experiences through a system of picture writing. The early Greek and Roman teachers utilized field trips, the sand as a blackboard, and real objects in their instructional procedures (34).

The forerunners of modern education advocated the use of visual-sensory instruction. Many famous educational leaders such as Comenius, John Locke, Rousseau, and Pestalozzi emphasized it.

John Amos Comenius (1592-1670) was educated to be a Protestant minister in German universities. The most comprehensive of all the educational writings of Comenius is the "Great didactic," planned in 1628. "The purpose of the 'Great didactic'," as announced by Comenius, "is to seek and find a method of instruction by which teachers may teach less,

but learners may learn more; schools may be the scene of less noise, aversion, and useless labor, but of more leisure, enjoyment, and solid progress; the Christian community have less darkness, perplexity, and dissension, but more light, peace, and rest."⁸ He promised in his "greeting" an "art of teaching all things to all men, and of teaching them with certainty, so that the result cannot fail."⁹ Among the uses of such an art he noted the advantage (1) to parents, that they may know that if correct methods have been employed with unerring accuracy, it is impossible that the desired result should not follow; (2) to teachers, who, without a knowledge of this art, try in turn first one plan and then another, a course which involves a tedious waste of time and energy; and (3) to schools, that they may become places of amusement, houses of delight and attraction, and that they may cause learning to flourish.

The most widely used and influential book (37) to come from his pen was the Orbis Pictus (World in Pictures) published in 1658. It was illustrated by one hundred and fifty pictures printed from copper cuts, each picture serving as the topic of a lesson. Some of the topics which the pictures illustrated were: God, The Heaven, The Air, Earth, Tree, The Seven Ages of Man, The Making of Gardens, The Potter, Geometry, The Eclipse, Religion, The Last Judgment, and A City. This book was written in Latin and High Dutch, and many editions of it were printed, some even as late as the 19th Century. The following quotation from the preface of the Eleventh English-Latin edition published in London in 1728 and reprinted by C. W. Bardine, Syracuse, in 1887, will serve to indicate the

⁸W. S. Monroe, Comenius and the Beginnings of Educational Reform (New York: Charles Scribner's Sons, 1900), p. 84.

⁹Ibid.

extent to which Comenius believed in the necessity of visual-sensory instruction in the elementary school.

Let it (Orbis Pictus) be given to children into their hands to delight themselves withal as they please, with the sight of the pictures, and making them as familiar to themselves as may be, and that even at home before they be put into school.

Then let them be examined over and anon (especially now in school) what this thing or that thing is, and is called, so that they may see nothing which they know not how to name, and they can name nothing which they cannot show.

And let the things named them be showed, not only in the picture, but also in themselves; for example, the parts of the body, clothes, books, the house, utensils, etc. . . .

Let them be suffered also to imitate the Pictures by hand, if they will; nay rather, let them be encouraged that they may be willing: first, thus to quicken the attention also toward the things; and to observe the proportion of the parts one toward another, and lastly to practice the nimbleness of the hand, which is good for many things.

Things rare and not easy to be met withal at home might be kept ready in every great school, that they may be showed also, as often as any words are to be made of them, to the scholars.

Thus at last this school would indeed become a school of things obvious¹⁰ to the senses, and an entrance to the school intellectual.

The Orbis Pictus was a forerunner of the illustrated Primer and Reader and set the model which authors of such books followed until the perfection of photoengraving and modern printing processes made more elaborate illustrations in readers possible. Among the multitude of principles which Comenius (37) advocated were the following:

1. A graduated series of textbooks and illustrative material should be provided as an absolutely necessary means for improvement in instruction.
2. At first subjects should be presented orally by the teacher and pictorially illustrated where possible.
3. Actual objects and things should be studied first, and language in connection with such study.

¹⁰F. D. McClusky, Audio-Visual Teaching Techniques (Dubuque, Iowa: Wm. C. Brown Co., 1955), p. 28.

Comenius may safely be credited with being one of the first educators of prominence in Western civilization to make practical use of pictures in teaching, and the influence of his work extends to modern times over a span of nearly 300 years.

John Locke (1632-1704), the great English scholar and philosopher, is mentioned here because of his influence on Rousseau. Locke advocated that education should be practical and playful, and it was through Rousseau's formulation of Locke's ideals as set forth in the Emile that his ideas became a force for educational reform. Parker described Locke as the fountainhead from which Rousseau gained inspiration for his attack upon the 18th Century dancing master education of France.

Jean Jacques Rousseau (1712-1778) published his Emile in 1762. The appearance of this book crystallized the growing unrest in education sufficiently to break traditions of two hundred years. It started a revolution in educational theory and practice, the reverberations of which are still to be felt.

In commenting upon Rousseau's influence, Parker says:

The necessity of such experience with organic and physical nature, as the source of knowledge, was another principle in Rousseau's psychology of child experience. Contemporary teachers either considered it unnecessary to give knowledge of the world of things or assumed that such knowledge could be secured through a study of words and books. So thoroughly did Rousseau oppose this practice that he advocated making the education of the child between the ages of five and twelve entirely 'education through experience and the senses'. There have been educational reformers before Rousseau who advocated the study of things. Comenius was the most important of these, but he had not succeeded in reforming school practice. But it is this phase of the Rousseau movement that first and most extensively modified the practice of elementary teaching to some degree in the schools of Basedow, but more particularly in the 'object teaching' of Pestalozzi and his followers.¹¹

¹¹ S. C. Parker, The History of Modern Elementary Education (Boston: Ginn and Co., 1912), pp. 193, 343.

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Pestalozzi (1746-1827), another great leader in education, and his experimental schools in Switzerland were for 25 years the Mecca of European and American educational leaders. Parker stated that, "Pestalozzian objective and oral methods represent the largest practical influence of Pestalozzi in carrying out the principles of instruction advocated by Rousseau."¹²

In connection with his object teaching, Pestalozzi created a technique of oral instruction which actively was in competition with textbook instruction, particularly in the United States during the latter half of the 19th Century.

The writings of Comenius, Locke, Rousseau, and Pestalozzi can be traced directly to the practice of modern American schools today. One cannot help but wonder what these men would do and say if they were to see modern schools equipped with audio-visual materials such as models, maps, charts, diagrams, illustrated books, silent motion pictures, sound motion pictures, lantern slides, television, programmed textbooks and machines, and stereographs, the like of which they never dreamed. With the sudden growth of mass education, the task of taking large numbers of children to nature for firsthand experiencing and development became difficult to administer; but now it is literally possible to bring nature into the classroom through the medium of sound and silent motion pictures, stereographs, and other forms of objective representation. Now it is possible to effect in some measure the kind of teaching which these early leaders advocated. Whereas schools and hospitals of the past used audio-visual materials to a limited degree, modern science and invention have opened unlimited possibilities in the organization of

¹²Ibid., p. 324.

concrete materials for teaching purposes. The invention of the photograph and of photoengraving have given us photographically illustrated magazines, newspapers, books, and school texts of high quality. A teacher with a pair of scissors and files of magazines and newspapers has at her disposal an unlimited supply of pictures for use in the classroom. All modern texts contain illustrations. Some textbooks consist almost entirely of pictorial material. The process of manufacturing such teaching materials is an exact science which has made possible large-scale production of books at a price within the reach of our students who go to our schools, public and private. No longer is it necessary as it was in the time of Comenius to advocate that each student be provided with his own printed copy slips rather than slips written by the teachers.

The introduction of audio-visual materials into school practice has enabled teachers to learn something of their value and place in instruction through experience. Some of the general notions which have been developed through actual classroom experience will be discussed in the following paragraphs.

Audio-visual materials are most effective when closely correlated with the established course of study or curriculum. Comenius, Rousseau, and Pestalozzi maintained that there must be a close relationship between sensory experience and verbal experience.

Audio-visual aids will not supplant the textbook or teacher, but will supplement and increase their effectiveness. The most effective use of audio-visual materials depends on the way in which they are treated as in any good teaching program. The mere exposure of students to audio-visual materials will not by some mysterious process teach them.

Teachers must prepare students for audio-visual instruction in advance and check on them afterwards as if they were using good printed materials or texts.

A few pat illustrations are better than a score or more of less related ones. The inherent nature of audio-visual materials, namely their concreteness, makes it imperative that they be excellent in quality, authentic and accurate. Misinformation imparted by an audio-visual aid is inexcusable. Great care must be taken to insure the accuracy and authenticity of the subject matter presented. In evaluating teaching aids, the teacher should not hesitate to discard those which are inaccurate and lacking in technical quality.

Expensive audio-visual aids should make accessible in the classroom that which is otherwise inaccessible. It has been said many times that one of the chief functions of audio-visual instruction is to "bring the world to the learner." This statement, like many of its kind, is not to be taken literally. Films, sets of slides, recordings, sets of models, apparatus, and many others are expensive. They should be produced for school and hospital use in terms of the important segments of life experience which will be of particular value to the student and which cannot be presented in any other way. For example, there is no point in producing and using a film to teach management concepts which employs objects that could be easily made in the hospital shop or purchased with a few dimes.

No one type or class of audio-visual materials should be used to the exclusion of others. Each has its particular contributions to make in instruction. For example, the stereograph is particularly valuable as an individual study experience. The motion picture is effective as an

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overview or summarization device. The slide provides an excellent springboard for the socialized recitation. Charts and diagrams are especially effective in presenting abstractions and in assisting analysis.

Again it is apparent that time is the essence of the task. So audio-visual teaching rides on the wings of time. Like the jet propelled plane which moves us faster than any other method of transportation from one place to another, the motion picture and television can transmit ideas from one group to another more speedily than any method of mass communication. Developing new ways of living takes time. 'You can send a message around the world in one-seventh of a second, yet it may take years to force a simple idea through a quarter inch of human skull.'¹³ This means simply that teaching is essentially human and that books, machines and gadgets are but tools in the hands of teachers to be used by them in fashioning the ideas, attitudes and behavior of other human beings. Nevertheless, the first step in international education is communication. And audio-visual materials enable us to transmit ideas quickly and precisely. Consequently, audio-visual materials are a very important means in education by which the ends for the education training for dietetic interns can be attained more effectively.

Aural and Visual Effectiveness

The theoretical justification of aural aids rests on the fact that speech is a skilled activity acquired by a process of learning in which the ear predominated over the eye. Spoken language, and to a large but variable extent literature and poetry, are perceived predominantly by the

¹³C. F. Kettering, "Freedom on Trial-The Zenger Case," The Readers Digest, LI, No. 303 (July, 1947), p. 44.

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ear, whereas most other subjects are perceived predominantly by the eye (51).

Recordings are to the ear what pictures are to the eye (13). Although visual is a very important method of teaching, we must not overlook the many varied possibilities of teaching in the classroom with the emphasis on the phase of aural education. Students should achieve the type of aural understandings which will take the records, radio, sound films, wire recording, public speeches, group forums and discussions of the realm of passive hearing into active listening (6).

Listening and discussing have long been important forms of the student's work. These activities will continue to be a major part of their lives. The tone of voice, pitch of voice, clarity, pronunciation and enunciation are minor factors in teaching and learning.

The eye is the most important gateway to the mind. For most people the visual impression is the one which can be most easily interpreted and most lasting but also relates most readily to other sensory experiences (52). A visual aid is any specifically prepared drawing, illustration, model, motion picture, film strip, or other device that will expedite learning through the sense of vision.

The use of visual aids in teaching is by no means a new idea or a modern technique. Aids of this type have been used throughout educational history, but not by all teachers and not as often as desirable by the better teacher. The development and extensive use of motion pictures and television as a media of entertaining have enhanced the value of visual learning; consequently, there has been a renewed and intensified interest in the use of visual instruction through the media of models, photographs, charts, exhibits, and projected pictures.

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The effectiveness of visual aids is that they attract and hold attention. A verbal explanation supplemented by a visual aid is far more effective in attracting attention and creating interest than if it is given unaided by such a device. This type of presentation adds variety and breaks the monotony of the ordinary instruction.

Secondly, visual aids help retain information and visual images. Most words people hear are forgotten in a relatively short time; therefore, it is difficult to recall accurately what is heard. On the other hand, the things they see make a more lasting impression and they experience considerably less difficulty in recalling the object or process with increased accuracy. The mental images created by pictorial stimuli and models are easy to recall because of the intense interest at the time of reception.

Thirdly, visual aids assist in forming correct images because people can interpret messages only in terms of their own background of experiences; consequently, it is possible and quite probable for a group of learners to form entirely different ideas about the same thing as a result of a verbal description (59).

Graphics

Graphic materials may be defined as materials which communicate facts and ideas clearly and forcibly through a combination of drawings, words and pictures (61). They are particularly well suited to the presentation of information in condensed summary form; the presentation of quantitative information as on graphs; the illustration of relationships as on charts, maps, graphs, and diagrams; and the representation of some kinds of abstractions as in cartoons, diagrams and maps.

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Graphic Presentation

The types of graphic materials commonly employed in teaching include charts, diagrams, graphs, posters, cartoons, and comics. Each type has certain unique instructional applications.

Charts are combinations of various graphic and pictorial media designed to visualize relationships between key facts or ideas in an orderly and logical manner. Typical forms are the tree chart, the flow chart, and the tabular chart.

Diagrams are simplified drawings designed to show interrelationships primarily by means of lines and symbols. Diagrams are highly abstract and have a minimum of detail; hence they require a background of information before they can be used effectively with students.

Graphs are visual representations of numerical data. They show quantitative relationships more effectively than any other medium, but like diagrams, they require a background of experience and information to be effective as teaching devices. Typical forms are line graphs, bar graphs, and pictorial graphs.

Posters are large-scale simplified pictorial illustrations designed to attract attention to key ideas, facts or events. They are inherently simple and dynamic. Their function is primarily to motivate, arouse interest, remind or advertise.

The cartoon is a pictorial representation or caricature of a person, idea, or situation designed to influence public opinion. Political cartoons are sources of information with a strong visual impact based upon sharp, compact drawings and humor of some type. There is some evidence that cartoons are chiefly valuable for teaching at the secondary

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rather than the elementary level partly because most commercial cartoons are prepared for adult readers.

Comics are a form of cartoon in which the same characters enact a story in a sequence of closely related pictures designed to entertain the reader. Although comics have achieved extensive popularity purely as an entertainment medium, certain materials in this category have definite educational value (61).

Graphic presentation can concentrate interest and attention. It affects the learner primarily through the eyes and can help to emphasize central principles; can act as a skeleton by presenting key ideas that lead easily to conclusions; and can turn ideas into words, because of the sensory experience.

Graphics can be used to help assist the learning of the dietetic intern, and the instructor should take full advantage of their power. The teaching dietitian is neither a skilled artist nor a psychologist. Nevertheless, whenever she helps the intern to think, she is applying some of the suggestions of psychology. And if she understood more thoroughly some of the principles used by artists her teaching techniques might improve. The instructor must decide exactly what she wants to accomplish with each lesson, because the effectiveness of a lesson can only be judged by the knowledge of what the material is supposed to do.

When planning graphic illustrations the size, shape, color, and texture are elements as tools to help make the ideas clear to the students. Some helpful suggestions for producing good graphic illustrations are:

1. Simplify the drawing to include only essential information; eliminate everything not essential.

2. Conventionalize the drawing, where possible, to increase its universality of meaning.
3. Exaggeration, isolation, or a simple contrast will often help the audience interpretation and understanding.
4. Make sure your illustration has a significant form or contour.
5. Use heavy lines, clearly defined color masses, or silhouettes to aid in contour demarcation, and lighter lines or masses within to add necessary details.
6. Relate illustration to lettering, or vice versa, often by executing with the same tool or by using the same color or style.
7. Illustrations must please your audience for maximum effect.

Materials and Techniques

The right tools and materials, the desire to produce respectable graphic illustrations and practice will produce effective results. Some of the tools commonly employed when making graphics include ink, paint, crayons, paper and alphabet sets.

Ink is perhaps the most versatile of the materials to use for lettering. India ink and special lettering pens are effective for copies that must be seen from a greater distance. A felt-pointed fountain pen acts as a brush, spreading ink quickly for rapid lettering on a large scale. The width of the line is governed by the thickness of the felt point. Although this pen is not for delicate work, it is excellent for the big, flashy, fast work. Poster paint or tempera colors like India ink can be used for lettering. Simple lettering can be done quickly with

crayon where professional appearance is not important and where ease and simplicity are desired.

For the sake of portability, posters or charts can be painted on a white cloth window shade. A split bamboo blind can be used with a paint that will not crack or peel. Poster board, construction paper, butcher's wrapping paper and sides of cardboard boxes are convenient and inexpensive graphic illustration materials.

Individual letters cut out of paper are versatile. The letters should be cut from fairly substantial paper that will keep its shape for many usings. Examples are blotting paper, heavy cardboard, or perhaps some exposed X-ray film. Stencil patterns that can be used over and over can also be made by carefully cutting the letters of the alphabet out of heavy cardboard and keeping the original sheet of cardboard. This stencil can be used for drawing letter outlines on materials as needed.

In handwriting, the differences in contour among the letters is of great importance for legibility. Also very important for rapid and easy reading is the spacing of the letters and words, and size of the letters. When printed titles and labels are made, the same rules apply.

Helpful suggestions for producing good graphic lettering are:

1. Select a good, recognizable alphabet.
2. Uniformity is the key to good lettering.
3. Always use guide lines.
4. Letters should be about as wide as they are high, except F I B S J L E P which are half as wide as they are high and M W which are wider than they are high.
5. The areas between letters, not the distances, should appear to be equal.

6. Lines of lettering should be only far enough apart so ascenders and descenders will not touch.
7. One letter space between words, two between sentences.
8. Allow plenty of space around the block of lettering.
9. Tastefully select a suitable style of letter, and avoid style mixture except for a purpose.

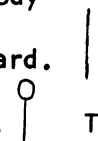

The greater the contrast between the lettering and its background, the more easily and quickly the letters can be read. This contrast can be achieved by using dark letters on a light background, as in the pages of books, or by using light letters on a dark background, as on a black-board.

Another way to achieve contrast is to combine colors of high intensity with those of low intensity. Bright values of yellow, red, orange, blue, and green stand out well against dull, grayed colors.





Avoid the use of two colors of the same degree of intensity. Yellow letters do not show up well on a white background because both colors are light. Bright color will stand out sharply (15).

Stick Figures

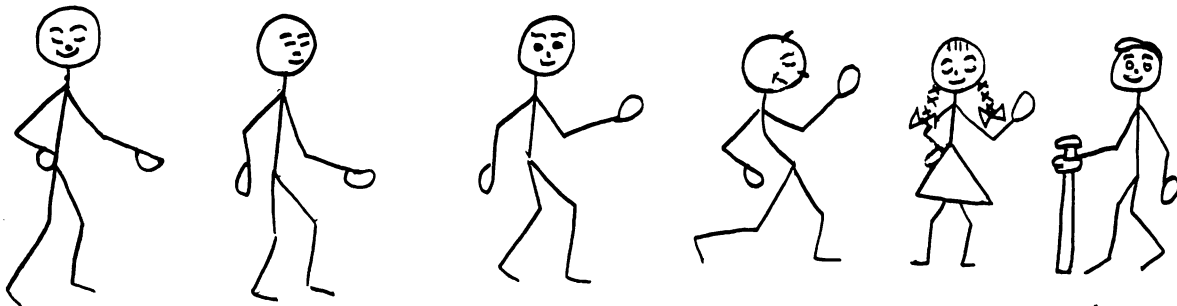
Stick figure drawings can be a valuable aid in teaching. To make recognizable drawings the instructor must first see the essential structure of the object she wants to represent, not merely the outlines but the internal structure.


Let us try to draw a human figure. What holds the whole body together? The backbone. Mark it down on your paper or chalkboard.  The
What is on top of the backbone? The head. Draw a circle there.  The
middle of the figure is one-half the distance between the head and feet,





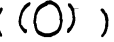



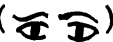

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and the hip joins at this point.  The bottom half of the figure is divided at the knee.  Therefore, the upper leg is the longest, next the lower leg and then the feet. The upper half of the body is divided into thirds which includes the chest, shoulders and the head.  The length of the arms stops one-half way between the upper part of the leg, and is divided in half at the elbow.  Now what do you have? Not very much, but you do have a symbol that anyone would recognize as a human figure.

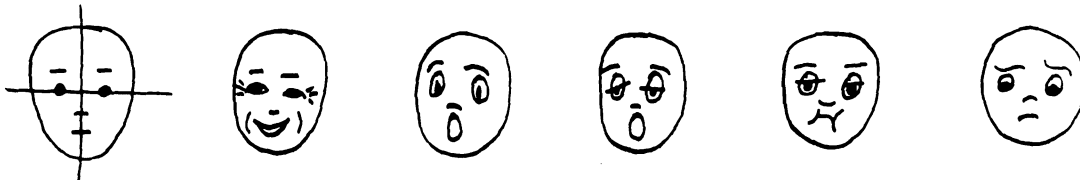
What can you do with this figure? Anything that can be observed can be drawn with four basic lines. They have an emotional appeal for themselves. The horizontal line represents peace and quiet. The vertical line represents strength and erectness. The curve represents a feeling of motion. The diagonal line represents violent motion. You can put its hands on its hips, can bend its backbone over so that it is looking at the ground, and can make it do exercises. With a few additions it can become a man or a woman. Both will make the lesson more pleasurable for all concerned.











Faces may look hard to draw, but there is an easy way to draw faces and heads. Start with the circle or oval for the head. Draw faint lines down the center and across the middle. The eyes--just heavy dots will do--go on the center crosswise line about halfway between the center and the outside edge. A little above them draw two short lines for eyebrows. The bottom of the nose goes about halfway between the eyes and the chin, and the mouth about halfway between the nose line and the chin. Mark them in as short, straight lines. There you have a face. 

But it is a rather blank face, isn't it? Let us put some expression into it. That mouth can have a smile () or a happy grin (). It can look determined () or grouchy () or surprised (). The eyes can show joy () or anger () or fear () or sorrow () or boredom () (15).

Practice putting the features together on the face to see what you get.



Of course, you can be much more elaborate if you wish. You can add flirtatious eyelashes to glamor girls (). You can make a lot of different noses (      ) to go on different kinds of people. You can vary the shapes of the heads and the placement of the features to show different characteristics (15).

None of that was hard to draw, because you were not trying for perfection. You were satisfied with drawing symbols of figures and faces. But in drawing these symbols, you learned to deal with three important basic characteristics: structure, proportion and outline.

Programmed Instruction

The field of programmed instruction is one which has witnessed a tremendous surge of interest and development in the past few years, and which shows as yet no signs of abating its phenomenal rate of growth. In a generic sense, programmed instruction can refer to any form of pre-prepared, presequenced instruction directed toward a specific educational or training objective. The type of program instruction which will be discussed in this paper is the constructed response, linear type programmed textbook technique. This type of program learning deals with forms of reproducible instructional sequences in which the individual learner is made a central participant in the instructional progress (27).

More specifically, the learner is called upon to respond frequently in interaction with an instructional program in a manner suggestive of the Socratic dialogue, and the rate at which instruction progresses is determined by the individual learner's response. An educational technique is created in which differences among students in background and aptitude are taken directly into account in the management of the learning process, in a way that is rarely possible in the fixed-pace instruction typical of the classroom lecture or its filmed or televised counterpart.

Characteristics

There are two rather different approaches to the programming of instruction, the constructed response, linear method associated with B. F. Skinner and the multiple choice response, branching method developed by Norman Crowder.

Although there are several different types of programmed instruction, the technique can be defined as any teaching method that has the

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following characteristics (27):

1. Each student works individually on the programmed instruction materials at his own pace. As an individual method of instruction, it allows more latitude for individual differences in learning ability than does a group method.
2. A relatively small unit of information is presented to the student at a time. A statement to be completed, or a question to be answered, about this information is also included. This is known technically as the stimulus.
3. The student is required to complete the statement or answer the question about that specific bit of information. In technical terms, he is said to be making a response to the stimulus presented. The statement or question is usually designed to make it probable that the student will give the correct response.
4. The student is then immediately informed whether his response is correct or not. If it is wrong, he may also be told why. By this kind of feedback, he is rewarded (told he is correct) if he gives the correct answer; in more technical terms, his response is reinforced. In learning experiments, psychologists have found that reinforcement increases the probability of making the correct response to the same stimulus in the future.
5. The student is next presented with the second unit of information, and the cycle of presentation-answer-feedback or response-reinforcement of the correct answer is

repeated. The same cycle is repeated again and again as all of the necessary information is presented in a logical sequence. Provision is also made for the practice and review of previously learned information.

Each unit of information presented is called a frame, because when teaching machines are used the information appears through a window on the machine. A series of such frames presenting a logical sequence of information is called a program. Programs may run into hundreds or even thousands of frames, which present the subject matter step by step in a logical order beginning with the simpler concepts and advancing to the more difficult.

By examining a graphic representation of what happens in stimulus-response learning, as shown in Figure 1, it becomes possible to form several generalizations about how programmed instruction affects the learner, the stimulus, the response, the obstacles, the goals, and the total educational process (31).

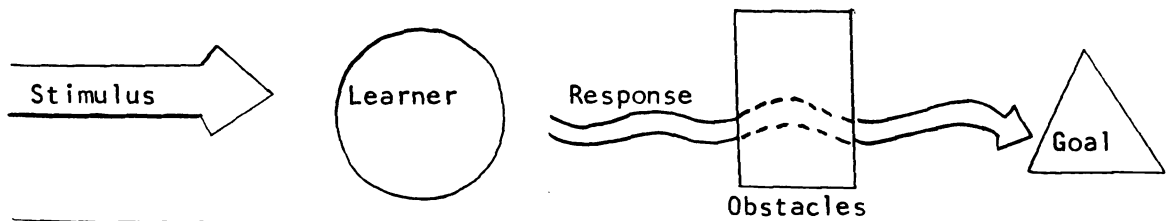


Figure 1.--Simplified illustration of events occurring in stimulus-response learning.

Programmed instruction makes each learner's experience an individual affair and maintains a constant interaction between the student and the learning materials. As it strengthens, the motivation to learn by frequent

reinforcement cuts down frustration by placing mastery of subject matter within any student's grasp. Consequently, programmed instruction improves the student's readiness to learn by keeping him alert and busy.

Programmed instruction affects the stimulus by acquainting the student with only one item at a time and by presenting the total number of stimuli in a sequence that leads to greater understanding. It governs the response through instant checks of replies and through consistent, immediate reinforcement of the learning it wishes to impart. Similarly, it closes the door to faulty information by denying reinforcement altogether, and then helps students to rectify their errors through the medium of the program itself.

As to obstacles in the path of progress, programmed instruction insists that each single point be understood before the student moves along to the next one, limiting itself at each step to that material for which the student has been prepared. It also offers a mechanism for individual differences in ability among students.

Finally, programmed instruction demands the selection of concrete goals before the construction of a program is undertaken. It plans the route to the ultimate goal through a series of intermediate stages and fashions complex subject matter by linkage of discrete, simple items. As a result of these varied influences, programmed instruction approximates a stimulus-response pedagogy. It affords the best opportunity for individual tutelage, for constant evaluation of a student's progress, and for unremitting review of the program's own effectiveness in achieving its educational objectives (31).

Most of the studies in the past ten years verify the fact that programmed instruction affects the learner in the stimulus-response

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procedure. In the light of the findings thus far, several tentative statements may be made about programmed instruction. First of all, it can be effective; students have learned successfully from it. Secondly, programmed instruction can reduce student errors; proper analysis followed by suitable revision of the material can decrease errors even further during the learning process (24). Thirdly, a learning program tends to level the differences in learning capacities among students; while all students exposed to the program may demonstrate achievement, the gain seems to be more conspicuous among the lower portion of the class distribution (32). This might result from both the varying time limit, which permits slower learners to progress at their own rate of speed, and the fact that any programmed sequence tends to impose a ceiling on what a person can learn. Fourthly, motivation to learn may increase because of student's immediate knowledge of success (4). In view of these broad observations, it would seem desirable for the teaching dietitians, trainers, and administrators to familiarize themselves with the specifics of programmed instruction.

Effectiveness

An important question that remains unresolved is whether the effectiveness of programmed instruction can, at least in part, be attributed to its novelty. This factor might motivate students to work harder and with greater concentration on programmed material than in regular classes. And if this hypothesis is correct, will the effectiveness of programmed instruction diminish as the novelty of the method disappears? Although it will take time for research to answer this question, the results obtained so far indicate that student and instructor attitudes toward programmed instruction are predominantly positive.

SECRET

In studies where student attitudes have been measured, the majority have felt that programmed instruction is a more effective teaching method than traditional lecture-discussion sessions. While there is a small minority whose attitudes are negative, most students appear to enjoy the challenge of pacing themselves and of trying to "beat" the text or machine by making no errors. The fact that programmed instruction has eliminated or reduced homework has probably increased the number of its student advocates. Their reactions indicate, however, that over long periods of time the repetition encountered in most programs tends to make the learning task a tedious one. Most students who have used programmed materials to any great extent believe they should be used only for limited, intermittent learning sessions and should be alternated with other instructional techniques, such as discussion, laboratory, television, and the like (27).

The reaction of teachers, some of whom were at first rather skeptical, has become increasingly favorable. They have found that programmed instruction, rather than being a threat, is actually an invaluable educational aid which promises to make the instructor's role more interesting and rewarding. It can drastically reduce the amount of routine drill and drudgery that makes up a substantial part of every teacher's job.

The programmed textbook may have advantages in a hospital situation because of the relatively high initial cost of most teaching machines. These range in price from about twenty dollars to several thousand dollars. A disadvantage in using the machine is the always present possibility of equipment breakdowns and consequent interruption of training. The availability of repairmen and the cost of repairs should also be considered.

A more important issue is whether machines, with their greater control of student behavior and their pinball effect, can teach more effectively than programmed texts. Experiments have been completed that provide some answers (17, 44). In one of the studies (17) involving high school students, no differences in learning achievement as measured by test scores were found between groups using Skinner-type machines and those using programmed textbooks. It thus appears that programmed instruction can be effectively presented by both text and machine.

Louis Eigen (18) compared three modes of presenting a programmed instruction sequence at the Junior High School level. The primary interest of this study was centered on the relation between presentation mode and mastery of programmed instructional material. Seventy-seven eighth graders with mean I. Q. of 118 were assigned to machine, horizontal text, and vertical text modes of presentation. The sixty-five frame program used was designed to teach difference between numbers and numerals.

The major finding was that inter-mode differences in learning are not statistically significant. Subjects using the programmed texts completed the program in less time, although not significantly so, than did subjects who used the machine. Therefore, the results support the major hypothesis of this study that "mastery of subject matter is independent of presentation mode; i.e., there is no significant difference in mastery between machine, horizontal text, or vertical text presentation."¹⁴

¹⁴L. D. Eigen, "A Comparison of Three Modes of Presenting a Programmed Instruction Sequence," The Journal of Ed. Research, LV, No. 9 (June-July, 1962), p. 454.

As a variable affecting learning achievement, the quality of the programmed instruction materials appears to be more important than the presentation method. It is therefore more important, initially, to learn how to recognize or prepare good programs than to become a connoisseur of teaching machine hardware.

Other Audio-Visual Communication Media

Even though each individual audio-visual teaching aid facilitates learning by appealing to the senses, they are even more efficient when used together.

A film may be an effective learning experience. A field trip may bring much new information to the interns who participate. A television or radio program may be a means of becoming acquainted with the world's activity in foods and nutrition. Recordings could aid the teacher and dietetic intern to hear themselves as others hear them. Models and mock-ups could help to make the learning experience more real. Books have untold values. When film, field trip, television or radio, recordings, models and mock-ups, and books are carefully coordinated by planned use, the learning that results can be much more than the sum of the individual parts.

In a typical classroom situation the use of one of these audio-visual experiences would not be efficient. Ideally, the dietetic interns should have available combinations of audio-visual experiences which reinforce one another in order to provide the most efficient paths possible for the mastery of understanding and concepts.

The teacher's responsibility is to provide the effective cross-media approach by analyzing the learning needs of the dietetic interns. A

knowledge of the source of audio-visual materials available will also help to satisfy these needs.

Some of the factors that should be taken into consideration in selecting instructional materials are:

1. Will they get the message?
2. Will they understand the message?
3. Will they believe the message?
4. Will they act upon the message?

The adequate approach of the interrelated use of audio-visual materials should present many possibilities for developing concepts and understanding.

AUDIO-VISUAL INSTRUCTION--AN APPLICATION

Audio-visual instructional techniques are not a panacea and not a solution to the shortage of capable dietitians. They will not supplant the textbook or teacher but will supplement and increase effectiveness in working with individual differences, abilities and needs. They may offer some relief in the face of these and other educational problems but can help only in the same ways as other advances in teaching and administration.

For adequate teaching, appropriate means can only be chosen by considering the ends they are to serve. The dietetic intern has an opportunity to attain these ends through real experiences. Much of the effectiveness of direct concrete experience in learning comes from the fact that such experience involves a well-rounded use of the physical senses. The use of audio-visual materials will help to make these real experiences more meaningful.

A general knowledge of lettering and drawing, by making stick figures, could be a worth-while device in graphic presentation and should make the lesson more pleasurable. When film, field trip, recordings, models, programmed textbooks and other audio-visual aids are carefully coordinated by planned use, the cross-media approach to teaching is more effective, because the interrelated use of audio-visual materials presents many possibilities for developing concepts and understanding.

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Ideally, the interns should have available combinations of audio-visual experiences which reinforce one another in order to provide the most efficient path possible for the mastery of understanding.

Many intricate and complex ramifications are involved in methods of instruction. A method of instruction should be based on fundamental principles such as permitting a maximum of intern activity, linking the old learning with the new, providing a variety of learning experiences, making it possible for the intern to benefit by her mistakes and arranging activities and subject matter so that she will have a receptive frame of mind.

A compilation of suggested audio-visual techniques is presented for application to a menu planning segment of RECOMMENDATIONS FOR LEARNING EXPERIENCES, "Basic Learning Experiences in the area of Food Service Administration." (See Appendix B, p. 4 in the Minimum Standards for a Hospital Dietetic Internship.)

Graphics and Other Audio-Visual Communication Media

Hearing, seeing, looking and listening are the primary means of human learning. What we see and hear markedly influences how we behave. Because teaching at its best is the stimulation and direction of knowledge, what learners look at and listen to are major factors in the effectiveness of learning.

The interplay of looking and hearing by using educational films will stimulate the interest of dietetic interns in menu planning. Some suggested films in the area of menu planning are:¹⁵

¹⁵The author previewed 25 films from the Michigan State University educational film library to make this selection.

1. Meats With Approval 17 min.
Federal meat-inspection program; importance to consumer; steps of inspection from live animal through slaughter-house and cannery. Origin and administration of meat-inspection law. Food; Public Health. (USDA; UWF).
2. Meat and Romance 40 min.
Home economist teaches her sister-in-law important things about meats; selection, cooking, carving, and nutritional values. Cooking; Food; Nutrition. (National Livestock and Meat Bd.).
3. Know the Eggs You Buy 5 min.
Candling, sorting and labeling of eggs; the meaning of grade labels; and the use for different grades of eggs. Food. (USDA).
4. Human Body: Digestive System 14 min.
How system breaks down the complex nutrients, carbohydrates, proteins, and fats into simple food materials. Roles of salivary glands, esophagus, stomach, pancreas, liver, gall bladder, small and large intestines. Anat.; Physiol. (Cor.).
5. Miracle of Milk 33 min.
Handling of milk, from cow to finished milk products. How milk is stored, transported, pasteurized, and bottled at large, modern dairy plant. Milk products manufacture: cream, evaporated milk, cheddar cheese, butter, cottage cheese, ice cream. Dairy. (Am. Dairy Association).
6. Nation's Meat 30 min.
America's meat supply, from the roundup to family dinner table. Transportation; sale of stock; processing and packing-house operations; retailing and preparation. Ag.-Livestock; Food. (Swift).

7. To Market, To Market (MSU)

28 min.

Discussion of wide margin between farm product's prices and grocery prices for food. Answers from store manager, businessmen at civic club luncheon. Ag.-Gen.; Econ. (MSU; NET).

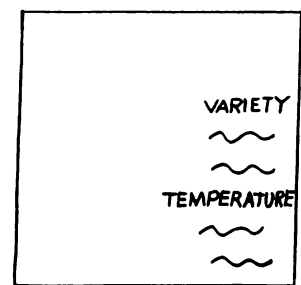
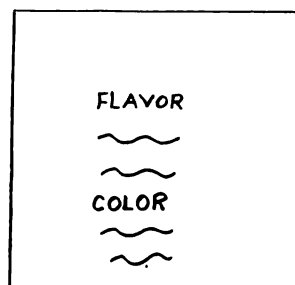
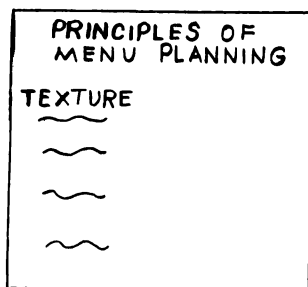
8. Weight Reduction Through Diet

15 min.

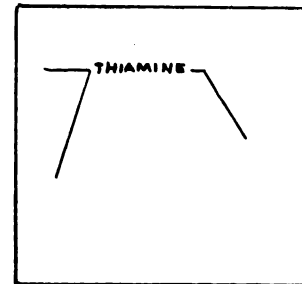
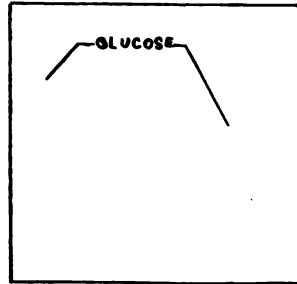
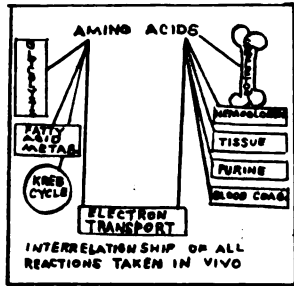
Documentary on effective results of intelligent dieting. Encouragement for overweight persons to diet under medical guidance rather than by dangerous short cut methods. Based on research at Michigan State University. Health; Nutrition. (MSU; National Dairy Council.).

Overlay transparencies can be effective in teaching a small group even if the hospital does not have an overhead projector.

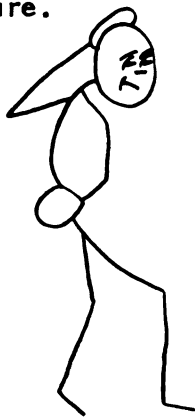
1. Principles in menu planning for texture, flavor, color, variety and temperature can be presented to the intern one step at a time by means of overlay transparencies. Successive layers of transparencies in black and white, color, or both, can show progressive stages of development sequences and sectional views.



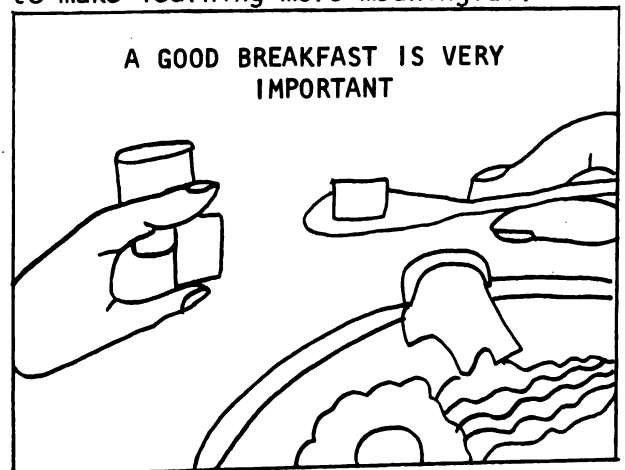
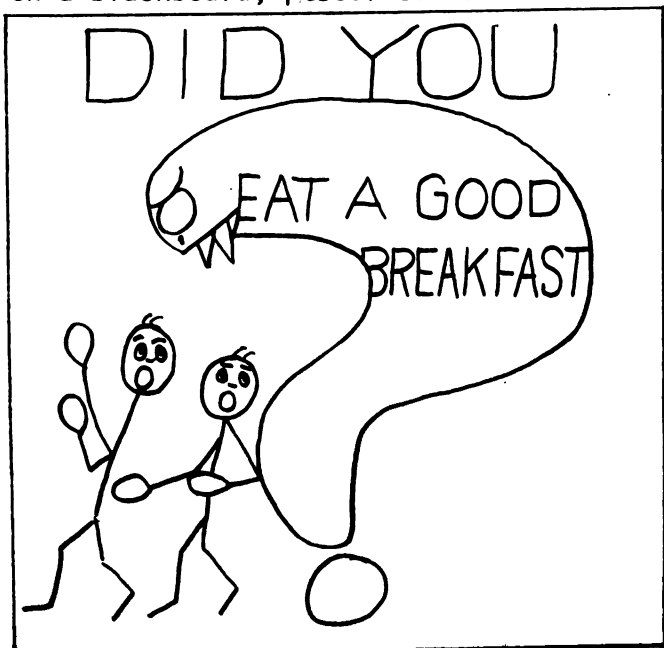
2. An overlay transparency could be used to discuss the inter-relationship of the different vitamins in the body.

Overlay transparency

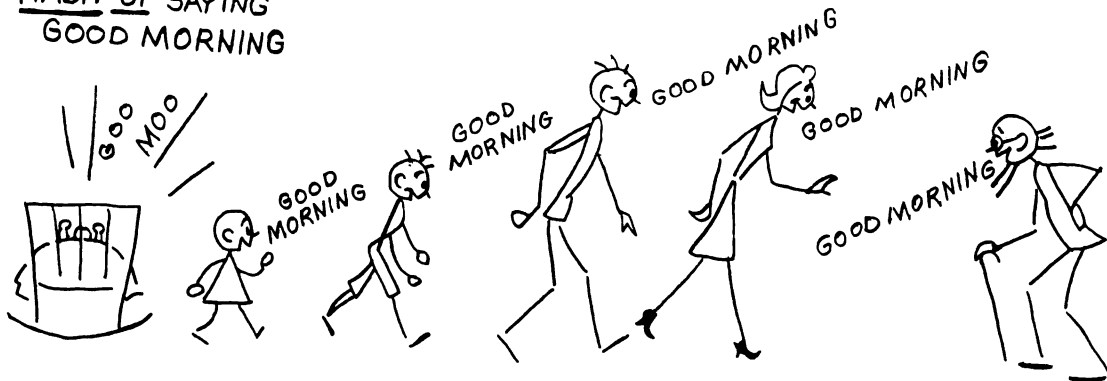
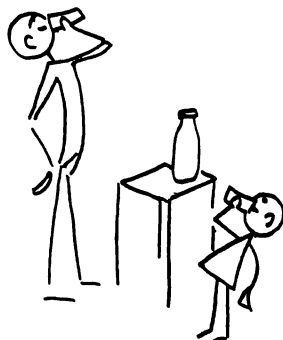
Stick figures can add humor to learning. They can easily illustrate styles in posture; personify the face in before-and-after pictures. A sad, unhappy face or a happy, cheerful face will add to impressions and ideas. This type of drawing can help the dietetic interns learn by adding sparkle to a lecture.



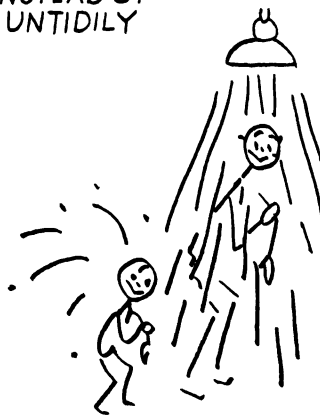
Stick figures or line drawings can be used in any lecture situation, on a blackboard, poster or bulletin board to make learning more meaningful.



GOOD EATING HABITS IMPROVE YOUR ATTITUDE (60)

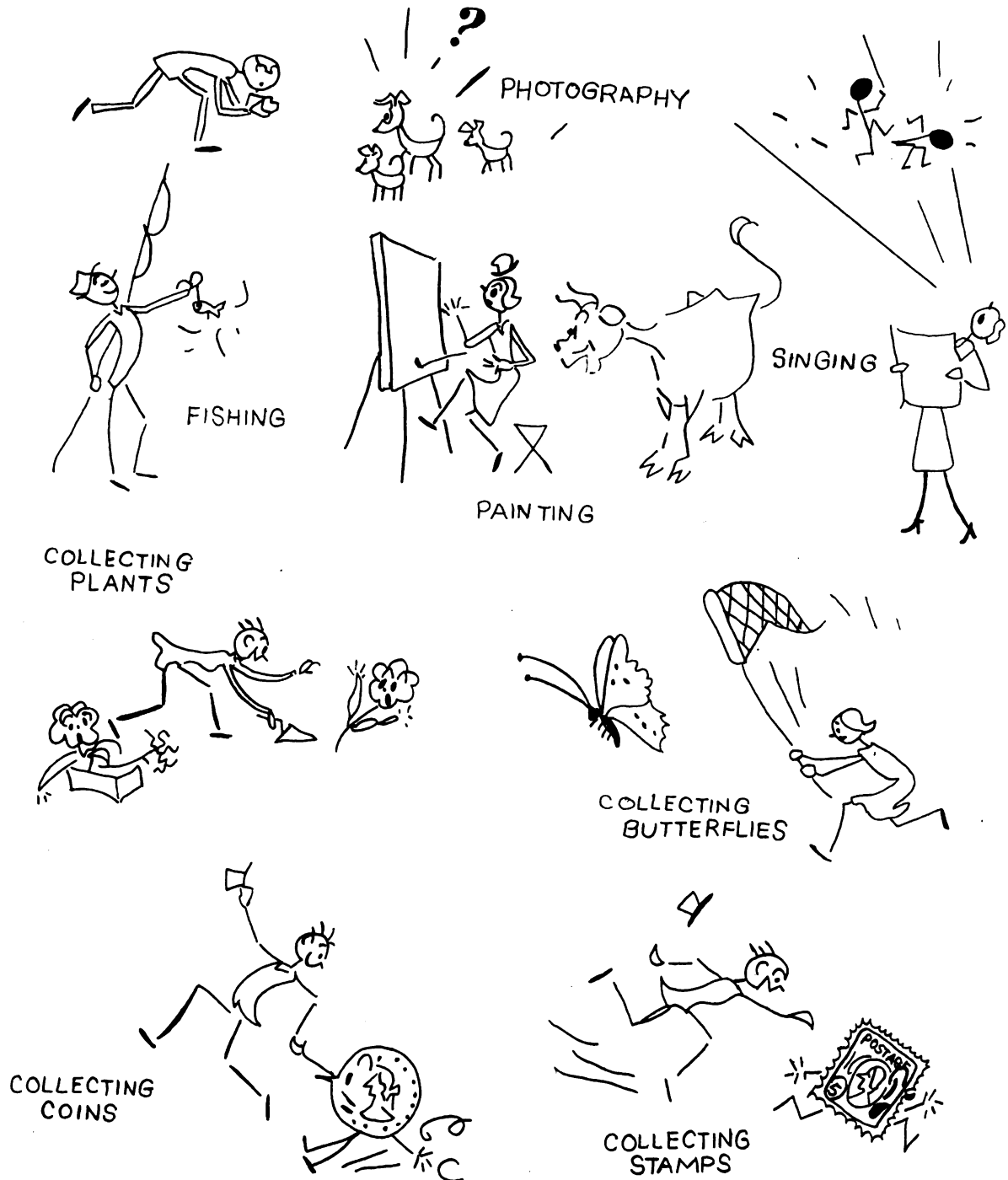
HABIT OF SAYING
GOOD MORNINGWASHING
THE TEETHDRESSING NEATLY
INSTEAD OF
UNTIDILY

DRINKING MILK

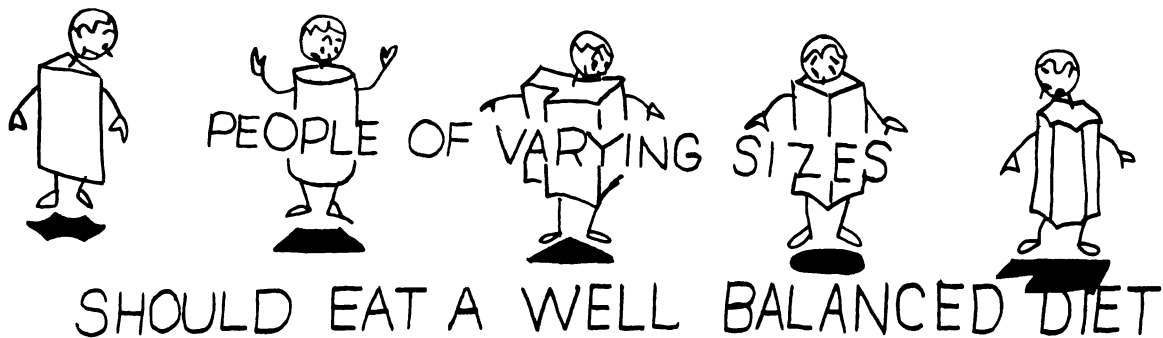
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GOOD EATING HABITS IMPROVE YOUR INTEREST (60)



Stick figures

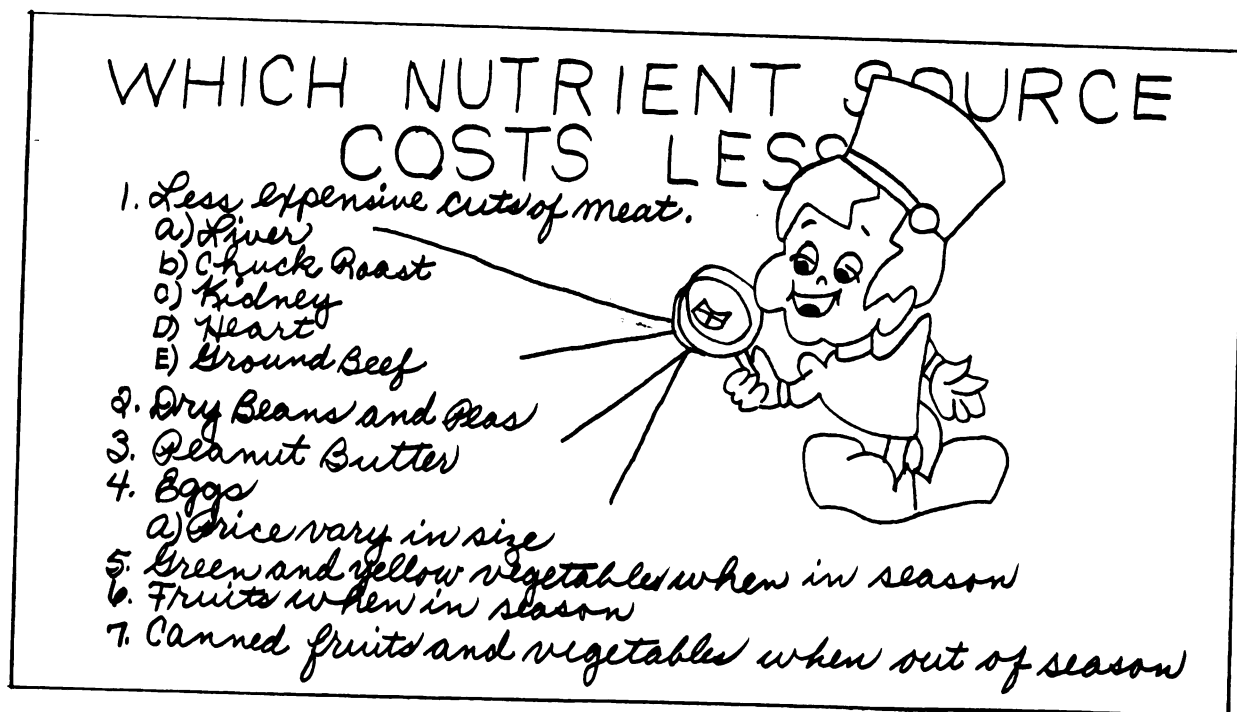


Posters are pictorial illustrations designed to attract attention to key ideas, facts or events. Their function is primarily to motivate, remind and arouse interest.

1. Interesting and eye appealing posters could be made to emphasize the difference in cost of foods that are "in" and "out" of season.



2. Posters can also effectively emphasize the kinds of foods that will more likely give the most food value for the money.

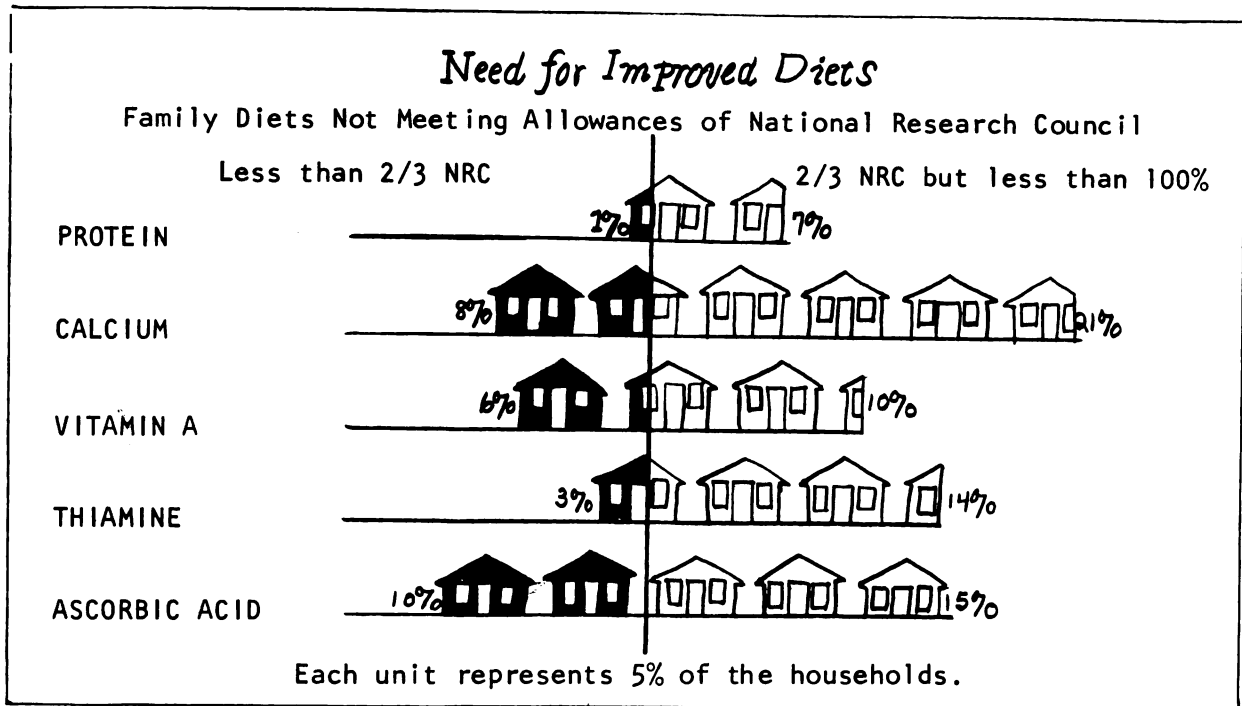


A bulletin board can illustrate phases of classroom work, supplement textbooks and other materials, stimulate interest and further studies and add decorative elements to the classroom.

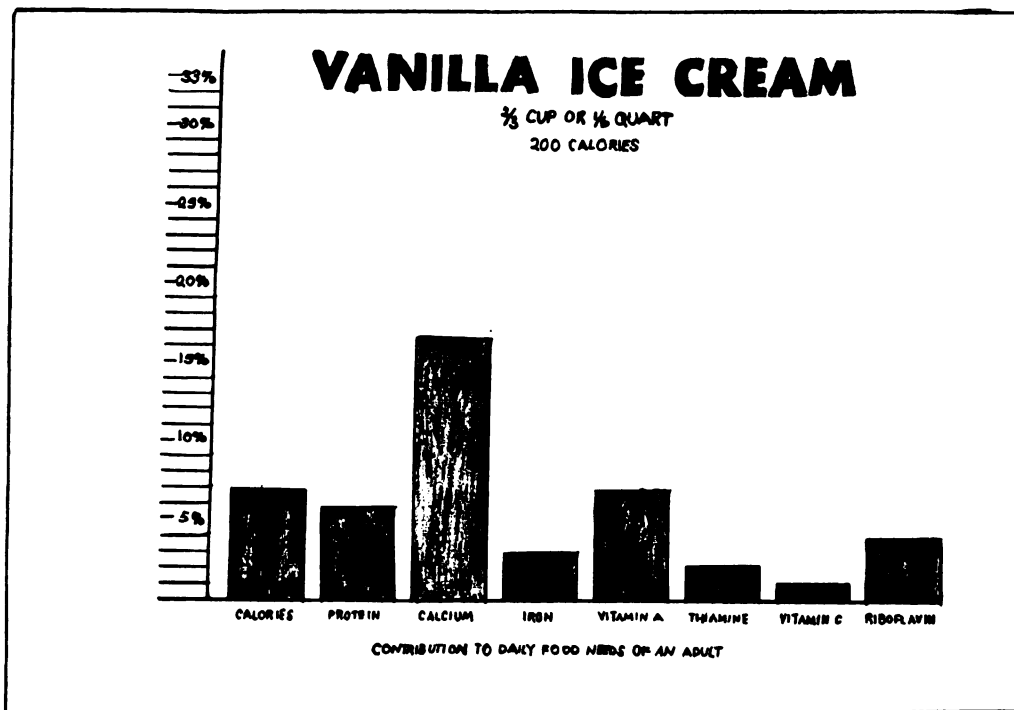
To attract attention and stimulate interest in menu planning, a clever bulletin board arrangement on "Needs for Improved Diets" would be meaningful and effective. Calcium, ascorbic acid and thiamine are the nutrients often in short supply when judged by recommendations of the National Research Council. Based on a 1955 survey (30), a bulletin board layout for family diets not meeting nutritional allowances of the National Research Council is illustrated. Different colors can be used to accentuate specific nutritional requirements.

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Bulletin board illustration

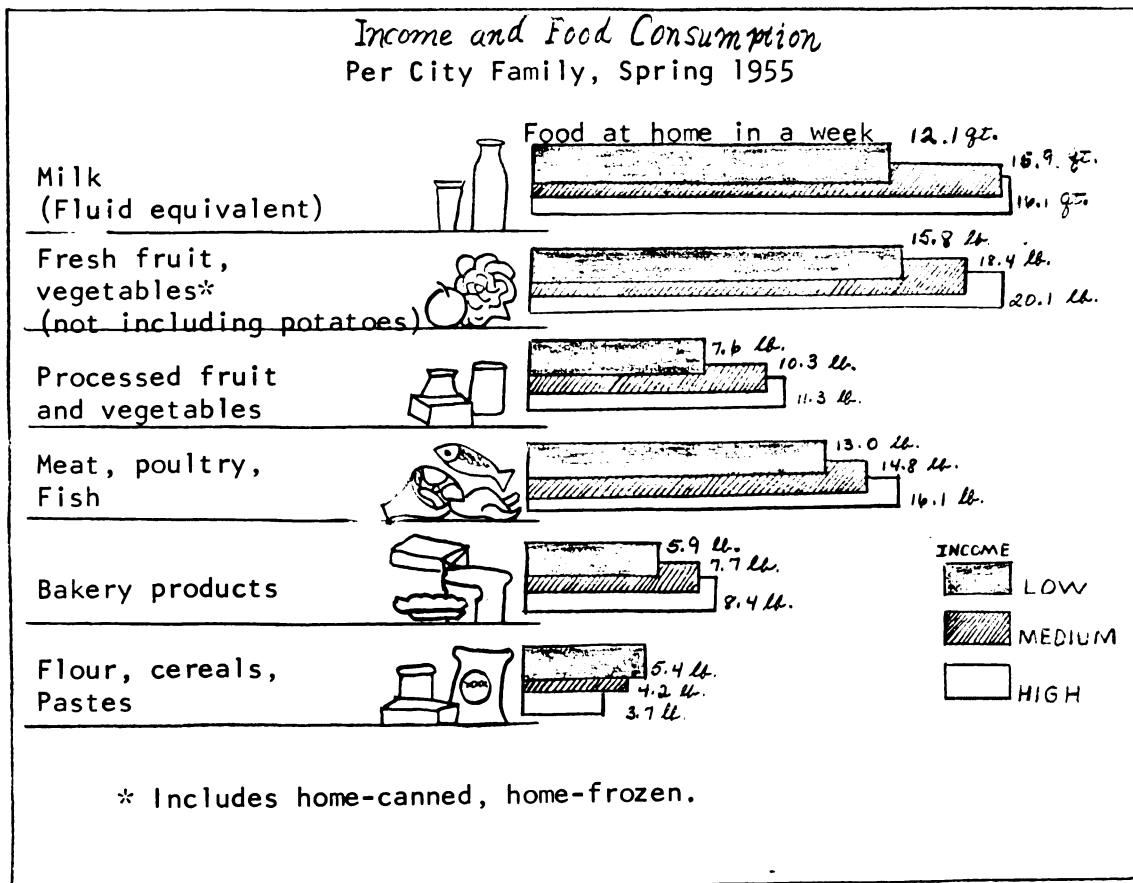


Bar graphs are an effective media for illustrating quantitative relationships and visual representations of numerical data. A bar graph can be designed to show the comparative amounts of nutrients in foods.



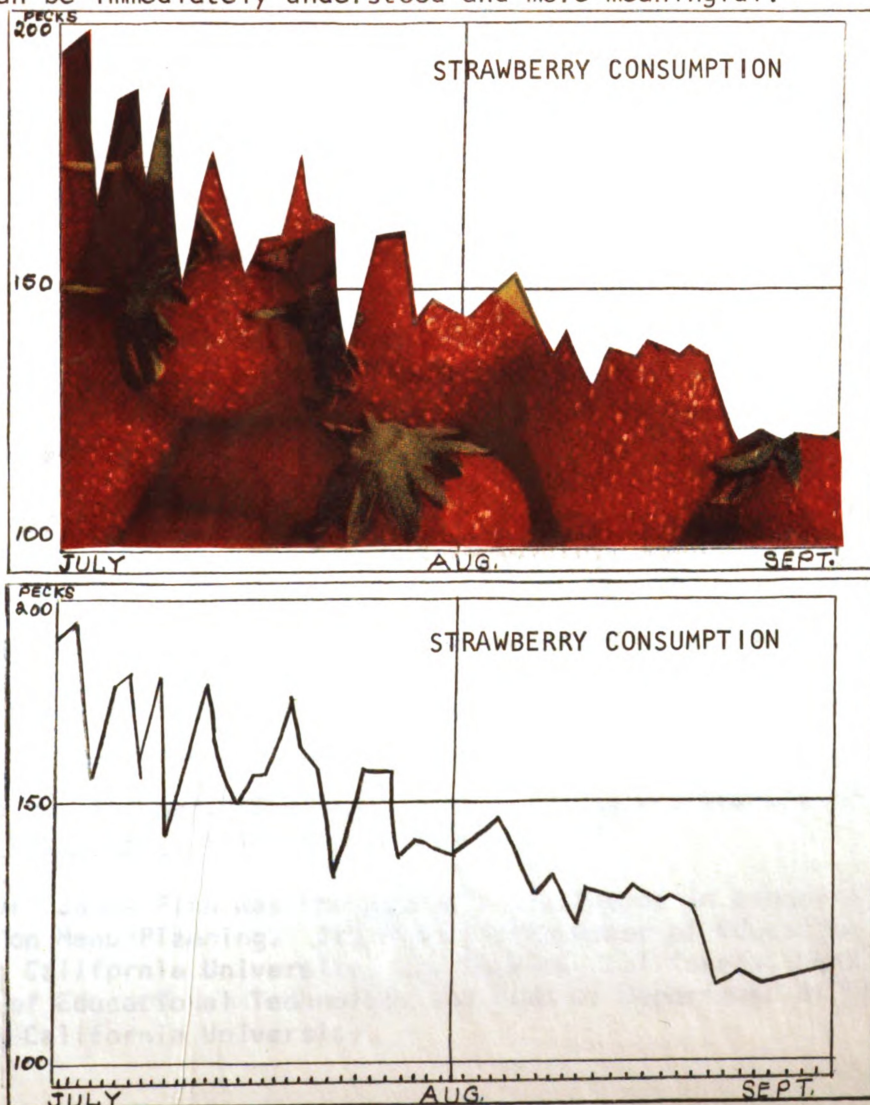
When an intern unfamiliar with bar graphs sees the graph on vanilla ice cream and understands that each bar is measured by the scale on the left, she will find it easy to understand that ice cream has a larger proportion of calcium than of other nutrients. If she compares this chart with similar charts of other foods, she can quickly see the nutritional quality of ice cream in relation to others (15). Each bar can be illustrated with a different color to make the graph more eye appealing.

A bar graph can also be designed to show the consumption of food in relation to income (30).



The line graph shows with a fair degree of accuracy the directions and trends of changing conditions. It is quite a difficult graph for many people to read; therefore, it should be as clear as possible. It can be very useful where there are many cases or many values to be shown, where the time sequences are continuous and where accuracy is important.

Several variations of the line graph can help dietetic interns grasp the meaning of a subject. Dramatizing the graph with a drawing or photograph "silhouette" illustrates the story against the background. These illustrations can be cut out of magazines. For example, the silhouette graph shown below is much more effective than the line graph because it transforms a complicated array of facts into a dramatic presentation which can be immediately understood and more meaningful.



Programmed Instruction

The constructed response linear program was originally developed by B. F. Skinner and his associates at Harvard University during the 1950's in order to apply to human knowledge the principles of reinforcement learning theory found successful in animal learning experiences.

According to Skinnerian reinforcement learning theory (47), learning is most effective when the student writes in the correct response and is immediately reinforced. "Once we have arranged the particular type of consequence called reinforcement," wrote B. F. Skinner in 1954, "our technique permits us to shape the behavior of an organism almost at will."¹⁶ An important objective of the Skinner type program is to present material in a sequence that makes it possible for most students to respond correctly to each small unit of information presented. This permits the responses to be reinforced so that learning can take place effectively. It is thought undesirable for the student to make many errors in completing a program. An error eliminates the opportunity for a correct response to be reinforced; besides, there is the danger that the wrong response may be learned and repeated in the future.

The author¹⁷ has prepared a programmed booklet which reviews basic points in menu planning for the foreign intern who is not familiar with the United States eating habits and customs and who may have language

¹⁶B. F. Skinner, 'The Science of Learning and the Art of Teaching,' Harvard Educ. Rev., XXIV, No. 2 (1954), p. 87.

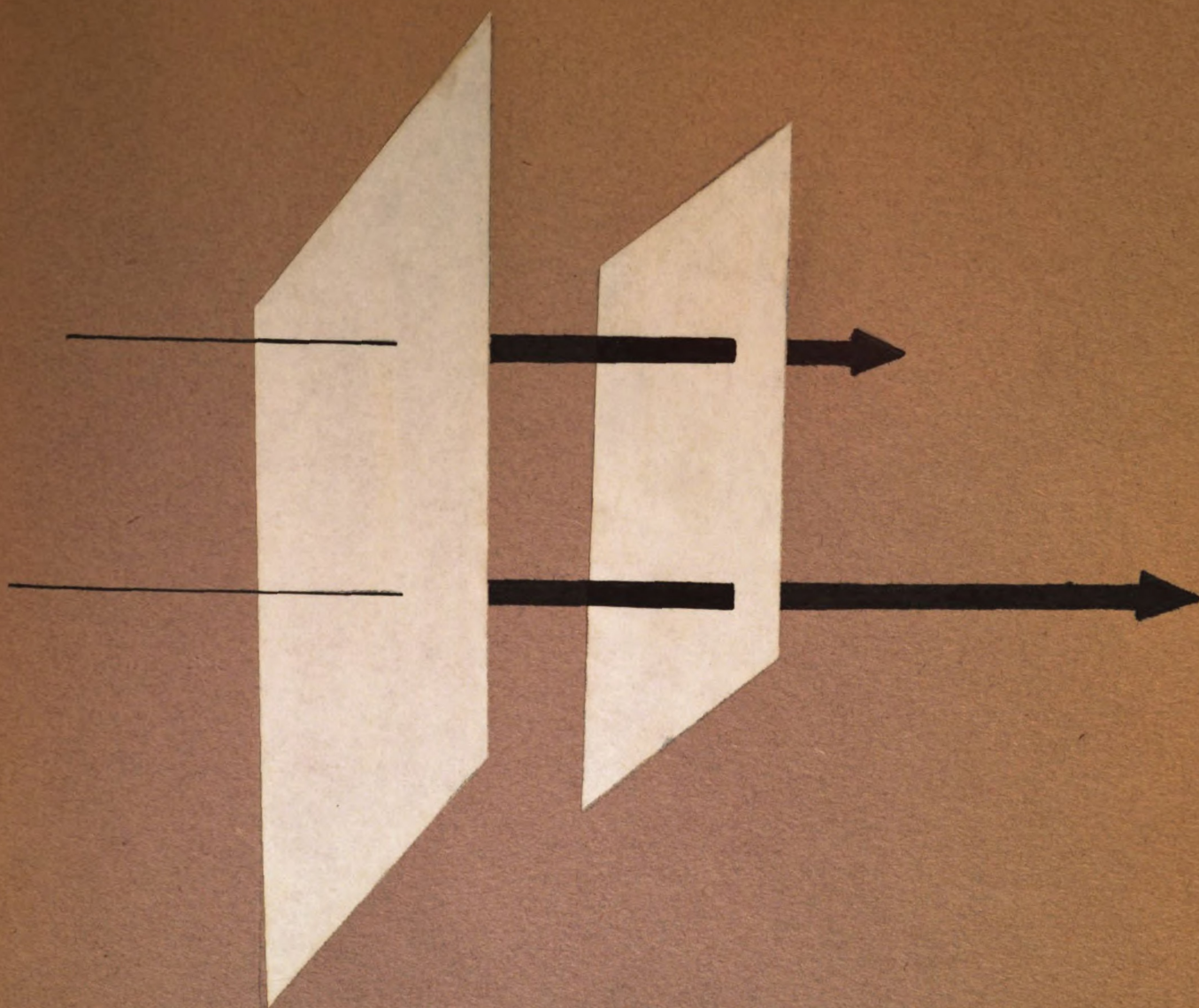
¹⁷Dr. James Finn was the author's instructor in programming the booklet on Menu Planning. Dr. Finn is Professor of Education at Southern California University, Los Angeles, California, head of NEA Project of Educational Technology and head of Department of CINEMA at Southern California University.

difficulty. This program can reinforce a foreign intern by acquainting her in a step by step linear technique with menu planning principles.

With programmed instruction, the intern can learn by progressing in small steps. Each step is called a "frame," and all the frames together form a "program." Each frame gives the intern a small amount of information and one or more sentences with blanks for her to fill in. These help her prove to herself that she understands everything up to that point. Right below each frame are the answers, so the intern can check herself.

The intern should follow these rules:

1. Don't skip filling in the blanks--this is the heart of the whole process.
2. At first, cover all frames with a 'mask'--a file folder, large envelope or card.
3. Slip the mask down to uncover the first frame, but don't uncover the answer between the frames.
4. Fill in the blanks (or cross out the incorrect answer where alternatives are given) as you read each frame.
(You can put your answers on a separate sheet so that this program can be used again.)
5. After you reply to the questions, slip the mask down to reveal the printed answers.
6. Check your answers and, if any are wrong, learn the right answers before continuing.
7. Uncover the next frame and continue until you have completed all frames and fully understand the lesson.



Programmed Learning
In Menu Planning For
Dietetic Interns

MENU PLANNING

The application of our present knowledge of nutrition rests largely on the pattern of three main meals per day. Since health and happiness depend upon the food we eat, the planning of menus is an important responsibility of the dietitian. Any job or undertaking requires careful planning, reasonable foresight, and realistic scheduling if the outcome is to be effective. These skills are especially necessary in performing a task as important as feeding people.

The first step in planning a menu is to include all three meals and decide which kinds and amounts of foods are needed to make a nutritionally adequate and pleasant diet for each person. The basis of the plan is the selection of the amount of foods needed from each of the major food groups: milk and milk products; meat, poultry, fish, eggs, and dried legumes; vegetables and fruit; and bread and cereals.

It must be remembered that no single food is essential. The nutrients the body needs are found in many foods, although some foods are better sources of certain high-quality nutrients than others. Meals may differ markedly, yet be equally nutritious. In this country we generally follow the basic pattern as shown below:

1. Our custom has made breakfast the first meal of the day which consists of fruit, cereal, bread, eggs and milk or other beverages.
2. In planning the menu for lunch, the soup or juice is planned first, then the sandwich, vegetable, fruit or dessert and beverage.
3. The main dish is planned first for the dinner menu, then the potato, vegetable, salad, dessert, bread and beverage.

-
1. Food contributes to physical, mental and emotional health by nourishing our bodies and adding pleasure to satisfying experiences.

When planning menus for the patient's food service, a good nutritious menu is not only necessary for the patients' physical health and recovery but also to help increase their m _ _ _ _.

morale

2. The well trained dietitian's aim in planning a menu is to see that the patients eat the correct by making the menu interesting.
-

food

3. Menus should not be planned from meal to meal.

From the scientific as well as from the aesthetic point of view, the only satisfactory way to set up a menu is to it for the entire d _ _.

plan
day

4. When the menu for the entire day has been , it is easy to meet food requirements and to see that the various nutrients are well distributed.
-

planned

5. When planning a menu, the important nutrients needed to meet the various body requirements are protein, fat, carbohydrates, vitamins, minerals, and water.

A review of the foods that are good sources of the six important nutrients in menu planning and the Recommended Daily Dietary Allowances (40) follow:

Six Important Nutrients	Good Source	Recommended Daily Dietary Allowances
<u>Protein</u>	Eggs, meat, fish, fowl, cheese and milk.	58 grams - women 70 grams - men

Six Important Nutrients	Good Source	Recommended Daily Dietary Allowances
<u>Fat</u>	Butter, margarine, salad oils and cooking fat and oils.	It is not yet possible to state definitely a reasonable allowance for fat.
<u>Carbohydrates</u>	Fruits, vegetables, cereals, breads, sweet desserts, concentrated sweets and starches.	Evidence is not available to provide a basis for establishing a recommended allowance for carbohydrates.
<u>Vitamins:</u> 1) A	Milk products, egg yolks, glandular organs, yellow and green leafy vegetables.	5,000 I. U.
2) D	Herring, mackerel, canned salmon, tuna and sardines.	400 I. U. for children, pregnancy and lactation.
3) E	Green leaves, oil in germs of cereal seeds. A considerable amount in milk, butter, eggs and liver.	No recommended allowances can be made from present information.
4) K	Green leafy vegetables, tomatoes, cauliflower, egg yolk, soybean oil and liver.	No recommended allowances can be made from present information.
5) C	Raw citrus fruits and vegetables	75 mg.
6) Thiamine	Lean pork, whole wheat, enriched cereals and breads. A considerable amount in dry beans, peas; some organ meats and some nuts.	1.5 mg.

Six Important Nutrients	Good Source	Recommended Daily Dietary Allowances
7) Riboflavin	Milk and meats such as liver, heart and kidney, whole grain cereals and breads. A considerable amount in other lean meats, cheese, eggs, and many leafy green vegetables.	1.1 to 1.6
8) Niacin	Peanuts, whole grain and enriched cereal products, beans, peas, other legumes and most nuts.	17 mg.
<u>Minerals</u>		
1) Calcium	Milk and milk products	0.8 grams
2) Phosphorous	Milk and milk products	
<u>Water</u>		

Nutritional considerations in menu planning (Frames 6-82) are summarized in Frame 5 in lieu of inclusion in this paper.

83. The most important meal of the day is _____.

breakfast

84. Our custom has made breakfast the first meal of the day, which consists of fruit, cereal, bread, eggs and milk.

Although a variety in the breakfast menu is desirable, most people want familiar foods for the first meal of the day that do not require too great an adjustment in their eating _____.

habits

85. Simple menus are more desirable at breakfast.

Foods for breakfast are usually quick and _____ to prepare and serve.

simple or easy

86. A basic lunch plan is soup, hot or cold sandwich, a vegetable, fruit and beverage.

This type of menu is popular for many _____ meals.

noon or luncheon or midday

87. Soup, hot or cold sandwich, a vegetable, fruit and beverage is a basic _____ plan.

lunch

88. The dinner menu is often planned around a main dish.

If planning begins with the _____ dish, the vegetables, salad, dessert, bread and beverage should make a harmonious combination that rounds out the nutrients needed for the day.

main

89. Sameness in the breakfast and luncheon menus may be accepted, but a variety and changes in the dinner foods is desirable.

To give _____ one must know countless ways of serving common foods.

variety

90. Various methods of preparing foods make eating more pleasurable.

One must know different methods of _____ and combining foods.

preparing or cooking

-
91. Some of the attractive methods to use in making the food appealing when planning a _____ are color, texture, flavor and temperature.
-

menu

92. Color leads to the eye.

Food should good to eat. The sight of food, including color, shape, size and surface of the food, should tempt a person to eat.

look

93. A meal containing foods with all the same colors is uninteresting. Color that harmonizes or contrasts adds attractiveness to the _____.
-

meal or food or menu

94. The vegetables, salads and desserts offer opportunities to consider _____.
-

color

95. The flavor of the meal should not be overlooked.

A highly _____ vegetable may be used with a bland one.

flavored or seasoned

96. Bland foods may be used with tart foods.

A tart salad may be followed by a _____ dessert.

bland or sweet

-
97. The food must have a good flavor to taste good or it will not be eaten.

When someone says he likes the _____ of a food, he means he likes its odor, taste and feel or texture because the sensations he receives from them are all interrelated.

flavor

98. Hot foods should be served hot and cold foods should be served cold.

The flavor of the food is modified by the _____ at which it is served.

temperature

99. Variations in the texture of foods gives an added attraction to the meal.

Something hard or crisp (should/should not) be served with soft foods.

should

100. A menu with all soft _____ is not appealing for the average diet.
-

foods

101. A menu with all hard or crisp _____ is not appealing to most people.
-

foods

102. A menu with a cottage cheese salad and spaghetti as the main dish (would/would not) be less appealing than a crisp vegetable salad and spaghetti.
-

would

-
103. Food with contrast is much more appealing.

Always keep in mind that repetition of texture, consistency, shape, flavor or color is to be avoided since food is much more _____ when it presents contrast.

appealing or interesting or attractive

104. A contrast of hot and cold foods adds variety and attraction to a meal.

Even on hot days, a hot beverage can enhance the pleasure derived from a _____ dessert.

cold

105. On cold days, a chilled salad makes the _____ soup or cocoa seem more enjoyable.
-

hot

106. The identical foods should not be repeated during the same meal.

Apple juice, candied apple rings with the meat and an apple salad is a repetition of the same food.

Avoid the _____ of a food during a meal and, if possible, during the day.

repetition

107. Another example of repetition of food in the same meal is cream of tomato soup and _____ salad.
-

tomato

108. The food should be well cooked and attractively served. The dietitian's aim should be to see that the patients eat the correct food by making the menu interesting and having it _____ cooked and _____ served.
-

well
attractively

-
109. The amount of money available is an important factor.

Always consider the cost and do not introduce dishes that demand more _____, time and energy in preparation than one can afford.

money

110. Up-to-date information on meat and produce marketing is a great help in planning good menus. It increases the knowledge of foods that are plentiful and low in cost.

This helps one to know what is "in" and what is "out" of season. When certain fruits and vegetables are plentiful they are _____.

cheaper

111. Even if the budget is small it does not prevent the planning of well balanced menus when there is an understanding of what a well-balanced _____ is and when there is an understanding of the principles of menu _____.
-

menu
planning

112. The age factor will influence the choice of foods used.

Very old people and young children require simple foods, while those of middle _____ may have a greater range of choice.

age

113. Simple foods are required by very _____ people and young _____ more than for middle age people.
-

old
children

114. Sex and nationality can also influence the choice of foods selected.

The average f _ _ _ _ will eat casserole dishes more than the average m _ _ _.

female
male

-
115. Available equipment should be taken into consideration when planning a menu.

The menu should not contain all baked, fried, or broiled _____
in the same meal.

foods

-
116. Variety is the keynote to good _____ planning.

menu

-
117. Avoid using all fried, boiled or baked foods in the same _____.

menu or meal

-
118. When planning a menu a well-trained dietitian plans a menu for the _____, considers the six important _____ that are needed for the body's requirement and tries to make the menu as attractive as possible by considering the _____, _____, _____ and _____ of the food.

entire day
nutrients
flavor, color,
texture and
temperature

-
119. Now that you have an understanding of planning a well-balanced menu, you should be able to apply these principles in planning a week's menu or for any number of weeks desired.

A general plan for all the meals for a week or more can save time, work and money.

Answer Sheet

1.	_____	104.	_____
2.	_____	105.	_____
3.	_____	106.	_____
	_____	107.	_____
4.	_____	108.	_____
83.	_____		_____
84.	_____	109.	_____
85.	_____	110.	_____
86.	_____	111.	_____
87.	_____		_____
88.	_____	112.	_____
89.	_____	113.	_____
90.	_____		_____
91.	_____	114.	_____
92.	_____		_____
93.	_____	115.	_____
94.	_____	116.	_____
95.	_____	117.	_____
96.	_____	118.	_____
97.	_____		_____
98.	_____		_____
99.	_____		_____
100.	_____		_____
101.	_____		_____
102.	_____		_____
103.	_____		_____

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APPENDIX A
ACADEMIC, EXPERIENCE, ENDORSEMENT, AND SUPERVISION REQUIREMENTS
FOR MEMBERSHIP IN THE AMERICAN DIETETIC ASSOCIATION

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THE AMERICAN DIETETIC ASSOCIATION

620 NORTH MICHIGAN AVENUE, CHICAGO 11, ILLINOIS

ACADEMIC, EXPERIENCE, ENDORSEMENT, AND SUPERVISION REQUIREMENTS FOR MEMBERSHIP IN THE AMERICAN DIETETIC ASSOCIATION

Academic requirements for active membership in The American Dietetic Association and entrance to dietetic internships.

The academic plan for membership, adopted November 1, 1958, represents a "broader" basis of subject content than previously. This is an effort to make for greater "completeness" of the dietetic profession. Membership may be obtained through three academic avenues; namely; science, business management, and the traditional pathway of general dietetics. In this way more individuals may be encouraged to pursue careers in dietetics and to meet the increasing demands for specialties in dietetics.

These requirements apply to:

- (1) Applicants for admission to dietetic internships approved by The American Dietetic Association.
- (2) Applicants for membership in The American Dietetic Association.
- (3) Former members desiring reinstatement of membership in The American Dietetic Association after a five-year period.

A bachelors' degree from an accredited college or university,* which has included or been followed by required courses and credit hours as outlined, is a basic requirement both for membership in the Association and entrance to approved dietetic internships. Certain directors of dietetic internships request more than the required credit hours stated.

Five years is the limit of time which may elapse

between completion of the academic requirements and admission to an approved dietetic internship. If five years have elapsed between the completion of academic requirements and application for an appointment to an internship, the applicant must present 3 semester hours credit in the areas of nutrition, food service management or related sciences earned within the five-year period prior to application.

Areas of learning rather than titles of courses are listed in the Core Subjects, Emphases, and Concentrations of the academic requirements for membership in The American Dietetic Association. Objectives for College Preparation for Dietetics give the basis for determining and judging the fulfillment of the educational needs as stated in the academic requirements. (See page 4.)

*** Definition of "Accredited" as Used by the Association**

Bulletin 1960, No. 24, *Accredited Higher Institutions*, U. S. Office of Education, available from Superintendent of Documents, Washington 25, D. C., sixty cents, is accepted as a guide in determining whether an institution is "accredited" when applications for membership in The American Dietetic Association or entrance to dietetic internships approved by the Association are considered.★ Colleges and universities will be considered as "accredited" if they are members in one or more of the following organizations at the time the degree is conferred:

Middle States Association of Colleges and Secondary Schools; New England Association of Colleges and Secondary Schools; North Central Association of Colleges and Secondary Schools; Northwest Association of Secondary and Higher Schools; Southern Association of Colleges and Secondary Schools; Western College Association.

★ *Evidence may be submitted that a college, heretofore not listed as accredited, has been added to one of the accredited lists since the last edition of the Bulletin.*

ACADEMIC REQUIREMENTS

The Core plus one Emphasis, plus one requirements for membership or internship

CORE SUBJECTS

22 semester hours*—
All core subjects

Natural Sciences—14 s. h.
human physiology } 6 s. h.
and bacteriology }
chemistry—8 s. h.

Plus one of the

EMPHASIS

Choice of one Emphasis—9 semester hours
Underlined subjects

I
FOOD SERVICE MANAGEMENT
organization and management
quantity food production and service
advanced food production management
equipment selection, maintenance and layout
principles of accounting
purchasing

or

EDUCATION (Business and
Extension, School and Public)
educational principles and methods
educational psychology
anthropology
child psychology
sociology

Plus one of the

CONCENTRATION

Choice of one Concentration—12 semester hours
Underlined subjects

A
THERAPEUTIC AND ADMINISTRATIVE DIETETICS
nutrition 2 s. h. (biochemistry, prereq. or concurrent)**
personnel management or industrial psychology
principles of learning or educational psychology
Remainder of credit:
diet therapy****
advanced food production management
equipment selection, maintenance and layout***
foods: cultural, experimental or technological
principles of accounting***
purchasing***

or

BUSINESS ADMINISTRATION
advanced accounting
advanced food production management
equipment selection, maintenance and layout
personnel management
purchasing***
Remainder of credit:
business law
communication
human relations
industrial psychology
labor economics

1. Applicants for Internship and Membership
 - a. Clinic Interns: Core + Emphasis I or II + Concentration A or C
 - b. College, Business, or Industry Interns: Core + Emphasis I + Concentration A or B
 - c. Hospital Interns: Core + Emphasis I + Concentration A

LEGEND: *Social and behavioral sciences are considered to be essential and a
**Food Chemistry may be used by college or industrial interns
*Effective November 1, 1958. (Plan I to be discontinued October 1962) (Plan II

ACADEMIC REQUIREMENTS FOR ADA MEMBERSHIP*

The Core plus one Emphasis, plus one Concentration constitute the requirements for membership or internship, as designated for the specialties

CORE SUBJECTS

22 semester hours*—Basic Minimum
All core subjects required

Natural Sciences—14 s. h.
human physiology } 6 s. h.
and bacteriology }
chemistry—8 s. h.

Foods—6 s. h.
selection, preparation,
meal planning and service
Nutrition—2 s. h.

Plus one of the following:

EMPHASES

Choice of one Emphasis—9 semester hours—Basic Minimum
Underlined subject areas required

I

FOOD SERVICE MANAGEMENT

organization and management
quantity food production and service
advanced food production management
equipment selection, maintenance and layout
principles of accounting
purchasing

or

II

EDUCATION (Business and Industry, Clinic, College,
Extension, School and Public Health)
educational principles and techniques
educational psychology
anthropology
child psychology
sociology

or

III

FOODS—EXPERIMENTAL AND DEVELOPMENTAL

experimental foods
advanced bacteriology
consumer economics
cultural aspects of food
food styling
quantity food production and service
psychology of advertising
technology of food
theory and technique of communication

Plus one of the following:

CONCENTRATIONS

Choice of one Concentration—15 semester hours—Basic Minimum
Underlined subject areas required

A

THERAPEUTIC AND ADMINISTRATIVE DIETETICS

nutrition 2 s. h. (biochemistry, prereq. or concurrent)**
personnel management or industrial psychology
principles of learning or educational psychology
Remainder of credit:
diet therapy****
advanced food production management
equipment selection, maintenance and layout***
foods: cultural, experimental or technological
principles of accounting***
purchasing***

or

B

BUSINESS ADMINISTRATION

advanced accounting
advanced food production management***
equipment selection, maintenance and layout***
personnel management
purchasing***
Remainder of credit:
business law
communication
human relations
industrial psychology
labor economics

or

C

SCIENCE—FOODS AND NUTRITION

advanced nutrition 6 s. h.
biochemistry with laboratory
foods: cultural, experimental or technological
Remainder of credit:
child growth and nutrition
community nutrition
diet therapy****
principles of learning
or educational psychology
statistics
food processing and preservation

- Applicants for Internship and Membership
 - Clinic Interns: Core + Emphasis I or II + Concentration A or C
 - College, Business, or Industry Interns: Core + Emphasis I + Concentration A or B
 - Hospital Interns: Core + Emphasis I + Concentration A

- Other applicants for membership
Hospital or other Institutions, Business, Clinic, College Teaching, Extension, Hotel, Industry, Public Health, Research, Restaurant, School Food Service and Related Specialties: Core + Emphasis I, II, or III, + Concentration A, B, or C.

LEGEND: *Social and behavioral sciences are considered to be essential and assumed to be included in college degree requirements
**Food Chemistry may be used by college or industrial interns
***If not used in Emphasis I
****Required for hospital and clinic interns

*Effective November 1, 1958. (Plan I to be discontinued October 1962) (Plan II to be discontinued October 1965)

Objectives for College Preparation for Dietetics To Meet Academic Requirements

Objectives for the Core

Social and Behavioral Sciences (assumed to be included in college degree requirements)

- To develop an understanding and appreciation of the basic needs, motivations, and goals of individuals and groups.
- To foster respect for the dignity of man.

Physiology

To develop an understanding of the structure, processes, functioning, and interrelationship of the various systems of the human body.

Bacteriology

To develop an understanding of the factors which promote or inhibit the growth of the various microorganisms which are important in relation to food and health.

Chemistry

To learn the composition, physical properties, and interaction of inorganic and organic substances as a background for understanding man's physical and biological environment.

Foods and Nutrition

- To develop an understanding of the basic principles of food preparation and of meal service in relation to acceptable quality, appetite appeal, and preservation of nutritive value, appropriate meal service; and the effective use of time, energy, money, and equipment.
- To develop an understanding of the food needs of individuals in relation to the specific food nutrients and the functions of these nutrients in the body throughout life. This will also include evaluation of dietary patterns and ability to plan or select an adequate diet for various members of a family or institution group.
- To develop an appreciation for food as it relates to the development (physically, socially, mentally, and politically) of individuals, communities, and countries.

Objectives for Emphases

(Nine semester hours)

EMPHASIS I. FOOD SERVICE MANAGEMENT

- To know quality food and to develop the ability to produce quality food for group service within a pre-determined budget.
- To develop the ability to recognize the principles of good organization and management and to apply these principles to the effective operation of the food service department.
- To develop the sense of responsibility in the food service manager for leadership in the achievement of the goals of the institution.

EMPHASIS II. EDUCATION

- To develop an understanding of the principles of education that are basic to effective learning of individuals and of groups.
- To develop ability to clearly define objectives for an education program or project.
- To develop ability to select and use most appropriate methods for specific groups in the attainment of defined objectives.
- To acquire recognition of the numerous resources from which supplemental teaching aids are now available.
- To develop ability to select and use evaluation techniques that measure student progress and serve as a means to improve teaching.

EMPHASIS III. FOODS—EXPERIMENTAL AND DEVELOPMENTAL

— General Objectives —

- To develop a working knowledge of the behavior of the basic food constituents in food preparation.
- To develop an understanding of the relation of bacteriology to the preparation, preservation, processing, and serving of food.
- To develop an appreciation of both the cultural and technological aspects of food production and preparation.
- To develop an understanding of consumer economics and the factors which affect it.
- To acquire a working knowledge of effective communication processes (written, oral, audio, and visual).

— Objectives for some Subject Areas —

Experimental Foods

To develop an understanding of and the ability to apply the principles of chemical and physical changes which occur during the preparation of food.

Advanced Bacteriology

- To develop the ability to relate the principles of chemistry to the metabolism, production of end products, and the inhibition of the growth of microorganisms.
- To develop an understanding of the use of chemistry in relation to the composition of microorganisms and the reactions they produce.

Consumer Economics

To develop an understanding of the ways in which families make their financial plans and use the market in current and future situations.

Cultural Aspects of Food

- To stimulate an interest in regional cookery and the food customs of peoples of different ethnic backgrounds as a means of increasing appreciation of various cultures.
- To develop an awareness of the important role that food plays in the interrelationships between peoples of different nations, and of various socio-economic groups and to acquaint students with some of the food customs of various national groups.

Styling of Food

- To arouse an interest in the creative aspects of cookery as related to familiar foods as well as to those foods with which the student is unfamiliar.
- To develop a further appreciation of the social significance of food as it is used in specific meals and for special occasions and to assist the student in establishing basic criteria for assembling appropriate food for various occasions.
- To develop a sensitivity and awareness of the appropriateness of color, texture, and topography in the presentation of food for its service to people on various occasions.
- To develop the ability to select appropriate equipment for the presentation of specific foods and the backgrounds for food to accomplish objective three.
- To develop the ability to prepare food and the backgrounds for it in arranging displays for the purpose of photography and other graphic presentations.

Quantity Food Production and Service

- To develop the ability to produce quality food for group service within a pre-determined budget.
- To develop the ability to recognize the principles of good organization and management and to apply those principles to the effective operation of the food service department.

REQUIREMENTS FOR ADA MEMBERSHIP in Dietetics To Meet Academic Requirements

one Emphasis, plus one Concentration constitutes membership; internship, as designated for the

included in

FOUR SUBJECTS

22 semester hours*—Basic Minimum
More subjects required

s. h.

6 s. h.

Foods—6 s. h.

selection, preparation

meal planning and

Nutrition—2 s. h.

, processes,
systems of

One of the following:

EMPHASES

One of Emphasis—9 semester hours—Basic Minimum
Understand subject areas required

II

Business and Industry, Clinic, College,
Extension, Hospital, Public Health)

Principles and techniques

Food technology

Food technology

Food technology

Food technology

Food technology

Food technology

Food technology

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One of the following:

CONCENTRATIONS

One Concentration—15 semester hours—Basic Minimum
Understand subject areas required

B

Business Administration

Food management

Food management***

Food management***

Food management

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Food management

Food management

Food management

2. Other applicants for membership
Hospital or other Institutions,
Extension, Hotel, Industry, Public
School Food Service and Related
II, or III, + Concentration A, B,

ives for an
appropriate
of defined
sources from
available.
ation tech-
serve as a

***If not used in Emphasis I

II to be discontinued October 1965)

EMPHASIS III. FOODS—EXPERIMENTAL AND DEVELOPMENTAL

— General Objectives —

1. To develop a working knowledge of the behavior of the basic food constituents in food preparation.
2. To develop an understanding of the relation of bacteriology to the preparation, preservation, processing, and serving of food.
3. To develop an appreciation of both the cultural and technological aspects of food production and preparation.
4. To develop an understanding of consumer economics and the factors which affect it.
5. To acquire a working knowledge of effective communication processes (written, oral, audio, and visual).

— Objectives for some Subject Areas —

Experimental Foods

To develop an understanding of and the ability to apply the principles of chemical and physical changes which occur during the preparation of food.

Advanced Bacteriology

1. To develop the ability to relate the principles of chemistry to the metabolism, production of end products, and the inhibition of the growth of microorganisms.
2. To develop an understanding of the use of chemistry in relation to the composition of microorganisms and the reactions they produce.

Consumer Economics

To develop an understanding of the ways in which families make their financial plans and use the market in current and future situations.

Cultural Aspects of Food

1. To stimulate an interest in regional cookery and the food customs of peoples of different ethnic backgrounds as a means of increasing appreciation of various cultures.
2. To develop an awareness of the important role that food plays in the interrelationships between peoples of different nations, and of various socio-economic groups and to acquaint students with some of the food customs of various national groups.

Styling of Food

1. To arouse an interest in the creative aspects of cookery as related to familiar foods as well as to those foods with which the student is unfamiliar.
2. To develop a further appreciation of the social significance of food as it is used in specific meals and for special occasions and to assist the student in establishing basic criteria for assembling appropriate food for various occasions.
3. To develop a sensitivity and awareness of the appropriateness of color, texture, and topography in the presentation of food for its service to people on various occasions.
4. To develop the ability to select appropriate equipment for the presentation of specific foods and the backgrounds for food to accomplish objective three.
5. To develop the ability to prepare food and the backgrounds for it in arranging displays for the purpose of photography and other graphic presentations.

Quantity Food Production and Service

1. To develop the ability to produce quality food for group service within a pre-determined budget.
2. To develop the ability to recognize the principles of good organization and management and to apply those principles to the effective operation of the food service department.

3. To develop the sense of responsibility in the food service manager for leadership in the achievement of the goals for the institution.

Psychology of Advertising

1. To develop the ability to assess the values held by the specific groups to be reached in the advertising of foods.
2. To assist the student in gaining competence in interpreting facts concerning foods and nutrition in relation to ethical advertising of a specific product or a group of products.

Technology of Food

To develop an understanding of the application of science and engineering to the production, processing, packaging, distribution, preparation, and utilization of food.

Theory and Techniques of Communication

To develop the ability to interpret technical materials to individuals with varying levels of understanding through the spoken and written word, as well as in visual displays.

Objectives for Concentrations A, B, and C
(Fifteen semester hours)

CONCENTRATION A. THERAPEUTIC AND ADMINISTRATIVE DIETETICS

I. Objectives for Advanced Nutrition and Diet Therapy

1. To develop an understanding of the nourishment of the body, based on knowledge of the chemical and physiological processes and functions of specific nutrients in meeting the nutritional needs in health and disease.
2. To develop the ability to use nutritional knowledge to feed people of various ages and under various circumstances in the promotion of positive health.
3. To develop the ability to evaluate research studies and apply this knowledge to the feeding of people of all ages.
4. To develop an understanding of the intermediary metabolism of carbohydrates, lipids, amino acids, purines, and nucleic acids and of the experimental evidence for the biological pathways in the mammalian body.
5. To develop the ability to recognize the interrelationships of the inorganic and organic compounds (included vitamins, enzymes, and hormones) in structures and regulatory functions.
6. To develop the ability to evaluate nutrition information and separate facts from untruths, half truths, and misinformation.
7. To increase the ability of an individual to use the various techniques through which others will understand and want to put into practice this knowledge of nutrition.

II. Objectives for Biochemistry (In Concentration A and C)

1. To develop an understanding of the intermediary metabolism of carbohydrates, lipids, amino acids, purines, and nucleic acids and of the experimental evidence for the biological pathways in the mammalian body.
2. To understand the functions and metabolisms of the inorganic elements and their interrelationships with organic functional substances.
3. To develop the ability to recognize the interrelationships of the inorganic and organic compounds (including vitamins, enzymes, and hormones) in structures and regulatory functions.

III. Personnel Management

1. To develop an understanding of the interaction between individuals as it affects the dietitian's role in:

(a) personnel policy formation, (b) interviewing and hiring of employees, (c) orientation and training procedures, (d) work scheduling (e) supervision and (f) periodic job performance evaluation.

2. To appreciate the achievement of employee satisfaction as well as efficiency while meeting the goals of the institution.

IV. Principles of Learning (In Concentration A and C as well as Emphasis II)

1. To develop understanding that learning takes place more readily (a) when emphasis is placed on the individual, (b) when emphasis is placed on the learner's perception of the task to be accomplished (c) when emphasis is placed on human relation factors such as feeling, anxieties, concerns, and questions and (d) when the learner feels that he belongs and is secure.
2. To develop the idea that learning is an active process in which leaders should help students to clarify their goals and to plan, experiment, explore, and perform tasks in achieving their goals.
3. To develop the ability of the individual to use appropriate teaching materials effectively and to call upon many resources to promote the learning process.

CONCENTRATION B. BUSINESS ADMINISTRATION

1. To develop a high standard of ability to plan, organize, direct, coordinate, and control the activities of a food service institution.
2. To develop awareness of human factors in working with individuals and groups.
3. To develop an understanding and ability to control the business and economic activities which are within management's responsibility.
4. To develop an understanding of labor relations and personnel management.

CONCENTRATION C. SCIENCE—FOODS AND NUTRITION

1. To develop the ability to apply knowledge of chemical and physical changes occurring in the preparation of food to quality of product and the feeding of people for the promotion of adequate nutrition.
2. To promote an interest in and appreciation of the art, management, and science involved in serving quality food and in feeding people of varying cultural backgrounds. This involves an appreciation of the value of gracious meals enjoyed together in the home and elsewhere.
3. To develop the ability to evaluate research studies and to apply this knowledge to experimental cookery as well as to feeding people.
4. To develop the ability to evaluate food and nutrition literature and to separate facts from untruths, half truths, and misinformation.
5. To foster an understanding of growth and development from conception throughout the life cycle, as a basis for the promotion of an adequate food intake.
6. To increase the ability of an individual to use the various techniques through which other people and groups will understand and want to put into practice the knowledge of foods and nutrition. (See objectives for Principles of Learning in Concentration A.)
7. To develop an understanding of the chemical and physiological processes and the functions of specific nutrients in meeting the nutritional needs throughout the life cycle in health and disease. (See objectives for Biochemistry.)

Committee to Study Broadening of ADA Membership, 1958

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APPENDIX B
MINIMUM STANDARDS FOR A HOSPITAL DIETETIC INTERNSHIP

THE AMERICAN DIETETIC ASSOCIATION
620 North Michigan Avenue
Chicago 11, Illinois

MINIMUM STANDARDS ESTABLISHED BY THE AMERICAN DIETETIC ASSOCIATION
FOR THE APPROVAL OF A HOSPITAL DIETETIC INTERNSHIP

I. STANDARDS FOR A HOSPITAL SPONSORING A DIETETIC INTERNSHIP

- A. The major portion of the dietetic interns' experience shall be in a hospital that meets the following standards:
1. The hospital shall be accredited by the Joint Commission on Accreditation of Hospitals.
 2. The hospital shall have a bed capacity of at least 300, and preferably 500 or more.
 3. There shall be a well developed program for the coordination of the dietetic service with medical, nursing, social service, and other professional services in the hospital. There shall also be effective correlation of the dietetic internship with other educational programs at the professional level in the hospital.
 4. The director of the department of dietetics shall be a member of The American Dietetic Association. He or she shall have complete responsibility for food service in the hospital, including all phases of food production and service to patients and personnel.
 5. The hospital shall have a full-time dietetic staff of at least five professionally qualified dietitians (five members of The American Dietetic Association).
 6. The equipment of the department of dietetics shall be modern and sufficient in variety and in quantity to facilitate the maintenance of high standards of food service.
 7. The hospital's personnel policies shall be defined in writing and shall be consistent with accepted practices for personnel management. Personnel policies which are pertinent to dietetic interns shall be in writing and consistent with accepted practices.

II. DIRECTOR OF THE INTERNSHIP PROGRAM
(NOT NECESSARILY THE DIRECTOR OF THE DEPARTMENT OF DIETETICS)

A. Required qualifications:

1. The director shall be a member of The American Dietetic Association.
2. The director shall have an advanced academic degree in foods, nutrition, institution management, or education. Completion of an approved dietetic internship is desirable. An internship director appointed prior to June 1, 1963, is not required to have an advanced degree.
3. The director shall have had at least five years of successful experience in responsible positions, preferably as a staff member of an approved dietetic internship.
This experience shall include

Five years' experience in the administrative phases of dietetics and/or the therapeutic phases of dietetics

or

At least three years' experience in the administrative and/or therapeutic phases of dietetics, plus at least two years' experience in teaching foods, nutrition, or institution management.

4. The director shall show evidence of professional leadership through active participation in professional organizations and frequent participation in professional institutes, workshops, or graduate study programs.
5. The director shall demonstrate an alertness to and participation in the educational opportunities within the institution and community.

III. PROGRAM FOR STAFF EDUCATION

Staff members shall be required to keep themselves informed on recent developments in dietetics and related fields through a planned program for staff education and active participation in professional organizations. At least one staff member should participate each year in a professional institute, workshop, or a graduate study program.

IV. CONFERENCES FOR INTERNSHIP DIRECTORS AND STAFFS

- A. Attendance of at least one representative of each approved dietetic internship is required at the annual conference sponsored by The American Dietetic Association for internship directors and staffs. It is urged that more than one staff member attend.
- B. If a special Workshop for internship staffs is scheduled, attendance of at least one representative of each approved dietetic internship is required.

V. REQUIREMENTS FOR DIETETIC INTERNS

- A. Entrance requirements: A bachelor's or advanced degree from an accredited college or university with courses which meet the academic requirements for entrance to dietetic internships approved by the Executive Board of The American Dietetic Association.
- B. Five years is the limit of time which may elapse between completion of the academic requirements and admission to an approved dietetic internship. If five years have elapsed between the completion of the academic requirements and application for an appointment to an internship, the applicant must present three semester hours credit in the areas of nutrition, food service management, or related sciences earned within the five-year period prior to application.

VI. PROCEDURE FOR INTERN APPOINTMENT

Letters of appointment are to be sent to the college faculty members designated to receive them, such as the head of the department granting the degree or the advisor of dietetics majors. The letters are to be given to the students on April 15th or November 15th. (Please write to the Dietetic Internship Liaison Director, The American Dietetic Association, for further details concerning the routine procedure relative to intern appointments).

VII. MINIMUM AND MAXIMUM NUMBER OF INTERNS

- A. The number of appointments annually to each approved internship shall be no fewer than four. If there are fewer than four appointments thirty days prior to the entrance date, the matter shall be referred to the Executive Board. The maximum number shall be determined on an individual basis by the Executive Board, based on the number of dietetic staff, the facilities available, and the opportunities for experience having educational value.
- B. Increases in the maximum number of appointments must be approved by the Executive Board.

VIII. GENERAL ORGANIZATION OF DIETETIC INTERNSHIP

- A. The internship program shall be planned for a period of 52 weeks.
- B. There shall be a planned program for orientation of the interns to the organization and to the profession of dietetics.
- C. In the hospital internship the recommended time allotments are:

Food Service Administration -- 20 weeks

Normal and therapeutic nutrition -- 20 weeks

Community nutrition -- 2 to 3 weeks

Vacation -- 2 weeks

The remaining seven weeks may be allotted as desired to orientation, additional staff experience, and electives.

IX. PROGRAM CONTENT

- A. It is required that certain Basic Learning Experiences be included in all dietetic internships. These experiences are those in which principles are reviewed or learned and basic skills are developed. These experiences also include those related to procedures practiced in the organization sponsoring the internship. The points of emphasis are listed under X. Recommendations for Learning Experiences.
- B. In addition to the Basic Learning Experiences which provide the foundation of an internship program, Intensive Learning Experiences to further develop the interns' knowledge and skills are required. In respect to Intensive Learning Experiences, only general recommendations are made as the planning for the experiences should be based on staff review of all of the resources available within the organization sponsoring the internship and other resources in the community. These assignments should stimulate the interns to analyze, evaluate, and to think creatively.
- C. Internship programs should be planned so that there is progressive learning. Each intern should progress as rapidly as he or she is capable from the basic skills to responsibilities similar to those assumed by the staff dietitian. The intern should assume as much responsibility as is reasonable, but always there should be sufficient guidance to make these experiences as meaningful as possible. Ample time shall be allowed for study, projects, and the writing of reports throughout the program.

X. RECOMMENDATIONS FOR LEARNING EXPERIENCES

- A. Basic Learning Experiences in the area of Food Service Administration
 - 1. Menu planning, food purchasing, food storage, records of food costs and nutritional values
To include emphasis on:
 - a. Application of the basic principles of nutrition in planning menus within prescribed budgetary allotments to meet individual and group needs. Also the development of appreciation and skill in planning menus that are interesting and palatable.
 - b. Amounts required, quality standards as indicated by specifications, purchase procedures, and ethics in the purchase of food.
 - c. Development of skills in promoting safe and sanitary practices and procedures in receiving and storage of food to safeguard quality and safety of the food purchased.
 - d. Practice in record keeping and use of analyses in preparing reports that provide up to date information concerning the cost and the nutritive value of the food served.

2. Food production practice and supervision; personnel selection; training and supervision; sanitation; safety; and cost controls

To include emphasis on:

- a. Practice of production of food in quantity for sufficient understanding of techniques to direct the work of others engaged in quality food production. This may be accomplished through experience in recipe standardization and food production procedures.
- b. Instruction of others in the techniques of the production of quality food products.
- c. Establishment of standards and judging of quality of food products.
- d. Personnel policies of the organization
- e. Employee selection
- f. Orientation and training of employees
- g. Plan for scheduling personnel involved in food production
- h. Continuing programs of sanitation, safety, and cost controls

3. Food service department organization and layout; equipment use; specifications; selection and maintenance; and food distribution and service

To include emphasis on:

- a. Departmental organization
- b. Effective management techniques and cooperative relationships
- c. Layout of food service department
- d. Operation and care of major food service equipment in the food production unit or units
- e. Specifications and justification for purchase of at least one major item of food service equipment
- f. Supervision of the distribution of food to serving units and the supervision of the serving of food to customers, patients, etc.
- g. Plan for scheduling personnel involved in food distribution and service
- h. Time schedule for food distribution and quality of the food served as to appearance, temperature, and taste
- i. At least one plan for portion control

4. Education

- a. The educational function is so integrated into all other areas of experience, it is assumed this will be an integral part of all experiences planned. In addition, however, each intern shall:

- (1) Attend and participate in at least two classes relative to food production and service taught to non-professional personnel

B. Intensive Learning Experiences in the area of Food Service Administration

1. To include emphasis on:

- a. Management of a food production unit or units
- b. Management of a serving unit or units for patient food service and personnel food service (pay cafeteria and coffee shop).
- c. Selection, assignment, and evaluation of work performance of employees
- d. Communication with others at all levels, oral and written
- e. Responsibilities that may be delegated to the food service supervisor
- f. Use of records in planning for and maintaining cost control
- g. Use of records in personnel management
- h. Use of records in financial management, including budget planning
- i. Evaluation of work accomplished in relation to goals set
- j. The fundamentals of management of a small hospital department of dietetics
- k. Education
 - Participation in educational program for:
 - (1) Personnel - instruction relative to food service administration
 - To include opportunities to:
 - (a) Learn about continuous training program for food service personnel
 - (b) Plan at least one class for food service personnel and lead the group discussion, present the demonstrations or lectures, etc., and evaluate results
 - (c) Orient at least one employee to a job new to that employee

2. Projects or studies:

- a. Each intern shall complete at least three individual projects or studies and shall use the type of format recommended by the Journal Board of The American Dietetic Association for at least one project report. Each intern shall, in addition, participate in at least one project in cooperation with another intern or a group of interns.
- b. During the period of the twelve-month internship, projects or studies shall cover a wide range of subject matter areas. All projects or studies shall be shared with the entire group of interns either by oral or written reports.
- c. Recommended subject matter areas are as follows:
 - (1) Analysis of food and labor costs
 - (2) Communication
 - (3) Cost controls
 - (4) Employee work performance evaluation
 - (5) Equipment needs, selection or testing (new equipment)
 - (6) Financial management, including budget planning
 - (7) Food acceptance
 - (8) Food distribution procedures
 - (9) Food merchandising
 - (10) Food service department layout and equipment selection
 - (11) Job analysis
 - (12) Menu evaluation
 - (13) Personnel Management or supervisory techniques
 - (14) Personnel utilization
 - (15) Portion control
 - (16) Promotion of safe practices in sanitation
 - (17) Quality standards and controls
 - (18) Record keeping (possible use of electronic data processing equipment)
 - (19) Safety factors
 - (20) Waste controls
 - (21) Work simplification and/or methods improvement
 - (22) Other management techniques

C. Basic Learning Experiences in the area of normal and therapeutic nutrition

1. To include emphasis on:

- a. Techniques of the patient interview and the diet history
- b. Menu planning for modified diets to conform to diet prescriptions
- c. Reading and interpretation of patients' charts, including laboratory reports and medical records
- d. Instruction of patients as to individual and family dietary patterns
- e. Effective cooperation with physicians and other members of the medical team through individual consultation, bedside rounds and/or conferences

f. Use of "The Handbook of Diet Therapy" as a basis for diet manual development

g. Nutrition education

It is recommended that each dietetic intern

(1) Attend and participate in at least two classes relative to nutrition and/or diet therapy taught to groups of students, patients, or personnel (not dietetic interns).

(2) Develop a lesson plan for one class, lead the group discussion, and present the demonstration or lecture (students, patients, or personnel).

D. Intensive Learning Experiences in the area of normal and therapeutic nutrition

1. To include emphasis on:

a. Patient contact and use of various techniques in interviewing and instructing patients (inpatients and outpatients - varied age groups)

b. Use of patients' charts as a technique for communicating with physicians in relation to patients' food intakes

c. Analysis of laboratory findings and social histories in relation to dietary treatment and total care of individual patients

d. Frequent opportunity for individual consultation with physicians and other members of the medical team; active participation in bedside rounds, grand rounds, conferences and lectures related to medical and dietary treatment. (Emphasis shall be placed on the dietitian's contribution to medical rounds)

e. The dietitian's role in metabolic research

f. The need for the cooperation of a Medical Advisory Committee

g. Nutrition education

(1) Students, patients, personnel and/or customers - individual and group instruction relative to nutrition and diet therapy
To include opportunities for each dietetic intern to:

(a) Plan at least three classes for students, patients, personnel, or customers relative to nutrition or diet therapy, lead the group discussion, present the demonstrations or lectures, etc.; and evaluate results

(b) Instruct as many individuals as possible, adapting methods of instruction to individual needs

2. Projects or studies:

- a. Each intern shall complete at least two projects or case studies plus the research experience or project indicated in D. 1. e. During the period of the 52-week internship, projects or studies shall cover the following subject matter areas and all project or study reports shall be shared with the entire group of interns.
- b. Recommended subject matter areas are as follows:
 - (1) Case studies (individual patients)
 - (2) Diet manual organization, development, and method for keeping contents current
 - (3) Techniques of teaching
 - (4) Communication
 - (5) Nutritional analyses of food intakes

E. Basic Learning Experiences in the area of Community Nutrition

1. To include emphasis on:

- a. Functions of community agencies as related to nutrition
- b. Role of nutritionists and dietary consultants in community and state agencies and ways in which cooperation between hospital dietitians and nutritionists can benefit patients after they return home

F. Intensive Learning Experiences in the area of Community Nutrition

1. To include emphasis on:

- a. Experience in a community or state agency or program working with a nutritionist, dietary consultant, social worker, or public health nurse. If there are no possibilities available, each intern shall complete a special study in this area

XI. CLASS INSTRUCTION

- A. In addition to the practical experiences planned for the interns, there shall be at least 125 hours of class instruction throughout the major portion of the internship. Class hours included in courses taken on a college campus for graduate credit may be applied toward the 125 hours, but at least 45 hours shall be planned for group discussion related to the practical experience in progress.
- B. Class instruction shall be defined as a meeting together of a group of interns to share reports on pertinent literature or evaluation of experiences, to discuss current practice in food service administration, nutrition, diet therapy, or education, to listen to speakers on pertinent subjects or to observe procedures that have some relationship to the food service department. These meetings may be planned as seminars, group discussions, lectures, or field trips. (The hours of credit for field trips shall be either the number of hours spent in observation or one-half the total number of hours required for the trip).

- C. The class program shall be supervised by a dietetic staff member. It is further required that the majority of the members of the dietetic staff participate in some way in the intern class program and that there is in attendance at each class at least one dietetic staff member who is competent in the area being discussed. It is further recommended that the dietetic interns be given considerable responsibility in conducting the sessions. Classwork shall be planned to supplement the material covered at the undergraduate level and to relate theory to actual practice. Insofar as possible class hours shall be included in "on duty" time.
- D. Adequate up to date reference material must be available in conveniently located libraries, including medical libraries.
- E. General topics recommended for inclusion in the class program are:
 - 1. Professional ethics
 - 2. Hospital organization and inter-departmental relationships
 - 3. The American Dietetic Association
 - 4. Food service administration
 - a. Communication
 - b. Department of Dietetics records
 - c. Department of Dietetics organization
 - d. Financial management
 - e. Food distribution and service systems
 - f. Food merchandising
 - g. Food production and service
 - h. Human relations
 - i. Menu planning and evaluation
 - j. Physical layouts and equipment
 - k. Purchasing
 - l. Safety
 - m. Sanitation
 - n. Selection, orientation, training, and supervision of employees
 - o. Storage of food, equipment and supplies
 - p. Waste prevention
 - q. Work simplification and methods improvement
 - 5. Nutrition and diet therapy
 - a. Establishing desirable relationships with patients
 - b. Feeding psychiatric and mentally retarded patients
 - c. Formula preparation and formula room management
 - d. Geriatric nutrition
 - e. Infant and child feeding
 - f. Normal nutrition, including evaluation of the nutritional adequacy of both normal and modified diets
 - g. Nutrition in pregnancy and lactation
 - h. Therapeutic modifications of the normal diet
 - 6. Public Health nutrition and dietetics
 - 7. Rehabilitation and home care programs
 - 8. Food protection
 - 9. Nutrition research

10. Nutrition education for students in allied professions
11. Techniques of teaching, including visual aids
12. Evaluation of teaching tools and methods
13. Combating nutrition misinformation
14. Journal review
15. Continuing education

XII. CURRICULUM DEVELOPMENT

It is recommended that the procedures explained in A GUIDE TO CURRICULUM PLANNING IN DIETETIC INTERNSHIPS be used as the basis for continuing curriculum development. Cooperative planning by all staff members is essential for the effective coordination of internship experiences and classwork.

XIII. EVALUATION OF INTERN'S WORK PERFORMANCE

Interim and final conferences to evaluate the work performance of each dietetic intern on each assignment shall be regularly scheduled between the supervising dietitian or dietitians and the dietetic intern. Written evaluations shall be discussed at the final conference and shall be signed by both the supervising dietitian and the dietetic intern.

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MICHIGAN STATE COLLEGE
EAST LANSING, MICHIGAN

M. S.

1963

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