THE DEVELOPMENT OF EDUCATIONAL MEDIA FOR TEACHING HIGH SCHOOL BOYS' FOODS AND NUTRITION CLASSES

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

High schools across the nation have had more and more requests for a program of home economics oriented toward boys' needs in today's society. High school teachers surveyed (Appendix B, Page 79) gave as reasons for the increase in the enrollment of boys in home economics classes: as a hobby; for "survival" as a bachelor; to be able to prepare meals for the immediate family; to prepare for a career in food service; and for personal satisfaction.

With the passage of the Vocational Act of 1963, many implications and possibilities for changes and expansion are indicated for home economics education. Along with traditional education for homemaking, the act permits the use of Smith-Hughes and George-Barden funds for education directed toward employment opportunities using homemaking skills. This program includes boys as well as girls, and the objective is to educate youth for occupations requiring home economics skills and knowledge. (30).

The number of young men presently enrolled in area Vocational-Technical Schools, who are taking home economics courses, is an indication of the growing interest of boys and men in food service and nutrition, both as a career and as a hobby. Those boys who express interest in home economics at the high school level, tend to show the greatest interest in knowledge of actual food preparation.

The writer believes that curriculum needs identified by people in the food industry, (42), and by students of boys' home economics classes taught in the past, are of value and indicate a great need for better instruction in the area of foods and nutrition. This instruction would be more effective if it would be geared specifically toward boys.

The home economics teacher must be aware of the differences in psychological make-up, needs, and skills of the male student as compared to the female student. The boy approaches the study of nutrition as related to his particular interests, not necessarily out of necessity. (29). These interests may include: athletics, space travel, chemistry, math, wage-earning, or a very normal and healthy appetite. The home economics teacher may utilize these interests to reach the individual students.

The writer has found that with the growing pressure upon the home economics teacher to teach boys' classes, there is great apprehension on the part of the teacher. As indicated in the survey (Appendix B, Page 79), these feelings were a result of many things: a lack of resources and materials designed for teaching boys' classes, and a basic lack of understanding on the part of the teacher, of the needs of the male students as compared to the needs of their female students.

Hurlock (29), relates that by nature, the boy student tends to be more responsive to a variety of experiences, and enjoys more active participation in projects. He enjoys challenging experiences, and is more frank and straight-forward in his approach to problem-solving. This indicates much preparation on the part of the home economics teacher, in order to "tailor" her teaching to the needs of the boy student.

Through experiences in teaching boys' foods and nutrition classes, the writer believes that the boys appreciate and benefit greatly from a

variety of visual experiences, additional laboratory experiences, and from individualized instruction. This may be due in part to the "newness" of the home economics subject matter, and to the "natural" tendancy of boys to resist monotony. (50).

The writer was unable to find a definite course of instruction for boys included in any home economics textbooks at this time, which would aid in the development of educational media for teaching foods and nutrition classes at the high school level. The writer realizes that schools vary widely in resources made available to the home economics teacher, but feels that all home economics teachers can and should be knowledgeable of the educational media available commercially, and that which she could develop herself. An ever-increasing variety of audio-visual media is available, and teachers need to familiarize themselves with new developments in order to use them constructively in their teaching. (62).

Many teachers refrain from using media because they are unfamiliar with new developments and hesitant to take the time to learn how to use the media effectively. (1). Research is particularly lacking in the field of home economics, and the materials developed in this study should help to encourage home economics teachers to keep up with the developments in media and to pursue developing some on their own. It is hoped that not only would the individual students benefit from the work of the teacher in developing and using media, but that the teacher would benefit from the experience as well.

The writer became interested in developing educational media to use in her own boys' foods and nutrition classes which were taught in a flexible modular scheduled high school. (2). Other home economics

teachers involved in modular scheduling, expressed a desire to have suggestions for commercially available programs as well as help in developing their own.

These teachers had been able to find very little background materials for use in boys' classes, and most stated that the commercial materials already developed in foods and nutrition, related so strongly to the needs and interests of the girl student, they were not effective when used with a boys' class. A desire was expressed to have materials which were "tailored" to boys' classes. These materials included film loops, slides, textbooks, and programed materials.

The writer suspected that through the developing of the afore mentioned materials to meet specific student needs, the teacher should, in the process, become a better organized, more effective teacher. Developing programs of instruction, requires careful planning and defining of objectives. To develop effective media, the teacher must decide these things. (39).

1. What is it that we must teach?
2. How will we know when we have taught it?
3. What materials and procedures will work best to teach what we wish to teach?

On the basis of a personal interest in the teaching of boys' home economics classes in foods and nutrition, a desire to become familiar with the educational media in use today, and finally, to find meaningful ways of communicating with the individual student, the writer chose to pursue the development of sample educational media which is "tailored" to teach foods and nutrition to high school boys' classes.

Statement of the Problem

The purpose of this study was to develop samples of educational media for teaching boys' foods and nutrition classes at the high school level, and to give suggestions for the use of the media, as well as a list of the commercially available materials in each of the three areas selected. These areas included: 8mm film loops, programed instruction, and slide series programs.

The objectives of this study were:

1. To review information gained from the writer's own teaching experience with boys' foods and nutrition classes, and to identify some of the students' needs in order to determine appropriate teaching techniques utilizing educational media.

2. To analyze and select significant needs of home economics teachers in twenty high schools involved in flexible modular scheduling, in relation to the educational media used to instruct boys' foods and nutrition classes.

3. To research and become knowledgeable of the types of educational media in use today and to develop samples of selected media for use in teaching boys' foods and nutrition classes.

4. To review and include a list of the commercial materials available in each of the selected media, in the area of foods and nutrition, which may be appropriate for use in teaching boys' classes.

5. To prepare educational objectives which communicate and provide a sound basis for the selection of educational media for use in teaching boys' foods and nutrition classes.

6. To give suggestions for the use of the sample media in developing course content for a boys' foods and nutrition class.

Delimitations of the Study

The study was limited to boys' classes in foods and nutrition at the secondary level. The survey (Appendix B, Page 79), which was used

as background for the study was limited to the home economics teachers in twenty flexible modular scheduled high schools in Colorado, New Mexico, and Nevada.

The study was limited to three types of educational media materials: (1) 8mm single concept film loops, (2) programed instruction, and (3) 35mm slide series programs. These programs were developed as sample programs only and were not to test the effectiveness of each media used.

The fifteen areas within a foods and nutrition unit were selected from the Oklahoma, Missouri, and Colorado State Guides, and used in the survey sent to the twenty flexible modular scheduled high schools. These particular areas were chosen as they were thought by the writer to represent the variety of concepts which might be taught within a boys' foods and nutrition class. The teachers were given an opportunity to list any other areas they deemed important.

The media chosen by the writer are those which are considered by the writer to most likely appeal to the mind and interest of the male student. The sample programs are intended for use both in large group instruction and in individualized study projects. It is believed that these types of programs will be effective both on a flexible modular scheduled program and on the traditionally scheduled program.

Definitions of Terms

Educational Media (sometimes referred to as audiovisual instruction or educational technology) refers to any type of instruction which utilizes visual or audio materials and devices to stimulate learning. (49). For the purposes of this study, educational media will refer to 8mm single concept film loops, programed instruction, and 35mm slide

series programs.

Survey as used in this study will refer to a general or comprehensive view taken by home economics teachers in modularly scheduled high schools, at the boys' foods and nutrition classes which they were teaching. This survey is in the form of a questionnaire.

Individualized Instruction (sometimes referred to as Independent Study, Self-Pacing, or "unstructured" study projects), (2), refers to the organization of instruction to provide for differences in individual students' interests, abilities, and needs. The home economics teacher works with the student individually and allows the student to pursue a study in depth. The programs developed in this study can be used for individualizing instruction of boys in home economics classes.

Flexible Modular Scheduling as referred to in this study is the process known as the Stanford School Scheduling System. (2). This study was launched in 1960 and the school where the writer previously taught was one of the pilot schools. The school day is divided into modules of time. Each teacher and department is responsible for deciding the structure of their particular classes. The length of classes, numbers of meetings, sizes of classes, room designation, etc. is fed into a computer. The computer generates the final schedule for each teacher and pupil. The programs developed in this study can easily be utilized in a flexible scheduled school for individualized instruction.

Open Laboratory refers to designated laboratory facilities used by students within necessary time restrictions to complete performance goals or for individualized instruction. For the purposes of this study, the open laboratory will refer to the home economics classroom in the secondary school. The media developed in this study is oriented

toward use in the open laboratory. A home economics laboratory is considered "open" when there are no structured or scheduled classes going on at the same time. (2). The teachers are available for help.

Instructional Objectives are used in the teaching process to communicate an intent with a statement describing a proposed change in a learner. This is a statement of what the learner is to be like when he has successfully completed a learning experience. In this study, these objectives will refer to those which served as a basis for the development of the educational media. (34).

Programed Instruction is a means by which information is provided for the pupil in bit-by-bit, step-by-step sequences. (22). The student is led through a carefully planned sequence of material to a desired type of behavior. The student must respond frequently to questions or stimuli, and his responses are immediately reinforced by the revelation of the results of his answers. Each segment of information is referred to as a "frame", and the entire sequence of material is referred to as a "program". (32).

Scrambled Programs (sometimes referred to as "branching" or "intrinsic" programs),(41), are those programs in which the student reads a segment of material and then chooses one of two, three, or four answers to a question. If he chooses an incorrect answer, he is sent to a new page explaining why it is incorrect and told to go back and choose again. If he chooses the correct answer, he flips to a new page for new material. This is the type of programed instruction used in the two programs developed for this study.

8mm Single Concept Film Loops (sometimes referred to as continuous loop films, or 8mm motion pictures) are short movies made with 8mm film.

The films are usually two or three minutes in length, and deal with a single concept, demonstration, or topic. (60). The student's attention is focused on a basic point, isolated from irrelevant distractions. Super 8 film is now being used widely to allow space for a larger and a clearer picture image. (47). Super 8mm film was used in the film loops developed for this study.

Slide Series Program as used in this study will refer to the use of 2 x 2 to 3 1/4 x 4 inch photographic transparencies in cardboard mounts. These slides may be arranged in sequence to demonstrate a step-by-step process, or grouped to illustrate a specific concept. (11). For this study, a series of slides were taken by the writer and put into the form of a program with a script written to explain and clarify the pictures as they are shown. The pictures can be of actual objects or people, or can be animated by using pictures drawn or taken from magazines, and photographing these. The pictures are in color and can be used with group or individualized instruction.

Procedure

This study was developmental in nature and the following procedure was used. A questionnaire was developed to determine types of educational media currently being used by selected home economics teachers in teaching boys' foods and nutrition classes. Another objective of the questionnaire was to determine if there was a significant lack of materials oriented toward teaching boys' foods and nutrition classes, and to determine which educational media the teachers were most interested in receiving ideas for and using. The short questionnaire was sent out to home economics teachers in twenty high schools in Colorado, New Mexico,

and Oregon. Each of these schools were currently on flexible modular scheduling and each home economics teacher was currently teaching a boys' foods and nutrition class.

The information received in these questionnaires, a review of the current commercial materials now available in the area of home economics, and a review of literature related to recent developments in educational media was used as a basis for the selection of specific programs to be developed in this study.

Early in the fall semester, the questionnaires were sent out to the twenty schools who had agreed to participate in the study. The twenty questionnaires were all returned, and on the basis of the answers, the writer selected the sample programs to be done in this study.

A review of literature was done to determine new developments in educational media, to identify commercial materials available, and to review media used to teach high school foods and nutrition classes in the past.

Selected readings relating the psychological-learning characteristics of boys as compared to girls, was used as a basis for determining instructional objectives and experiences.

Extensive background reading on the development of 8mm single concept film loops, programed instruction, and the development of slide series programs, was used as a basis for the development of sample programs of each of the listed media. Literature involving the preparation of instructional objectives was used as a basis for the development of each of the sample programs. The guidelines developed by Gould (25) for developing audiovisual instruction, was used as a reference in each of the programs.

A sample program was developed in each of the three medias described: 8mm single concept film loops, programed instruction, and a slide series program. These programs will be tested in several high schools on flexible modular scheduling, but the results of the testing will not be included in this study.

Through the recommendations and conclusions of the study, the writer attempted to encourage more home economics teachers to develop their own educational media, and to "tailor" media for the teaching of boys' foods and nutrition classes at the high school level. This study was oriented toward the individualization of instruction by the home economics teacher. (16).

Organization of the Study

The report of this study is organized into four chapters.

Chapter I presents the background of the problem, statement and description of the problem, objectives of the study, and the delimitations of the study. Also included is a definition of terms, procedure, and the organization of the study.

A review of literature is contained in Chapter II, pertaining to methods used to teach boys' classes as compared to teaching girls' classes, methods used to teach foods and nutrition classes at the high school level, methods of individualizing instruction, and a review of the development and role of media in home economics education.

Chapter III relates the methodology of the development of specific educational media which includes 8mm single concept film loops, programed instruction, and a slide series program. The basic concepts and the behavioral objectives for each program, as well as suggestions for

the use of the media developed, in course content are given along with a review of the available commercially produced media in each of these three areas.

Finally, the summary, conclusions, recommendations, and implications are presented in Chapter IV.

CHAPTER II

REVIEW OF RELATED LITERATURE

Literature related to the teaching of foods and nutrition at the high school level indicated a common opinion of the importance of this subject matter to the high school girl, but the writer found that the high school boy was not mentioned other than just a passing comment. A review of literature also revealed a preponderance of media developed in many subject matters, but limited in the general area of home economics. In reviewing the media catalogues and secondary home economics foods texts, the writer was unable to find any media developed specifically for teaching boys' foods and nutrition classes.

Individualizing Instruction

It seems reasonable to assume that some of the activities in the learning process can be best accomplished by the student independently. Not only does this save some of the teacher's time, but it makes the learning more effective by requiring the student to participate in the learning process, as well as allowing the students to progress at their own rate. (4).

Allen and Bush (2) discuss the reaction of students to independent study time in the flexibly scheduled schools.

> "The great majority of students, evidently, when provided with an opportunity for individual initiative, want to make the most of their school experience. The open laboratory which

> an arrangement whereby students, with their teacher's approval, may use laboratory facilities as their time permits, is particularly beneficial for those subjects which depend on performance with established levels of quality as criteria. The student must accomplish well-defined learning tasks and individual student differences in the time it takes to meet these performance criteria are automatically provided for."

The need for curricular reform in the high school is unquestioned; demand for change is in cresendo. (59). If the holding power of the school is to be strengthened to compete with the outside attractive attention-getting media as television, radio, and movies, a new type of teaching is called for. (54).

Students in all subject areas need to go beyond acquiring essential and presently accepted data, to develop new ideas, models, and interpretations. Programs which provide opportunity to try out new techniques, compare techniques, and encourage the student to go farther in his studies, tend to develop the maximum potential of inquiring minds and creative independent study. (33).

Allen (3) states that during the past thirty years, a tremendous amount of research has accumulated "demonstrating conclusively that audiovisual instructional materials, properly used, can make significant contributions to learning over a wide range of conditions and subject matter content." As students are given more responsibility for their own education, they should also learn to test themselves in order to evaluate what they have learned or failed to learn. (15). "Independent study provides an excellent experience for instilling the desire for continuous learning, which is a desirable lifelong value." (15).

Individualizing Instruction with Educational Media

Changes in a society usually bring changes to its institutions,

including education. (21). Problems arising from the increasing numbers of students, seriously faced in the 1950's, led to massive building programs and to experiments with such innovations as flexible scheduling, teaching teams, teachers' aides, and educational television. The almost constant attempts to improve school curricula were intensified and changed in direction after 1957 when Sputnik apparently led to publicly equate national survival with an increase in "subject matter content." Following Sputnik, the Federal government greatly expanded financial aid to education. (7).

Wittich and Schuler (62) discuss the significant trends which may be regarded as resulting from the impetus of all the federal funding. There is a resulting emphasis upon innovation in curriculum, methods, staffing, resources, and instructional organization. The increasing attention in our schools to provide many forms of individualized instruction is reflected in varied uses of the computer to store, compile, and retrive data concerning students-their interests, capabilities, previous experiences, performance, or special needs. (45). It is widely believed that the dream of "the best for each" may be only achieved through such means. (54).

Educational media should not be viewed as a threat to teachers. Media is not designed to replace the teacher, but to make her job easier and more effective. (62). The teacher can be free to work with individual students and ideas. The effectiveness of the media depends upon the teacher's abilities. She must plan, select, and prepare the appropriate media to stimulate learning or to produce desired changes in student behavior. (45). Because of the tremendous diversity in abilities and interests of the large groups of students, individual instruction has

become the great concern of educators in all fields.

Using Educational Media To Enhance Home Economics

Home economics classes evolve around basic ideas and generalizations which lend themselves easily to different types of educational media. (48). In order to teach the various areas of home economics effectively, definite concepts and instructional objectives must be developed by the teacher. (5). There is much opportunity for individualization of instruction in the laboratory situation which is typical of the home economics classroom. (16).

Educational media materials help in developing understandings; experiences which are otherwise unavailable to students in the classroom can be provided with the use of media. With the changing face of society, the teacher must compete with many outside classroom diversions in order to stimulate the minds of the students. The home economics teacher has a tremendous task in aiding students to become knowledgeable of the multitude of products on the market, both for consumption and and preparation. (15). Consumer education is rated as one of the most important responsibilities of the educational system in the United States, and the bulk of this responsibility falls to the home economics teacher. (16).

Wiman and Meierhenry (61) discussed the increased range of student abilities which provide cause for teachers to develop newer media. Eighty years ago, education beyond grammar school was the special privilege of relatively limited numbers of individuals in our society. But in each decade since then, the number of students who continue onto

secondary and higher education has multiplied. Changing social concepts, improved economic conditions, and the increased educational requirements of our own more complex, industrialized society, have kept many students in school who formerly would have dropped out or been excluded for lack of aptitude or interest. (52).

As a result of these developments, teachers need instructional materials and techniques for use with groups containing individuals of widely varying abilities. The teachers also need materials which provide individualized instruction that requires only minimum teacher participation or assistance. The home economics teacher must divide herself among several different subject areas during the average school day, and media which could be used by students individually could save her much time and effort. (16).

Teacher Education in the Use of Media

In this electronic, atomic world, teachers and the school program compete with a constant flood of audiovisual experiences outside the school. Even small children enter school for the first time with as much as 3,000 to 4,000 hours of television viewing behind them. (46).

Both adolescents and adults face constant demands for attention from various mass media. Writers and commentators work to influence their opinions with advertisements of goods, services, and worthy causes compete for possible purchases or gifts from persons in all walks of life. The average American listens as many as four to six hours each day to various forms of expertly prepared mass communications. As a result of all this attention (including many media contacts that are not consciously "educational"), the entire public, among which are teachers

and students, learns a great deal. (9).

These many contacts with skillfully prepared media productions outside of formal education, lead students to expect high technical quality in media presentations and teacher presentations in the classroom. (17). Thus, teachers must be well prepared and highly organized, with their objectives clearly defined and with materials carefully selected or designed to assist students in achieving these objectives. (35).

One of the greatest challenges to teaching, arises from the current rapid expansion of knowledge. Man today is discovering, classifying, and recording new information at a phenomenal rate-essentially doubling our fund of knowledge every ten years. (54). No one can even faintly imagine an end to such discoveries, so a problem of primary importance for teachers is to keep up to date on new knowledge. They depend more and more upon professional compilers and interpreters of knowledge-people who read basic sources and prepare secondary materials about them. These include the writers and producers of our textbooks, films, filmstrips, dramatized recordings, teaching kits, and programed materials. Thus, the professional teacher must know and use dependable sources of information about available materials, and develop skills in applying criteria to assess their accuracy and validity. (24).

Marshall McLuhan has emphasized the importance of studying various media of communication to determine their special capabilities for conveying certain kinds of messages. (30). Teachers, he says, should carry out constant "audience research", analyzing available materials to determine their appropriateness for definite purposes and for individual students. This, in effect, is the promise of modern instructional technology: it can help to optimize the ways of communicating

with and instructing students on an individual basis. (6).

Several other views on this matter deserve mention here. Philip W. Jackson of the University of Chicago pointed out that educational technology can improve the quality of education through (1) greater individualization of instruction, (2) a greatly enriched library of teaching materials, and (3) possible cost reduction. (26).

Richard L. Bright (8), testifying before a congressional committee, also emphasized that "the major thrust in educational research today is toward the goal of truly individualized education". Describing programed instruction and the computerized classroom as the best means of achieving individualized instruction, he cautioned that educational media cannot develop the capability of the student to communicate effectively with other people. It cannot train the pupil to originate ideas, or talk confidently before a group. The fundamental consequence of educational media is that a teacher should never stand in front of the class presenting material. Rather, he should be the leader of a discussion group in which his objective is to get the students to talk and express their ideas, or he should be available for personal instruction in helping students with independent study projects. (61).

Still another view, that of Kenneth D. Norber, (46), is that the newer educational media are means which will be accepted or rejected as means to ends. People who try new tools do so to accomplish new tasks or to perform old tasks in a new and possibly better way. These are not just strong and ingenious tools; they are also means that will be used to accomplish some purpose beyond their own use. They challenge educators to take another look at their goals, both explicit and implicit, to determine whether the goals are still sound, to decide

whether the new media will help to implement them, possibly to change the course of the instructional program as well as the lives of the teachers and students who are involved. (33).

Three of the types of educational media which are of particular significance today are: 35mm slides, programed instruction, and 8mm single concept film loops. Teachers can purchase these commercially or with little training and experience, develop them on their own. These three forms of media are well suited to mass instruction and/or individual instruction. Slide series programs are quite effective, particularly with the new developments in film and projectors, and can be used for any purpose the teacher has in mind. 8mm film loops and programed instruction are particularly effective in individualized instruction. (45). A discussion of each of these three media follows.

8mm Single Concept Film Loops

The 8mm film loop is a short, silent motion picture. Sound can be added to the loop if desired, but the majority of 8mm film loops are used silently with accompanying scripts or programs for the student. Each film loop deals with a single concept, demonstration, or topic. The content is concise and it's intent is to focus the student's attention on the basic point, isolated from irrelevant distractions. (47).

The inherent characteristics of 8mm film makes it possible for it to become a prime tool of educational instruction rather than a supplementary aid. The compelling visual power of motion pictures allows them to do many jobs effectively. (18).

Forsdale (18) says that 8mm film will help revolutionize the uses of the moving pictures in education--changing every aspect of the pro-

cess, from the kinds of films which are made to the manner in which they are acquired and used. The combination of the single concept reference linked with conciseness and brevity will make film loops an exceptionally effective teaching tool. (9).

For more than a half-century, pictorial media have had an established place in the American classroom, but the motion pictures previously used have been on 16mm film. (14). There are certain disadvantages to the use of 16mm film in the classroom. It requires a darkened room, and the projector is difficult for some teachers to manipulate. They are excellent for the presentation of ideas in which motion is necessary, but the 8mm film has many advantages over the 16mm.

The process of using the 8mm film loop is an extremely simple one. The projector is simply plugged into any regular electrical outlet, the plastic cartridge in which the film is encased is pushed into a slot in the 8mm projector, the knob is turned and the film is on. To stop the film, simply turn the knob to the "off" position. (60). The film loop is continuous and can be run over and over again; it never needs to be rewound. The film is permanently enclosed in the plastic cartridge. No threading is required and fingers never touch the film. (23).

There is also great ease in storing and protecting the films from dirt and damage. Two or more cartridges may be used for concepts requiring more time. Both teachers and students are finding 8mm film loops fairly easy to produce on their own. (56). If the teacher does not desire to enclose the film in a continuous loop, the film can be retained on a reel and shown on a 8mm film projector which requires the threading of the film. In this way, it is easy for the teacher to splice out outdated portions of the film and make additions. This is

sometimes a more practical use of the 8mm film if the subject matter changes constantly, requiring frequent changes in demonstrations and materials.

Although film loops can be purchased with sound tracks, the teacher can develop an accompanying tape for the film loop. This allows the teacher to present the materials so that they best fit into the teaching program. It avoids the drone of "canned" instruction, and allows the teacher to place emphasis as desired and to adjust the presentation to a variety of student levels. (26).

Commercially developed film loops are usually accompanied by film notes. They describe the contents of the film in an inclusive, straightforward manner. These notes are written by the author or a comparable authority and are permanently attached to the case to guard against their loss. For those loops which do not have the film-notes, the teacher could and should, develop a set of her own notes to provide more effective instruction for the pupil, and to keep for the future. (46).

The cost of 8mm film is much lower than that of 16mm film. For the price of one conventional 16mm film, the teacher can purchase between twelve and sixteen cartridged film loops, or a film loop projector and about six cartridged film loops. Almost all new film loops are Super 8mm film, which gives a markedly superior picture to "old" regular 8mm film. (54). Very few regular 8mm film cameras or projectors are being sold today as the Super 8mm cameras and projectors are gaining in popularity both in schools and the home. (61).

The use of film loops enable the teacher to be sure that every student clearly sees every demonstration. Film loops are effective for showing experiments or techniques to large or small groups. Skills and

techniques loops ensure student familiarity before actual laboratory examination. (56). Many schools also make the loops available in the laboratory, permitting students to refer to them for help during experiments or practicing of techniques. This allows the instructor more time and makes it easier to work with large groups. (56).

Commercial film loops do cover a wide variety of material, showing situations and phenomena which are usually difficult or impossible to have observed by students (for example--the following of the basic nutrients into the metabolism of the body could be animated and clearly understood by all). (8).

Other advantages of the 8mm film loops are that they are instantly available. The teacher can show them at the precise moment when they fit in best with his own teaching. They are under four minutes in length so that a number of them could be used in a single class period. Only the teacher or the student controls the level and relevance of the commentary. With rear view projection, the teacher doesn't have to darken the room, yet a picture large enough for the entire class to view can be shown. (18).

The film loop can be used to springboard class discussions; clarify and review important concepts; show events which may be historical or geographically inaccessible except in film; give each student a ringside seat at a demonstration or experiment which is too difficult, time-consuming, or costly to perform live. Rear-view projection makes possible individual viewing in a small area, such as a carrell in a library, home economics laboratory, or audiotutorial laboratory. (56).

Although the first 8mm films produced were all commercially done, more and more teachers are finding it stimulating both to themselves

and to their students to do the filming themselves. Innovative producers of film--both commercial and classroom teachers--are now free to use the developing 8mm film medium in ways previously unrealized.

Slide Series Programs

One of the most versatile of all educational media is the slide series. The flexibility of slides is one of their principal advantages for teaching. Slide sets can be tailored to fit individual school situations. A slide added here or omitted there may be what is needed to produce a sequence closely tied to the special needs of one class. (33).

Teachers are able to select the slides they wish, eliminate others, and show them in any desired sequence. Slide sets may be revised simply by replacing outdated pictures with newer materials. Locally produced slides are often added in this way to round out the content of commercial slide sets and give it local significance. (11).

The slide is an effective instructional device when motion is not of prime importance. Slides can be projected on the screen for an indefinite period of time which enables the teacher and the class to point out and discuss in detail, items appearing on the screen. (47). Slides can be used successfully with both large and small groups, and more and more, they are being used for individualized instruction. (30). The slide can be used to simplify presentations and to clarify points in discussions and lectures. The student can refer back to the slides individually if he misses a class or if he wishes to review the material on his own.

The effectiveness of a slide presentation to any size group has been improved by good quality, remotely controllable projectors, and

daylight rear-projection screens. The necessity of student handling of individual slides has been eliminated in the audio-tutorial carrels with individual slide projectors utilizing trays for handling slides. (11).

There are many uses for slides in education. They may be used in public relations to portray and interpret the school to the community, to record field trips, demonstrations, class projects, daily experiences, and to compare past and present experiments. (9). Commercial slide sets are available at all levels, and a teacher who has access to a 35mm camera can produce his own slides to complement his instruction.

The price of developing slides on one's own in comparison to the commercially developed slides depends on the materials used in producing the slides. If the teacher buys many extra materials to film, the price of the entire program goes up accordingly, but it is not necessary to spend a great deal of money. The teacher can use students as subjects of many of the films, and materials already in the department . The animated pictures can be produced cheaply by tracing or drawing desired pictures on white tissue paper with colored pencils, or by using colored construction or wrapping paper. Interesting backgrounds can be obtained by the use of glass, aluminum foil, or a wall.

The initial cost of the film is not excessive if the teacher is taking pictures which will not be outdated in the near future. The big expense is the 35mm slide camera and the slide projector. These too, would not be expensive in the long run if the teacher utilizes them frequently. (33).

As schools move more and more toward individualized instruction, many classrooms are incorporating the equipment and facilities for the viewing of slide series programs by individual students. (9).

Programed Instruction

Programed instruction is available in many forms today-a long journey from the first testing machine invented by Dr. Sidney L. Pressey in 1924. (40). The variations today include very simple mimeographed booklets, tape recorders, computers, motion pictures, and slides. Teachers have long been in awe of programed instruction and have hesitated to recognize it for what it is--a method of teaching which, like other methods, has advantages, disadvantages, and specific uses. It would be to the teacher's benefit as well as the students, to become familiar with the forms of programed instruction and to incorporate it into her own classroom in some manner.

Programed instruction repeats information over and over much as a tutor might do in private instruction. (27). A program is designed to produce specified changes in student behavior by specifying objectives and stating them in behavioral terms. The student must understand a point before he can move to the next point, but he can progress at his own rate.

Because good programed materials require hard decisions concerning what is essential and what is trivial in the learning assignment, and demand equally difficult decisions concerning the most effective manner of introducing the elements of what is to be learned, it is possible to eliminate wasted effort and to direct effort more efficiently toward the central problems of learning. (27).

The use of programed instruction also makes it possible to save time which is usually wasted when students listen to recitations and detailed explanations which they do not need to hear because they

already "know" the materials and are ready to proceed to the next task of the assignment. (9).

One of the most widely used forms of programed instruction is the programed booklet. These booklets deal with a small and related amount of material. The material is presented bit-by-bit so that the student must learn each concept before he can proceed to the next. The teacher can use her own imagination combined with the definite behavioral objectives of the program, to write an interesting and relevant program. The booklets can be used in combination with other forms of media as: 8mm film loops, slides, demonstrations, laboratory experiments, etc. When programs are used in such combinations, they are usually referred to as "adjunct" programs. The teacher can incorporate a great deal of variety into the program and gear it to the specific interests and needs of particular students. (35).

There are two main styles used in writing the programed booklets. These are referred to as linear and intrinsic. Both programs have as their objective, to produce and permit efficient individual study by a student independent of organized class groups and without the involvement or intercession of a live instructor. (44).

Markle (41) described the differences in linear and intrinsic programs. Intrinsic programing bases its technique upon the singular or specific technique, while linear programing capitalizes on a particular theory. The single-path sequence in which all students read and respond to the same material, is called the linear, or Skinnerian program. (22). The basis of the linear theory is that a desired change in behavior, or learning, can best be brought about by inducing and then rewarding the desired behavior in a similar manner in which an animal is trained. (27).

The linear style of program is very simple in format. First, small bits of material are presented, and the student must make a response. His response can then be compared to the correct response by sliding down a mask or by turning a page. The student feels rewarded when his answer is correct and learning takes place. By linear theory, errors are irrelevant to the learning process and thus the students make very few errors. (48).

The other popular style of programing is known as the intrinsic, or the Crowderian program. This type of program is made up of many paths or branches; thus the programs developed by this technique are commonly referred to as branching programs. Often this type of programing is presented in a scrambled book form. Each page of the book relates a certain amount of material to be learned, and is followed at the end of the page with a question designed to test the point just made. Each of the answers have a page number reference beside them. After answering the question, the student turns to the page number given for his answer. The pages are scrambled in order so that the student can't look ahead for answers, ignore the question, or become bored with the program quite as fast. (12).

The intrinsic technique is based on the idea that the material a particular student will read and learn is determined by his pattern of response. Those students who make more errors are automatically exposed to more material than those making fewer errors. The student's answer to the multiple choice question leads him to new material as he is ready for it or gives more detailed explanations when he has misunderstood or not learned the material sufficiently. (40). This type of program can be combined with linear questions if desired. Still

using the scrambled format, linear questions can be inserted occasionally to break the monotony. The teacher developing the program can also include drawings, pictures, or experiments for the student to do while completing the program. The possibilities for this particular media are limitless and more and more teachers are beginning to realize the value of programed instruction and are using commercial programs and/or developing programs on their own. (40).

The Use of Media in Teaching Foods and Nutrition

The methods used to teach foods and nutrition classes have come a long, long way. There has been some hesitation on the part of the home economics teachers, as has been by teachers in other fields, to use the newer media because of a natural resistance to change, a lack of preparation, and a basic lack of understanding of unfamiliar methods. Reluctance to use newer media can be attributed to the teachers' feelings of inadequacy and insecurity when they face new techniques without having had adequate training in using them. (61).

Home economics teachers have begun to acquire more preparation in using media-partly due to the legislation in some states which requires training in audiovisual instruction by all student teachers. (43). In-service classes are being offered to teachers in all fields to learn to utilize educational media more effectively, and many businesses and companies who produce products used commonly by home economists, have designed programs using media to use in the classroom. (43).

Public service companies, companies producing food products, and local food merchants, have been spending more and more money producing visual and audio programs incorporating their products into an educat-

ional vein. (42). A brief look at the history of media used in teaching home economics and foods and nutrition classes, helps one see how educational techniques and methods have developed at not so rapid a pace as has the technology in food science and food production.

In as much as the provision of food and the activities associated with feeding the family are a traditional function of the home, it is natural that food and nutrition have always formed a significant area within the field of home economics and deserves equal quality of teaching techniques. (36).

The earliest media used to teach foods and nutrition was that developed by Catherine Beecher, who was professionally active between 1830 and 1875. She wrote A Treatise on Domestic Economy in 1841. (28). This became the first textbook in the field to be recognized by a state board of education (Massachusetts). To help the intelligent layman select and use food wisely, an early publication came from the pen of Atwater in 1901. (17). It was entitled Principles of Nutrition and Nutritive Values of Food. This publication was the forerunner of many food and nutrition bulletins to come from federal and state agencies to service the diverse educational and welfare programs offered to the public.

Many valuable materials have also been prepared by teachers, the Red Cross, the food industries, and other groups. (19). The private preparation of foods and nutrition texts and reference materials has been a relatively late but an important continuing development. (37).

One of the significant recommendations for action made at the 1967 Nutrition Education Conference (36) was to "Develop more effective means of using mass media in nutrition education." State guides have been developed periodically to give resource materials for teaching foods

and nutrition. The learning experiences and activities have been very similar for the past ten to fifteen years. (20). Most of the programs suggested are for mass or large group instruction, and practically nothing has been done to individualize the instruction. No materials have been developed for teaching boys' classes in foods and nutrition as far as the writer could determine. The majority of materials developed for home economics are written specifically for teaching girls from junior high level through high school level. The media used most commonly in the state guides of Oklahoma, Missouri, Colorado, and Oregon were the 16mm films and textbooks. (19).

The Oklahoma Foods and Nutrition Guide (20) discussed the teaching aids or media necessary for presenting a successful foods and nutrition unit.

> "Current magazines and newspapers are indispensable aids in this area. Business concerns which loan articles or permit classes to visit their stores and businesses, and professional people who talk to the classes, are constant sources of teaching aids which can help students in recognizing problems and developing judgment. In addition to books, pamphlets, and 16mm films, the homemaking department should have a variety of other teaching aids for "Foods and Nutrition" units. These might include charts, posters, food models, etc."

Missouri's State Guide for Foods and Nutrition (19), includes such aids or educational media as large group discussion, small group discussion, skits, radiograms, 16mm films, debates, "buzz groups", field trips, and guest speakers. Similarly, the Colorado State Guide for Foods and Nutrition suggests including student demonstrations, observations of T.V. programs, and panel discussions.(15).

Gradually, other schools are attempting the use of newer and more motivational media. The idea of developing a self-instruction laboratory to take the place of the conventional laboratory demonstrations

and explanations that are normally a part of beginning foods classes was originated at Syracuse University. (56). A variety of self-instruction materials were used, and the students were allowed to proceed at their own pace. Many of the materials were produced by the teachers themselves, i.e. slides, film loops, and audio tapes. It was found that the students watched and listened more intently and quietly than in a lecture-demonstration session. They proceeded with fewer questions, and there was much less confusion in the foods laboratory. That the students enjoyed the multi-media approach was reflected both by their written evaluation of the course and their general behavior and comments.

Foods and nutrition textbooks have been continuously revised, to attempt to keep up to date with the rapidly changing attitudes and interests of people toward food. Wars, depressions, space travel, and the emphasis on physical fitness have created much greater interest and demand for knowledge in the area of foods and nutrition. (42).

Shank, Fitch, and Chapman (56) place much of the text materials of a technical or directional nature in chart forms with reference tables and illustrations for clarity. Both photographs and drawings are used for instruction as well as for classroom discussions. Very few of the photographs used in foods textbooks include pictures of boys. Mixed groups are included in several texts to emphasize entertaining with food. The suggestions for media to use with the text include filmstrips and 16mm films, but do not suggest that the teacher develop any of the media on her own.

McDermott, Trilling, and Nicholas (38) feel that much of the subject matter of foods and nutrition is particularly adapted to audio-visual presentation. This text contains suggestions of films and still

pictures to demonstrate kitchen and household management, food preparation and preservation, the chemistry of nutrition, and such subjects as meal planning, table setting, and entertaining. The illustrations are suggested for use with the opaque projector, and educational television programs are suggested for strengthening the program.

To date, few texts include suggestions for approaches to individualizing instruction. This idea is just beginning to take hold, and it is anticipated that foods texts in the near future will be geared toward this objective. Fleck (17) suggests that home economics teachers must adjust to the growing importance of this field of study to both girls and boys alike, and make their programs more flexible in order to accommodate these varying interests and needs. The role of man in our society is rapidly taking an about face and the home economics teacher can contribute a great deal to his adjustment to this change of role.

The Changing Role of the Male

In recent years, the concept of the role of the male in today's society has changed radically. (28). The result is that adolescents today have very different concepts of the father's role than their own fathers have. The teen-age boy of today is influenced by mass media as well as by his own experiences. He thinks of a good father as more permissive in his attitudes and treatment of his children; as just, controlling his children by love rather than by fear or harsh punishments; lots of fun to be with, mild, and reasonable in his demands; industrious; interested in his children and willing to do things with and for them; involved in many homemaking tasks; (58) a good example for them to imitate; The boy thinks of his father as sharing the wage-earning with

the mother in many instances as well as much of the child-rearing tasks. Father still makes the important decisions but shares in many of the lesser important ones as: selecting the meat for dinner, shopping for bargains, and the preparation of meals. (9).

Quite often, boys aren't treated as fairly as girls in the classroom. (50). In the series of studies recently reported in the National Elementary School Principal, published by the National Education Association, countless teachers, the overwhelming majority of whom are women, expect boy pupils to behave, react, and learn like girls. Even though frequently unaware of it, many of these women teachers value neatness and cleanliness above individual initiative. They prefer conformity, mental passivity, and gentle obedience-at which girls excel-to the aggressive drive and originality of many boys. (50).

It has been found that even in the secondary schools, men as well as women teachers generally use a harsher or angrier tone of voice when scolding boys. Girls are criticized in a more normal tone, Dr. Robert L. Spaulding found in a two-year study for the United States Office of Education. Pauline S. Sears, Stanford University education professor, who has intensively probed the problem, concludes: "Quite possibly, the harsh tones intended to cause boys to conform actually foster a defiant, independent attitude which reinforces the very behavior the teacher wishes to subdue." (50).

The "trouble" caused by many independent, questioning boys, results from their not being able to adjust to a classroom's institutional aspects. High school too often is based on being able to sit at a desk and listen-which many restless boys find difficult.(4).

University of Minnesota educational psychologist E.P. Torrance,

suggests that girls receive their higher academic rewards because of their conforming behavior. It isn't that girls really achieve better than do boys in school-their teachers just think they do. "One wonders if girls receive the implicit message that creative thinking is for boys and conformity is for girls," asks Professor Sears. (50).

Pollack (50) discusses the inability or unwillingness of many teachers to recognize the difference in boys and girls in their styles of thinking and learning. In school, women teachers tend to ask questions and demand answers which favor female patterns of thinking. By contrast, a boy is more likely to question the purposes rather than the details of something. This questioning quality of boys often disturbs many women teachers. The woman teacher needs to become more flexible in her teaching and gear the methods she uses toward the specific needs of the different sexes. (46).

Studies by Harvard psychologist, Jerome Bruner, and others, reveal that the parents actually encourage greater aggression in their sons than daughters by reinforcing the "sex roles" stereotype. This aggression, in turn, becomes part of the boy's character-which often contributes to his classroom cacophony. (63).

A wise mother admitted, "Whenever my son shows an interest in cooking, I encourage him to experiment himself. I'm sure this won't make him a sissy, but just a better and more understanding husband and father." (50). Similarly, the boys respond well to such "feminine" tasks as child-rearing and consumer buying. Boys have shown great interest in tasks which fifty years ago were frowned upon as "not becoming" for boys. (57).

Many of the characteristics of the male of the western world which

do not seem to fit into the changed scheme of things, constitute the core of the problems faced by man in society today. (31). These radical changes are due in part to the transformation of the family of today from patriarchal to equalitarian. Urbanization and industrialization have radically changed the situation. There is a direct relation between the changing facets of man's life today and the need for change in educational techniques and media to cope with these changes. (57).

Sorenson (57) says that men now live longer, marry younger, and have more to do with household duties in general, than in the past. The hobbies of men and boys have expanded to include some homemaking skills, particularly those dealing with the selection and preparation of food. The stigma which was once associated with the man doing "feminine" tasks, is almost non-existant to date. Boys are not as hesitant to get involved in homemaking tasks and to take classes or other training in these skills.

Men and boys are more and more interested in the diet and its relation to physical fitness. Advances in space technology have included tremendous revolutions in the realm of food. (42). This link of food and nutrition with what is considered a very masculine role--that of space technology, has increased the interest of the high school age boy in learning to prepare and select food.

In educational research, there is no evidence that there is any degree of difference in intelligence of boys or girls. The only thing that has been discovered is that boys and girls differ noticeably in their special intellectual abilities. (29).

Boys tend to do better in those parts of intelligence tests involving numbers and science. Girls tend to be better in matters having to

do with languages. (57). Mudin (63) lists the cultural stereotyped characteristics of the male role. These include such adjectives as bold, vigorous, ambitious, courageous, daring, frank, self-confident, and effective in dealing with his environment. James (31) states that there is clearly a shift away from the designation of roles by sex and toward more cooperative participation by both parents in all of the essential functions of family life. What is male and what is female is a difficult question in today's society. A question of how to make the educational processes more oriented toward reaching these changing roles and needs is brought into focus.

The span of life and learning of men has been described by the Commission of Education of the American Council of Education (44) as being longer and "affording more opportunity for extensive study and for diversified occupations than has been possible for previous generations." The recognition of the need for preparation of men for their multiple role in today's economy is gaining momentum. The man of today is not only the wage-earner, citizen, and parent, but often part-time or full-time homemaker as well. With more and more women working outside the home, much of the responsibility in the home which originally fell to the woman, now falls to the "man" of the house.

More and more boys and men are seeking assistance in learning to cope with these responsibilities. A recent survey by Big Brothers of Oklahoma, showed that 32.8 percent of boy students in thirty-two Oklahoma City public schools come from broken homes or homes in which only one parent is present. This is 14.8 percent above the 1968 national survey average. Many of these boys and others in a more normal home situation, are seeking training in some of the skills previously allo-

to the women of society. In 1968, a survey of the Adult Education Program in Jefferson County, Lakewood, Colorado, indicated that the enrollment of males in what had previously been all-female classes, had risen twenty-five to fifty percent in the past three years. The programs which seemed to attract more males were mainly those involving food preparation. Reasons given for electing these classes included: a desire for vocational training in the food industry; the need to know how to prepare meals for their families or for themselves; and as a hobby. This was a strong indication of the need for organized instruction geared specifically to the needs of the male. (15).

Summary

Extensive changes in our society, in the educational system as a whole, and in educational media in particular, have affected major changes in the roles of teachers. Currently available learning materials are capable of carrying much of the teacher's responsibility for imparting information. With the variety of technological devices and new media now available, the teacher is freed to work more often with individuals or small groups and to serve in a tutorial capacity or as a necessary catalyst in small group discussions.

The teacher frequently uses media to perform those functions which do not require the human touch, while he devotes his attention to systematically organizing the total learning environment. Media, carefully evaluated and used in optimum fashion, are the tools of a truly professional teacher.

The home economics teacher is gradually reacting to these changes in educational environment and is using more and more forms of media

to impart the teaching of skills for transfer, for the retention of factual materials, and to stimulate individual student participation. Textbooks are being revised constantly to keep up with the rapidly changing interests and necessary information for the public. Media which was not heard of only a few years ago, is now being incorporated into the foods and nutrition textbooks as suggested approaches to more effective instruction.

The area of foods and nutrition is wide open and easily adaptable to the newer forms of media. 8mm film loops can be used in place of demonstrations to individualize instruction, and 35mm slide programs are very effective in bringing local color and interests into the classroom to both large and small groups. Programed instruction is coming into its own in the classroom and has been found to be quite effective in combinations with other types of media as film loops, slides, and student experiments. Each of these media can be easily developed for the class by the individual teacher with a little training. The teacher could benefit greatly by creating her own media and many schools are incorporating self-instruction laboratories into their home economics curriculum.

Few specific materials have been developed for the purpose of teaching boys' foods and nutrition classes. It is quite evident that the role of the male has changed greatly in today's culture and he is interchanging many of the homemaking tasks with the woman. Men have indicated an interest in learning to select and prepare food, for their families and as a personal hobby. Materials need to be developed which are geared toward reaching the varying needs and interests of the male student as compared to the female student. The challenge must be met.

CHAPTER III

DEVELOPMENT OF EDUCATIONAL MEDIA

The major problem of the study was to develop samples of educational media which would be effective in the teaching of high school boys' foods and nutrition classes. Results of a questionnaire (Appendix A, Page 79) used to determine the use and the needs of educational media by twenty selected Colorado, New Mexico, and Oregon home economics teachers was the basis of the selection of the media and the specific programs used. Results of the questionnaire, a discussion of the development of the sample educational media, and suggestions for use of the media in boys' foods and nutrition classes were included in this chapter along with a discussion of the researching and reviewing of the commercially produced 8mm film loops, 35mm slide series and programed instruction booklets.

Educational Media Questionnaire

To determine the appropriate educational media to be developed for teaching boys' foods and nutrition classes, the first step in the study was to determine the present uses of media and the needs of home economics teachers who were presently teaching boys' home economics classes. A questionnaire was developed to determine: (1) types of media and methods presently being used, (2) the effectiveness of the media used and the length of the programs, (3) areas in which the teachers

desired ideas for developing programs, (4) the audio-visual equipment available for use in the school. The teachers were given an opportunity to discuss the types of media they had been able to find or develop for teaching the boys' class, and were asked how easily these materials could be located.

The questionnaire was sent to a total of twenty home economics teachers in Colorado, New Mexico, and Oregon, who: (1) taught a boys' home economics class, (2) taught in a flexible modular scheduled high school, and (3) were listed by Stanford University as those high schools who had been funded specifically for the purchasing of educational media equipment.

A letter was sent out preceding the questionnaire (Appendix A, Page 79) to explain the nature of the study and to invite the teachers to participate by answering the questionnaire concerning their boys' classes. All twenty of the teachers consented to participate in the study and several commented that they were pleased that they might receive some ideas as well. The questionnaire was filled out and returned by all twenty (100%) of the teachers.

The questionnaire consisted of six parts. Part I requested information about the size of the present boys' classes, the most effective sizes of classes, and about media which the teachers had developed themselves or which had been commercially prepared. Part II asked which media were most effective in boys' classes and which length and content were most appropriate. Part III dealt with the media for which teachers were most interested in receiving ideas. The availability of commercially produced programs, and the teacher's preferance in types of programs, were requested in Part IV. The teachers were asked to

indicate which areas of foods and nutrition they were most interested in receiving ideas for programs, in Part V. Part VI gave the teachers an opportunity to indicate which audio visual equipment was available to them in their schools.

The results of Part I of the questionnaire, presented in Table I, Page 44, indicated that the majority of boys' classes averaged fifteen to twenty-five students, and that over half (55%) of the teachers felt that group work (three to five students) was the most effective size of class and method of instruction. Just under half of the teachers (40%) felt that individualized instruction was the most effective method.

When asked what media they had personally or with assistance, prepared for their boys' class, they indicated that all (100%) of the teachers had prepared overhead projection materials and that over half (60%) had prepared slide series programs. Slightly under half (40%) had prepared tapes for class use, but only three had used programed instruction.

Those who had used commercially prepared materials indicated that nearly all (90%) had used overhead projection materials, over half (55%) had used commercially prepared programed instruction booklets, and well over half (65%) had purchased slide series programs. Under half (45%) had purchased 8mm film loops, and only four had purchased tapes.

Small group instruction was checked by the largest number of teachers as how they had used educational media in class. All but two of the teachers had also used the media for individual instruction, and less than a third had used it for evaluation purposes. Other uses indicated were: for motivation, to save time, and for emphasis.

In comparing the teacher made educational media with the commerci-

ally prepared media, the teachers used more self-made transparencies and tapes than commercial ones, but had used more commercially programed instruction. The teachers had developed their own 8mm film loops in an equal amount to those used commercially, and had produced almost as many of their own slides as those purchased commercially. However, those who had done so were a small group percentage-wise.

Since all of the teachers questioned were involved in flexible modular scheduling, it was assumed that the majority of the teachers had an opportunity to use the media in large group instruction, small group instruction, individualized instruction, and in the open labpratory situation. (2). Most of the schools involved in modular scheduling had provided extra funds for the teachers to develop their own media or to purchase commercially prepared materials. Several of the home economics teachers mentioned this when asked for additional comments later in the questionnaire.

Several of the teachers made additional comments that the media which they did use in their boys' classes were specifically written and geared for the interests and needs of girls instead of boys. The film loops, slides, and overhead projection materials used girls as subjects of the presentations and made continual references to girls or women in relation to the selection and preparation of food.

Those who added motivation to the list mentioned that they had used it for independent study projects, separate of any class activity. To save time, two teachers added that they had used media to give tests, review tests, and for individual evaluation by the students themselves. One teacher who listed emphasis as another way she had used media, said that she made film loops of each individual student in foods laboratory.

TABLE I

RESPONSES OF TWENTY HOME ECONOMICS TEACHERS
TO EDUCATIONAL MEDIA QUESTIONNAIRE PART I
MEDIA AND METHODS PRESENTLY BEING USED

Area	N	%
Which of the following describes the size of your boys' class?		
(a) five to fifteen students	1	5
(b) fifteen to twenty-five students	17	85
(c) above twenty-five students	2	10
Which of the following was the most effective method of instruction with your boys' class?		
(a) lecture to large group	0	0
(b) lecture to small group	0	0
(c) group work (three to five)	11	55
(d) individualized instruction	8	40
(e) other	1	5
Which of the following have you personally or with help prepared for use in your boys' class?		
(a) programed instruction (booklet form)	3	15
(b) 8mm single concept film loops	9	45
(c) slide series programs	12	60
(d) overhead projection materials	20	100
(e) tapes	8	40
In which of the following have you used commercially prepared materials in your boys' classes?		
(a) programed instruction (booklet form)	11	55
(b) 8mm single concept film loops	9	45
(c) slide series programs	12	65
(d) overhead projection materials	20	90
(e) tapes	8	20
Which of the following best describes how you used the educational media which you used?		
(a) for large group instruction	18	90
(b) for small group instruction	20	100
(c) for individual instruction	11	55
(d) for evaluation purposes	6	30
(e) other	9	45

The effectiveness of the educational media presently being used by the teachers and the length of the programs used, are presented in Table II, Page 46. Almost all of the teachers (95%) felt that combinations of media were most effective in teaching boys' classes. Three-fourths of the teachers indicated that slide series programs were quite effective and well over half (65%) said that the 8mm single concept film loops were quite effective. Over half indicated that programed instruction was good with boys' classes, and this correlated with the fact that exactly 55% had used commercially prepared programed materials with their boys' classes.

Again, overhead projection was considered effective, but only by half of the teachers. Only three (15%) felt that tapes could be used effectively with the boys' foods and nutrition classes, and no teachers felt that the use of textbooks only was of any value.

The teachers were in complete agreement as to the length and content of the programs developed for boys' classes. They unanimously indicated that the programs should be short and related in content directly to boys, not to a general audience and particularly not to girls only. None of the teachers felt that longer programs related in content to boys, would be effective, nor would short general programs.

By refusing to check the comment that it would not make any difference as to the length or content of the programs, the teachers indicated that the "tailoring" of a program to fit the needs of the high school boys in the class was a prerequisite to the development of programs for foods and nutrition. Additional comments made by the teachers again verified their concern for more programs which were

written and planned to meet the interests and needs of the high school boy. They added that the boys didn't profit greatly from programs which are obviously geared toward girls, and even tended to resent some of the programs. From experience, three teachers commented that upon using programs which they had developed specifically for boys, the response was significantly greater from the boys' classes.

TABLE II

RESPONSES OF TWENTY HOME ECONOMICS TEACHERS TO EDUCATIONAL MEDIA QUESTIONNAIRE PART II EFFECTIVENESS AND LENGTH OF MEDIA

Media and Programs	N	%
The media which were most effective in teaching boys' foods and nutrition classes were:		
(a) programed instruction	11	55
(b) 8mm single concept film loops	13	65
(c) slide series programs	15	75
(d) overhead projection materials	10	50
(e) tapes	3	15
(f) textbooks only	0	0
(g) combinations of media	19	95
(h) other	6	30
Which of the following do you believe to be most effective in teaching boys' foods and nutrition classes?		
(a) short programs related to boys	20	100
(b) longer programs related to boys	0	0
(c) short programs written originally for girls	0	0
(d) longer programs written originally for girls	0	0
(e) short programs related to general home economics students	0	0
(f) longer programs related to general home economics students	0	0
(g) doesn't make any difference	0	0

The media for which the teachers most desired ideas in developing programs, may be seen in Table III below. The teachers were in complete agreement as to using combinations of media for more effective instruction. Almost all (90%) of the teachers felt that programed instruction was a media which they would like to learn more about, and ninety-five percent of the teachers indicated a desire to have ideas for developing their own 8mm single concept film loops. These two areas seemed to have the strongest amount of interest on the part of the teachers.

Another large segment of the teachers (80%) indicated an interest in the development of slide series programs, and over half of the teachers would like to have lists of the commercial materials available in educational media. None of the teachers indicated any interest in developing tapes or in overhead projection materials.

TABLE III

RESPONSES OF TWENTY HOME ECONOMICS TEACHERS TO EDUCATIONAL MEDIA QUESTIONNAIRE PART III MOST DESIRED MEDIA FOR DEVELOPING PROGRAMS

Media	N	%
(a) programed instruction	18	90
(b) slides	16	80
(c) tapes	0	0
(d) overhead projection materials	0	0
(e) combinations of media	20	100
(f) lists of commercial materials available	11	55
(g) 8mm single concept film loops	19	95

It is obvious in comparing the responses, that the teachers had plenty of access to tapes and to overhead projection materials, but desired ideas in developing programed instruction materials, 8mm single concept film loops, and slide series programs. Combinations of these media appealed to all of the teachers as the most effective media of instruction.

In order to determine whether the commercial materials available on the market are easily accessible to most home economics teachers, and to determine the feelings of the teachers as to the organization and content of those materials in relation to the teaching of a boys' foods and nutrition class, Part IV asked the teachers specifically what their feelings and preferences were. Almost all (90%) of the teachers felt that the commercially prepared materials of media in general, were difficult to locate. Three-fourths of the teachers said that they did not believe that any media were available commercially in the area of boys' foods and nutrition classes. Only two of the teachers felt that this type of media was easy to locate, and these particular teachers commented that they did have a Media Specialist and a large Media Center within their own school, making their access to this type of materials much easier than for the other teachers.

Four of the teachers felt that the media which was available was inadequate in content and in organization. None of the teachers felt that the materials were well planned or adequate for teaching boys. The general feeling, obviously, was that there are few, if any, materials available which were designed specifically for teaching boys' foods and nutrition classes. Those materials which are available, are thought to be very poorly planned and inadequate for teaching boys.

Upon being asked what their preferences were concerning the preparation of their own media materials, or purchasing commercially prepared ones, about one-third (35%) of the teachers preferred to prepare all of their own media while only five teachers preferred to use all commercially prepared materials. Most of the teachers (40%) preferred to combine the commercially prepared materials with those which they had prepared themselves.

TABLE IV

RESPONSES OF TWENTY HOME ECONOMICS TEACHERS TO EDUCATIONAL MEDIA QUESTIONNAIRE PART IV COMMERCIALLY PREPARED MEDIA

Opinion	N	%
(a) it is easily located	2	10
(b) it is difficult to locate	18	90
(c) it does not exist as far as I know	15	75
(d) it is inadequate in content and organization	4	20
(e) it is well planned and adequate in content	0	0
Would you prefer to:		
(a) purchase commercially prepared media	5	20
(b) prepare your own educational media	7	35
(c) combine commercial with your own personally prepared media	8	40

The teachers were asked to indicate which particular topics within the foods and nutrition unit to be taught to the boys' class, they felt

they most needed ideas for developing educational media. Fifteen possible topics within this unit were taken from the Oklahoma, Colorado, and Missouri State Guides for Foods and Nutrition. These fifteen topics were suggested and the teachers were invited to add any others they felt important. The topics which received the greatest number of responses from the teachers were: outdoor cookery, consumer shopping tips, the carving of meats, measuring ingredients accurately, and baked products. Others which rated high on the list included meat cookery, care and selection of kitchen utensils and equipment, and physical fitness as related to nutrition. Table V dealt with these responses.

TABLE V

RESPONSES OF TWENTY HOME ECONOMICS TEACHERS
TO EDUCATIONAL MEDIA QUESTIONNAIRE PART V
PREFERRED TOPICS FOR PROGRAMS

Area of Foods and Nutrition	N	%
(a) menu-planning	3	15
(b) consumer shopping tips	16	80
(c) table setting	2	10
(d) measuring ingredients accurately	14	70
(e) meat cookery	13	65
(f) the carving of meats	15	75
(g) table etiquette	7	35
(h) fruits and vegetables	2	10
(i) breads and cereals	1	5
(j) dairy products	3	15
(k) care and selection of kitchen utensils and equipment	11	55
(l) physical fitness and nutrition	9	45
(m) the basic nutrients	6	30
(n) baked products	14	70
(o) outdoor cookery	18	90

Table VI reveals the types of equipment available to the home economics teachers which could be used to prepare and to present educational media programs within their classrooms.

TABLE VI

RESPONSES OF TWENTY HOME ECONOMICS TEACHERS TO EDUCATIONAL MEDIA QUESTIONNAIRE PART VI EQUIPMENT AVAILABLE

Equipment	N	%
(a) overhead projector	20	100
(b) slide projector	18	90
(c) 8mm motion picture projector	19	95
(d) Super 8 motion picture projector	10	50
(e) slide camera	15	75
(f) Super 8 motion picture camera	9	45
(g) heat transfer copier	18	90
(h) photo-reflex copier	17	85

One-hundred percent of the teachers had access to the overhead projector and almost all (90%) of the teachers had access to both the slide projector and to the heat transfer copier. Ninety-five percent of the teachers had access to the 8mm motion picture projector. This figure is interesting in comparison to the forty-five percent of the teachers who have prepared their own 8mm film loops and the same forty-five percent who have used the commercially prepared film loops.

Only half of the teachers had access to the Super 8 motion picture

projector, but this is probably due to the relative newness of this particular projector. Almost half of the teachers had access to the Super 8 motion picture camera, and a little more than half had access to the older regular 8mm motion picture camera.

Almost all of the teachers had access to the heat transfer copier, but as they earlier indicated, they desired ~~no~~ new ideas for developing programs with this media. Most of the teachers (85%) also had access to the photo-reflex copier, but as this media was plentiful to them both commercially and by self-preparation, it was not considered essential in the development of programs in this study.

More teachers (90%) had access to the slide projector than to the slide camera (75%). Since sixty percent of these teachers had indicated that they had prepared their own slide programs and sixty-five percent indicated they had used commercially prepared slides, this media was considered important to the teachers involved and to this study.

The large percentages of home economics teachers checking the areas in which assistance and ideas for programs was desired, seemed to indicate the need for not only educational media, developed specifically for the teaching of boys' foods and nutrition classes, but, for programs developed in the specific medias of 8mm single concept film loops, programed instruction, and slide series programs. A desire was expressed for a list of the commercially available materials, and the majority of teachers indicated that they would prefer to be able to provide a combination of media--combining both commercially prepared materials and those which they had developed themselves.

The Development of Sample Programs

An examination of the results of the questionnaire helped select the specific educational media of which sample programs would be prepared. The media which seemed to be of greatest interest to the teachers for the teaching of foods and nutrition to high school boys' classes were: (1) 8mm single concept film loops, (2) slide series programs, and (3) programed instruction. It was decided to do a sample program of each of these medias, using the topics within the foods and nutrition unit which the teachers indicated they felt were lacking in materials.

The topics which were to be used in this study were to include: (1) measuring ingredients accurately, (2) the carving of meats, and (3) consumer tips. The programs to be developed would be applicable to any of the many topics within the area of foods and nutrition, and would serve as examples of how to develop programs independently. It was decided to include a list of the commercial materials available within the area of foods and nutrition which could be used in instruction of boys' classes. The commercial materials which were reviewed included those in 8mm film loops, slide programs, and programed instruction. (see Appendix D, Page 122). Each of the media will be discussed individually.

The remainder of this chapter will be devoted to the methodology of the development of each of the sample programs which are included in the Appendices B, C, and D, and to give suggestions for the use of this media in the course content of a boys' class. A discussion of the review of commercial materials will be included.

The basic guidelines for the development of each program were

based on the guidelines developed by Gould (25) to determine whether a particular material is suitable. These guidelines were:

1. Does it present a concept that contributes to the attainment of an objective for the unit?
2. Is it focused on one idea or limited to a small number of related ideas?
3. Is it appropriate for the age level which it is being used with?
4. Is it well-organized, technically good, and esthetically pleasing?
5. Are the facts portrayed true and up-to-date?
6. Is it powerful enough to attract and hold the attention of the audience?
7. Is the point worth making?
8. Is this the most effective way that the concept can be presented?

The media developed in this study were designed to acquaint home economics teachers with three specific types of educational media which can be used effectively in teaching boys' classes in foods and nutrition, and to present sample programs for the teachers' use in developing their own media. Suggestions for the use of this media in the content of a course for boys will be included.

Slide Series Programs

It was decided to develop a sample slide set depicting "Consumer Tips for Boys" , later given the title "Bachelor Survival". The slide series illustrates the correct procedures for marketing for food. Boys are used as the subjects in the slides and the pictures depict typical situations in the course of planning meals and shopping for food.

The major concept to be taught in this program was to help the

boys become intelligent consumers of food products and to get the most from their food dollar. A script was first written which carried out each of the important facets of information to be illustrated through the color slides. The behavioral objectives were determined for the program. These were (1) to give the students a background on some present-day consumer problems, (2) to help them become intelligent buyers of any product--food in particular, (3) to help the students become familiar with means of managing wisely, the money expenditures for food for himself and for a family, (4) to help students become familiar with government agencies and food laws, and (5) to help the student become aware of the importance of consumer education.

The script can be used for group or for individual instruction. The dialogue is written in a factual but humorous manner to attract and hold the attention of the boys. Throughout the script, assignments are suggested for the boys such as: study important producers in the community; study labels; investigate the quality of advertised products at different prices; gain a knowledge of United States food laws; study meat inspection regulations; set up demonstrations and show tests for quality of standard home products; and tips for marketing practices. The principles of this program, when learned, will be helpful to the young men as they assume adult financial responsibilities.

The script was broken down into major parts and put into a reasonable sequence for presentation. Enrichment materials were included to keep the boys' interest high. The planning of the slide content in this manner eliminated unnecessary duplication of effort and greatly reduced the expense connected with the production of the slide series.

It was decided to make eighteen slides for the actual program. Two

slides were to be used for the title and for the ending of the program. Index cards were filled out on each slide to be taken so that they could be added, deleted, or rearranged when the final slides were completed. On these cards, the following information was recorded: (1) the title of the slide, (2) rough sketch of finished slide, (3) technical information--angle of the shot, (4) condensed narration for the slide, and (5) the number which represented the position of the slide in the series.

Using a 35mm camera, the slides were taken in two major settings: a kitchen, and a local grocery store. Two shots were taken of each desired situation in order to be able to edit the slides and remove those which were too dark, too light, or out of focus. The film contained twenty possible shots and two rolls of film were used. Color film was used because it was deemed to be much more effective in dealing with the selection of foods. Ten pictures were taken in this way.

To incorporate a little variety into the program, eight of the slides were taken of animated subjects, and the title and ending slides used dimensional letters and background for added effect. The animated slides were produced by tracing desired pictures from contemporary cards, magazines, books, etc. of boys and other subject matter considered relevant to the program. The pictures were traced on white typing paper and then colored in using various means of coloring. Magic markers, construction paper, wrapping paper, and water colors were among the materials used.

The slides chosen to animate included: "stretching the food dollar", "percentage of food dollars", "making a shopping list", "shopping the newspapers", "red--the color consumers buy", "don't shop while you are hungry!", "interpreting government grades and laws", and "the extras

count!". Each of these animated pictures attempt to illustrate the problems as well as the advantages in learning to be a wise consumer. The poses, dress, and settings of the pictures were an attempt to help the student viewing the program, identify with what he sees. The pictures should not be outdated soon as they deal with perpetual situations.

Another attempt by the writer to incorporate variety into the program was to use varities of poses--some close-up--some distance shots--some of objects--and some of people. The boys used in the pictures were the age of the intended audience--seventeen and eighteen years old.

Where the slides varied from the original script, the script was adjusted and rewritten to make it cohesive. The slides were edited and viewed by a layman, a high school boy, and another home economics teacher to get varying reactions. The script was annotated at each point when the slides should be changed. The script is designed so that an individual student can read it as he views the slides, or so that the teacher can read or tape the narration as she shows the program to a larger group. The program can be updated whenever the teacher feels it is necessary. (Appendix C, Page 118).

The expense of the slides was not prohibitive, but they are not inexpensive teaching materials. The writer had to be careful to read the instructions on the operation of the camera, and to make sure the lighting was adequate. The grocery store had plentiful lighting, but the kitchen used in the pictures had to have additional lighting in order to bring out a clear picture.

The slides are stored carefully, and are most effective in a partially darkened room when used. The slides are kept carefully numbered and arranged for ease in presenting a program. The user must remember

to place the slides in the proper order so that they will not appear on the screen upside down, sideways, or backwards. This can disrupt a class and waste much time. The slides used were previewed by the writer and the teacher who develops her own should be certain that they present correct and accurate information to the students. The script information was taken from reliable foods textbooks and State Guides.

The slide projector was not difficult to learn to operate, but the instructions for operation should be read before the class is in session. Students using the program individually should be instructed in the operation of the projector and care of the slides beforehand.

The writer found that the rewards of developing one's own slide series are many. If properly cared for, the slides will be usable for many years, and will be worth the money in the long run. The teacher can gradually accumulate a good library of slides for use in years to come.

Programed Instruction Booklets

Two topics indicated by teachers as deserving additional programs designed for teaching boys' classes were selected as topics appropriate for programing. The carving of meats, and measuring ingredients accurately were thought by the writer to be topics which might make interesting programs, especially when written directly for boys. In considering the two major types of programing which were described in Chapter II, page 26, the writer felt that the intrinsic or "scrambled" form of programing might appeal more to the high school boy.

In order to prepare the program on measuring techniques, it was assumed that the boy knew very little about basic cooking ingredients,

and close to nothing about measuring techniques. The major concept to be taught in this program was to learn the importance of accuracy with which one measure the ingredients in recipes in order to be successful with meal preparation. The behavioral objectives of the program were that upon finishing the program, the student should be able to do the following: (1) be familiar with common measuring utensils and their appropriate uses, (2) be able to determine the appropriate measuring divisions for the specific ingredients in any recipe, (3) be able to measure common ingredients with accuracy, (4) be able to interpret and use successfully, the tables for common equivalent measures for foods, and (5) to realize the importance of accuracy in the measuring of common ingredients.

After stating the objectives in behavioral terms, the information had to be analyzed and broken down into small segments to be learned one at a time. This breakdown was done in the form of an outline. When this outline was completed, the sequence for presenting the material was determined. The writer broke each segment down again and again into very simple and basic statements of information. It was decided to describe a basic ingredient used in food preparation, one at a time, give its uses, its proper measuring technique, and instruct the student to practice the procedure in the kitchen before proceeding to the next ingredient. The process seemed somewhat repetitious and simple at first, but the flow of information began to fit together easier after some practice.

By choosing to use a branching program, the frames of information had to be much longer and contained more information. The main frames were written first. The student was given two or three short paragraphs

of information concerning basic ingredients, and then was asked a question which required him to use as much of the information as possible at arriving at his answer. Two to four alternatives from which he could select his answer were given. One of the answers was the correct choice. The other answers were choices which the writer thought the student might logically arrive at if he had failed to read the information, misunderstood the information, or lacked the necessary background information. A page number was listed after each alternative to direct the student to his next frame of information.

For each incorrect alternative, a remedial frame had to be written. These frames contained information to correct the student and to get him ready for the next frame. The writer had to reword and re-explain the subject matter in the correction frames so that the student would be able to understand the material better. The various means of doing this were to send the student back to the original frame to make another choice, or by giving him a similar choice to make and then sending him on to the next frame. (See Appendix B, Page 85).

To determine whether or not the student had learned the material presented in the program, criterion frames were written and included in the last part of the program, or sometimes used separately, to evaluate whether or not the student had learned the information. These were usually referred to in both of the programs in this study as "Self Test", and asked questions over the information just covered.

Into each of the two programs in this study were inserted other devices for learning. The programs were referred to as "adjunct" programs. They included the use of other media as 8mm film loops which were filmed to better demonstrate the techniques taught in the programs,

and also included experiments and practice of the techniques described by the student in the kitchen area of the home economics classroom. Portions of the programs include some linear styles of questions, thus, the student reads two styles of programing, does experiments himself, views the 8mm film loops for better comprehension, and is tested on what he has learned--all in one session and in about one-third the time it would take for the teacher to accomplish this on a group basis.

Both programs were worked by several students, both male and female, and were revised several time. This is the major difference between programed material and textbooks. The programs have almost always been tested with students and revised before they are printed. A rule given to follow is to revise until ninety percent of the students make correct responses ninety percent of the time. (25).

A pre-post test was developed for each of the programs, which were comprehensive multiple choice tests over the material presented in the programs. The questions on the pre-post test are very similar to those asked in the programs.

The second program written was called "The Art of Carving", and was developed in the same manner as the first program. Its major concept to be learned was familiarity and understanding of the "art" of carving meats. The behavioral objectives of this program were (1) an adequate understanding of the value of being able to carve meats correctly and confidently, (2) an understanding of the relationship between being an efficient and successful host and being able to carve correctly, (3) knowledge and practice in the proper method of sharpening or "truing" the blade of the carving knife with a steel or porcelain knife sharpener, (4) familiarity with the general "rules of carving etiquette",

(5) familiarity with the proper techniques of serving the carved meat.

It is not a simple matter to write a program and get it ready for the student use. There is one great advantage to having the teacher who knows the subject matter and the abilities of the students, write the programs--she can design them to teach exactly what she wants the students to learn. Excerpts from each of the two programs developed in this study are included in the Appendices B, Page

8mm Single Concept Film Loops

When used in independent study, the 8mm motion picture has the same advantages as programed instruction. Since the films are short, each film is limited to the presentation of one main idea. The topics chosen to film in this study were those which the writer felt might require some practice on the part of the student and which would be too time consuming to demonstrate in class. The two film loops developed for this study were designed to demonstrate better, the techniques of measuring ingredients accurately, and the "art" of carving. These loops can be used along with the programed instruction booklets, or can be used alone for the reviewing of techniques.

It was decided to use a male as the demonstrator in the films, thus making it possible for the high school boy to identify with the procedures and to make him feel at ease in what is typically considered the "females'" domain. The films are in color, which is much more effective when working with foods. The film loop cartridges are the silent type. A script could easily be written from the programed instruction booklets to be taped onto the film if desired. If a program had not been written as in this study, it would be effective to include an

outline, explaining the objectives of the film loops and possibly giving extra assignments or questions to reinforce the learning objectives.

To produce the film loops for this study, it was necessary to familiarize the producer with the various equipment used in making 8mm motion pictures. Practice on a dummy film loop helped the writer become familiar with the camera, the cartridge film loops, the flood lights, the splicer, the editing machine, and various other pieces of equipment. A practice film was taken using various settings, lighting, and types of movements to get familiar with the correct picture taking procedures. The film loop was run through the editing machine in order to get some practice in this process.

A sequence taken from the programed instruction booklets, was written in outline form for each film loop listing the important points to film. This served as a guide for determining the length of the program and for determining which procedures would have to be eliminated from the film. The measuring techniques were practiced by the demonstrator several times before actual filming, but the carving of the turkey could only be done once due to the expense and time involved.

The concepts and behavioral objectives the students were expected to learn from each film loop were the same as those stated earlier in the description of the programed booklets. The writing of the film loop content was found to be excellent experience for the teacher. The teacher is forced to set down definite concepts and objectives to be taught, and to organize the material as efficiently and as simply as possible. Thought had to be given to the age and nature of the group who would be viewing the films and reading the programed booklets.

Other considerations which had to be given to the film-making were:

colors to be used, how close to the subject to film, how long to spend on a certain picture, elimination of time consuming procedures in the program, avoiding shadows in the picture, keeping the object or subject being filmed from moving out of camera range, and anticipating the unpredictable. Time had to be allowed to film the titles of the films. These were accomplished by the use of plastic dimensional letters which could be placed on glass, colored paper, and other interesting backgrounds. Titles were given to each change of technique to make it easier for the viewing student to identify procedures. The films improved greatly with practice, but the time involved in the first film loops was much greater than anticipated by the writer.

Reviewing Commercial Media

Some time was spent by the writer in researching the available commercially developed materials in the medias of 8mm film loops, 35mm slide programs, and programed instruction, for use in teaching foods and nutrition classes in general.

Several companies specialize in producing materials for teachers. Commercially prepared materials are usually more expensive than teacher-made materials, but the work has a more professional appearance. A list of the materials found is given in Appendix D, Page . There was found to be a scarcity of home economics materials for use with the media included in this study. New materials are appearing on the market every year, so it is wise for the teacher to check frequently to see what is available. Many of the slides programs were done on an individual basis and the information as cost, content, time, and the producer were not always available to the writer.

The writer researched audio-visual journals and catalogues, textbooks, educational journals, and found no specific media developed for the teaching of boys' classes in foods and nutrition. The materials which were though by the writer to be possibilities for including in a course of study for boys are included in Appendix D. Page 122.

Media in Course Content for Boys' Classes

The foods and nutrition unit which the media in this study were designed for, was planned to encourage the students to recognize the relationship between a balanced diet and good health; the basic scientific principles of food sanitation, including food handling and preservation; use and care of kitchen equipment; cooking and taste testing; making and carrying out meal plans; menu planning for small and large groups; and experimental foods work.

Various activities using the media developed in this study and that developed in the future would include planning and serving nutritious meals based on the four food groups; baking cakes and pies; using proper utensils and ingredients; field trips to local food processing plants; arranging for speakers to talk on job opportunities in the food industry; visiting a commercial foods testing kitchen; all could be developed from and incorporated with the media from this study to form course content for a boys' foods and nutrition class. The class could be referred to as a Food Services class, the Chef's Club, or "Bachelor Survival". The possibilities are limitless and challenging.

Summary

Chapter III has presented the results of the questionnaire sent out to twenty teachers in flexibly modular scheduled high schools in Colorado, New Mexico, and Oregon. All twenty of the teachers responded to the questionnaire and the actual development of the programs in this study were based on their answers and comments concerning the development of educational media for teaching boys' foods and nutrition classes.

A large percentage of the teachers have used various forms of media in teaching small groups in their boys' classes, and another large percentage used the media for individualizing instruction. Many expressed a desire to have ideas for developing programs using the medias of programed instruction, 8mm single concept film loops, and a slide series program.

A majority of the teachers expressed the feeling that there was a tremendous lack of commercially prepared materials available for teaching boys' foods and nutrition classes and a review of audio-visual journals, catalogues, educational journals, and textbooks by the writer, fairly well confirmed this feeling.

Most of the teachers expressed an interest in combining commercial materials with that prepared on their own for more effective instruction. It was agreed that the media used with boys' classes should be short in length and related specifically to boys and their particular interests and needs. Most of the teachers related that they had access to a variety of audio-visual equipment, although many had not utilized it to develop their own programs.

The programs which were developed as a result of this questionn-

aire were two programed instruction booklets entitled "Measuring Ingredients Accurately", and "The Art of Carving Meat"; two film loops entitled "Measuring Techniques", and "The Carving of a Turkey"; one slide series program entitled "Bachelor Survival". All of these programs were written for the high school boy and incorporate a variety of experiences which are hoped to appeal to the interests and needs of this age boy.

These programs have not been tested and evaluated with high schools on an official basis, but this is the plan for the coming year. Suggestions for the use of this media in course content for a boys' class were included in this chapter in hopes that other teachers of boys' foods and nutrition classes will have some guidelines for setting up similar programs.

The teacher, through the development of educational media on her own, learns much and her teaching can benefit greatly from the practice of determining concepts and behavioral objectives to be taught in each program. She should, in the process, become a more organized and more indirect teacher by placing more of the responsibility of the learning on the shoulders of the individual student.

CHAPTER IV

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

The purpose of this study was to determine the types of educational media being used by home economics teachers in teaching boys' foods and nutrition classes, to determine if there was a need for materials which related specifically to the interests and needs of the high school boy, and to develop sample programs using specific media. The objectives of the study were: (1) to review information and to identify the needs of high school boys in order to determine the appropriate teaching techniques utilizing educational media, (2) to determine the significant needs of home economics teachers of educational media for the instruction of boys' foods and nutrition classes, (3) to research and become knowledgeable of the types of educational media in use today, and to personally develop samples of selected media for use in teaching boys' foods and nutrition classes, (4) to prepare a list of the commercially available materials in each of the three medias in which sample programs would be prepared, and (5) to prepare educational objectives which communicate and provide a sound basis for the selection of educational media for teaching boys' food and nutrition classes, and (6) to include suggestions for the use of the media in course content of a boys' class in foods and nutrition.

A review of literature relevant to the study was made and a need for the study was verified by the responses of twenty teachers in the

flexible modular scheduled high schools in Colorado, New Mexico, and Oregon. A questionnaire was developed and sent to the twenty teachers who also were presently teaching a boys' foods and nutrition class. One-hundred percent of the teachers returned the questionnaire with additional comments of their desire to use the materials and ideas developed in this study.

The teachers indicated a great need for sample programs using the medias of 8mm single concept film loops, programed instruction, and slide series programs. A need for media developed specifically for the needs and interests of the high school boys was also indicated. As a result of the questionnaire, sample programs were developed in each of the three medias.

A slide series program entitled "Bachelor Survival", containing twenty color slides and a script written to go along with it, was developed for use with individual boys or with the entire boys' class. Two 8mm film loops were developed, entitled "The Art of Carving a Turkey", and "Measuring Techniques", and programed instruction booklets which could be combined with each of these film loops were written. The programed booklets were entitled "Measuring Ingredients Accurately", and "The Art of Carving Meat".

A review was done of the commercially available materials in each of the three media and very few materials were located which related specifically to teaching boys' foods and nutrition classes. The field of home economics in general, had a scarcity of commercial media. The materials which were considered relevant to this study were included in the Appendix D, Page .

Suggestions for uses of the media developed in this study in the

course content for a boys' class in foods and nutrition were also included in a general vein. Home economics teachers were encouraged to develop similar programs, gearing the instruction toward the needs of the boy in today's changing society.

Conclusions

The following conclusions were delineated from the study.

1. The twenty home economics teachers who participated in the study used a variety of educational media to teach boys' foods and nutrition classes, and most had developed some of this media on their own.

2. The home economics teachers felt that programs used to teach the boys' classes were difficult to locate, poor in content and organization, and were unrelated to the needs and interests of the high school boy in general.

3. The majority of the teachers indicated an interest in having sample programs developed for their reference, in the medias of 8mm single concept film loops, programed instruction, and slide series programs.

4. More than half of the teachers have access to the necessary equipment for the development of the three medias described and would be interested in combining commercially developed programs with those which they might develop themselves.

5. There was a general feeling that programs are greatly needed in the area of foods and nutrition for use in boys' classes and a list of the commercially available and applicable materials was desired.

6. The teacher can and should attempt the development of programs using various forms of media, not only for the individualization of

instruction for the benefit of the students, but to improve her own teaching abilities through planning and organization of definite concepts and objectives.

7. The amount of time required in the development of the various media make it difficult for the average teacher to spend much time in the development of programs. It would be very advantageous to have the assistance of a Media Specialist who might be in charge of a Media Center located in the school.

8. The expense of developing programs is relative to the "tailored" effect and keeping quality of the media. The initial expense of the basic equipment is absorbed easily if the teacher utilizes the equipment frequently and stores the media properly.

9. The development of a slide series program is much simplier than expected. The independently developed programs are markedly superior to the commercial ones in their content. The teacher can incorporate anything she wishes to teach with ease, and can update the program at any time. Once the teacher has some practice in using the equipment, it is much more challenging, and much less expensive, to develop her own.

10. Programed texts are one of the most challenging and stimulating experiences a teacher can become involved in. The writer feels that the process of programing can do a great deal for both the student and the teacher. Through the development of definite concepts, objectives, and organization of instruction, the teacher can better understand the learning process and become more sensitive to students' needs.

Recommendations

The responses of the twenty home economics teachers led to the

following recommendations by the writer:

1. The home economics teacher should familiarize herself with the various educational media which is available both commercially and for development by the individual teacher. It would be a good idea for the home economics teacher to keep at least one good reference textbook or subscribe to a periodical or journal which lists these developments.

2. The teacher should practice with 8mm film a good deal before actually filming a sequence or demonstration. Becoming with the equipment involved is an excellent assurance of success with this media.

3. To do an effective slide series program, the pictures should contain subjects or materials which the students can identify with and respond to. It is wise to take at least two shots of each desired slide in order to assure a successful picture. The students should be prepared for the use of the slides.

4. Programed instruction is accomplished more easily if the teacher begins practicing with the linear style of programing first and then moves into the intrinsic style. These programs are much more interesting when combined with other media as 8mm film loops.

5. The home economics teacher needs to concern herself with the development of media "tailored" to meet the specific needs of boys in the high school foods and nutrition classes. An effort needs to be made to provide instruction which will not only inspire boys to pursue a career in the food industry, but to give the boys a practical knowledge in using time, money and material resources wisely.

Implications

Several implications for further study appear justified in view of

the findings of this study. There seems to be an obvious need on the part of the teacher, for training and experiences in developing media which can be "tailored" to meet specific needs. With the changing role of the male in today's society, there is great need for education of the boy in what was once considered the "woman's domain".

A study of the need for materials developed specifically for teaching boys' foods and nutrition classes might be feasible in light of the growing enrollments of high school boys in home economics classes.

Each of the media developed in this study could be studied in depth and specific recommendations for the topics within the area of foods and nutrition most suitable for a particular method of presentation.

An evaluation of the commercial materials available for the instruction of boys' classes could be done to determine possible uses and combinations into classes for both group and individual instruction.

Experiments need to be done with the combinations of media to produce "packages" of instruction geared toward the teaching of high school boys' classes. Specific guidelines for the development of a complete course of study for high school boys in the area of foods and nutrition could prove a vital and necessary study in the near future.

The programs developed in this study need to be evaluated for their effectiveness by testing them in several high school home economics programs. Boys' classes in both flexible modular scheduled schools and in traditionally scheduled schools should try out and evaluate these programs. The programs should be tested both in class or group instruction and with individualized instruction.

The provision of in-service training for home economics teachers in the development and use of educational media appears essential today.

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APPENDIX A

EDUCATIONAL MEDIA QUESTIONNAIRE

Oklahoma State University
Home Economics Education Dept.
Stillwater, Oklahoma 74074

September 1, 1968

Mrs. L. McHugh
Home Economics Instructor
Golden Senior High
701 West 24th St.
Golden, Colorado 80401

Dear Mrs. McHugh:

As part of my requirements for earning my Master of Science degree in Home Economics Education, I am writing a thesis which involves the development of educational media for the teaching of boys' Foods and Nutrition classes.

I am contacting you among twenty high school home economics teachers who are teaching in a flexible modular scheduled high school and who are presently teaching a boys' class in home economics.

I would greatly appreciate your assistance in determining whether or not there is a need for materials developed specifically for teaching boys' classes. Attached to this letter is a questionnaire which I have developed hoping to learn something about your boys' classes which I can utilize to determine what the real needs are.

If there is a significant indication on the part of the majority of you as home economics teachers, that educational media needs to be developed for boys' classes, I will in turn, attempt to develop some sample programs in the medias you indicate the most interest in. I would be most happy to send any materials which may be developed in this study to you for use with your boys' class if you deem it to be relevant. Perhaps this study will provide some ideas for the development of a course content geared toward teaching high school boys.

If you would fill out the enclosed questionnaire and return it to me as soon as possible, I will be anxious to hear your ideas and to get busy on this project!

Sincerely,

Carole A. Ogilvie
Graduate Assistant
Home Economics Education
Oklahoma State University

QUESTIONNAIRE

PART I. Please answer the following questions by placing an X in the appropriate blanks.

Which of the following best describes the size of your boys' class?

_____ five to fifteen students

_____ fifteen to twenty-five students

_____ above twenty-five students

Which of the following did you find the most effective method of instruction with the boys' home economics class?

_____ lecture to large group

_____ lecture to small group

_____ group work (three to five in group)

_____ individualized instruction

_____ other

Which of the following have you personally or with assistance, prepared for use in your boys' class?

_____ programed instruction (booklet form)

_____ 8mm single concept film loops

_____ slide series programs

_____ overhead projection (opaque and transparencies)

_____ tapes

In which of the following have you used commercially prepared materials in your boys' class?

_____ programed instruction (booklet form)

_____ 8mm single concept film loops

_____ slide series programs

_____ overhead projection (opaque and transparencies)

_____ tapes

Which of the following best describes how you used the educational media which you prepared or was comercially prepared?

_____ for large group instruction

_____ for small group instruction

_____ for individual instruction

_____ for evaluation purposes

_____ other (list) _____

PART II. Please check with an X those materials which you felt were most effective in teaching boys' food and nutrition classes.

_____ programed instruction

_____ 8mm single concept film loops

_____ slide series programs

_____ overhead projection

_____ tapes

_____ textbooks only

_____ combinations of media (list) _____

_____ other (list) _____

Which of the following do you believe to be most effective in teaching foods and nutrition to boys' classes?

_____ short programs related directly to boys

_____ longer programs related directly to boys

_____ short programs written originally for girls

_____ longer programs written originally for girls

_____ short programs related to general home economics students

_____ longer programs related to general home economics students

_____ doesn't make any difference

From your experience, do you feel that boys need specially prepared educational media for their foods and nutrition classes? If so, why?

_____

_____

_____

PART III. Check any of the following media in which you would be interested in receiving ideas for developing programs.

_____ programed instruction
_____ slides
_____ 8mm single concept film loops
_____ tapes
_____ overhead projection
_____ combinations of media
_____ lists of commercial materials available

PART IV. Check your opinion on the following: Commercially prepared materials for teaching boys' classes in foods and nutrition are:

_____ easily located

_____ hard to locate

_____ do not exist as far as you know

_____ inadequate in content

_____ well planned and adequate in content

Would you prefer to:

_____ purchase commercially prepared materials

_____ prepare your own educational media

_____ combine commercial and your own personally developed media

PART V. In which of the following areas are you most interested in receiving ideas for developing programs?

_____ menu-planning

_____ consumer shopping tips

_____ table setting

_____ measuring ingredients correctly

_____ meat cookery

_____ the carving of meats

_____ table etiquette

_____ fruits and vegetables

_____ breads and cereals

_____ dairy products

_____ care and selection of kitchen utensils and equipment

_____ physical fitness and nutrition

_____ the basic nutrients

_____ baked products

_____ outdoor cookery

_____ others (list) _____

PART VI. List the audio-visual equipment you have available for use in your school.

_____

_____

_____

APPENDIX B

SAMPLES OF PROGRAMED INSTRUCTION PROGRAMS

(Page 1)

AN EXCERPT FROM A SAMPLE PROGRAM

LEARNING THE IMPORTANCE OF
MEASURING IN FOOD PREPARATION

TO THE STUDENT:

You are to check out these measuring utensils with your instructor before beginning this program:

1. A pyrex liquid measuring cup--1 cup capacity
2. A pyrex liquid measuring cup--1 quart capacity
3. 4 nested metal cups with measuring capacities of 1/4, 1/3, 1/2, and 1 cup.
4. A metal cup for measuring dry ingredients. It has graduation marks indicating one-fourth cup divisions.
5. A set of spoons with measuring capacities of 1/4, 1/2, and one teaspoon and one tablespoon.
6. A sifter
7. A regular tablespoon
8. One medium size mixing bowl

You are to check out these common ingredients with your instructor before beginning this program. These should be in small bowls.

1. 2 cups flour (preferable white enriched)
2. 2 cups granulated sugar
3. One and one half cups brown sugar
4. 2 tablespoons baking powder
5. 1 cup solid shortening
6. 1 bottle of white karo syrup (do not pour into bowl beforehand).

(Page 2)

READ BEFORE BEGINNING THE PROGRAM:

This program is quite different from working with an ordinary textbook. This program consists of a variety of numbered statements or paragraphs, each of which tells you something and asks questions about the material which you have learned.

These "frames" introduce new material a little at a time and review old material as needed to make sure you will remember it. Always follow directions for the next page you are to read.

You are to work at your own rate of speed--DO NOT try to study the same way you would a book. Do your written work near the kitchen area so that you can easily follow instructions involving the use of the measuring utensils and ingredients.

You will be given the following to work with:

1. The program
2. A list of measuring utensils which you are to check out with your instructor.
3. A list of common ingredients which you are to check out with your instructor.
4. The 8mm film-loop projector
5. The film-loop "Measuring Techniques". Parts I and II
6. An apron

Now--turn to page 3 and begin the program

(Page 3)

INTRODUCTION

The ACCURACY with which you measure the ingredients in almost all recipes is of the utmost importance to your success in meal preparation! A truly good chef follows a few simple rules.

When you have finished reading this program and have completed the tasks given therein, you should be able to do the following:

1. Be familiar with common measuring utensils and their appropriate uses.
2. Be able to determine the appropriate measuring divisions for the specific ingredients in any recipe.
3. Be able to measure common ingredients with accuracy.
4. Be able to interpret and use successfully, the tables for common equivalent measures for foods.
5. Realize the importance of accuracy in the measuring of common ingredients.

The guides given herein will help you to follow any standard United States recipes in determining the co-rect amounts of ingredients and types of measuring utensils to use.

You will learn these rules and techniques by following carefully, the information and instructions on the following pages. At the end of each page, you will be told which page to turn to next.

Turn to page 4

(Page 4)

After first washing your hands and donning your chef's apron, let's determine why it is of importance to use the proper measuring techniques in food preparation.

Most recipes are based on level measurements. Measures like "heaping", "scant", or "just a pinch", may work just fine for your Dad, but until you are very experienced, let's use standard level measures!

The accuracy of the measure used can determine the outcome of the final food product. The variations which may occur through inaccurate measuring could even ruin a final product.

PLEASE CHOOSE BETWEEN THESE STATEMENTS:

A. "I can see where the accuracy of the measure is very important in determining the outcome of the foods I prepare."

Turn to page 5

B. "I can't see what real difference it could make if I don't measure all of the ingredients accurately! Many people are good cooks and certainly don't let a thing like that worry them!"

Turn to page 6

(Page 5)

Answer to page 7: accuracy

Now that we agree on the important of accuracy in measuring of ingredients, let's see of what importance the measuring utensils can be.

If you expect to use measuring utensils to your advantage, you must learn which utensils are appropriate for measuring which of the common ingredients.

Check the measuring utensils which you have already assembled. You should have before you, these common measuring utensils:

1. A metal cup for measuring dry ingredients. It has graduation marks indicating one-fourth cup divisions.

2. 4 nested metal cups with measuring capacities of 1/4, 1/3, 1/2, and 1 cup. These can be used for both dry and liquid ingredients.

3. A pyrex cup for measuring liquids with space above full-cup mark for easier measuring and a lip for pouring.

4. A quart size pyrex measuring cup for measuring liquids in larger amounts. It is also convenient to use in the water displacement method of measuring bulk fats.

5. A set of spoons with measuring capacities of 1/4, 1/2, and 1 teaspoon and tablespoon, for liquid and dry ingredients.

The above described utensils are standard measuring cups and spoons. They are designed for use in all United States tested recipes.

Would each of these measuring utensils be accurate and appropriate for use in measuring both dry and liquid ingredients?

A. If you say YES, turn to page 11

B. If you say NO, turn to page 8

(Page 6)

You can't see what's wrong in a little inaccuracy in making measures of common ingredients? O.K. Let's try a little experiment to carry this point further.

Go to the kitchen area where you have assembled your equipment and ingredients.

Dip the standard or regular tablespoon into flour or baking powder, and then level its contents. Don't shake!

Use a knife or spatula to level off the top.

Now--scoop up a heaping spoonful of the same ingredient WITHOUT leveling.

Compare your two samples visually, and by feel of the weight.

You should be able to determine now, that lighter materials, if casually taken, may triple or even quadruple the amounts indicated in the recipes. Certainly, this much of a difference could change the physical make-up of the finished food product.

Ten to one--the cook who prides himself on "nothing but intuition" as a guide to quantity, is the same "old hand", who has for years, used the same bowls, cups, spoons, stove, brands, etc. and gets more than his share of lucky breaks. Like as not, he doesn't mind variations in his end product! O.K.?

Turn back to page 4 and try the other alternative

(Page 7)

You said you CAN see the importance of accurate measuring in determining the final outcome of the food you are preparing. That's certainly an indication of the efficient Chef you will soon be!

Yes, inaccuracy in measuring could mean the difference in a successful and an unsuccessful final product. Imagine the volume of a baked product in which one tablespoon of baking powder had been used instead of one teaspoon! Or a cake in which one-half cup of sugar had been used instead of one cup. Talk about variation in quality!

It is important to select recipes which have been tested--that is, recipes in which the proportions of ingredients have been adjusted accurately and the methods of making have been worked out in detail so as to give the best results.

Those recipes which generally have the best results, are those in which the measures of the ingredients are tested for _____.

Accuracy in measuring depends a great deal on the utensils used to measure the ingredients. To become familiar with those utensils most commonly used, turn back to page 5.

(Page 8)

O.K.--now you're on the right track! While we know that well experienced, or even inexperienced cooks could still possibly come out with a successful finished food product by guessing at measures, and using the incorrect utensils, you are way ahead of them by starting off on an "accurate foot"!

WAIT--try this self test to make sure you remember which utensils are correct for dry and for liquid ingredients.

1. The metal cup which has graduated marks on its side, indicating 1/4, 1/3, 1/2, and 1 cup capacities, is best used in measuring _____ liquid/dry ingredients.

2. The nested cups with measuring capacities of 1/4, 1/3, 1/2, and 1 cup, can be used for measuring _____ ingredients.

3. A glass or pyrex cup with extra space above the full-cup mark, and a lip for pouring, is best used for measuring _____ ingredients.

4. Measuring spoons with capacities of 1/4, 1/2, and 1 teaspoon and tablespoons, are appropriate in measuring _____ ingredients.

If you have forgotten these, go back to page 4 and reread--then take this little test again. If not--good for you! Turn on to page 9.

(Page 9)

Answers to Self Quiz page 8: dry, liquid and dry, liquid, liquid and dry

You completed the self quiz, which indicates that you are now knowledgeable of which measuring utensils are appropriate for the various types of common ingredients used in recipes.

The assumption is now made that you know which utensils to use with which ingredients, and that you can now practice the proper measuring techniques which should be used to assure further accuracy in measuring.

Before you go any further--go to the film-loop projector and view the film-loop "Measuring Techniques". You may wish to view this loop more than once, in order to better grasp the procedures which we will be discussing. After viewing the film-loop, return to this program and--

Turn to page 12

(Page 10)

This really wasn't meant to be a tricky question, but you've said that the most accurate measure of liquids could be done by using either a metal graduated measuring cup, or the measuring spoons.

True--some people use the metal graduated cups to measure liquids, but they are by no means, as accurate as the liquid measuring cup. There is the possibility of spilling the liquid--since you can't level off the liquid with extra room at the top of the utensil, and since there is no pouring lip on either the dry measuring cup or the spoons.

An eye level measurement is difficult to take with a utensil filled to the brim with liquid. Agreed?

Give this some more thought and perhaps you will see it the other way.

As for measuring spoons--it would take 16 level tablespoons to fill one cup of liquid. This wouldn't be very practical in terms of time and energy--now would it! We will talk more about the measuring spoons later.

Turn back to page 8 and continue the program

(Page 11)

Did you say YES? Perhaps you overlooked those key words--ACCURATE and APPROPRIATE. Of course, there are no laws stating that you absolutely cannot use any of the measuring utensils for both dry and liquid ingredients, and perhaps sometime you will be in a situation where you will have to do just that! But, let's consider again those key words.

While one could possible "get by" with using a dry measuring cup to measure a liquid, consider the disadvantages:

1. There is a possibility of spilling the liquid--no extra space or lip is provided as is with the liquid measuring cup.

2. Liquids are heavier, and the dry measuring cups may be a little more awkward to handle when full than the regular liquid measuring cup.

3. One could not easily fill the dry measuring cup to the brim, as you could fill it with dry ingredients. Therefore, the final measurement most likely will be less than that called for in the recipe.

4. One cannot easily check the level of the liquid in the dry measuring cup by the eye-level measurement without spilling the liquid when moving the utensil to a higher level.

To perform the eye-level measurement, take the liquid measuring cup and the dry measuring cup from your assemblege of utensils. Hold them (or place them both on an eye-level shelf or cabinet) both so that the line at which your ingredients would come to if you had exactly one cup full, is directly at your eye level.

You should be able to perceive the advantages of the liquid measuring cup over the dry measuring cup for the measuring of liquids. Obviously, the liquid would easily spill if held or lifted to eye-level in a dry measuring cup, and one could not see the level of the liquid if it fell below the one-cup measure.

For accurate measuring of liquids, one should use _____

a. liquid measuring
or
b. dry measuring cup

Check back on page 5--did you answer correctly? If YES--turn to page 8 and continue. If NO--turn to page 10.

(Page 12)

In the film-loop "Measuring Techniques", you were shown how to measure these common ingredients:

a. flour

b. sugar--granulated

c. sugar--brown

d. shortening--by the water displacement method

e. liquids and syrups

In your kitchen area, assemble the common ingredients as indicated on your list.

You should now be able to determine the correct measuring utensils for each of these ingredients.

Suppose you needed in a recipe, one cup of sifted flour. Select the correct utensils for measuring the flour.

The utensils you will need will include: the sifter, a dry measuring cup, and a spatula or knife. Are these the utensils which you selected?

If YES, go to page 14

If NO, go to page 13

(Page 13)

You did not select the sifter, the dry measuring cup, and the spatula or knife as the proper utensils for measuring flour. O.K. perhaps this information wasn't given clearly.

TRUE--the sifter hadn't been mentioned, except as a part of the necessary measuring equipment on your list. But--the recipe called for "sifted" flour--didn't it?

The reason we sift the flour before measuring it, is to:

1. Eliminate uneven particles and lumps.

2. Assure an even distribution of the flour when it is incorporated into the rest of the ingredients.

3. Packed flour would make a recipe too heavy. The air incorporated through sifting assures a lighter texture.

In order to incorporate air and to make the distribution of the flour more even, one can use the _____.

The use of the sifter in measuring flour is often responsible for the success of the final product through its aid in incorporating air and distributing more evenly, the particles of flour.

The dry measuring cup makes leveling off the flour with a spatula or knife, a simple matter. A liquid measuring cup would make it quite difficult to level off the flour without shaking the utensil. We know that shaking would repack the flour and eliminate the air which has been incorporated by the sifting process.

If one shakes the utensil in order to level off the flour or other sifted ingredient, the flour may _____ and lose the air which has been incorporated.

Please read page 12 again, and then select the other alternative

(Page 14)

Answers to page 13: sifter, repack

Your selection of utensils was correct! The sifter will assure even distribution of the flour. It is particularly important that flour is not packed in measuring. In baking, sifting before measuring is essential to give a light texture by incorporating air into the batter.

The dry cup which measures 1 cup even, can be leveled by running a spatula or knife across the top. This prevents shaking the flour about to level it off and resulting in repacking the flour.

Follow this demonstration with your utensils and ingredients:

1. Before measuring, sift the approximate amount of flour needed onto a clean paper towel or into a bowl.

2. Spoon the sifted flour lightly into a measuring cup of the correct size, until the cup is overfull. Do not shake the cup, as the flour will repack.

3. Run a spatula or knife through the flour to remove any air pockets or lumps.

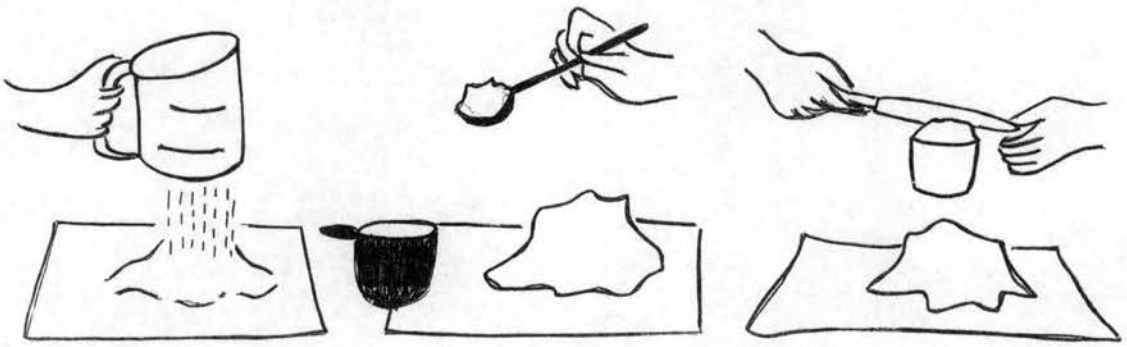
4. Level off the extra flour with the broad blade of the spatula or knife, so that the measured flour is just level with the top of the cup.

Turn to page 15

(Page 15)

The steps you just took should have looked something like this.

A. SIFT B. SPOON C. LEVEL



You have now correctly measured the flour, and in a typical recipe, you would be ready to <u>resift</u> the flour with the other dry ingredients in the recipe in order to distribute the dry ingredients evenly.

In order to assure an even distribution of all dry ingredients in the recipe, the flour should be _____ with the other dry ingredients.

Resifting is done in order to assure even _____ of all the dry ingredients in the recipe.

Turn to page 16

(Page 16)

Answers to page 14: resifted, distribution

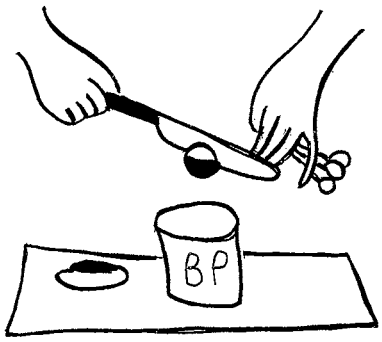
Other dry ingredients in a recipe may include: baking powder, baking soda, salt, or other spices.

These "side-ingredients" are measured with the correct size of measuring spoon.

Pick up the set of measuring spoons which was included with your measuring utensils.

Fill a measuring spoon of the correct size in order to get 1 tablespoon, with baking powder. Level off the extra amount with a spatula or knife.

This is how this measurement should have looked.



The reason you fill a measuring utensil overfull with dry ingredients, is so that you can _____ off the extra amounts and get a more accurate measure.

Turn to page 18

(Page 17)

You should have answered the preceeding questions as so--

1. Water Displacement Method

2. "Bulk" Fats

Don't forget--water is displaced by the addition of the solid or bulky fat to the measuring utensil--thus the name "Water Displacement".

This method makes it much easier to remove the fat from the utensil. The temperature of the fat is lowered, making it more solid while in the water. It is much less messy to remove when the water is poured off, than to try to scrap the fat from the sides of a container into which it has been packed.

If you are still unsure of this method, view the film-loop once again, stopping the film to observe more closely, the water displacement method of measuring bulk fats.

When you feel sure you understand the technique of this method of measuring fats---

Go on to page 22

(Page 18)

Answers to page 16: level off

In the film-loop, "Measuring Techniques", you learned the correct way to measure sugar--both granulated and brown. Remember? If not, view the film-loop once again, paying special attention to this part of the film. Return to this page.

You should have noticed that granulated sugar is measured the same as flour, except it is not necessarily sifted before-hand as flour is.

An exception to this is: many cake recipes call for sugar to be sifted in order to insure even distribution of the sugar throughout the batter.

Granulated sugar should not be packed in, but should instead, be leveled off with a spatula or knife. Shaking the utensil could pack in the sugar.

Measure out 1 cup of granulated sugar, using the metal dry ingredients measuring cup. Level it off with a spatula or knife. Did you use the proper technique?

Remember, the main points of this measuring technique are:

1. Granulated sugar _____ need to be sifted before use
   does/ does not
   in most recipes.

2. Shaking granulated sugar will _____ packing of the sugar
   prevent/cause
   while measuring.

3. Granulated sugar _____ be packed in to assure a pro-
   should/should not
   per measure.

Turn to page 19

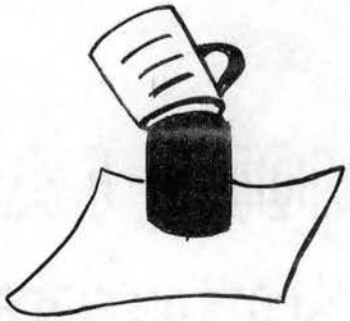
(Page 19)

Measuring brown sugar accuragely, requires a different technique from that of measuring granulated sugar.

Unlike other dry ingredients, brown sugar should be packed into the measuring cup of the correct size, before leveling off. A dry measuring cup fits the purpose best.

"Packing in" is done by pushing the sugar into the utensil firmly, until there are no air pockets, and the sugar is level with the top of the measuring utensil.

When the sugar is removed from the cup, it should look like this.



Measure out 1 cup of brown sugar, remembering to pack it in tightly. Remove the sugar from the cup. It should have come out in one solid chunk. If it does not, re-read the definition of "packing in" and remeasure the sugar.

You are now ready to proceed with other measuring techniques--

Turn to page 20

(Page 20)

You have now learned to measure flour, "side-ingredients", and granulated and brown sugar, correctly. There are only a few major common ingredients remaining which you should now learn to measure.

Fats can be measured by different methods, depending on the type of fat you are using in your recipe. Liquid fats should be measured with pyrex liquid measuring cups. It is measured the same as other liquids, which we will discuss in detail on a later page.

It is advised that "bulk" fats (those which are solid at room temperatures), be measured by the "Water Displacement Method".

This is a method in which water is added to the measuring cup, to equal the amount of fat which you desire to use. To the water, add fat, until it brings the water level up to twice its original amount. This will indicate that the amount of fat in the measuring utensil equals the amount of water, and is an accurate measure of the amount you needed for your recipe. The water has been "displaced" by the fat.

To better explain this method, carry out the following steps in your kitchen area.

1. Fill a liquid measuring cup with water. Now pour out an amount equal to the amount of shortening to be measured. (For 1/2 cup shortening, pour out 1/2 cup water).

2. Put the shortening in the cup until the level of water is just even with the line of the cup, indicating the 1 cup level.

3. Drain off the water.

The amount of fat left in the cup should _____ the desired amount for the recipe, and the original amount of water used.

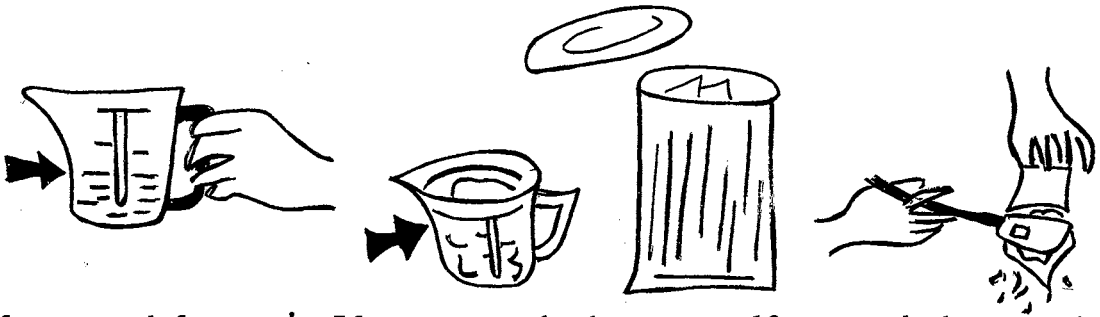
The main idea of this technique, is that the water is _____ by the fat.

Turn to page 21

(Page 21)

Answers to page 20: equal, displaced

The steps you just followed should have looked like this.



If so--good for you! If not--turn back to page 19--reread the material and repeat this measurement until you feel you have done it correctly.

The advantages of the Water Displacement Method of measuring bulk fats are:

1. Eliminates messiness in removing "bulk" fats from a measuring utensil.

2. Gives a more accurate measure, as the solid shortening must be pushed down well into the bottom of a regular measuring cup to prevent considerable space being left open. Often, the fat does not reach down to the bottom of the cup, resulting in an inaccurate measure.

3. One can see the measure more easily with the pyrex utensil.

This method of measuring fats is used to measure, are the _____ fats.

If you could not remember these terms, turn to page 17

If you had no trouble recalling these terms, go to page 22

(Page 1)

AN EXCERPT FROM A SAMPLE PROGRAM

LEARNING THE BASIC PRINCIPLES AND
PROCEDURES OF THE ART OF CARVING

TO THE STUDENT:

This program is quite different from working with an ordinary textbook. This program presents units of information, usually less than 1 page in length.

You must then make a response to indicate whether or not you understand the information presented. These units of information will also review "old" material to make sure you remember it.

Work near the 8mm film-loop projector and have at hand, the filmloops which accompany this program. These loops will be referred to from time to time in the course of this program and will be helpful in presenting some of the information concerning carving.

The program is in two parts. Upon completion of Part I, you can go immediately to Part II, or wait until a later date. It would not be recommended to wait more than a day or two to complete Part II.

You will be given the following to work with:

1. The program--Part I

2. A carving set which should include: 2 carving knives and a carving fork.

3. A steel or porcelain knife sharpener

4. 8mm film-loop projector

5. 8mm film-loops

   Part I a. "To True A Blade"
           b. "The Art of Carving A Turkey"

Always follow directions for the next page you are to read.

Turn to page 2 to begin the program

(Page 2)

INTRODUCTION:

The purpose of this program is, in part, to familiarize you with the "art" of carving. Even the most inexperienced person can carve a roast or a turkey successfully, if he has good carving tools and knows where and how to start.

When you have finished Part I, you should have the following information at your disposal for future experiences in carving meats.

1. An adequate understanding of the value of being able to carve meats correctly and confidently.

2. An understanding of the relationship between between being an efficient and successful host and being able to carve correctly.

3. Knowledge and practice in the proper method of sharpening or "truing" the blades of the carving knife with a steel or porcelain knife sharpener.

4. Familiarity with the general "rules of carving etiquette".

Turn to page 3 and continue

5. Familiarity with the proper carving procedure for turkey or fowl.

The guides given herein will help you to practice and better understand this age-old art of carving meat. Carefully observe the illustrations, meat charts and film-loops which have been included with the program.

Although it would be impractical economically, time-wise, and space-wise, to prepare all of these meats and actually practice these techniques in the kitchen--it is hoped that the information given and asked of you will be beneficial to you when you actually encounter carving and hosting experiences in your own home.

You may be surprised how many of the meat cuts and carving techniques are very similar. Learning the similarities will assist you in recalling the techniques in the future.

Turn to page 4

(Page 4)

Now that you have all of the materials assembled for this program, let's proceed with Part I.

First of all, why don't we determine how the knowledge of carving could be of value to you as a future host. If you are not familiar with the term--host--it refers to a man who extends hospitality to others, usually in his own home.

The convenient "ready-to-serve" platter or so-called Russian Service, has almost displaced carving. Where does this leave the host?

Should you omit this skill from your own home and always use the pre-prepared dishes? What if you were called on to do the carving in someone else's home--could you rely on guess work?

Please select the statement which best describes your attitude now!

A. "Yes, carving is becoming a lost art, but I feel that a truly good "Host", should be capable of accomplishing this skill. Out of my own curiosity--I would like to know its secrets!

To learn these "secrets"--go to page 6

B. "If carving is becoming so extinct and a less practical as well as less practiced skill, why should I, as a future "Host", bother to pursue this so-called art?"

Why?------go to page 7

(Page 5)

A steel or porcelain sharpener is usually used to "true" the blade of the carving knife. It is magnetized, and is usually a long, round spindle of steel or porcelain on a handle.

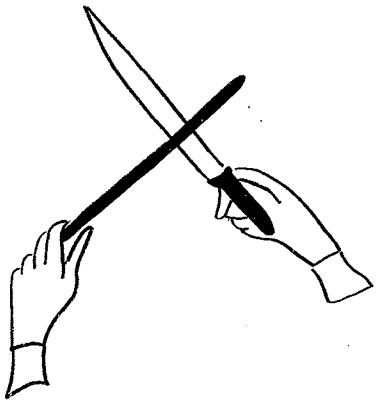
You just learned that the "Steel" (as the sharpener is commonly referred to) is magnetized in order to realign the _____ structure of the carving knife blade.

To get the knife blade extremely sharp and smooth for more ease in carving, and more accurate cuts, one should _____ the blade.

Follow this procedure with the steel and one of the carving knives included in your equipment:

1. Hold the steel firmly in the left hand (or right--if you are left-handed), thumb on top of the handle.
2. Hold the knife in the right hand, point upward, and hand slightly away from the body.
3. Place the heel of the blade against the far side of the tip of the steel--the steel and blade should meet at about a 15 degree to 25 degree angle.

This last step should look something like this--as you also observed in the film loop.



To sharpen the V-edge of a knife until it is perfectly sharp, with a steel--this procedure is called _____ the blade.

Turn to page 10 and continue

(Page 6)

Your curiosity will take you far--into the realms of successful "Hosting" and food preparation. So far--so good!

Not only will you be enabled to entertain future dinner guests royally with your confident manner and ease in carving meats just to perfection, but the personal satisfaction from acquiring this skill will make it well worth the effort!

The man who cannot only prepare the food, entertain the guests, and then serve the food with a touch of tradition and personality--is bound to earn the respect and admiration of those whom he serves.

First--let's talk about the carving utensils. Observe the carving set which was provided you with this program. The carving knives are our first concern.

Slicing knives for ham, roast beef, large turkeys, and pot roast, have a very flexible 10 inch blade, about 1 and 1/4 inch wide. Pick up this carving knife and observe the blade.

Carving knives for game, loin of pork, rack of lamb, or lobster, are about a foot in length. Their 8 and 1/2 inch pointed, rigidly firm blades, are about 1 and 3/4 inches wide. They are so shaped that at the blade edge, they come to a fine "V". Compare the two knives.

You should be able to differentiate between these two types of carving knives and their uses.

The carving knife most appropriate for turkey, pot roast, and roast beef, has a _____ inch blade and is very _____.
stiff/flexible

The carving knife most appropriate for rack of lamb, lobster, game, etc. is the one with the _____ inch blade, which is very _____.
stiff/flexible

Go to page 8

(Page 7)

That is really a very good question--Why should one bother to pursue this skill which seems to be becoming almost a novelty in today's home?

Perhaps there are some advantages and uses of this age-old skill which you have not considered. Think on these points before backing away from this "awesome" project.

1. Ready-to-serve, pre-cut meats are often more expensive to serve. (You do pay for the processing!)

2. You can serve as large or as small portions and combinations of the light and dark meat as you desire--your "eye" and "hand" will determine the size of the portions and your guests can express their choice of meat combinations to you.

3. You can carve only as much meat as in needed to be served at a particular meal, saving the remainder for future needs.

4. As head of a family, or the acting Host, it is very pleasurable to be able to carve the main meat dish, serve the individual platters, and extend this personal note of hospitality to your family and friends.

5. The carving of the meat at the table makes the meal much more interesting and attractive to those involved. This breaks the monotony of always serving pre-prepared main dishes or those involving no special handling in serving.

6. Men have enjoyed the art of carving meat for centuries and centuries. Through the Bible and History books, we have been able to determine the role of man in food preparation down through the years. What a shame to miss out on an experience which has always been considered a "masculine" honor and privilege!

If you are not a little more convinced at this point, consider the advantages of not knowing how to carve--are there really many?

Turn back to page 4 and select the other alternative

(Page 8)

Answers to page 6: 10 inch, flexible, 12 inch, flexible

You should have noticed in looking at the carving knives in the set provided with this program, that the blade is extremely sharp and needs to be kept under easy control of the person doing the carving. Not only to eliminate accidents with the sharp blade, but one needs the sharpness under control in order to make more accurate and uniform cuts of meat.

Observe, that the blades are so shaped as to form a fine "V-shape". In order to keep this V-edge "true"--or extremely sharp and smooth, it is useful to know how to sharpen the edge. This is done by using various types of knife sharpeners. The type we will be discussing and using, is the steel or the porcelain stick-like sharpener which is done manually.

The steel, which must be kept magnetized in order to realign the molecular structure of the carving knife blade, is known to be one of the most efficient methods of sharpening or "truing" a knife blade.

A. If you already know how to use a steel in sharpening a knife--fine! Turn ahead to page 9 and continue.

B. If you have never used a steel, or perhaps need a quick review in its use--first go to the 8mm film-loop projector and view the first portion of the Part I film-loop on carving--entitled "To True A Blade".

After viewing the film-loop,
turn to page 5 and continue the program

(Page 9)

Answers to page 10: across, behind

Since you are now familiar with the carving knife and the steel--perhaps the carving fork will presnet no problems to you, as it is a very helpful part of the carving equipment.

Look at the carving fork included with the set. If it has graceful shaped tines--sharp and flaired out--it will easily pierce food and hold it securely while you carve.

While it is customary to use the carving fork with the carving knife when carving at the table, it is correct to use a smaller "turning fork" as a helper, if it will make the carving and serving a smoother performance. This smaller fork is not included in the most basic carving sets, but is quite similar to the larger carving fork in its physical makeup.

The carving fork has several uses for you as the Host:

1. To hold in place large roasts, turkeys, or other large cuts of meat, and to prevent them from slipping from the carving platter.

2. To use to turn large cuts of meat.

3. To use to serve the cuts of meat directly to plates or unto a serving platter.

The main advantage of the carving fork, is the feeling of <u>control</u> it gives to you as Host and carver!

The fork-hand should always be behind--not in front of the blade! Protect yourself further by using a fork with a thumb-piece if possible.

The utensil which aids the carving knife greatly in securing and serving meats while carving is the _____ _____.

Flaired, sharp, and graceful tines which pierce food easily, are the characteristics of a good _____ _____.

An important advantage of the carving fork is that it gives the carver or Host a feeling of _____.

Turn to page 11

(Page 10)

Answers to page 5: molecular, "true", "truing"

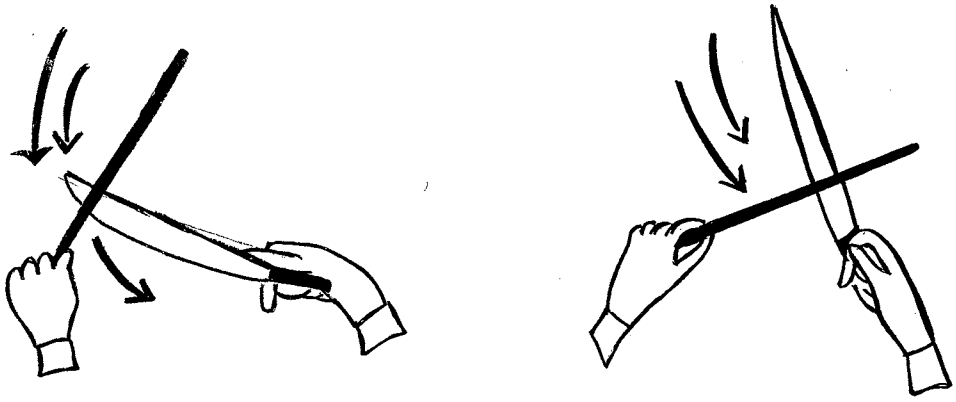
To complete the "truing" of the carving knife blade--follow these directions with the carving knife and steel you have been working with:

1. Draw the blade of the knife <u>across</u> the steel, bringing it down toward the left hand, with a quick swinging motion of the right wrist. The entire blade should pass lightly over the steel.

2. To start the second stroke, bring the knife into the same position as in the first stroke, but this time, the steel should lie <u>behind</u> the blade, away from you.

3. Repeat this process about 12 strokes. Lightly touch the knife blade to test its smooth sharpness.

These last steps should look something like this:



Practice these steps a few times with the carving knife and steel. If the procedure still isn't clear, view the film-loop again, turn back to page 5 and begin this procedure again. When you feel you understand and have accomplished truing the blade, you are ready to continue.

In the first motion of truing the blade, one should pull the blade _____ the steel, bringing it down with a quick motion.
across/behind

In the second stroke of truing the blade, it is important that the steel lies away from you, _____ the blade.
behind/in front of

Go to page 9

(Page 11)

Answers to page 9: carving fork, carving fork, control

As a prospective "carver" you should be this time, be able to see the importance of the carving equipment used and the importance of taking care of the blade of the carving knife.

When you actually try out your carving in the kitchen, use a carving board until you become truly worthy of the art and can carve on a platter without scratching it!

One value of the carving board is that the meat or fowl can be quickly sliced and attractively arranged on a hot platter in the kitchen, then served along with the vegetables, gravy, etc. all piping hot and at the same time! Nothing is more unpalatable than lukewarm food.

By the way--who determines where the carving is to take place--in the kitchen or at the dinner table? Why, YOU---the host, of course! This is one of the privileges which comes with hosting and carving the meat dish, and the guests should go along with your decision.

If the carving is done in the kitchen, it is very convenient to use a carving _____ to prevent scratching of the serving platter and to enable you to serve all of the food at once on hot platters.

Now, the next question is: "Are there any hard and fast rules for the carving which is done at the table?"

If you believe there are definite carving rules which one should follow in order to carve successfully, turn to page 12.

If you disagree, and do not feel there could be definite rules governing the proper procedures for carving meats, turn to page 14.

APPENDIX C

SAMPLE OF SLIDE SERIES PROGRAM

AN EXCERPT FROM A SAMPLE PROGRAM

"BACHELOR SURVIVAL"
CONSUMER TIPS FOR BOYS

SLIDE I--Differences in consumers are myriad, and consequently it is risky to generalize about their practices and preferences. Nationality, race, and religion influence our food choices, as well as age, income, level of education, and employment of the consumer-whether male or female.

What is more, consumers seek and select different products at different times for different purposes. . . . Food markets cater to all kinds of people--young and old, weight-watchers as well as hearty eaters, those with special dietary problems as well as those with normal diets, those who like familiar foods and those who seek specialties. . . .

Our markets function efficiently when they provide each and every one of us with what we want, when we want it, and as we like it. This is a tremendous task, and it grows as more people live in cities, and as technology enables us to have more forms and kinds of products the year around.

SLIDE II-As a consumer--whether you really do plan to remain a bachelor, or be a "family-man" someday--you need to learn, and to continue learning, how to buy and care for this food intelligently. It remains for you to learn how to make intelligent use of your knowledge of foods, your money, and your time and energy to buy and care for food.

Did you know that your Dad probably has spent hundreds of dollars a year for food? You yourself may spend thousands during your lifetime! To spend this money wisely, you must plan your marketing.

You may be earning your own money by this time, and can expect as a bachelor or as a family man, to spend a good portion of it on food. What percentage of the dollar do you think the average man spends on food today? Do you plan ahead to have money left over for eating out? How can you know how much money should be spent for food? What kinds of things will you have to consider when you will be buying all the food you eat?

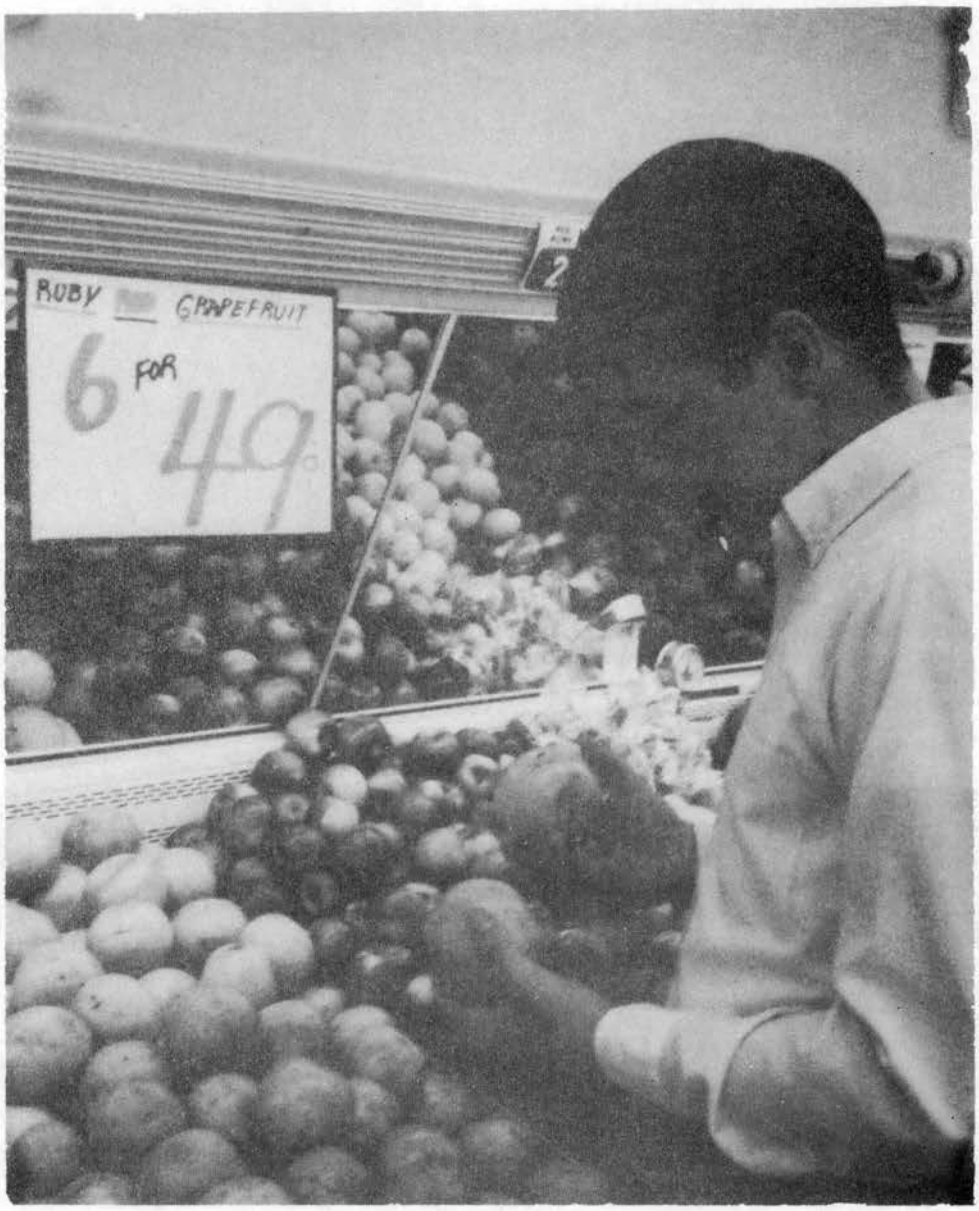


Figure 1. Compare Fresh Produce for Quality
"BACHELOR SURVIVAL" SLIDE SERIES PROGRAM

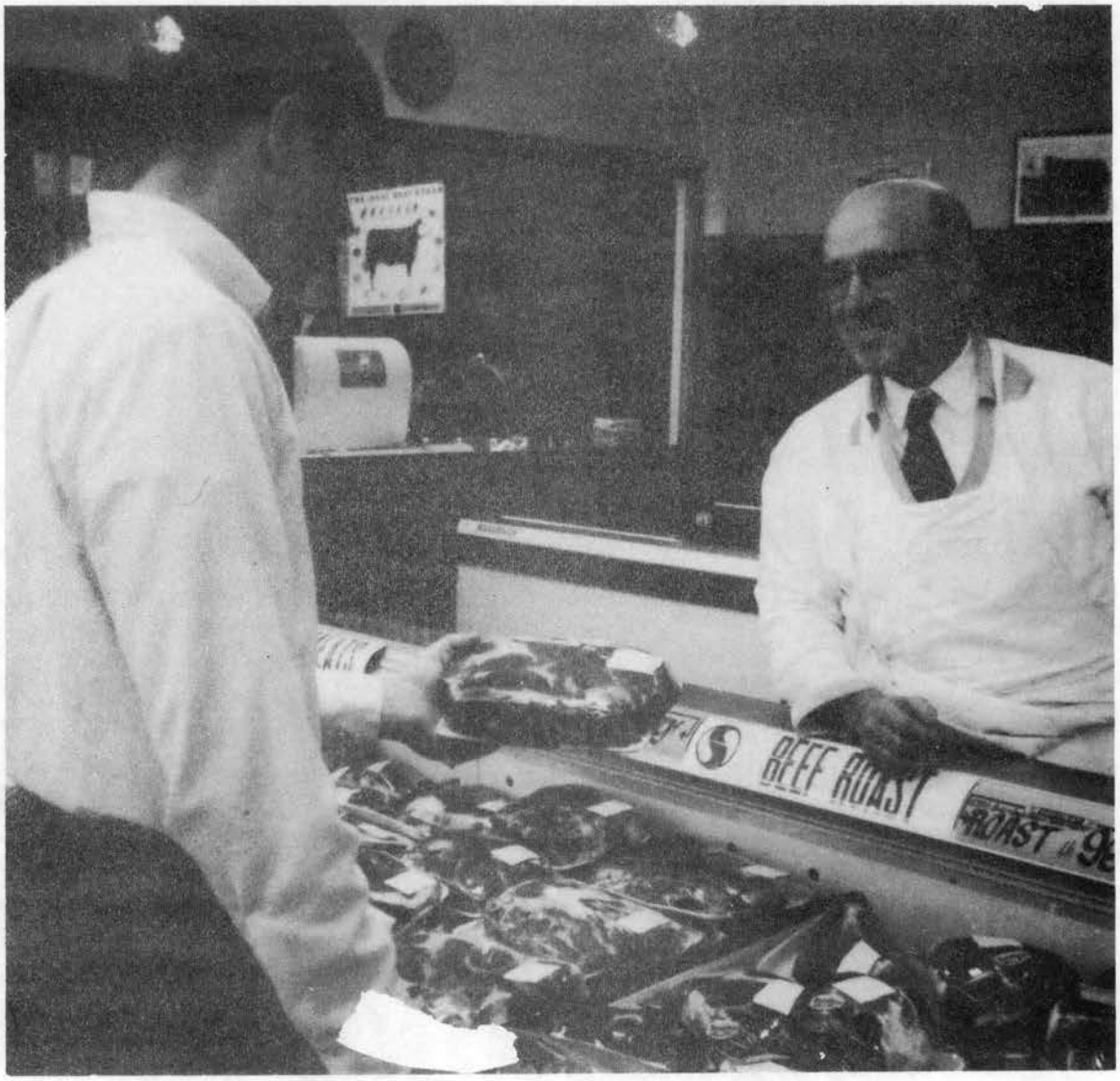


Figure 2. Consult the Meat Manager When Unsure of Cuts
"BACHELOR SURVIVAL" SLIDE SERIES PROGRAM

APPENDIX D

AVAILABLE COMMERCIAL MEDIA

Slides

STANDARDS FOR JUDGING FOODS*

Available from: Institute of Agriculture
University of Minnesota
St. Paul 1, Minnesota

MRS. TILLEY AND HER LEMON PIE KITCHEN*

Available from: Edison Electric Institute
750 Third Avenue
New York 17, New York

MEAL IDENTIFICATION SLIDE SET*

Available from: Consumer Communications Department
National Live Stock and Meat Board
36 South Wabash Avenue
Chicago, Illinois 60603

CANNING MEAT*

Available from: U.S.D.A.

MEAT IDENTIFICATION SLIDE SET
BEEF FROM STORE TO TABLE*

Available from: Consumer Communications Department
National Live Stock and Meat Board
36 South Wabash Avenue
Chicago, Illinois 60603

HOW TO COOK EGGS*

---

*All slides also available from O.S.U. Audio-Visual Center

HOW TO BUY, COOK, AND SERVE BEEF*

Available from: Swift and Company

SELECTING AND BUYING FOOD FOR THE YOUNG FAMILY*

HOW TO COOK MEAT BY DRY HEAT*

HOW TO COOK MEAT BY MOIST HEAT*

FOOD FOR FAMILY SURVIVAL*

HOW TO BUY MEAT--PARTS I, II, & III*

Available from: Swift and Company

CANNING VEGETABLES WITH STEAM PRESSURE*

Available from: U.S.D.A.

FREEZING OF BROCCOLI AND CORN ON THE COB*

FREEZING OF STRAWBERRIES AND PEACHES*

---

*All slides also available from O.S.U. Audio-Visual Center

Programed Instruction

NUTRITION

Available from: Central Scientific Company
1700 Irving Park Road
Chicago, Illinois

FOOD

Available from: Field Enterprises Educational
Corporation, Dept. C-T
Merchandise Mart Plaza
Chicago, Illinois 60654

NUTRITION--PARTS I & II
COOKING MEATS

Available from: Behavorial Sciences Laboratories
Chicago
Illinois

COOKING TERMS

Available from: Field Enterprises Educational
Corporation, Dept. C-T
Merchandise Mart Plaza
Chicago, Illinois 60654

WHAT IS KOSHER

Available from: National Society for Hebrew
Day Schools
520 Monroe Avenue
Scranton, Pennsylvania

TABLE WAITING, SERVING ETIQUETTE
WELL RWARDD WAITRI 1
WELL RWARDD WAITRI 2
PERFECT WTR STS TABLE
SERVING A PERFECT MEAL 1
SERVING A PERFECT MEAL 2
SERVING A PERFECT MEAL 3

Available from: Visual Programming (Sub. of Gralfex)
315 Central Park West
New York, New York 10025

FLAMELESS ELECTRIC RANGE

Available from: Educational Eng. Inc.
381 W. Seventh Street
San Pedro, California

8mm Filmloops

COOKING WITH CORN OIL
COOKING FISH AND CHIPS
PREPARING A SANDWICH CAKE
FINISHING A SANDWICH CAKE
MAKING A TREACLE TART
PREPARING MAYONNAISE
CONVENIENCE FOODS IN CREATIVE COOKERY
SARDINE AND SPAGHETTI FLAN
SWEET SAUCES FOR PUDDINGS
QUICK MOUSSAKA
CHILI CON CARNE
CREAM OF CHICKEN SOUFFLE
SALADS (MAIN MEAL AND TOSSED)
THE FOOD WE EAT--SERIES I
WHAT IS FOOD
FOOD FOR GROWTH
FOOD GIVES US ENERGY
MILK
EGGS
FLOUR
SUGAR
BUTTER AND MARGARINE
FRUITS
MEAT
FISH
VEGETABLES
HOW THE BODY USES FOOD
WAYS OF COOKING
STEPS IN GETTING READY TO COOK

Available from: COOKING--Eothen Films Limited
Technicolor Commercial and Educational
Division
1300 Frawley Drive
Costa Mesa, California 92627

LINING A CAKE TIN
SIMPLE CAKE DECORATION
MAKING A PASTRY
ROUGH PUFF PASTRY
SAUSAGE ROLLS
BREAD ROLLS
SHORTCRUST PASTRY
PIE DECORATION
PEELING POTATOES
SWISS ROLLS
PREPARING A CHICKEN FOR ROASTING
CARVING A CHICKEN

Available from: Potter's Photographic Application Company
Technicolor Commercial and Educational
Division
1300 Frawley Drive
Costa Mesa, California 92627

MEAT COOKERY--WITH SPECIAL REFERENCE TO BEEF AND LAMB
MEAT STRUCTURE
TOUGH CUTS--BEEF
TOUGH CUTS--LAMB
TENDER CUTS--BEEF
TENDER CUTS--LAMB
WHAT HAPPENS WHEN MEAT IS COOKED PART I
WHAT HAPPENS WHEN MEAT IS COOKED PART II
HOW TO MAKE MEAT MORE TENDER
HOW TO MAKE A STEW OR CASSEROLE
HOW TO BRAISE MEAT
HOW TO BAKE OR ROAST MEAT
HOW TO GRILL MEAT
FAULTY FINGERS

Available from: Macmillan & Co., Ltd.
Technicolor Commercial and Educational
Division
1300 Frawley Drive
Costa Mesa, California 92627

KITCHEN MANAGEMENT PRINCIPLES
THE KITCHEN
PLANNING FOR EFFICIENCY
CLEANLINESS AND SAFETY
SETTING THE TABLE
WASHING UP
FOOD FOR HEALTH
A BALANCED DIET
PROTEINS AND MINERALS
CARBOHYDRATES AND FATS
VITAMINS

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