A STUDY OF THE EFFECTIVENESS OF TEACHING BY TELEVISION VERSUS TEACHING BY THE USE OF AN EXTENSION BULLETIN

Thesis for the Degree of M. S.
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Patricia M. Coolican

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By

PATRICIA M. COOLICAN

A THESIS

Submitted to the College of Agriculture of Michigan
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MASTER OF SCIENCE

Institute for Extension Personnel Development

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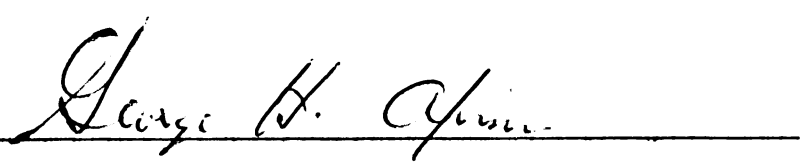
Approved 

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ABSTRACT

This study was an attempt to compare within a defined audience, the change in knowledge and retention of learning of teen-age nutrition, presented by three educational media.

Forty-nine women in Livingston County, Michigan, were the sample used for the study. The requirement for inclusion in the sample was that each participant have at least one child within the age range of thirteen to nineteen years.

The study was conducted under laboratory conditions. The forty-nine women were randomly divided into four groups for a thirty-minute presentation of the same subject-matter. Group A viewed a television program In Tune with the Teens--Their Eating. Group B read Michigan Extension Bulletin F-274-E, In Tune with the Teens--Their Eating. Group C read a mimeograph version of the same bulletin, and Group D was the control group. The control group was given a bulletin on Flower Arrangement to read.

Three pencil and paper questionnaires based on the information in the bulletin were given: a pre-test to measure their present knowledge of teen-age nutrition, a first post-test immediately following the presentation of subject-matter to determine their change in knowledge, and a second post-test given twelve days later to measure retention of knowledge.

An analysis of the data showed that the group viewing the television program had a significantly greater change in knowledge than any other group immediately following the presentation of subject-matter. However, after a period of twelve days, they had not retained enough of the knowledge to be significantly higher than the group reading the extension bulletin, although they still remained significantly higher than the group reading the mimeograph version of the bulletin and the control group.

A comparison of the group reading the extension bulletin with the group reading the mimeograph version of the bulletin showed no significant difference in knowledge immediately following the presentation of subject-matter. Yet, after a twelve day period, the retention of the group reading the extension bulletin was significantly higher than the group reading the mimeographed version of the bulletin.

A comparison of the group reading the extension bulletin with the control group showed a significant difference in knowledge immediately following the subject-matter presentation and also after the twelve day period.

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CHAPTER I

INTRODUCTION

The present day finds the Cooperative Extension Service facing a period of major adjustment and change. These next few years will see considerable effort made to determine the future course of the Cooperative Extension Service--a period of redirection to meet the ever-changing needs of its old and new audiences.

The SCOPE report stresses the point that "programs and procedures appropriate and adequate yesterday are likely to be inappropriate today, and obsolete tomorrow. Extension must be ever alert, therefore, to adjust its programs, focus, and methods to insure that its resources are used most efficiently and in keeping with the ever-changing problems of the people demanding services of it."[1]

Families have changed more rapidly and far more drastically in recent decades than ever before in history. In the early years of Home Demonstration Work, the conservative ideas of the rural people predominated, although participation in the program was not limited to rural people. Women worked hard, for women's work was never done. They believed that woman's place was in the home and took relatively little part in community affairs.[2]

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[1]Subcommittee on Scope and Responsibility (Extension Committee on Organization and Policy), The Cooperative Extension Service . . . Today, 1958, p. 7.

[2]Hazel Reed, Adjusting the Home Demonstration Program to the Needs of Modern Homemakers (unpublished paper for EPD 500, Michigan State University, East Lansing, Michigan, 1956), p. 1.

The Home Demonstration Program offered them a wonderful opportunity to get together as a group of women to consider homemaking problems, exchange ideas and skills and learn new ways, new ideas.

There was little competition from other organizations. The circulation of homemaking magazines was limited. There were no programs for homemakers on radio or television. So the Home Demonstration Program was welcomed by many women both as an educational and a social opportunity.

Today, we find that rural communities have become increasingly village and town centers. Our economy has shifted from one of scarcity to one of abundance with a higher standard of living for all. Families work less and live better. The educational level has risen. The population is growing rapidly. People live in closer contact with one another. Young people marry younger, complete their families at an earlier age, and live longer.

The woman's place is no longer just in the home. Many of them have a job outside the home. Homemaking skills seem less important today when excellent commercial products are available and people have the money with which to buy them. New equipment has released the homemaker's time and energy from the drudgery of housework, but she is not a woman of leisure.[3]

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[3] Ibid., p. 2.

We find women having a limited amount of time to spend at Home Demonstration meetings, as the school, church, and other community activities, as well as social activities vie for their time. The Home Demonstration Program today is just another community activity in the life of the average homemaker.

The large number of women's magazines, programs for homemakers on radio and television, programs by commercial companies, and adult education activities offer competition.

"Historically, much of Home Demonstration Work has been done through homemaker's groups organized specifically for such purposes. These groups will continue to function and to adjust to newer needs and programs."[4] At the same time, the Cooperative Extension Service is being requested "to provide education services to both more people and a wider variety of interest groups."[5] Special attention will be needed for such special audiences as the beginning homemaker, the working wife and mother, young parents, and the elderly or retired person.

To do such a comprehensive job as this in an efficient way, Extension Workers will need to evaluate the various channels of communication available to them in reaching these audiences. This is essential if Home Demonstration Work is to continue to have a

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[4]Task Force Subcommittee (Extension Committee on Organization and Policy), A Guide to Extension Programs for the Future, 1959, p. 24.

[5]Subcommittee on Scope and Responsibility, op. cit., p. 7.

"dynamic program--one which is constantly being modernized to keep pace with the ever-changing conditions facing the people it serves."[6]

It is with this in mind, that this study is designed.

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[6] Ibid., p. 7.

CHAPTER II

PURPOSE

The effective dissemination of home economics information is a challenge to the Home Economics Extension Worker. The rapid development of television, with its tremendous educational possibilities has opened up a whole new field of exploration.

This study represented an attempt to compare within a defined audience the presentation of the same subject matter by three educational media. Specifically, it was an attempt to measure the change in knowledge and retention of learning from a television program entitled In Tune with the Teens--Their Eating with the change in knowledge and retention of learning from reading a Michigan Extension Bulletin of the same title and with the change in knowledge and retention of learning from reading a mimeograph version of the same bulletin.

Since the establishment of the Cooperative Extension Service in 1914, Extension Workers have used extension bulletins as one of their primary channels for disseminating information. For many years, these bulletins were printed on white paper, with black ink. They did not use any illustrations, and six inches by nine inches was the conventional size used. Then, pictures and illustrations came into use throughout the text. The next step was to use a colored cover, with display type for the title. The conventional size of six inches by nine inches persisted.

Relatively recently, several State Extension Services began publishing extension bulletins with a new look. These bulletins are smaller in size (four inches by nine inches), and have color both on the title page and in the illustrations used throughout the bulletin. They are written in a much more interesting and informal style than the earlier bulletins. The bulletin used in this study (Michigan Extension Bulletin F-274E) is a bulletin of this type. (See Appendix B for a copy of this bulletin.)

State Extension Services are limited both in the amount of time Extension Specialists have for writing new bulletins, and in money budgeted for publication of Extension Bulletins. This means that no state has a bulletin published on every subject.

State Extension Services often make use of a mimeographed-type bulletin. This type is used if a regular bulletin is not available, or the subject-matter content is such that it becomes out-of-date in a short time. This information is mimeographed on white paper, eight-and-one-half inches by eleven inches. Because this type of bulletin is frequently used, it is also being included in this study.

The information from the Michigan Bulletin, In Tune with the Teens--Their Eating, was mimeographed on white paper, eight-and-one-half by eleven inches. This eliminated the illustrations and color used in the original bulletin. The headings used in the bulletin were in keeping with the theme of the illustrations, so they were changed to more conventional headings in the mimeographed version.

A thirty minute television program on this same topic was video-tape recorded at WMSB-TV, the Michigan State University Station. Content in the television program was as nearly identical as possible with that of the bulletin.

Hypotheses

Two major theoretical hypotheses were set-up for this study:

I. Women will make a greater change in knowledge and attitudes of teen-age nutrition:

   a. from viewing a television program In Tune with the Teens--Their Eating than from reading a Michigan Extension Bulletin of the same title.

   b. from viewing a television program In Tune with the Teens--Their Eating than from reading a mimeograph version of the same bulletin.

   c. from viewing a television program In Tune with the Teens--Their Eating than from reading a bulletin on a different topic (control group).

   d. from reading a Michigan Extension Bulletin In Tune with the Teens--Their Eating than from reading a mimeograph version of the same bulletin.

   e. from reading a Michigan Extension Bulletin In Tune with the Teens--Their Eating than from reading a bulletin on a different topic (control group).

   f. from reading the mimeograph version of Extension Bulletin In Tune with the Teens--Their Eating than from reading a bulletin on a different topic (control group).

II. Women will have a greater retention of knowledge, after a twelve day period from:

   a. viewing a television program In Tune with the Teens--Their Eating than from reading a Michigan Extension Bulletin of the same title.

b. viewing a television program In Tune with the Teens--Their Eating than from reading a mimeograph version of the same bulletin.

c. viewing a television program In Tune with the Teens--Their Eating than from reading a bulletin on a different topic (control group).

d. reading a Michigan Extension Bulletin In Tune with the Teens--Their Eating than from reading a mimeograph version of the same bulletin.

e. reading a Michigan Extension Bulletin In Tune with the Teens--Their Eating than from reading a bulletin on a different topic (control group).

f. reading the mimeograph version of Extension Bulletin In Tune with the Teens--Their Eating than from reading a bulletin on a different topic (control group).

In order to gather statistical data to test the major hypotheses, the following minor theoretical hypotheses were used:

1. There will be a significant difference between the mean of the pre-test scores and the mean of the first post-test scores for:

   a. Group A (group viewing television program)

   b. Group B (group reading Extension Bulletin F-274E)

   c. Group C (group reading a mimeographed version of the same bulletin)

   d. Group D (control group)

2. There will be a significant difference between the mean of the first post-test score and the mean of the second post-test score for:

   a. Group A (group viewing television program)

   b. Group B (group reading Extension Bulletin F-274E)

   c. Group C (group reading a mimeographed version of the same bulletin)

d. Group D (control group)

3. There will be no significant difference among the four groups in a comparison of the mean scores of the pre-test.

4. There will be a significant difference among the four groups in a comparison of the mean scores of the first post-test.

5. There will be a significant difference among the four groups in a comparison of the mean scores of the second post-test.

CHAPTER III

REVIEW OF LITERATURE

The expansion of television in the United States has been much more dramatic than that of radio or the auto. It has become an important part of our way of life, so much so that it is difficult to say whether it is a luxury or a necessity.

The average American family watches television about five hours a day, according to a survey conducted by a major network. In a typical week, the survey shows, 79 percent of American people over twelve years of age spend one-and-a-half billion hours before television sets--almost five times as many hours as they spend reading newspapers, ten times as many as attending movies, and eleven times as many as reading magazines.[7]

Television is without a doubt one of the most versatile audio-visual aids ever developed. "The use of sight and sound together communicates ideas quickly and efficiently,"[8] making television one of the most promising of present day educational forces. It offers a "newness which attracts attention, creates interest, and stimulates a

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[7]James S. Kinder, Audio Visual Materials and Techniques (New York: American Book Company, 1959), p. 304.

[8]Joint Committee of the U. S. Office of Education and the Radio-Television Manufacturers Association on the Use of Communications in Education, Teaching with Radio, Audio, Recording, and Television Equipment (Washington, D. C., 1953), p. 33.

desire to learn."[9]

Since the advent of television, educators, including Extension Workers, have been curious as to the effectiveness of teaching by television. The author reviewed all the research information available to her on the use of television that applies specifically to extension work. Since this was somewhat limited, an attempt was made to review studies in related fields which might have some significance for extension work, and this study in particular.

Audience Research

As of January 1, 1960, there were 45.2 million television homes in the United States. This was based on the new county-by-county estimates of television ownership in continental United States, released June 13, 1960 by the A. C. Nielson Company.[10] The United States figures, covering all states except Hawaii and Alaska, reflect a 1.2 million gain since the last estimates a year ago. This number represents 87 percent penetration of all continental U.S. homes as compared to 86 percent in the spring of 1959. The Nielson estimates show a 92 percent penetration for both the states of Michigan and New York.

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[9]Kenneth B. Haas and Harry Q. Packer, Preparation and Use of Audio-Visual Aids (New York: Prentice-Hall Inc., 1955), p. 258.

[10]A. C. Nielson Co., "TV Sets: County by County," Broadcasting, June 13, 1960.

Two studies relating to radio-television listening habits were done in Broome County, New York, and in eastern Massachusetts. The Broome County study,[11] made in 1952, included a random sample of both members and nonmembers of the Broome County Home Demonstration Program.

Women's magazines headed the list of media through which they got new ideas in homemaking. Over half the women, both members and nonmembers said they got the information most helpful to them through these media.

The rank order of the media most frequently mentioned on the basis of providing help information was:

By Members	By Nonmembers
Women's magazines	Women's magazines
Home Demonstration unit meetings	Women's pages in newspapers
Women's pages in newspapers	Friends, neighbors, relatives
Friends, neighbors, relatives	Homemaking programs on TV

Radio was not an important medium of homemaking information for seven out of ten Broome County homemakers. Six out of ten of the homemakers who had television said it was an important medium of homemaking information.

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[11] Edward O. Moe and Kathryn S. Doyle, Radio and Television in the Broome County Home Bureau Program (Ithaca, New York: Office of Extension Studies, New York Extension Service, 1955).

The survey report on radio-television listening habits in eastern Massachusetts[12] was done in 1953. This survey attempted to determine how much of a dent television made in the daytime radio audience in an area all of which was served by two network television stations, and part of which was served by four network television stations. It also attempted to contrast present listening-viewing habits with preferred radio and television time period for extension programs.

The surveys were completed by persons living within a 50-mile radius of Boston, so the results gave a picture of the habits of a radio-TV audience in a metropolitan area, in a state where agriculture was not the leading industry.

Results of the survey showed that:

1. Daytime listening-viewing habits still were pretty well divided between radio and television in multiple-set homes.

2. While daytime television claims a fairly sizable portion of the available daytime audience, radio still ruled the roost until 3 p. m.

3. Approximately 25 percent of the people replying indicated no time for, or little interest in, daytime television of any type.

4. The best daytime hours for Extension Service and other informational television programs are 9 to 10:30 a. m. and 1 to 4 p. m.

5. A number of people requested more programs of this type during evening hours, as well as on week ends, when more men were home.

6. The vast majority of listeners preferred the noon hour for informational radio. However, the preferred television hours listed for informational programs seem to indicate a television audience could be built during at least half of the daytime hours (6 a. m. to 6 p. m.) if the program was good enough.

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[12]Massachusetts Extension Service, Radio-Television Listening Habits in Eastern Massachusetts (Amherst, Massachusetts, 1953).

7. Radio and television programs must be supported by newspaper listings and special stories as well as by direct mailing if an audience was to be built at any given time. The majority of the radio audience did not know about the extension television program, and vice versa.

8. In most cases extension workers found they could reach far more people at any time on either radio or television than was possible with the same amount of effort through meetings.

A television audience survey[13] was conducted in and around Wilmington, Delaware in December, 1950 to find out if homemakers would be interested in a series of television lessons on homemaking, when they wanted them, and how long. The data indicated that 60 percent of the homemakers interviewed said they would be interested in a series of television lessons on homemaking subjects. Home furnishings was the most popular topic, with child care and foods next in that order. The largest number of homemakers selected the evening hours for the television lesson. Next best time selected was from one to three in the afternoon. The majority suggested a 30-minute program.

Effectiveness of Extension Television Programs

County extension agents throughout the United States have steadily increased their use of television broadcasts as an extension

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[13] W. T. McAllister and Louise R. Whitcomb, Television for Delaware Homemakers (Newark, Delaware: Delaware Agriculture Extension Service, 1951).

teaching method. Gordy[14] reported that in 1953, county extension agents made or prepared 4,653 television broadcasts. By 1956 they made or prepared 15,837 broadcasts, and in 1958, they made 18,584.[15]

In 1950 a study by the United States Department of Agriculture[16] attempted to measure the effectiveness of a series of eleven 12-minute television demonstrations entitled, "Let's Make a Dress." Personal interview data secured from women in the viewing audience indicated that the television demonstrations, supplemented by printed material, were highly effective in teaching new dressmaking ideas and improved practices.

An outstanding characteristic of the audience studied was the high proportion of young mothers, a segment of the population that had been difficult to reach through the usual extension channels. The audience was of the opinion that the 12-minute programs were of insufficient length. Eighty-four percent voted for a longer program. Almost 98 percent of the women interviewed wanted more television programs on sewing.

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[14]Amelia S. Gordy, Television Broadcasts Made or Prepared by County Extension Agents (Washington: USDA, Federal Extension Service, 1957), p. 1.

[15]Amelia S. Gordy, 1958 Extension Activities and Accomplishments (Washington: USDA, Federal Extension Service, 1959), p. 16.

[16]M. C. Wilson and E. O. Moe, Effectiveness of Television in Teaching Sewing Practices (Washington: USDA, Federal Extension Service, 1951).

A similar study was done by Iowa State Extension Service[17] in 1951. This study was an attempt to determine the effectiveness of television as a teaching medium for clothing construction. The study concerned a series of nine 30-minute television demonstration programs entitled, "Make a Dress--TV." The relative effects of four teaching methods were compared. Group A received television only, group B received television and printed material, group C received television and assistance by the home demonstration agent and group D received television, printed material and assistance by the home demonstration agent.

Results of data secured by personal interview, indicated a sizable number of women received a better knowledge of clothing construction processes from the television series. There appeared to be little difference in the results of the four teaching methods used. The number of women viewing the programs decreased gradually but consistently throughout the series and only 35 percent completed the entire series. They concluded that a shorter series, with subject matter less involved, might result in more women following and participating in similar programs in the future.

It was found that group D who received television, printed material and assistance from the home demonstration agent, watched more programs than any other groups. Most of the women said that 30-minute programs were a satisfactory length.

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[17]Iowa State Extension Service, Make a Dress--TV (Ames, Iowa, 1951).

Davis[18] reported that 800 women in Franklin County, Iowa were organized into "coffee groups" to view a series of four 30-minute television programs, "Sizing Up Your Windows." These were presented over WOI-TV, Iowa State College, in February, 1953. A special training school was held one month previous to the television series, to train discussion leaders for the coffee meetings. No evaluative information as to the effectiveness of the series was reported.

In the spring of 1953, twenty-two 15-25 minute telecasts on tailoring a coat were presented by the home demonstration agent in Milwaukee County, Wisconsin.[19] A random sample of 156 women who had television and had requested the leaflet on tailoring were interviewed.

Of the women included, one-third were under thirty-five years of age, over two-thirds had children under eighteen years of age, and two-thirds were high school graduates. Almost all had some training in clothing construction, most were experienced at sewing, and all had sewing machines or access to one.

Most of the women said they watched the shows in order to learn how to sew and tailor; fifty-seven made garments as a result of the programs. Virtually all were pleased with their results, and a large variety of new practices in tailoring and use of equipment were learned by the women.

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[18]James Davis, A Report of Four Educational Television Programs (Ames, Iowa: Iowa State College, 1953).

[19]J. Pollock and G. Meloche, The Effectiveness of Television in Teaching Tailoring a Coat (Madison, Wisconsin: Wisconsin Extension Service, 1954).

A large majority preferred such series to run from six to ten weeks, although twenty-two said they liked the length of the coat series which was twenty-two weeks. Over half would like a similar program to come twice a week, over one-third prefer it once a week. Programs over twenty minutes in length were preferred by three-fourths of the women. Early afternoon was the preferred time of day. Virtually all expressed interest in seeing another clothing series on television.

The Massachusetts Extension Service[20] did a study on two television series for homemakers, a Lamp Shade Series done in the fall of 1954, and Furniture Refinishing done in the spring of 1955.

Three 15-minute programs were given on making a lampshade. The series had been previously described on the air and a pamphlet was offered A random sample of those requesting the pamphlet answered a mail questionnaire. Of those replying, 38 percent watched all three shows, 25 percent watched two; 29 percent watched one only; and 8 percent watched none.

Although 87 percent reported that the instruction given was clear, those producing the show thought a better teaching job could have been done in four or five shows. The evening hours had the largest audience of homemakers, 2:00 to 4:00 p.m. was second.

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[20] R. M. Starkey and E. S. Carpenter, Television Series for Homemakers (Amherst, Massachusetts: Massachusetts Extension Service, 1956).

The study pointed out that for a series of telecasts on one subject it was essential to do advance publicity by many different media.

The series on furniture refinishing were three 15-minute programs. To supplement the information in the shows, instruction sheets were made available to the viewers on request. A random sample of those requesting the instruction sheets answered a mail questionnaire. Of those replying, only 29 percent had seen all three telecasts, but 33 percent had done some furniture refinishing since viewing one or more of the programs, and another 8 percent said they intended to do so. Information was passed on by 59 percent of the viewers to an estimated 500 additional persons.

A study by Mulder[21] in 1954 attempted to measure the effectiveness of using television with organized viewing groups. A series of four 30-minute shows were telecast over WKAR-TV, the Michigan State College television station.

A viewing group consisted of several homemakers who met in homes for the purpose of viewing and discussing the television series on "Understanding Young Children." The telecasts served as a springboard for a follow-up discussion. Each group selected a leader to lead the discussion period.

Seventeen different groups with 110 members in six counties around East Lansing, Michigan enrolled in the viewing group

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[21] Dorothy Mulder, "An Experiment in the Use of Television for Organized Viewing Groups" (unpublished Master's thesis, Michigan State College, East Lansing, Michigan, 1954).

project. One out of three groups were unable to receive the WKAR-TV signal due to technical difficulties and unfamiliarity with ultra high frequency operation. Sixty-one women viewed one or more of the television programs. Only five groups with a total of twenty-seven members completed the series. Due to the limited number completing the television series, it was not possible to carry out a complete analysis of the results. Consequently, no conclusions were made concerning the educational influence brought about by the television series.

Reactions expressed by the limited number who completed the series indicated a favorable response to the viewing group method. The outstanding characteristic of the audience studied was the high proportion of young mothers. Almost 65 percent of the women were under thirty-four years of age.

The most recent extension study was the El Paso Study,[22] done in 1959. This study represented an attempt to test the effectiveness of teaching kitchen improvement by television. Three 30-minute programs were given for three successive weeks. Two publications were mailed in answer to requests. Questionnaires were sent to 182 homemakers who had requested the publications. Fifty-four percent returned the completed forms.

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[22] Charlotte Tompkins, Teaching Kitchen Improvement by Television in El Paso County, Texas (College Station, Texas: Texas Agricultural Extension Service, 1959).

The data showed that 79 percent of those who watched saw one or more of the three programs; 48 percent saw all three of the shows. Thirty-one percent of those who returned completed questionnaires were home demonstration club members; 69 percent were not. Almost one out of three homemakers was under thirty years of age. The study pointed out that this indicated that a higher proportion of homemakers under thirty may be reached through mass media than through meetings. Eighty-five percent of the women included in the study lived within the corporate limits of El Paso, which indicated that urban homemakers can be reached by mass media. In an urban study of nonclub members conducted in Baltimore, Maryland,[23] almost half of the women named television as a preferred media for receiving information.

Data showed that 71 percent had used the information. The percentage of women planning changes was quite high, possibly because only four weeks had elapsed after the programs before the questionnaires were mailed. No follow-up study was done to determine the percentage of these plans completed. Those seeing two or more programs and reading half or more of the publications averaged more changes than those who read the publication but saw no shows. The study pointed out that television and publications each were more effective when one supplemented the other.

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[23]Jewell Fessenden and Wayne C. Rohrer, A Study of an Urban Home Economics Program, Baltimore, Maryland (College Park, Maryland: Maryland Agricultural Extension Service, 1956).

Related Studies

Perhaps the largest amount of instructional television research, has been done by the Department of the Navy. An experiment was designed to compare teaching by television with teaching by other media.[24] Comparable groups of Naval Air reservists were taught a series of training lessons by one of three methods. Some groups were taught by television alone. Other groups were shown kinescope recordings of these broadcasts and others were taught in the conventional manner by instructors who gave lectures. All of these trainees were tested and results of these tests were analyzed statistically to find the relative effectiveness of the three training methods.

In general, the results of the study indicated that television instruction was an effective means of training large numbers of reservists at widely separated stations. Comments written by trainees immediately after television sessions indicated that the television instruction was very favorably received. Television instruction was found to be better than teaching by local instructors in half of the comparisons made. The kinescope recordings were as effective as the television programs themselves in 84 percent of the comparisons made. Thus, it was concluded that recordings of television programs were a valuable by-product.

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[24] Robert Rock Jr., James S. Duva and John E. Murray, The Comparative Effectiveness of Instruction by Television, Television Recordings, and Conventional Classroom Procedures (Port Washington, L.I., New York: Special Devices Center, Office of Naval Research, Department of the Navy, 1951).

Retention of Learning

In another research project conducted by the Navy, a study was done in learning and retention from television instruction.[25] Eight one-hour lessons were telecast at weekly intervals to more than 3,000 Army Field Force reservists who were assembled in 160 groups to view the programs. Tests were given to each person immediately before and immediately after each instructional session, and some questions were repeated later to measure retention. Results of the data indicated that the reservists not only learned from the television instruction, but they remembered most of what they had learned when retested four or six weeks later.

It was also found that the method of teaching used on television was very important. Drama by itself was not very effective. The best teaching method was found to be narration combined with drama or film that explained and amplified what the narrator was talking about.

It was concluded that the amount of learning was directly related to explicitness of treatment. Topics that were explicitly covered in the television sessions produced large gains in knowledge, while topics that were treated sketchily or indirectly were not grasped by most of the reservists.

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[25]Robert Rock Jr., James S. Duva and John E. Murray, Training by Television--A Study of Learning and Retention from Television Instruction Transmitted to Army Field Force Reservists (Port Washington, L.I., New York: Special Devices Center, Office of Naval Research, Department of the Navy, 1951).

The author reviewed a study on the retention of items learned from one reading of a prose article.[26] While it did not apply specifically to this study, the discussion on the use of a pre-test, and the same test through the study did have application.

Mullaly based her study on the belief that "the use of a pre-test for all subjects is the only valid criterion for judging previous knowledge. It was also thought that the pre-test should focus attention and act as an aid to learning."[27]

She used the same test both for the pre-test and for the three tests given afterwards to measure retention. To answer arguments given about the practice effect invalidating the results of her study, Mullaly justified her procedure by this statement: "The items which were right on the pre-test might be considered as practiced items that might aid in the later test . . . items which were incorrect on the pre-test cannot count as practice that will induce later correct items. As for the later tests, the intervening time and the fact that the subjects did not know whether their answers had been right or wrong would seem to offset practice effect."[28]

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[26] Sister Columba Mullaly, A. M., "The Retention and Recognition of Information, An Experimental Study of the Retention and Reminiscence of Items Learned from One Reading of a Prose Article" (unpublished doctoral dissertation, Catholic University of America, Washington, D. C., 1952).

[27] Ibid., p. 12.

[28] Ibid., p. 17.

Applicability of Experimental Findings

Wilbur Schramm discussed the applicability of findings of studies conducted under experimental situations. Since the study of this author is this type, it seemed important to make note of his discussion.

Many of the studies in which two or more media were compared were conducted under laboratory conditions which differ markedly from the situation in which the public at large listens to or looks at the products of mass media. Schramm pointed out three differences between the laboratory and the social situations which were of particular importance:[29]

1. The controlled experiment ordinarily involves highly motivated attendance. Often the subjects are students who are compelled to read, listen or watch by faculty command. Sometimes the subjects are paid to be spectators. Their awareness and reactions are thus likely to be quite different from those of the housewife or worker who reads, watches, or listens to what he wishes, when he wishes, and where he wishes.

2. The controlled experiment ordinarily involves identical texts presented through different media. Outside the laboratory, however, one is not likely to hear over the radio the exact words of a magazine article or advertisement. Data pertaining to identical texts cannot be assumed to be valid in relation to vaguely similar texts.

3. The controlled experiment ordinarily controls the frequency and length of exposure. The subjects see, hear, or view the material a given number of times,

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[29] Wilbur Schramm, The Process and Effects of Mass Communication (Urbana: University of Illinois Press, 1954), pp. 92-93.

> which is ordinarily equal for the several media. In daily life, however, a man may read something in the paper once and hear similar material over the air seven times, or twice, or not at all. In short, neither balanced exposure nor its results necessarily occur in the work-a-day world.

Because of these reasons, evidence found in studies of this type must not be assumed to be valid in situations dissimilar to those described in the specific study. However, indicating what may be expected when all conditions but one are equal helps to identify those conditions which are not ordinarily equal, and so to develop our understanding of the nature and results of given communication situations.

Summary

From the research literature reviewed, the writer found certain basic assumptions concerning the educational use of television. The television medium is an effective educational device for reaching large numbers of people where they are. Thus, more people can be reached more economically through television.

In the extension studies reviewed, the high interest of women in more television programs indicated the potentialities of television as an effective medium for conducting an adult education program. It appeared to be peculiarly adapted to reaching young homemakers and mothers of small children who were not able to participate in group activities outside the home. Several studies pointed to the importance of a bulletin or similar printed matter as a supplement to television

programs. Television was favorably received by those viewers who have participated in educational television programs.

Today, the question is no longer whether television can play an important role in education. That question has been answered in the affirmative by studies showing that the medium has been used successfully in education. The question that now needs fuller exploration is what kind of a role television can play most effectively.

Television has been described as "the most important new educational tool since the invention of movable type, but like the textbook the new medium is essentially just that--a tool. Like any tool, it can be misused or badly used. But if it is wisely and imaginatively used, television can play a major role in broadening and enriching the education of American students at all levels of schooling."[30]

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[30] Ford Foundation and Fund for Advancement of Education, Teaching by Television (New York: Ford Foundation Office of Reports, 1959), pp. 60-61.

CHAPTER IV

METHODOLOGY

As stated in Chapter II, this study was an attempt to measure the change in knowledge and retention of learning among three different groups. Groups A viewed a television program; group B read an extension bulletin; group C read a mimeographed version of the same bulletin. A fourth group, a control group (D), was added to the study for comparison.

A Michigan Extension Bulletin, In Tune with the Teens--Their Eating, was selected as the bulletin to be used. It was selected because it is an example of a bulletin written in an interesting and informal style, and makes use of color and illustrations both on the cover and throughout the text. It was also selected because the content of the bulletin could be adapted to a 30-minute television program. This controlled the variable of presenting the same material to each group.

The last two-and-one-half pages of the bulletin contain recipes for nutritious snacks. This information was not included in the television program and no questions were asked about it on the questionnaire. Those pages were removed from the bulletin, so that the group reading the bulletin did not have this information included either.

A mimeographed version of the bulletin was prepared. This covered exactly the same information as the bulletin, minus the recipes. The headings used in the bulletin were in keeping with the theme of the illustrations, so they were changed to more conventional headings in the mimeographed version.

Television Program

A thirty minute television program was designed, based on the material in the bulletin. The program was video-tape recorded over closed circuit at WMSB-TV, the Michigan State University television station. An audio-tape was also made.

Great care was taken to be sure the content of the television program was the same as that of the bulletin. Wording on charts and the blackboard was the same as that used both in the bulletin and on the questionnaire. In places where it was important for the performer to use words identical to those used in the bulletin, a teleprompter was used.

During the video-taping, the script was followed in the control room of the studio. This was done to be sure that all points in the script were covered. Three points in the script were not included in the program itself. Therefore, the three questions on the questionnaire covering these points, were not scored in any of the three tests given. As a double-check, the script was also followed during the actual telecast of the program, to be sure nothing more was omitted. Only these three points were omitted.

The University Station agreed to telecast the program for the study. The only available time for this was on Saturday, May 21st, at one o'clock in the afternoon.[31]

Measuring Instrument

A questionnaire was designed covering the information on nutrition facts and attitudes presented in the bulletin. The original questionnaire consisted of forty-two questions with seventy-two answers. The questions consisted of true-false, multiple choice, and fill-in of key words.

The questionnaire was pre-tested by two groups of people: (1) fellow graduate students in the Institute for Extension Personnel and (2) eight homemakers. Each person was asked to fill in a questionnaire, read the bulletin, and then fill in a second questionnaire.

The graduate students were asked to participate in the pre-test primarily to give the author helpful suggestions on the questionnaire form itself, and wording of the questions.

The eight women used for the pre-test were typical of the women to be used in the study itself. Besides doing the pre-test, these women were asked to make note of any questions they felt were difficult to understand. They were also asked to record the time it took to

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[31] The time of day, and the day of the week may have had an effect on the number of women willing to take part in the study. Since it was the only time available from the television station, this was a variable which could not be controlled.

answer the first questionnaire, the time it took to read the bulletin, and the time it took to answer the second questionnaire. This information was used in planning the time schedule for the study itself.

After scoring these questionnaires, the author revised the questionnaire. A few questions were eliminated; some were broken down into two questions, or changed in form. The final questionnaire consisted of forty-three questions, with sixty-one answers. Three of these questions were not scored on any of the tests, because the points the questions were based on were unavoidably omitted from the television program.

The questionnaire as used in the study then, had fifty-six possible answers. A copy of the questionnaire is included in Appendix B.

In scoring the questionnaires given in the pre-test, it was noted that in certain questions, the women substituted a word having the same meaning as the one used in the bulletin. It was decided that a list of allowable answers would be determined for these questions. They were determined from answers given in the pre-test, with further checking against a dictionary and also with author of the bulletin.

The following alternate answers were decided as being acceptable:

7. sweets--candy also acceptable
   soft--pop, carbonated also acceptable

14. concentrate--supplement, pill, tablet also acceptable

20. quantity--amount also acceptable
absorption--assimilation also acceptable

23. insist--urge, demand also acceptable

26. rest--most, majority, members, others, run also acceptable

29. skin--complexion also acceptable
pimples--blemishes or eruptions also acceptable

30. mealtime--meals also acceptable

35. what, when--these answers may be interchanged in position

36. own--personal also acceptable

The final questionnaire was prepared before the script of the television program. Both the questionnaire and bulletin were used as a check against the television program script to insure the same content in all three.

Sample

As stated in the purpose, this study was an attempt to measure the change in knowledge and retention of learning within a defined audience. Since the topic was on teen-age nutrition, the audience was defined as the mothers of teen-agers. The requirement for being in the sample was that a woman must have at least one child within the age range of thirteen to nineteen years.

The first step was to secure a sample of women meeting this requirement. Since the television program was to be telecast from the University Station located in East Lansing, the area chosen for the sample had to be within the coverage range.

The sample was secured by selecting a county within Grade A Coverage of WMSB-TV, and asking the cooperation of the Extension Agent in Home Economics in securing the sample. Livingston County was selected, and they agreed to cooperate in the study. The author met with the county staff three weeks previous to the study to explain it to them. The fact that participants were not to know the content of the study was emphasized.

The home economics agent announced the study at three district meetings the following week. She also enlisted the help of eight women in various sections of Livingston County in securing women, and announced it at their annual county-wide Achievement Day.

Women were told merely that a New York State Home Demonstration Agent, who was doing graduate work at Michigan State University, wished to use a group of Livingston County women for her thesis study. The only requirement was that they have at least one child between the ages of thirteen and nineteen years of age, and that they be able to attend the two meetings scheduled for it.

Definite sign-ups were taken, as it was felt women would feel more of an obligation to attend something to which they had given a definite commitment. A minimum sample of sixty was desired, so the aim was to have ninety women sign-up for the study. Eighty-eight women did agree to take part in the study. A reminder card was sent to each of them five days before the meeting.

On the day of the study, forty-nine women attended. In comparing the list of those attending against the original list, the author found that forty-one women on the original list attended. The other eight heard about the study through friends, and came with them.

Procedure

Women were randomly divided into four groups through the use of four different colors of questionnaires. They were mimeographed on pink, yellow, white and green paper. Pink was to be used for the group viewing the television program, yellow for the group reading Michigan Extension Bulletin F-274E, white for the group reading the mimeographed version of the bulletin, and green for the control group.

An envelope was prepared for each participant. Two questionnaires were placed in each, one loose and one in a sealed envelope. Each questionnaire was coded on the back. The loose questionnaires were given the numbers 1 to 15 on each color, and were used for the pre-test. The questionnaires in the sealed envelopes were coded with the numbers 1P to 15P, and were used for the first post-test. Putting the post-test questionnaires in sealed envelopes prevented the participants from knowing that they would be asked to fill-in another questionnaire later in the day.

A small card, with identical coding and color, was stapled to each envelope. Each woman was asked to put her name and address

on this card. This was used as identification in preparing the questionnaires for the second post-test given twelve days later.

The envelopes were then arranged in the order they were to be handed out, rotating the four colors, pink, yellow, white and green.

Data Collection

The data were collected on Saturday, May 21, 1960. Since the television program was to be telecast at 1 p.m., the timing revolved around this. Women were asked to be at the Court House Annex in Howell at 12:15 p.m., in order to be sure of starting promptly at 12:30 p.m. As the women arrived, each one was handed an envelope and asked to wait for further instructions before opening it.

The agent introduced the author to the group, and the author gave instructions on filling out the questionnaire. They were given twenty minutes for this. They were asked to put their name and address on the card stapled to the envelope, and also to write their name on the envelope itself. This was to insure identification of the envelope, in case anyone of them set it down.

Following the pre-test, the group was divided into four smaller groups according to the color of the questionnaire they had. They were given directions about which room to go to. As they entered their assigned room, they handed in the completed pre-test questionnaire and the card. This was a further check to be sure each participant got into the right group.

The author prepared written instructions for the three people assisting and herself. This insured the same instructions being given in each group.

The exposure for each group began promptly at 1 p. m. One-half hour was allowed for it. No group knew ahead of time what they would be doing, and did not know what any of the other three groups were doing.

Group A (pink) viewed the television program; group B (yellow) read Michigan Extension Bulletin F-274E; group C (white) read a mimeographed version of the same bulletin; group D (green) was the control group, and they were given a bulletin on Flower Arrangement to read.

Even though Howell was within Grade A coverage of WMSB-TV, the television reception was not at its optimum. A seventeen inch portable television set and a twenty-one inch table model were both tested in the meeting place the week previous to the time it was to be used. The reception from WMSB-TV was snowy on both sets, but the reception overall was better from the portable set. This is the one that was used.

The portable set was checked again the morning it was to be used. Reception was still snowy, but otherwise good. During the actual telecast of the program, In Tune with the Teens--Their Eating, interference, apparently from electrical equipment being used in the vicinity of the meeting place, was very evident. It was impossible to do anything about it.

At 1:30, the bulletins were collected in groups B, C, and D. Each woman was asked to take the sealed envelope out of the larger envelope, open it, and fill in the questionnaire based on what she had read or seen. This first post-test questionnaire was identical with the one used for the pre-test, with an additional page asking information as to age, place of residence, schooling, age and number of children of the participant.

No time limit was set for filling in this questionnaire. The pre-test of the questionnaire showed that an average of eight minutes was needed to fill in the questionnaire after reading the bulletin. A large percentage of women finished it in five minutes, and in no case did it take longer than ten minutes.

Second Stage of Data Collection

Before the second post-test, which was given twelve days later, an envelope was prepared for each participant, with her name and address on the front. The questionnaires were coded 1PP to 13PP for each of the four colors, and put in the appropriate envelope. These envelopes were then arranged in alphabetical order, as an easy method for distribution when the women arrived.

This questionnaire was again identical with the other two used. An additional page asked for the following information: (1) whether they had done anything differently about feeding the teen-agers in their family since May 21st, (2) whether they had any special problems

in teen-age nutrition in their family, (3) whether they now had any questions they would like to ask about teen-age nutrition, and (4) their own rating of how much they learned from this experience. They were also asked to indicate whether they were presently a member or ever had been a member of a home demonstration group.

Forty of the original forty-nine women attended the meeting on June 2nd. This number represented 81 percent of the sample used in the study. Eight of the remaining nine questionnaires were secured by personal interviews. One of the nine interviewed refused to fill-in the questionnaire.

Previous Knowledge with Bulletin Used in This Study

The author recognized the fact that participants in the study might have had previous contact with Extension Bulletin F-274E, In Tune with the Teens--Their Eating. A check with Livingston County provided the information that this bulletin had not been used for any foods projects taught in their home demonstration program.

Since Extension Bulletins were also available for free distribution through the County Extension Office, participants might have obtained a copy from this source. Participants were asked after the second post-test whether they had either seen or read the bulletin previous to the time of this study. Not one of the participants had either seen or read the bulletin.

There was also the possibility that participants might request the bulletin from the County Extension Office in the twelve day period between the first and second post-tests. The office kept a check on this bulletin, but no requests were made for it.

Although a definite statement cannot be made regarding this, it seems apparent that the participants in this study did not have any previous contact with the bulletin, and that they did not have access to it during the twelve day period between the first and second post-test.

Statistics Used

This was a study in which differences among four independent samples were compared. In a case such as this, "it was necessary to use a statistical test to indicate whether there was an over-all difference among the samples before picking out any pair of samples in order to test the significance of the difference between them."[32]

The technique used for testing whether several samples come from identical populations was the one-way analysis of variance or F test. "Sample values almost always differ somewhat, and the problem is to determine whether the observed sample differences signify differences among population or whether they are merely the chance variations that are to be expected among random samples from

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[32]Sidney Sigel, Nonparametric Statistics (New York: McGraw-Hill Book Company, Inc., 1956), p. 159.

the sample population. The assumptions associated with the statistical model underlying the F test are that the observations are independently drawn from normally distributed populations, all of which have the same variance."[33]

The analysis of variance, and the corresponding test of significance, permitted the testing of differences among all the means at the same time. This test dealt with variances rather than standard deviation and standard error.

The analysis of variance test determined whether there was a significant difference among groups. It did not specify whether each group differed significantly from each of the others. It was necessary to use the studentized range to determine this.

After consultation with Dr. William D. Baten,[34] the following formulas were selected. Hypotheses one and two were tested by the t test, at the five percent level of significance, using the following formulas:

Standard deviation: $S_d = \sqrt{\frac{\Sigma d^2 - \frac{(\Sigma d)^2}{n}}{n-1}}$

The value, d, is the difference in score between corresponding two tests.

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[33] Ibid., p. 174.

[34] William D. Baten, Experiment Station Statistician, Michigan Agricultural Experiment Station.

Standard deviation mean: $S_{\bar{d}} = \frac{\Sigma d}{\sqrt{n}}$

$\underline{t}$ test: $t = \frac{\bar{d} - 0}{S_{\bar{d}}}$

The value, $\bar{d}$, is the average of the difference of corresponding scores; $S_{\bar{d}}$ is the standard deviation of the mean. The value, 0, is the expected value of $\bar{d}$ under the hypothesis that there is no difference between corresponding scores on two tests.

Hypotheses three through five were tested by the one-way analysis of variance or F test, at the five percent level of significance. The formulas used were:

Sum of Square of Total Group = $\Sigma\chi^2 - \frac{T^2}{N}$

$\Sigma\chi^2$ is the sum of each score squared for all four groups. T is the total of the scores of the four groups. N is total number in sample.

Sum of Squares between Groups = $\frac{A^2}{n_1} + \frac{B^2}{n_2} + \frac{C^2}{n_3} + \frac{D^2}{n_4} - \frac{T^2}{N}$

A is the sum of the scores in group A; B is the sum of the scores in group B; C is the sum of the scores in group C; D is the sum of the scores in group D. The values, n_1, n_2, n_3, and n_4, are the number in each of the four groups.

Sum of Squares within Groups = Total Sum of Squares - Sum of Squares between Groups

$F = \frac{\text{group variance}}{\text{error variance}}$

The degrees of freedom used for the F test are K-1 for the group variance, and N-K for within groups. N is the total number in the sample and K is the number of groups.

By studentized ranges, significant differences between group means were found, if there were any (hypotheses I and II).

Statistical Hypotheses

The theoretical hypotheses were stated in statistical (null) form for testing. It was necessary to test the preliminary hypotheses before the major ones could be tested, so they were stated in the order of testing:

Preliminary Hypotheses

1. There is no significant difference between the mean of the pre-test scores and the mean of the first post-test scores for:
   a. Group A (mean pre-test A = mean first post-test A).
   b. Group B (mean pre-test B = mean first post-test B).
   c. Group C (mean pre-test C = mean first post-test C).
   d. Group D (mean pre-test D = mean first post-test D).
2. There is no significant difference between the mean of the first post-test scores and the mean of the second post-test scores for:
   a. Group A (mean first post-test A = mean second post-test A).
   b. Group B (mean first post-test B = mean second post-test B).
   c. Group C (mean first post-test C = mean second post-test C).
   d. Group D (mean first post-test D = mean second post-test D).

3. There is a significant difference between the mean scores of the pre-test for any of the four groups (mean pre-test A $\neq$ mean pre-test B $\neq$ mean pre-test C $\neq$ mean pre-test D).

4. There is no significant difference between the mean scores of the first post-test for any of the four groups (mean first-post A = mean first-post B = mean first-post C = mean first-post D).

5. There is no significant difference between the mean scores of the second post-test for any of the four groups (mean second-post A = mean second-post B = mean second-post C = mean second-post D).

Major Hypotheses

I. In a comparison of the pre-test with the first post-test, there is no significant difference between:

   a. the mean of the group viewing the television program and the mean of the group reading extension bulletin F-274E (A = B).

   b. the mean of the group viewing the television program and the mean of the group reading a mimeographed version of the bulletin (A = C).

   c. the mean of the group viewing the television program and the mean of the control group (A = D).

   d. the mean of the group reading extension bulletin F-274E and the mean of the group reading a mimeographed version of the same bulletin (B = C).

   e. the mean of the group reading extension bulletin F-274E and the mean of the control group (B = D).

   f. the mean of the group reading a mimeographed version of the bulletin and the mean of the control group (C = D).

II. In a comparison of the first post-test with the second post-test, there is no significant difference between:

   a. the mean of the group viewing the television program and the mean of the group reading the extension bulletin F-274E (A = B).

b. the mean of the group reading extension bulletin F-274E and the mean of the group reading a mimeographed version of the same bulletin (A = C).

c. the mean of the group reading extension bulletin F-274E and the mean of the control group (A = D).

d. the mean of the group reading extension bulletin F-274E and the mean of the group reading a mimeographed version of the same bulletin (B = C).

e. the mean of the group reading extension bulletin F-274E and the mean of the control group (B = D).

f. the mean of the group reading a mimeographed version of the bulletin and the mean of the control group (C = D).

CHAPTER V

PRESENTATION AND ANALYSIS OF DATA

Characteristics of the Sample

The participants in the study were asked to give information as to their age, place of residence, school, number of children, and whether they are presently or have been a member of a home demonstration group. This information is reported in Table 13 in Appendix A for the total sample, and by groups.

The sample was about equally divided as to place of residence. Slightly more than one-third were farm, and slightly less than one-third each were rural-nonfarm and urban.

In regard to schooling, slightly more than one-fourth had less than a high school education. About forty-four percent had graduated from high school and slightly more than one-fourth had either some college or special training beyond high school, or were college graduates.

One of the requirements for inclusion in this sample was that each woman have at least one child in the age range of thirteen to nineteen, so about 63 percent of the sample fell into the two age groups of 35-39 and 40-44 years of age.

In regard to number of children, slightly less than one-fourth had either one or two children, slightly more than one-half had either three or four children, and about one-fourth had over four children.

In answer to a question regarding their participation in the organized home demonstration program, about 60 percent of the women indicated they are presently a member of a home demonstration group; slightly less than 10 percent had been members, but were not members at the time of the study; about 30 percent had never been a home demonstration member.

Analysis of Data

Each questionnaire was scored, the score being the number of correct answers out of a possible fifty-six. These were arranged in tabular form for each of the four groups.[35] The group mean on each of the three tests, as well as the mean for the difference between the pre-test and first post-test, and the difference between the first and second post-tests were tabulated, and are reported in Table 1 below.

TABLE 1

SUMMARY OF MEAN SCORES FOR EACH OF THE FOUR GROUPS AND THE TOTAL GROUP

Mean for:	Group A	Group B	Group C	Group D	Total group
Pre-test	29.5	27.8	23.1	26.3	26.7
First post-test	48.2	41.0	35.2	27.8	38.1
Second post-test	43.7	39.0	32.2	29.8	36.2
Difference between pre- and first-post	18.8	13.2	12.1	1.5	11.4
Difference between first and second post	-4.6	-2.0	-2.9	2.1	-1.9

[35] See Appendix A for individual test scores for each group.

Hypotheses No. 1a, 1b, 1c, 1d

Comparison of the difference between the means of the pre-test and first post-test scores revealed a significant difference in all four groups. This is recorded in Table 2.

TABLE 2

DIFFERENCE IN MEAN SCORES BETWEEN PRE-TEST AND FIRST POST-TEST IN EACH OF FOUR GROUPS

Groups	Mean	Standard deviation	Standard deviation mean	t*
A	18.2	6.4828	1.87	10.05
B	13.2	5.3562	1.49	8.87
C	12.1	4.4610	1.29	9.37
D	1.5	1.8330	.53	2.83

*t score needed for significance at .05 level of confidence when n is 12 is 2.201.

Since the obtained value of t for all four groups was greater than 2.201, the hypotheses that the mean of the pre-test scores was equal to the mean of the first post-test scores in each group were rejected. Thus, the data confirmed the theoretical hypotheses that there was a significant difference.

The author expected that in the control group (D), the mean of the pre-test scores would not be significantly different from the mean of the first post-test scores. At the 5 percent level of significance this was not the case. If tested at the one percent level of significance (t = 3.106), the means in this group were not significantly different,

but the means in the other three groups were still significantly different.

Hypotheses No. 2a, 2b, 2c, 2d

Comparison of the difference between means of the first and second post-test revealed a significant difference for groups A and B, but not for groups C and D. This is recorded in Table 3.

TABLE 3

DIFFERENCE IN MEAN SCORES BETWEEN FIRST AND SECOND POST-TESTS IN EACH OF FOUR GROUPS

Groups	Mean	Standard deviation	Standard deviation mean	t*
A	-4.6	3.7524	1.08	4.25
B	-2.0	3.3298	.96	2.08
C	-2.9	5.4844	1.58	1.83
D	+2.1	4.0328	1.16	1.81

*t score needed for significance at .05 level of confidence when n is 12 is 2.201.

Since the obtained value of t for group A was larger than 2.201, the null hypothesis (2a) that the mean of the second post-test was equal to the mean of the first post-test was rejected. Thus, the data supported the theoretical hypothesis that there was a significant difference.

The obtained value of t for groups B, C, and D was smaller than 2.201, so the null hypotheses (2b, 2c, 2d) were confirmed, and the theoretical hypotheses that there was a significant difference were rejected.

Consequently, it was inferred that only in group A (group viewing television) was the loss of knowledge over the twelve day period great enough to make it significantly different.

Hypothesis No. 3

Comparison of the mean scores of the four groups on the pre-test revealed no significant differences. This is recorded in Table 4.

TABLE 4

ANALYSIS OF VARIANCE ON PRE-TEST SCORES

Source of variation	df	Sum of squares	Estimated variance	F*
Total	48	2110.78		
Between groups	3	268.30	89.43	2.18
Within groups	45	1842.48	40.94	

*F needed for significance at .05 level when F is 3 and 45 is 2.82

The obtained value of F, 2.18, was less than 2.82, so the null hypothesis that the mean scores were not equal could be rejected. It was assumed that the data supported the theoretical hypothesis that there was no significant difference.

Consequently, it appeared that the four groups were similar samples from the same population, and there were no significant differences among them with relation to scoring on this test before they were exposed to the treatment.

Hypothesis No. 4

Comparison of the mean scores of the four groups on the first post-test revealed a significant difference, and is recorded in Table 5.

TABLE 5

ANALYSIS OF VARIANCE ON FIRST POST-TEST SCORES

Source of variation	df	Sum of squares	Estimated variance	F*
Total	48	5044.49		
Between groups	3	2734.72	911.44	17.76
Within groups	45	2309.77	51.33	

*F needed for significance at .05 when F is 3 and 45 is 2.82.

Since the obtained value of F, 17.76, was greater than 2.82, the null hypothesis that the mean scores were equal, could be rejected. The data supported the confirmation of the theoretical hypothesis that there was a significant difference among the scores of the groups.

Consequently, it was inferred that the difference in achievement between the four groups taught by different methods of instruction was indicative of real difference.

The F test, although indicating that there were significant differences among the groups, did not specify that each group differed significantly from each of the others. To determine this, the studentized ranges were used.

Hypothesis No. 5

Comparison of the mean scores of the four groups on the second post-test revealed a significant difference, and is recorded in Table 6.

TABLE 6

ANALYSIS OF VARIANCE ON SECOND POST-TEST SCORES

Source of variation	df	Sum of squares	Estimated variance	F*
Total	47	2957.31		
Between groups	3	1436.72	478.91	13.86
Within groups	44	1520.59	34.56	

*F needed for significance at .05 level when F is 3 and 44 is 2.82.

The obtained value of F, 13.86, was greater than 2.82, so the null hypothesis that the mean scores were equal, could be rejected. The data supported the confirmation of the theoretical hypothesis that there was a significant difference among the scores of the groups.

Consequently, it was inferred that after twelve days, the measure of retention still showed a difference among groups. The studentized ranges were again used to determine which groups differed significantly.

Hypotheses Ia, Ib, Ic, Id, Ie, If

A comparison of the means on first post-test for each of the four groups revealed a significant difference between each of the

first three groups and the control group (hypotheses Ic, Ie, If). It also revealed a significant difference between the television group (A) and the groups which read either extension bulletin F-274E or the mimeographed version of the same bulletin (C) (Hypotheses Ia, Ib).

A comparison of the difference between the group reading the bulletin (B) and the group reading the mimeographed version of the same bulletin (C) did not reveal a significant difference (Hypotheses Id).

This is recorded in Table 7.

TABLE 7

DIFFERENCES IN MEAN SCORES ON FIRST POST-TEST BETWEEN EACH OF THE FOUR GROUPS

Significant studentized ranges for 5% level test			
	2	3	4
	2.86	3.01	3.10
Shortest significant ranges for averages			
	(2)	(3)	(4)
	5.92	6.23	6.42
Results			
Groups	D	C	B	A
Means	27.8	35.2	41.0	48.2

Note: Any two means underscored by the same line are not significantly different. Any two means not underscored by the same line are significantly different.

Hypotheses IIa, IIb, IIc, IId, IIe, IIf

A comparison of the means for each of the four groups on the second post-test was made. This was to measure retention. It revealed no significant difference between the television group (A) and the group reading the extension bulletin (B), but did reveal a significant difference between the television group (A) and the group reading the mimeographed version of the bulletin (C), and the control group (D).

It also revealed a significant difference between the group reading the bulletin (B) and the group reading a mimeographed version of the bulletin (C), and between the group reading the bulletin (B) and the control group (D).

It did not reveal a significant difference between the group reading the mimeographed version of the bulletin (C) and the control group (D).

This is recorded in Table 8, page 54.

Measure of Learning Which Took Place

The author was interested in knowing whether the participants in this study made any changes in the feeding of their teen-agers as a result of this. Full realizing that the women were exposed to only one-half hour of subject-matter, the author asked questions which would indicate whether they had made any overt change in behavior in the two week period following.

TABLE 8

DIFFERENCES IN MEAN SCORES ON SECOND POST-TEST BETWEEN EACH OF FOUR GROUPS

Significant studentized ranges for 5% level test		
2	3	4
2.86	3.01	3.10
Shortest significant ranges for averages		
(2)	(3)	(4)
4.86	5.12	5.27
Results		
Groups	D	C	B	A
Means	29.8	32.2	39.0	43.7

Note: Any two means underscored by the same line are not significantly different. Any two means not underscored by the same line are significantly different.

Thirteen women indicated that they had made some changes in the feeding of their teen-agers as a result of this. As was expected, none of the women in the control group reported any changes, so this number represents a change in behavior by one-third of those receiving information on the subject. One-half of the changes reported were made by the group viewing the television program; one quarter were made by the group reading the bulletin; one quarter by the group reading the mimeographed version of the bulletin.

In answer to the question asking about any special problems in teen-age nutrition, slightly more than one-third of the women indicated

they do have problems in this area. Twice as many women in the group viewing the television program, and in the control group expressed problems as did the groups reading either the bulletin or the mimeographed version of the bulletin.

The author also asked whether they had any specific questions they would like answered about teen-age nutrition. Only about 14 percent of the participants asked questions. The group reading the mimeographed version of the bulletin had no questions; each of the other three groups asked an equal number of questions.

The specific answers given to each of the questions, as given by each group, are reported in Tables 14, 15, and 16 in Appendix A.

Participants' Evaluation of Their Learning Experience

The participants were asked to evaluate their learning experience, by checking whether they learned (1) a great deal, (2) something new, (3) nothing new.

Only four, slightly less than 10 percent, indicated they had learned a great deal from this.[36] None of those in the television group felt they had learned a great deal, yet this was the group reporting one-half of the changes in behavior made. One person in the control group felt she had learned a great deal, yet she actually received no information on the subject.

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[36] This was not surprising, since this was but a very short exposure to subject-matter.

Fifty percent indicated they had learned something new, one-half of these coming from the group viewing the television program. About 40 percent indicated they had learned nothing new, one-half of these coming from the control group.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This was a study to compare within a defined audience, the change in knowledge and retention of learning of teen-age nutrition, presented by three educational media.

Forty-nine women in Livingston County, Michigan, were the sample used for the study. The requirement for inclusion in the sample was that they have at least one child within the age range of thirteen to nineteen years.

These forty-nine women were randomly divided into four groups for a thirty-minute presentation of the same subject-matter. Group A viewed a television program In Tune with the Teens--Their Eating. Group B read Michigan Extension Bulletin F-274-E, In Tune with the Teens--Their Eating. Group C read a mimeograph version of the same bulletin, and Group D was the control group. The control group was given a bulletin on Flower Arrangement to read.

Three tests based on the information in the bulletin were given: a pre-test to measure their present knowledge of teen-age nutrition, a first post-test immediately following the presentation of subject-matter to determine their change in knowledge, and a second post-test twelve days later to measure retention of knowledge.

A comparison of the their previous knowledge of the subject-matter revealed no significant differences. Consequently, it appeared that the four groups were similar samples from the same population, and there were no significant differences among them with relation to scoring on this test.

A comparison of the difference in scores between the pre-test and the first post-test revealed that:

1. The group viewing the television program had a significantly greater knowledge than any of the other three groups (group reading the extension bulletin, group reading the mimeograph version of the bulletin, and the control group).

2. The group reading the extension bulletin did not have a significantly greater knowledge than the group reading the mimeograph version of the bulletin, but did learn significantly more than the control group.

3. The group reading the mimeograph version of the bulletin had a significantly greater knowledge than the control group.

A second post-test was given twelve days later to measure the retention of knowledge. A comparison of this test with the first post-test revealed that:

1. The group viewing the television program did not retain enough knowledge to continue to make it significantly higher than the group reading the extension bulletin. This group did retain enough knowledge to continue to make it significantly higher than either the group reading the mimeograph version of the bulletin or the control group.

2. The group reading the extension bulletin retained enough knowledge to make it significantly higher than the group reading the mimeograph version of the bulletin, although this difference had not been significant in the first comparison of these two groups.

The group reading the extension bulletin still remained significantly higher than the control group.

3. The group reading the mimeograph version of the bulletin did not retain enough knowledge to make it significantly higher than the control group.

The data from this study showed that the group viewing the television program had a significantly greater change in knowledge immediately following the presentation of subject-matter. However, after a period of twelve days they had not retained enough of the knowledge to be significantly higher than the group reading the extension bulletin, although they still remained significantly higher than the group reading the mimeograph version of the bulletin and the control group.

A comparison of the group reading the extension bulletin with the group reading the mimeograph version of the bulletin showed no significant difference in knowledge immediately following the presentation of subject-matter. Yet, after a twelve day period, their retention was significantly higher.

A comparison of the group reading a mimeograph version of the bulletin with the control group showed a significant difference in knowledge immediately following the presentation of subject-matter, but after the period of retention, they were not significantly different.

It is interesting to note that the control group showed a gain in knowledge, although slight, throughout the study. There is no evidence that they had access to the bulletin itself. They had never seen the bulletin before this study, and did not have access to it in the

twelve day period between tests as all bulletins used the first day were collected, and the Livingston County Extension Office did not distribute any in this period. No attempt was made in this study to determine whether this group had access to information on teen-age nutrition from other sources. Should a similar study be made, the author suggests that this information be secured on the control group.

A companion study to the one of this author is being conducted by Mrs. Annette Schaeffer, a fellow graduate student in the Institute for Extension Personnel Development. The same subject-matter and questionnaires were used in both studies. Mrs. Schaeffer's study was concerned with the knowledge and retention of learning in organized viewing groups in homes. In her study, group A received the information from a local leader, trained in the traditional method used by the Cooperative Extension Service; group B merely watched the television program, group C watched the television program, followed by a discussion period led by a trained discussion leader; group D was the control group. It would be valuable to compare results of the two studies.

It should be pointed out that this study was done under experimental conditions, which differ markedly from the normal home situation. It is suggested that similar studies in the future use the normal home situation, for comparison with this study.

There were several implications gained from this study which have real use for any Home Economics Extension program.

It showed that both television and Extension Bulletins have an important place in the dissemination of Home Economics information. Certainly, television, supplemented by an Extension Bulletin, should be a highly effective way of presenting subject-matter.

The reaction of the women participating in this study towards the pre-test questionnaire was most interesting. It seemed to point out to them that there were many things about this subject that they did not know, and it did it in a way which no home demonstration agent or local leader is able to do. Very often, home demonstration members comment that "We have had this before," or "I already know about this," and they have both a closed-mind and a closed ear to the lesson before it is ever presented.

There may be real possibilities for Extension workers to use a questionnaire covering the highlights of a lesson, before the actual presentation of the lesson itself. The questionnaire should focus attention and act as an aid to learning. The women in this study were much more conducive to the subject-matter, and recognized the main points much more readily, than this author has observed in her teaching of home demonstration members.

APPENDIX A

TABLE 9

INDIVIDUAL TEST SCORES FOR GROUP VIEWING TELEVISION (GROUP A)

Individual	Pre-test	First post-test	Second post-test	Difference pre and 1st	Difference 1st and 2nd
1.	21	44	46	+23	+2
2.	33	54	46	+21	-8
3.	30	55	*46	+25	-9
4.	25	48	46	+23	-2
5.	20	50	45	+30	-5
6.	28	43	40	+15	-3
7.	30	43	*34	+13	-9
8.	30	47	44	+17	-3
9.	40	54	49	+14	-5
10.	25	49	39	+24	-10
11.	37	46	44	+9	-2
12.	35	46	45	+11	-1
Group total	354	579	524	225	-55
Group mean	29.5	48.2	43.7	18.8	-4.6

*This person was not present at the second post-test. She completed her questionnaire by personal interview within a week after the date the second post-test was given.

TABLE 10

INDIVIDUAL TEST SCORES FOR GROUP READING BULLETIN F-274E (GROUP B)

Individual	Pre-test	First post-test	Second post-test	Difference pre and 1st	Difference 1st and 2nd
1.	31	52	50	+21	-2
2.	31	37	35	+6	-2
3.	33	55	50	+22	-5
4.	28	45	46	+17	+1
5.	29	43	39	+14	-4
6.	32	48	*39	+16	-9
7.	28	36	37	+8	+1
8.	35	52	50	+17	-2
9.	18	23	26	+5	+3
10.	14	24	25	+10	+1
11.	24	34	33	+10	-1
12.	27	41	**--	+14	--
13.	31	43	38	+12	-5
Group total	361	533	468	172	-24
Group mean	27.8	41.0	39.0	13.2	-2.0

*This person was not present at the second post-test. She completed her questionnaire by personal interview within a week after the date the second post-test was given.

**This person was not present at the second post-test, and refused to complete the questionnaire when she was interviewed.

TABLE 11

INDIVIDUAL TEST SCORES FOR GROUP READING MIMEOGRAPHED VERSION BULLETIN F-274E (GROUP C)

Individual	Pre-test	First post-test	Second post-test	Difference pre and 1st	Difference 1st and 2nd
1.	16	32	30	+16	-2
2.	23	33	31	+10	-2
3.	16	37	35	+21	-2
4.	26	40	28	+14	-12
5.	30	45	35	+15	-10
6.	25	32	30	+7	-2
7.	24	31	31	+7	0
8.	19	28	24	+9	-4
9.	10	23	*32	+13	+9
10.	28	34	*29	+6	-5
11.	30	42	44	+12	+2
12.	30	45	38	+15	-7
Group total	277	422	387	145	-35
Group mean	23.1	35.2	32.2	12.1	-2.9

*This person was not present at the second post-test. She completed her questionnaire by personal interview within a week after the date the second post-test was given.

TABLE 12

INDIVIDUAL TEST SCORES FOR CONTROL GROUP
(GROUP D)

Individual	Pre-test	First post-test	Second post-test	Difference pre and 1st	Difference 1st and 2nd
1.	25	28	32	+3	+4
2.	10	15	*26	+5	+11
3.	18	20	22	+2	+2
4.	34	36	36	+2	0
5.	28	29	30	+1	+1
6.	29	29	*35	0	+6
7.	24	28	*26	+4	-2
8.	27	29	33	+2	+4
9.	29	28	26	-1	-2
10.	30	30	33	0	+3
11.	36	36	32	0	-4
12.	25	25	27	0	+2
Group total	315	333	358	18	25
Group mean	26.3	27.8	29.8	1.5	2.1

*This person was not present at the second post-test. She completed her questionnaire by personal interview within a week after the date the second post-test was given.

TABLE 13

CHARACTERISTICS OF THE SAMPLE

Characteristic	Group A	Group B	Group C	Group D	Total group
A. Residence					
Farm	5	5	5	4	19
Rural nonfarm	2	4	3	6	15
Urban	5	4	4	2	15
Total	12	13	12	12	49
B. Education					
8th grade or less	0	2	3	1	6
Some high school	0	1	2	4	7
High school graduate	7	5	6	4	22
Some college or spec. training beyond h. s.	3	4	1	2	10
College graduate	2	1	0	1	4
Total	12	13	12	12	49
C. Age					
Under 29	0	0	0	0	0
30-34	2	1	2	2	7
35-39	2	5	1	6	14
40-44	4	6	4	3	17
45-54	3	1	4	1	9
Over 55	1	0	1	0	2
Total	12	13	12	12	49
D. No. Children					
Over 6	1	0	1	2	4
6	0	0	0	0	0
5	2	2	2	2	8
4	1	4	2	2	11
3	6	2	5	4	15
2	0	4	1	1	6
1	2	1	1	1	5
Total	12	13	12	12	49
E. Home Demonstration Membership					
Presently a member	9	8	8	5	30
Have been a member	0	2	1	1	4
Never a member	3	3	3	6	15
Total	12	13	12	12	49

TABLE 14

CHANGE IN OVERT BEHAVIOR AFTER TWELVE DAYS REGARDING THE FEEDING OF TEEN-AGERS

Made a change	Group A	Group B	Group C	Group D	Total group
Yes	7	3	3	0	13
No	5	9	9	12	35
Total	12	12	12	12	48

Changes Reported by Television Group (A)

#1 "I have been fixing french fried liver and batter-coated fish fillets, when I know they are all hungry but not ready for dinner, or even after a light Friday night dinner."

#5 "I have not insisted they clean their plates. We have tried to eliminate unpleasant conversation."

#6 "Check on how much is eaten. See that the right kinds of foods are used, more servings of the required foods."

#8 "We have talked of the fact that the foods we eat as teen-agers, and growing children, will have an effect on our later health."

#10 "Tried new ideas with old foods."

#12 "To have more of a variety at breakfast time. Not to nag the children to eat."

Changes Reported by Group Reading Bulletin (B)

#1 "Have tried to get more nutritious snacks."

#5 "I've tried to get them to try foods they think they don't like, but I know are good for them."

#11 "Have planned and served more balanced meals--less cakes and pies, and more fruit and vegetables."

Changes Reported by Group Reading Mimeographed Bulletin (C)

#2 "Had them get up a little earlier so they have a little more time to eat."

#7 "I have tried to encourage my teen-age daughter to eat something more each morning in the form of milk or orange juice, or egg. In making lunches, I have added carrot sticks and celery and encouraged them to try them.

#8 "Give them more green vegetables and less sweets."

TABLE 15

SPECIAL PROBLEMS IN TEEN-AGE NUTRITION

Nutrition problems	Group A	Group B	Group C	Group D	Total group
Yes	6	3	4	5	18
No	6	9	8	7	30
Total	12	12	12	12	48

Problems Reported by Television Group (A)

#3 "There is a tendency to eat a short breakfast, but my teen-ager is in college, so I can't do much about it, and she never goes entirely breakfastless."

#7 "Have had to cut down on sweets as there was high percentage of tooth decay. In fact, his dentist put him on a starch-sugar free diet for several weeks to decrease bacteria count that was causing decay."

#8 "When my 13-year-old overdoes on sweets, he gets pimples on his face and his teeth goes to pieces. For sometime now he has been cooperating to the extent of controlling the amount of sweets he eats and usually substitutes celery."

#9 "Seventeen year-old girl not eating salads, and other green leafy vegetables, and skipping breakfast."

#10 "Taking too much food on the plate and not finishing it (every meal)."

#12 "My children don't like a variety of vegetables. They don't seem to want to eat breakfast."

Problems Reported by Group Reading Bulletin (B)

#2 "Getting them to eat vegetables."

#6 "Trying to get them to eat more raw and cooked vegetables. They have just certain ones they prefer and don't want to try others."

#11 "My 10 year-old son would rather eat bologna sandwiches plastered with mayonnaise than regular meals. He loves milk, however."

TABLE 15--Continued

Problems Reported by Group Reading Mimeographed Bulletin (C)

#4 "Taking time to eat breakfast."

#6 "My 15 year-old girl doesn't like green salads or new food but she does eat meat, potatoes, and vegetables and drink lots of milk. My children don't have much soft drinks or candy."

#7 "Having them take time to sit with the family during mealtime. My teen-age daughter is always in a hurry at mealtimes."

Problems Reported by Control Group (D)

#3 "Don't care for any cooked vegetables."

#4 "17 year-old daughter eats breakfast only about two days a week."

#8 "Getting my daughter to eat breakfast."

#11 "Getting my daughter to eat breakfast."

#12 "Help with a diet to fill a 17 year-old or satisfy him with food yet help reduce."

TABLE 16

QUESTIONS ASKED ABOUT TEEN-AGE NUTRITION

Had questions	Group A	Group B	Group C	Group D	Total group
Yes	3	2	0	2	7
No	9	10	12	10	41
Total	12	12	12	12	48

Questions Asked by Television Group (A)

#7 "Now that summer vacation has started, is it right to insist that there be no in-between meal snacks?"

"Shall I try to keep the same schedule for breakfast time as during school?"

#9 "Suggestions on correcting the problem of my 17 year-old girl not eating salads, and other green leafy vegetables and skipping breakfast."

#12 "How many calories do teen-agers need? What can take the place of cereals for breakfast?"

Questions Asked by Group Reading Bulletin (B)

#1 "What is a good diet plan for a thirteen year-old girl who wants to lose a few pounds?"

#2 "If the teen-ager doesn't want a meal every now and then, should you insist?"

Questions Asked by Control Group (D)

#3 "How to get them started eating breakfast?"

#12 "How do you stop the in-between snacks as he never did this when smaller?"

TABLE 17

PARTICIPANTS' EVALUATION OF THEIR LEARNING EXPERIENCE

Learned	Group A	Group B	Group C	Group D	Total group
Great deal	0	2	1	1	4
Something new	10	7	6	2	25
Nothing new	2	3	5	9	19
Total	12	12	12	12	48

APPENDIX B

VIDEO-TAPED TELEVISION PROGRAM (1/2 HOUR)

Topic - "In Tune with the Teens"

Producer - Lois Korslund

Director - Jack Caldwell

Talent - Annette Schaeffer

Presentation - Studio B, WMSB-TV

Props - Curtain background, desk, flip cards for desk, record player on standard, tear sheets on easel, blackboard, demonstration table, food trays with cards.

Date produced - Video taped on Thursday, May 19, 1960, 2:30 p. m.
Air presentation - Saturday, May 21, 1960, 1:00 p. m.

VIDEO	AUDIO
Camera 2 - CU - Cover picture and title - "In Tune with the Teens"	Music - (live sound)
Camera 1 - WCS - Schaeffer near record player, listens to music	Announcer - That music has a definite tune. "I'm trying to keep in Tune with our Teen Agers"
(Pan right as) Schaeffer turns off record player and moves to desk	It's important that parents and teen-agers "stay tuned" with one another - how we get along - how we dress - how we eat
Camera 2 - CU - Schaeffer seated behind desk	Does your teen-ager have a talent for eating? Some of them have huge

appetites, some of them are "finicky" about their food, and all of them are changeable. But, then, so are grown-ups. Parents are people, too, and teachers have their food foibles! Customary eating ways of the folks at home are almost sure to influence the younger generation.

The eating habits of admired adults and those of the "crowd" make their imprint, too. Lucky the family that serves a wide variety of foods without mother ever once saying, "This is good for you," or father ordering, "Clean up your plate."

Camera 1 - MCS - Schaeffer

seated behind desk

But there are serious discords. Teen-agers are the poorest fed members of American families. (Surveys have been taken in several states.) Those from low income families eat as well as the rest--sometimes better. Also there is no difference between the eating habits of rural and urban children.

Foods most often lacking:

Green and yellow vegetables

Vitamin C carriers

Proteins

Milk and cheese

Camera 2 - CU - Flip cards on desk

CU - Card 1

Girls -- the mothers of tomorrow -- make poorer food choices than boys. "Fad" diets are partly to blame. Yet one-fourth of first-born babies belong to mothers under 20 years of age.

CU - Card 2

Boys show many signs of poor nutrition according to selective service records.

CU - Card 3

Average has 7 decayed teeth - will have lost 5 teeth by voting age.

CU - Card 4

All - skip breakfast, snack on sweets, rich foods, and soft drinks, follow bad food habits of their parents more often than good ones, and gorge at bedtime.

Camera 1 - MCS - (pan right as) Schaeffer moves to easel

Here's how some of the tunes differ.

Camera 2 - CU on easel cover picture

Do your teen-agers say things like this?

Camera 1 - MCS - Schaeffer

Never be different from the rest of the crowd. I'd give anything for a clear skin--pimples are a pest. Be very independent of grown-ups. It would be wonderful to look like Dawn Darling from Hollywood. It would be slick to be a rugged as Dick Driver. Let's start something new. Join us for a session at the corner drug. Anytime is snack time when we're starved.

Camera 2 - CU - 2nd easel sheet

Foods that are "good for you" never taste good. We're never really sick so what's the use of worrying about our later years? There are too many other things to do to eat at mealtime.

CU - 3rd easel sheet (picture)

Meanwhile, parents are singing a different tune.

CU - 4th easel sheet

We'd like to be proud of our children and have them bouncing with health. We spend plenty of money for food; the children ought to be well-fed. Boys and girls

should stay at the table longer. We must begin to insist that teen-agers eat breakfast. Children learn about proper foods in school, but we try to teach them what's good for them at home. Our teen-agers have too much money to spend for sweets but they are miserable if the others have more.

CU - 5th easel sheet

Our son eats more than his father--it must be too much. Teen-agers eat all the time and much too often between meals.

Camera 1 - CS - Schaeffer (pan right as) Schaeffer moves to desk.

Now we all want to be playing the same tune.

CS dolly to WS - Schaeffer behind desk, standing (reads from teleprompter)

Let's begin by building the basic chords.

Growth is much accelerated during adolescence. The teen-age girl needs more of all foods than her mother; the boy more than his father.

Emotional upsets affect not only the quantity of food eaten but also its absorption and use by the body.

Since emotional upsets are not unusual during adolescence, this is another reason for adults to keep calm and to be casual about food.

Calories must not be cut so low that building and protective foods are dangerously lacking. "Empty Calories" (sweets and very high fat foods) may be filling but they are not builders.

Daily meals at regular times promote appetite and good elimination.

Eating is fun and meals at the family table can add much to the day's enjoyment. Save the best anecdotes to tell at mealtime. Never nag or complain about food.

Camera 2 - CS - Schaeffer (pan right as Schaeffer moves to demonstration table)

Now let's make the melody.

Camera 1 - CS - Schaeffer behind demonstration table, food assembled in trays

Many food notes complete the harmony.

Camera 2 - CU - Tray 1 Schaeffer puts card on food

HIGH CALCIUM

3-6 cups milk daily. (Largest amount during years of most rapid growth.) Cheese may substitute for part.

Some might be skimmed if butter or fortified margerine is used.

CU - Tray 2

HIGH PROTEIN

2 or 3 servings daily of meat, eggs, fish or cheese. (Beans, nuts, or peanut butter may be substituted occasionally.) Serve high protein food at all meals if possible.

Camera 1 - WS - Schaeffer

Camera 2 - CU - Tray 3

B VITAMINS - IRON

3 or more servings daily of whole grain or enriched bread or cereal. Be sure snack-time baked treats are made from enriched flour, too.

CU - Tray 4

VITAMINS A AND C AND MINERALS

4 or 5 servings of fruits and vegetables daily. One green or yellow and one high in vitamin C like oranges, tomatoes, strawberries, or fresh garden produce.

Camera 1 - WS - Schaeffer

Keeping in rhythm.

Camera 2 - CU - Card

VITAMIN D (helps body absorb minerals as Vitamin D Milk or as a concentrate.

IODINE (pep producer) As iodized salt and sea food.

Camera 1 - CS -
Pan to left - Schaeffer moves to blackboard

Parents, want to try out for the teen-age band?

CS - Schaeffer

Answer these for yourselves.

Expect teen-agers always to eat a hearty breakfast. Remind them often that certain foods are good for them. Keep suitable nutritious "snack" foods on hand. Encourage teen-agers to serve snacks to their friends at home. Require teen-agers to drink or eat foods that parents do not take themselves.

Camera 2 - CU - Blackboard

Order them to "clean their plates." Scorn fad diets instead of helping plan a careful "glamor" one. Talk about poor food habits and other unpleasant topics at the table. Encourage school clubs to promote better eating by relating it to glamor and pep. Criticize the eating habits of teen-ager's friends.

Camera 1 - CS - Schaeffer pan to left (moves to desk)

How about teen-agers playing in the family orchestra?

Dolly to WS - Schaeffer seated at desk

Being a good sport about trying to learn to like foods. Getting up early enough to eat breakfast. Building good health for the future. Realizing that good looks come partly from within. Talking with parents, not at them. Helping plan meals at home. Choosing a balanced noon lunch. Inventing snacks of high food value. Not cramming too much food into one meal. Being a "starter," not always just a "follower," in choosing lunches, snacks, and party foods with the crowd.

Camera 2 - CU - Flip cards at desk

NOW THERE OUGHT TO BE REAL HARMONY

1. Everybody joins in a leisurely family breakfast one day a week. Each one tries to add a few minutes (and a few foods, if necessary) to breakfast on other days.

2. Nobody tells anyone else what to eat when.

3. The makings of imaginative, nutritious snacks are to be kept on hand at home. (One out of every two snacks bought outside the home is to be a nutritious one.)

4. Each person will check on his own eating habits.

Camera 1 - CS - Schaeffer pan to left (moves to record player

(musical background)

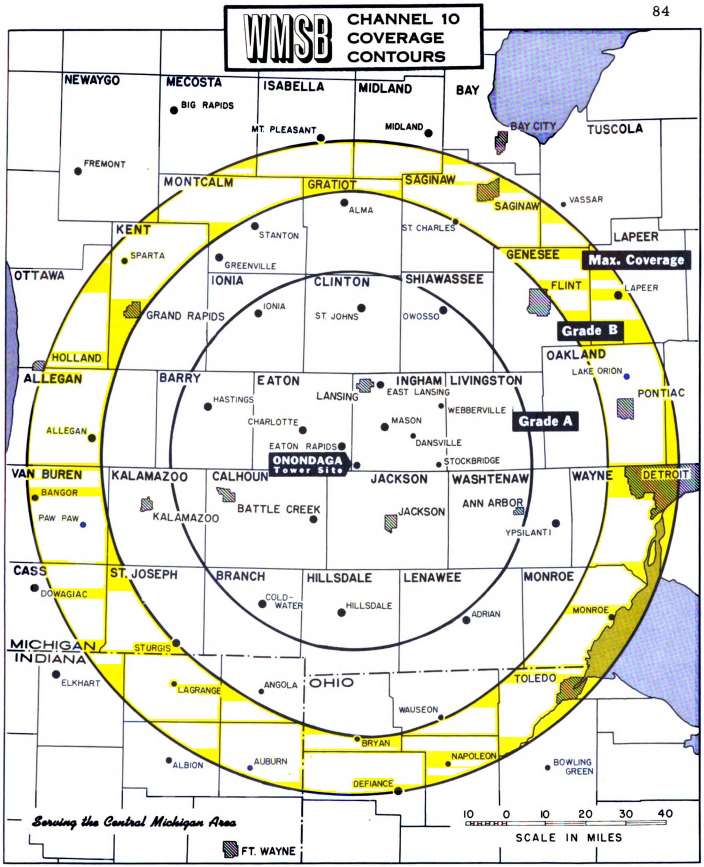
How about it, parents and teen-agers? Are you trying to keep in tune?

Camera 2 - CU - picture and title

(music)

Announcer - You have been listening

. . . . . .



Basic Coverage extends to the Grade B service contour and includes 1,782,000 population. **Maximum Coverage** extends from tower site 81 miles to 100 microvolts per meter contour and includes 6,361,000 population.

WMSB is owned and operated by Michigan State University, East Lansing. EDgewood 2-1511.

PLEASE ANSWER THE QUESTIONS ON THE BASIS OF WHAT YOU READ OR SAW.

CHECK THE CORRECT ANSWER TO EACH QUESTION

1. Which one of these groups is the poorest fed members in American families:

   a. _____ mothers
   b. _____ fathers
   c. __x__ teenagers
   d. _____ children between 5 and 12 years
   e. _____ pre-schoolers

2. What percentage of first-born babies belong to mothers under 20 years of age:

   a. _____ 10%
   b. _____ 15%
   c. _____ 20%
   d. __x__ 25%

ANSWER TRUE OR FALSE FOR EACH OF THE FOLLOWING:

3. False There is a difference between the eating habits of rural and urban children.

4. False Boys make poorer food choices than girls.

5. False Eating habits of admired adults and those of "the crowd" make their imprint on the younger generation, but eating habits of folks at home do not influence them.

6. True Teen-agers from low income families eat as well and sometimes better than teen-agers from other families.

WRITE-IN THE APPROPRIATE WORD IN EACH SPACE

7. All teen-agers snack on sweets, rich foods, and soft drinks.

8. All teen-agers follow bad food habits of their parents more often than good ones. (this question was eliminated)

9. All teen-agers tend to gorge at bedtime.

FOR EACH QUESTION BELOW, FILL IN THE AMOUNT OF EACH FOOD THAT A TEEN-AGER NEEDS

10. PROTEIN: 2 or 3 servings of meat each day.

11. CALCIUM: 3 to 6 cups of milk daily.

12. B-VITAMINS - IRON: 3 or more servings daily of whole grain or enriched bread or cereal.

13. VITAMIN A & C: 4 or 5 servings fruits and vegetables daily.

FOR THE QUESTIONS BELOW, LIST THE SOURCE OBTAINED FROM

14. VITAMIN D (helps body absorb minerals): from Vitamin D milk or as a concentrate

15. IODINE (pep producer): as iodized salt and seafood.

16. CHECK THE FOUR (4) FOOD GROUPS THAT ARE MOST OFTEN LACKING IN THE DIET OF TEEN-AGERS

____ fruits
x proteins
x milk and cheese
____ whole-grained or enriched cereals
x green and yellow vegetables
____ butter
x vitamin C carriers
____ cereal products
____ energy foods

FOR THE QUESTIONS BELOW, FILL IN THE NUMBER:

17. The average person will have lost 5 teeth by voting age.

18. The average person will have 7 decayed teeth by voting age.

WRITE-IN THE APPROPRIATE WORD IN EACH SPACE

19. Growth is much accelerated during adolescence.

20. Emotional upsets affect not only the quantity of food eaten but also its absorption and use by the body.

21. Daily meals at regular times promote appetite and good elimination

WRITE-IN THE APPROPRIATE WORD IN EACH SPACE:

Parents say:

22. We spend plenty of money for food; the children ought to be well-fed.

23. We must being to insist that teen-agers eat breakfast.

24. Teen-agers eat all the time and much too often between meals.

25. Our son eats more than his father. It must be too much. (this question was eliminated)

WRITE-IN THE APPROPRIATE WORD IN EACH SPACE:

Teen-agers say:

26. Teen-agers never want to be different from the rest of the crowd.

27. Anytime is snacktime when we're starved.

28. We're never really sick, so what's the use of worrying about our later years.

29. I'd give anything for a clear skin - pimples are a pest.

30. There are too many other things to do to eat at mealtime.

SELECT THE CORRECT WORD FOR EACH STATEMENT AND UNDERLINE IT:

31. One out of every (one, two, three, four, five) snacks bought outside the home is to be a nutritious one.

32. All teen-agers tend to (skip, dislike, eat) breakfast.

33. Emotional upsets (are, are not) unusual during adolescence.

34. The teen-age girl needs (less, the same amount, more) of all foods than her mother.

WRITE-IN THE APPROPRIATE WORD IN EACH SPACE:

35. Nobody tells anyone else what to eat when.

36. Each person will check on his own eating habits.

37. Everybody joins in a leisurely family breakfast one day a week. Each one tries to add a few minutes (and a few foods, if necessary) to breakfast on other days.

CIRCLE THE CORRECT ANSWER FOR EACH OF THE STATEMENTS BELOW:

Agree	Disagree	38.	Parents should order teen-ager to "clean their plates".
Agree	Disagree	39.	Parents should scorn fad diets instead of helping teen-agers plan a careful "glamor" one.
Agree	Disagree	40.	Parents should talk about poor food habits and other unpleasant topics at the table.
Agree	Disagree	41.	Parents should encourage school clubs to promote better eating by relating it to glamor and pep.
Agree	Disagree	42.	Teen-agers should be a good sport about trying to learn to like foods.
Agree	Disagree	43.	Teen-agers should realize that good looks come partly from within.

ABOUT YOURSELF

Please check one for each of the following questions.

1. What is your age?

   a._____ 29 years or under
   b._____ 30-34 years
   c._____ 35-39 years
   d._____ 40-44 years
   e._____ 45-54 years
   f._____ over 55

2. Where do you live? Check the one that best describes where you live:

   a. on a farm from which we get half or more of our income_____
   b. on a farm from which we get less than half our income_____
   c. in the country but not on a farm_____
   d. in a village that has a population of less than 2,500_____
   e. in a village or city that has a population of 2,500 to 10,000_____
   f. near the village of_____ in a built-up or suburban area_____
   g. near the city of_____ in a built-up or suburban area_____
   h. in a city that has a population of 10,000 or more_____

3. What is the highest grade you completed in school?

   a. _____ 8th grade or less
   b. _____ 1 to 3 years of high school
   c. _____ high school graduate
   d. _____ some college or special training beyond high school
   e. _____ college graduate

4. How many children do you have in your family? _____

5. Please list the ages of your children:

	BOYS		GIRLS
(1)	_____	(1)	_____
(2)	_____	(2)	_____
(3)	_____	(3)	_____
(4)	_____	(4)	_____
(5)	_____	(5)	_____

THE WONDER SHEET

1. Have you done anything differently about feeding the teen-agers in your family since you were here on May 21st?_____ Yes _____ No.

   If you answered YES to the above question, please tell me what changes you have made.

   _____

   _____

   _____

   _____

   _____

2. Do you have any special problems in teen-age nutrition in your family? _____Yes _____No.
   If you answered YES, please tell me what these special problems are.

   _____

   _____

   _____

   _____

3. Do you now have any questions that you would like to ask about teen-age nutrition? _____Yes _____ No.

   If you answered YES, please list your questions.

   _____

   _____

   _____

   _____

   _____

4. Check the one which best describes your experience with IN TUNE WITH THE TEENS:

   I learned _____ nothing new

   _____ something new

   _____ a great deal

Please check the one which best suits you:

_____ I am presently a member of a home demonstration group.

_____ I have been a member of a home demonstration group, but am not a member at the present time.

_____ I have never been a member of a home demonstration group.

Does your teen-ager have a talent for eating? Some of them have huge appetites, some of them are "finicky" about their food, and all of them are changeable. But, then, so are grown-ups. People are people, too, and teachers have their food foibles! Customary eating ways of the folks at home are almost sure to influence the younger generation. The eating habits of admired adults and those of "the crowd" make their imprint, too. A family that serves a wide variety of foods without Mother ever once saying "This is good for you" or Father ordering, "Clean up your plate" has started their young fry on the rollicking road to liking many foods.

IMPORTANT FOODS FOR TEEN-AGERS

HIGH CALCIUM

3 - 6 cups milk daily. (Largest amount during years of most rapid growth.)
Cheese may substitute for part. Some might be skimmed milk, butter or fortified margarine is used.

HIGH PROTEIN

2 or 3 servings daily of meat, eggs, fish or cheese. (Beans, nuts, or peanut butter may be substituted occasionally.)
Serve high protein food at all meals if possible.

B VITAMINS - IRON

3 or more servings daily of whole grain or enriched bread or cereal.
Be sure snack-time baked treats are made from enriched flour, too.

VITAMINS A AND C AND MINERALS

4 or 5 servings of fruits and vegetables daily. One green or yellow and one high in vitamin C like oranges, tomatoes, strawberries, or fresh garden produce.

VITAMIN D (helps body absorb minerals)
As vitamin D milk or as a concentrate.
IODINE (pep producer)
As iodized salt and sea food.

TEEN-AGERS SAY

Never be different from the rest of the crowd.
Be very independent of grown-ups.
Let's start something new.
Join us for a session at the corner drug.
Anytime is snack time when we're starved.
We're never really sick so what's the use of worrying about our later years?
Foods that are "good for you" never taste good.
I'd give anything for a clear skin - pimples are a pest.
There are too many other things to do to eat at mealtime.

PARENTS SAY

We'd like to be proud of our children and have them bouncing with health.
We spend plenty of money for food; the children ought to be well-fed.
Boys and girls should stay at the table longer.
We must begin to insist that teen-agers eat breakfast.
Teen-agers eat all the time and much too often between meals.
Children learn about proper foods in school, but we try to teach them what's good for them at home.
Our teen-agers have too much money to spend for sweets but they are miserable if the others have more.
Our son eats more than his father -- it must be too much.

SURVEYS SHOW SERIOUS HEALTH DISCORDS

Teen-agers are the poorest fed members of American families.
(Surveys have been taken in several states.)
Those from low income families eat as well as the rest ... sometimes better.
Also there is no difference between the eating habits of rural and urban children.

Foods Most Often Lacking

Green and yellow vegetables
Vitamin C carriers
Proteins
Milk and cheese

Girls .... the mothers of tomorrow .... make poorer food choices than boys. "Fad" diets are partly to blame. Yet, one-fourth of first-born babies belong to mothers under 20 years of age.

Boys show many signs of poor nutrition according to selective service records.

Average → Has 7 decayed teeth
Will have lost 5 teeth by voting age

All →
- Skip breakfast
- Snack on sweets, rich foods, and soft drinks
- Follow bad food habits of their parents more often than good ones
- Gorge at bedtime

SOME BASIC FACTS

Growth is much accelerated during adolescence. The teen-age girl needs more of all foods than her mother, the boy more than his father.

Emotional upsets affect not only the quantity of good eaten but also its absorption and use by the body. Since emotional upsets are not unusual during adolescence, this is another reason for adults to keep calm and to be casual about food.

Calories must not be cut so low that building and protective foods are dangerously lacking. "Empty calories" (sweets and very high fat foods) may be filling but they are not builders.

Daily meals at regular times promote appetite and good elimination.

Eating is fun and meals at the family table can add much to the day's enjoyment. Save the best anecdotes to tell at mealtime. Never nag or complain about food.

PARENTS SHOULD:

Check the items below for harmony on basis of "Do as you would be done by."

	Check One	
	I Do	I Don't
Expect teen-agers always to eat a hearty breakfast.	____	____
Remind them often that certain foods are good for them.	____	____
Keep suitable nutritious "snack" foods on hand.	____	____
Encourage teen-agers to serve snacks to their friends at home.	____	____
Require teen-agers to drink or eat foods that parents do not take themselves.	____	____
Order them to "clean their plates."	____	____
Urge teen-agers to help plan family menus.	____	____
Scorn fad diets instead of helping plan a careful "glamor" one.	____	____
Talk about poor food habits and other unpleasant topics at the table.	____	____
Tell Junior it is impossible to "fill him up."	____	____
Encourage school clubs to promote better eating by relating it to glamor and pep.	____	____
Criticize the eating habits of teen-agers' friends.	____	____
TOTAL	____	____

TEEN-AGERS SHOULD:

For each of the questions below, circle the number that is closest to your feeling.
circling #3 - means you neither agree nor disagree
#1 - complete disagreement
#5 - complete agreement

Be a good sport about trying to learn to like foods.	5	4	3	2	1
Get up early enough for breakfast.	5	4	3	2	1
Build good health for the future.	5	4	3	2	1
Realize that good looks come partly from within.	5	4	3	2	1
Talk with parents, not at them.	5	4	3	2	1
Help plan meals at home.	5	4	3	2	1
Choose a balanced noon lunch.	5	4	3	2	1
Invent snacks of high food value.	5	4	3	2	1
Not cram too much food into one meal.	5	4	3	2	1
Be a "starter," not always just a "follower," in choosing lunches, snacks, and party foods with the crowd.	5	4	3	2	1

FOR PARENT - TEEN-AGE HARMONY

1. Everybody joins in a leisurely family breakfast one day a week. Each one tries to add a few minutes (and a few foods, if necessary) to breakfast on other days.

2. Nobody tells anyone else what to eat when.

3. The makings of imaginative, nutritious snacks are to be kept on hand at home. (One out of every two snacks bought outside the home is to be a nutritious one.)

4. Each person will check on his own eating habits.

5. All family members will try to learn to like a new (and common) food gradually.

Extension Folder F-274E April 1959

In Tune with the Teens

Their Eating

Michigan State University
Cooperative Extension Service
East Lansing, Michigan

IT TAKES TALENT TO TRAIN TASTE

Does your teen-ager have a talent for eating? Some of them have huge appetites, some of them are "finicky" about their food, and all of them are changeable. But, then, so are grown-ups. Parents are people, too, and teachers have their food foibles! Customary eating ways of the folks at home are almost sure to influence the younger generation. The eating habits of admired adults and those of "the crowd" make their imprint, too. A family that serves a wide variety of foods without Mother ever once saying, "This is good for you." or Father ordering, "Clean up your plate." has started their young fry on the rollicking road to liking . . .

MEALS THAT MAKE MELODY

Many Food Notes Complete the Harmony

HIGH CALCIUM

3-6 cups milk daily. (Largest amount during years of most rapid growth.)

Cheese may substitute for part. Some might be skimmed if butter or fortified margarine is used.

HIGH PROTEIN

2 or 3 servings daily of meat, eggs, fish or cheese. (Beans, nuts, or peanut butter may be substituted occasionally.)

Serve high protein food at all meals if possible.

B VITAMINS — IRON

3 or more servings daily of whole grain or enriched bread or cereal.

Be sure snack-time baked treats are made from enriched flour, too.

VITAMINS A AND C AND MINERALS

4 or 5 servings of fruits and vegetables daily. One green or yellow and one high in vitamin C like oranges, tomatoes, strawberries, or fresh garden produce.

Keeping in Rhythm

VITAMIN D (helps body absorb minerals)
As vitamin D milk or as a concentrate.

IODINE (pep producer)
As iodized salt and sea food.

TEEN-AGERS' HIT TUNES

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ick to be as rugged as Dick Driver.

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ing for a clear skin — pimples are a pest.

many other things to do to eat at meal-

ROM PARENTS' BOOK
EFRAINS

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Foods most often lacking

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Average — Has 7 decayed teeth
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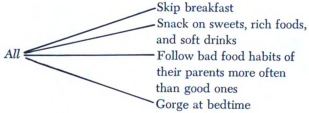

BUILD ON BASIC CHORDS

Key of G — Growth is much accelerated during adolescence. The teen-age girl needs more of all foods than her mother; the boy more than his father.

Key of E — Emotional upsets affect not only the quantity of food eaten but also its absorption and use by the body. Since emotional upsets are not unusual during adolescence, this is another reason for adults to keep calm and to be casual about food.

Key of C — Calories must not be cut so low that building and protective foods are dangerously lacking. "Empty calories" (sweets and very high fat foods) may be filling but they are not builders.

Key of D — Daily meals at regular times promote appetite and good elimination.

Key of Never-B-Flat — Eating is fun and meals at the family table can add much to the day's enjoyment. Save the best anecdotes to tell at mealtime. Never nag or complain about food.

PARENTS TRY OUT FOR THE TEEN-AGE BAND

Check for harmony on basis of "Do as you would be done by."

	Check One *Sharp*	*Flat*
Expect teen-agers always to eat a hearty breakfast.	☐	☐
Remind them often that certain foods are good for them.	☐	☐
Keep suitable nutritious "snack" foods on hand.	☐	☐
Encourage teen-agers to serve snacks to their friends at home.	☐	☐
Require teen-agers to drink or eat foods that parents do not take themselves.	☐	☐
Order them to "clean their plates."	☐	☐
Urge teen-agers to help plan family menus.	☐	☐
Scorn fad diets instead of helping plan a a careful "glamor" one.	☐	☐
Talk about poor food habits and other unpleasant topics at the table.	☐	☐
Tell Junior it is impossible to "fill him up."	☐	☐
Encourage school clubs to promote better eating by relating it to glamor and pep.	☐	☐
Criticize the eating habits of teen-agers' friends.	☐	☐

Complete Pitch ____ ____

TEEN-AGERS PLAY IN FAMILY ORCHESTRA

Tally for Keeping in Tune

⁺⁺ full harmony
⁺ on key
0 no tone
° no tone
⁻ off key

	Score Here
Being a good sport about trying to learn to like foods.	_____
Getting up early enough for breakfast.	_____
Building good health for the future.	_____
Realizing that good looks comes partly from within.	_____
Talking *with* parents, not *at* them.	_____
Helping plan meals at home.	_____
Choosing a balanced noon lunch.	_____
Inventing snacks of high food value.	_____
Not cramming too much food into one meal.	_____
Being a "starter," not always just a "follower," in choosing lunches, snacks, and party foods with the crowd.	_____
Total: Chords	_____
Total: Discords	_____

20 ⁺ Golden Platter
10 ⁺ Hit Tune
5 ⁺ Square Disc
5 ⁻ Sour Notes

PARENT-TEEN HARMONY NUMBERS

1 Everybody joins in a leisurely family breakfast one day a week. Each one tries to add a few minutes (and a few foods, if necessary) to breakfast on other days.

2 Nobody tells anyone else *what* to eat *when*.

3 The makings of imaginative, nutritious snacks are to be kept on hand at home. (One out of every two snacks bought outside the home is to be a nutritious one.)

4 Each person will check on his own eating habits. (See *Meals that Make Melody* on page two.)

5 *All* family members will try to learn to like a new (and common) food gradually.

ENCORE CHORUS *Snacktime Taste Tempters*

DIPS AND DUNKS

CURRIED CHEESE CRUNCH

1 cup cottage cheese
2 tablespoons minced onion
½ teaspoon curry powder
¼ cup chopped salted peanuts

Blend onion and curry into cheese; beat until smooth. Fold in peanuts. Chill several hours to blend flavors.

CHICKIE DIPPIE

1 (8-ounce) package cream cheese
2 chicken bouillon cubes
⅓ cup water
2 teaspoons instant minced onion
2 teaspoons fresh lemon juice
Salt to taste

Beat cream cheese until soft. Crush bouillon cubes in water. Add instant minced onion and let stand a few minutes. Add bouillon-onion mixture gradually to cream cheese, mixing until well blended. Stir in lemon juice and salt to taste. If dip is not to be served immediately, refrigerate. Makes 1⅓ cups.

DEVIL DIP

2 hard-cooked eggs
1 can deviled ham (2¼-ounce size)
¼ cup chopped dill pickle
2 tablespoons salad dressing

Sieve or finely chop eggs; mix with remaining ingredients; chill.

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Tempters

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emaining ingredi-

NORWAY SPREAD

1 can boneless sardines
1 tablespoon lemon juice
2 tablespoons *dry* mustard
½ cup salad dressing
¼ cup finely chopped celery

Drain sardines; chop them fine. Mix or blend with remaining ingredients.

PINEAPPLE DUNK

1½ cups creamed cottage cheese
½ cup drained crushed pineapple
Pineapple juice as needed

Mash or sieve creamed cottage cheese until fairly smooth. Mix with drained, crushed pineapple. Add pineapple juice carefully to thin to dipping consistency.

MYSTERY DIP

1 can frozen condensed cream of shrimp soup, thawed
½ cup sour cream
1 tablespoon horseradish
¼ teaspoon Worcestershire sauce

Blend together cream of shrimp soup, sour cream, horseradish and Worcestershire sauce. Let flavors blend in refrigerator 1 hour.

NIBBLERS

Crunchy Crackers
Crispy Toast
Garlic Bread
Pretzels
Apple Slices
Pear Pieces
Pear Halves
Bite Size Cereal Snax

HANGERS ON

(Balance on rim of glass or mug.)

Twisted Lemon Slice
Pineapple Chunk Kabobs on Toothpick
Carrot Slices with Slits
Cherry Clusters with Green Leaves

STIRRERS

Carrot Strips
Celery
Green Pepper Strips
Red Beet Strips
Cucumber Fingers
Pineapple Fingers

FLOATERS

(Float on Beverage.)

Lemon Slice Studded with Cloves
Red Apple Slices
Quartered Orange Slices
Red Cherry Halves
Single Berries

PUNCHES AND SHAKERS

COWBOY COCKTAIL

1 can or 1 cup beef broth
(or 1 bouillon cube in 1 cup boiling water)
1 pint tomato juice

Combine, season to taste, and serve hot.

APPLADE

1 tall can apple juice
1 tall can grapefruit juice
1 bottle ginger ale
Red apple slices
Mint leaves

Mix liquids; add crushed ice or chill. Float red apple slices and mint leaves on each glass.

BANANA SMOOTHIE

4 cups milk
4 mashed bananas
2 tablespoons lemon juice
½ teaspoon cinnamon
Dash salt
1 pint vanilla ice cream

Mix ingredients and beat well. Serve at once in tall glasses.

MOCHA VELVET

1 pint vanilla or chocolate ice cream
2 tablespoons coffee-flavor instant cereal beverage
3 cups milk

Beat with rotary beater or in an electric mixer. Serve in tall glasses.

– Roberta Hershey
Extension Specialist
Foods and Nutrition

Cooperative extension work in agriculture and home economics. Michigan State University and the U. S. Department of Agriculture cooperating. N. P. Ralston, Director, Cooperative Extension Service, Michigan State University, East Lansing. Printed and distributed under Acts of Congress, May 8 and June 30, 1914. 2P—4:59—20M—9

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