A STUDY OF THE COMPARATIVE EFFECTIVENESS OF THREE COMMUNICATION CHANNELS USED BY A COOPERATIVE EXTENSION AGENT IN TEACHING HOMEMAKERS

Thesis for the Degree of M. S.

MICHIGAN STATE UNIVERSITY

Annette J. Schaeffer

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A THESIS

Submitted to the College of Agriculture of Michigan State University of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Institute for Extension Personnel Development

1960

ACKNOWLEDGMENT

This study has been made possible by the cooperation and encouragement of many individuals. The author is indebted to the following persons for helping to make this thesis possible:

George Axinn, Director of the Institute for Extension Personnel Development of Michigan State University for his constant encouragement, advice, counsel, inspiration, and his excellent supervision.

Miss Lois Korslund, Home Economics Extension Television Editor, for her advice on the study problem and her splendid cooperation in producing the television show In Tune With the Teens.

Mr. John Caldwell, Producer-Director at the Michigan State University Television Station WKAR, for producing the television show In Tune With the Teens.

Dr. William Baten, Professor of Statistics and Agricultural Experiment Station Statistician, for his generous advice on the statistical aspects of the study.

Dr. Sheldon Lowry, Associate Professor in Sociology and Anthropology; Dr. Beatrice Paolucci, Associate Professor in Home Management and Child Development; Robert Jarnagin, Graduate Assistant in General Communication Arts; Miss Roberta Hershey, Extension Specialist in Foods and Nutrition; and Mrs. Miriam Kelley, Assistant Director of Home Economics of the Michigan Cooperative Extension Service, for their counsel during the development of the study problem.

The committee, which consisted of Dr. Axinn, Dr. Lowry, Mrs. Kelley, Miss Florence Rann, Assistant Professor of Home Economics Extension, and Robert Worrall, Extension Television Editor, who agreed to review this thesis.

Patricia Coolican, Chautauqua County Home Demonstration Agent from the state of New York, who conducted a concurrent related study and whose advice was extremely valuable.

Fellow graduate students in the Institute for their advice and encouragement.

The Michigan State University Board of Trustees and the Michigan Cooperative Extension Service for granting sabbatical leave to the author and thus made it possible to pursue this study.

Mrs. Shirley Goering, Ingham County 4-H and Home Economics Extension Agent; Mel Avery, Ingham County Extension Director; and the members of the Ingham County Women's Extension Council, who all agreed to assume additional responsibilities to make it possible for the writer to be away from her duties as Ingham County Extension Agent, Home Economics.

Finally, Robert, Thomas, Anita, and Joel Schaeffer (author's family) for their willingness to forego many family pleasures in the interest of the author's involvement in this thesis.

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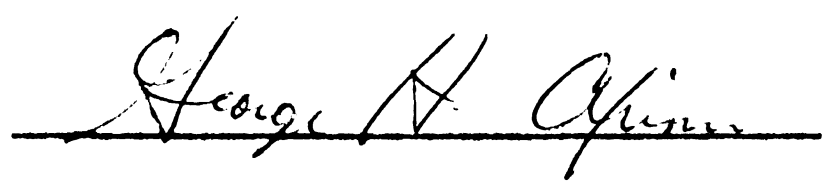
Approved 

Annette J. Schaffer

ABSTRACT

The purpose of this study is to provide some guidance to the professional Home Economics Extension Agent in her ultimate decision as to which channel to use when endeavoring to reach the greatest number of homemakers in the most effective manner. It is an attempt to compare the effectiveness of three channels of communication: Extension's traditional leader-training arrangement where the professional agent trains the local leader who, in turn, trains others; the direct channel of television; and a combination of direct television supplemented by trained local leader discussion.

Teen-age nutrition was studied by seventy-three impartially selected homemakers who were gathered together in thirteen informal groups in their own homes for this purpose. As many factors as possible that could have influenced their learning were controlled so that the independent variable of channel could be effectively compared by means of the dependent variable. The independent variable in this study was the channel of communications; the dependent variable, the difference in scores of identical tests taken by the homemakers before and after exposure. Such factors as method of instruction, identity of instructor, and time of exposure were as near alike as possible. The women were categorized into four categories which represented the channel variations being tested.

Those in Category I took part in a lesson taught by a local leader who had been trained at a training center; those in Category II

watched a television program and those in Category III watched the program and then took part in a planned discussion led by a local leader trained on procedure at a training center. Those in Category IV were the control category where there was no exposure to the message.

The mean category difference between pre and post-test scores of the first three categories show that the women had learned a significant amount as a result of the exposure. The control group (IV) did not.

All three categories show that the amount of knowledge retained had had lessened significantly (except the control category which actually shows they had gained in knowledge).

The categories are shown to have been equal, at the time of the pre-test, when the mean raw scores of all the categories were submitted to the analysis of variance statistical test.

On the immediate post-test the mean raw scores of the first three categories are shown not to vary significantly from one another. All the difference lay between the control category mean score and any of the first three. The same is true for the mean raw scores of the categories on the second post-test. There was no significant variance among the scores except for Category IV, which had received no exposure.

The story of what had actually happened to the participants in Category IV was that they were equal in the beginning, showed no statistical gain in knowledge after the exposure, but by the time

they took the same test for the third time, they had shown an increase in knowledge.

Thus the major hypothesis, that the categories would show equal or greater mean differences in pre and post-tests (learn as much or more) is supported in that they show an equal amount.

That the categories would show equal or greater mean difference in post-test and second post-test (retain as much or more) is also substantiated in that they show an equal amount of forgetting or retention ability (decrease in mean score).

It can be safely assumed that in this study women learned as much viewing a television program or viewing a television program with a trained discussion leader following as they did taking part in a leader-training lesson, since they were all statistically equal.

Similarly, they seemed to have retained as much when they viewed a television program or viewed one with a trained discussion leader leading them after the program as they did taking part in a leader-training lesson, since they were all statistically equal.

According to data gathered in this study it can be concluded that as far as these women were concerned they learned equally as much and retained just as much when they were in a neighborhood group situation regardless of whether they were taking a leader-training lesson, watching television alone, or viewing a combination of television and leader-training techniques.

This bears out the many comparative closed and open circuit studies where television students generally did as well or better than

those taught by the conventional methods. In this instance, it has been shown that television is as effective as Extension's traditional method of extending information to many--the leader-training lesson taught by the local leader.

If it can be accepted that television generally reaches larger numbers of women than the other channel studied; and if the findings of this study, that in this instance television was as effective as the traditional leader-training lesson, be taken into consideration; then the advantage clearly lies in favor of the television channel for extension education.

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CHAPTER I

INTRODUCTION

Purpose

This study compares the effectiveness of various methods now utilized by Home Economics Extension Agents in teaching subject matter to adult homemakers. Since the professional agent is continually evaluation her own efforts in light of efficient utilization of time to achieve the maximum amount of impact on her clientele, she is continually faced with the decision of which channel would be the most appropriate.

Wilson and Gallup phrase this responsibility in another way.

> The Extension worker must recurringly exercise judgment in choosing the working tools which he considers appropriate to accomplish the task at hand. The method or combination of methods is sought which is likely to be more effective than other methods in attaining the desired goal. . . Optimum accomplishment from the entire year's teaching activity must always be the concern of the extension worker.
>
> The problem faced by the extension worker in choosing appropriate tools for the various teaching jobs is not an easy one at best.[1]
>
> The most successful extension teacher is, of course, the one who utilizes the teaching tools available in such a manner as to insure the largest possible accomplishment from the entire year's teaching effort.[2]

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[1] Meredith Wilson and Gladys Gallup, Extension Teaching Methods, U.S.D.A., Federal Extension Circular 495 (Washington: U. S. Government Printing Office, 1955), p. 3.

[2] Ibid., p. 12.

It is the desire of the author to provide some guideposts and direction to that professional agent when she is in the process of making these decisions.

The methods of teaching under analysis in this study are (1) the traditional-type of group training lesson where a local member (leader) is trained by a professional agent at a training center, (2) direct teaching of those group members by the professional through use of the home television screen, and (3) a combination of the first two, where the homemakers view the direct television presentation and are led in a guided educational discussion of the topic by a local member trained by the professional agent at a training center.

The Present Situation

A brief review of present standard accepted methods utilized by Home Economics Agents of the Cooperative Extension Service in teaching adult homemakers is pertinent at this point.

Methods

A variety of methods is currently available to the professional agent. They range from individual face-to-face contacts of many kinds to office and telephone calls, to group teaching of interested groups of homemakers, to general meetings, to contacts made through individual and mimeographed letters, to newspaper articles and columns. Channels which tend to reach even larger numbers include radio and television. There are those who hypothesize that the larger the number of persons reached by a single channel the less the impact and influence toward educational change. This hypothesis is not tested in this study, but interesting implications will be examined later.

The focus of analysis of this particular study singles out the unique method of training local women as leaders that has been developed by the organized women's extension program. The following section describes this system, how it developed historically, its advantages and drawbacks.

Leader Training

In the early years of the Cooperative Extension Service, most agents visited individual homemakers throughout the countryside and worked directly with them. The messages were largely confined to the improvement of homemaking skills and the physical standards of the farm homes. In order to expand clientele, the agent soon began to teach groups of women gathered together in those rural homes. Planned lessons were presented by the agent to those pioneer groups of neighbors. Gradually those homemakers began to represent others who were not able to meet with the group. They began to go back into their own neighborhood environment and share what they had learned with those who had stayed home. From these direct face-to-face contacts there developed the system of training local women to teach others. It was around this time that those who stayed home began to organize as formal local groups with the woman doing the training referred to as a local leader. Training centers were established where greater numbers of local leaders were trained to present a lesson back home to their formally organized groups. The groups became known as Home Demonstration groups.

This method of reaching homemakers through training local leaders multiplies the ultimate number of people contacted. The related 4-H extension youth program also uses this leader-training technique.

In many counties, the organized women's extension program, with the ultimate teaching responsibility of the local groups in the hands of trained local leaders, still receives the greatest priority of emphasis. It does, in effect, multiply the teaching staff. Not only is it possible to reach far greater numbers of homemakers, but the effects of so-called "fringe benefits," improving leadership potential of the leaders themselves has begun to assume greater value and importance. Moreover, the formalized local groups of homemakers fill a real social need in the lives of relatively isolated farm homemakers. Responsibilities incurred by the local women who have either agreed to act as leaders or to be members of a highly successful group are a gentle force which obligates them (much as though they had enrolled in a class) to study subject matter. This sometimes meets their needs even before they themselves are well aware of them. The groups, their leaders, and members acquire status and gain recognition within their local communities.

Great strides in accomplishments were reported during the early organizational period. In 1952, county extension workers throughout the United States reported a total of 1,200,000 local leaders actively engaged in forwarding some aspect of the extension program. Forty-six per cent of them were women.[3] Currently this method of disseminating subject matter information is still the backbone of most county extension programs.

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[3] Ibid., p. 69

Community Changes

However, there have been forces that are changing community and family life in such a way as to cause the basic social needs for these organizations to be weakened. Rural American families were no longer isolated and living in a simple social world. The social waves of rapid change that have accompanied the current technological revolution have been thoroughly altering the basic pattern of life for these families.

Cities have sprawled into the countryside to become suburbia with its accompanying vast numbers of small homes, its mushrooming shopping centers, new schools, highways, and community centers. The families involved have found themselves caught in a whirlwind of societal obligations that carry them throughout the greater metropolitan community. The automobile takes them long distances to their places of occupation, their schools, and their shopping centers.

The steady rise in the cost of living has forced many homemakers into the labor market. Labor-saving devices in their homes have freed them not only for employment, but for duties such as transporting the family members to their diverse social and livelihood centers, and community obligations in which they have become involved.

The pace of family living has been stepped up. Young people marry younger, have families at an earlier age, move more often, have weaker community and family kinship ties. Families play as hard as they work. Differences between farm, urban, and rural non-farm people are steadily being erased in light of these changes.

Those conditions are reflected in the Extension Service's patterns of reaching people. In many counties, where this development is relentlessly changing the whole countryside, extension staffs have been aware that attendance at extension meetings of all kinds now must compete with many other community demands. Paul Miller, rural sociologist, once privately observed that families now have to choose from so numerous an array of organizational activities that they are forced to choose those where they have been definitely committed.[4] In some cases the families who are deeply affected have reacted in a curious way. They tend to protect an occasional bit of time when they are able to stay at home.

At the same time there are certain other segments of the population who cannot attend group meetings. The young homemaker, tied to her responsibilities in the nuclear family, and the senior citizen, with the longer life span ahead of him, have often been physically unable to attend meetings, either local group or countywide.

Impact of Television

As societal demands became more complex, television was exerting another powerful influence on the American family. In the face of the complexities of modern community life, the American family was forced into making still more time utilization choices. Television viewing became the recreational pastime of millions, and continued to attract viewers long after the novelty had worn thin. The obsession

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[4] Observation made to author while Paul Miller was director of the Michigan Cooperative Extension Service.

of middle class and lower middle class families in watching the television screen caused them to be even more reluctant to meet together in groups or to attend other educational meetings. Coffin reported in 1955 that, after summarizing sixty studies on television's impact,

> Television keeps the family at home and brings in "guest viewing" non-owners. Out-of-home attendance at commercial entertainments was more affected than were noncommercial social activities. Within the home, meals, bedtimes, and hobbies may suffer interference. Television brings the family back together and provides new sources of common interest, but the increased family unity is more "passive" than "active."
>
> Comparing the reactions of various social groups, the lower income and lower educational groups seem most responsive to television. Higher socioeconomic groups are more likely to own sets (probably due to financial reasons), but the less privileged groups spend more time in viewing, hold more favorable opinions, and show greater effects of television in their lives.[5]

Although commercial television in the evening hours has been the greatest drawing card, there have been those who have been aware from the beginning of the tremendous educational impact television, whether good or bad, could exact on the entire population. The Federal Communications Commission realized this when it reserved 250 channels for educational purposes[6] and required commercial stations to devote a certain amount of time to educational programs.

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[5] T. E. Coffin, "Television Impact on Society," The American Psychologist, XI (October, 1955), pp. 630-641, appearing in Lucinda Crile, Television Research Findings, U.S.D.A., Federal Extension Circular Number 514 (Washington: Government Printing Office, 1957).

[6] Ford Foundation and Fund for Advancement of Education, Teaching by Television, (New York: Ford Foundation Office of Reports, 1959), p. 3.

The Extension Service records reflect this impact in the extent of adjustment its personnel are reporting in their annual statistical reports. According to data compiled from this source, county extension agents throughout the United States have steadily increased their use of the television broadcast as an Extension teaching method. During 1955 they had made or prepared 15,837 television broadcasts. This was an increase of 702 from the 1954 number and 11,184 above the 1953 record. The number continues to rise. The 1958 figures numbered 18,584 television appearances.[7] Thus it is that Extension faces the challenge of change. The professional agent must weigh the advantages of the traditionally accepted against its distinct disadvantages. She must assess new techniques in the same light and seek to incorporate the best from each.

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[7]Amelia S. Cordy, 1958 Extension Activities and Accomplishments, U.S.D.A., Federal Extension Service Circular Number 522 (Washington: Government Printing Office, 1959), p. 16.

CHAPTER II

REVIEW OF LITERATURE

The writer conducted an exhaustive review of literature in order to obtain a perspective on the impact of the television screen on the American family, the manner and extent the channel is now being utilized by the various educational interests (with emphasis on extension utilization), and the findings of current research on its effectiveness.

Audience Research

According to the most recent estimates there are more than fifty million homes owning television sets within the continental boundaries of the United States.[1] This number implies that over eighty-seven percent of American homes now have access to the television screen. The Videodex (New Brunswick, New Jersey) surveys, which are indicative of television's status all over the United States, reported that by 1956 a plateau seemed to have been reached in the number of homes owning television. Ninety percent of all the homes in Video-

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[1] Ford Foundation and Fund for Advancement of Education, *op. cit.*, p. 5.

town than had television sets.[2] A recent survey showed that more homes had television sets than bathtubs.[3]

On the basis of the data presented in the Vidsetown studies it can be reasonably estimated that nine out of ten television sets can be expected to be tuned in for about four hours every weekday evening, sixty-seven to seventy-five percent of the television family members will normally view television for about two hours during an average weekday evening, the average television fan spends about twelve hours a week watching television on weekday evenings, husbands and wives spend over thirteen hours during weekday evenings, while their teen-age children spend ten to twelve hours.[4]

It is evident that television is here to stay and that its impact on the lives and education of the American people has been, and will be in the future, extremely powerful.

Extension Television Efforts

Throughout the past ten years there have been significant numbers of Extension programs developed utilizing the television medium in various manners. Most of them could be considered as experimental programs, variously designed to determine the extent of viewing audiences, their program preferences, whether they did rate the

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[2] "When Television Comes To Town," AgriSearch, Vol. 1, Number 2, July, 1955, p. 1.

[3] Ford Foundation and Fund for Advancement of Education, op. cit., p. 2.

[4] "When Television Comes To Town," op. cit., p. 4.

existing programs as valuable, the extent that Extension programs were familiar, and the most suitable time and length of programs. They were noteworthy experiments and provide guides for the student, but generally, they lacked the quality of rigorous research design. A brief overview of these pioneer efforts will serve to become acquainted with these studies.

Early in the decade the Delaware Extension staff interviewed 616 homemakers who had television sets in nineteen randomly selected areas around Wilmington in an effort to determine the kind of programs that would appeal to them. They indicated that educational homemaking programs ranked eighth. However, they did offer a clue to a suitable time they would prefer to watch such a program -- in the afternoon between the hours of one and three.[5]

By 1955 sixty-three percent of interviewed Baltimore home demonstration club members had watched the local home demonstration agent's television program. Thirty-eight percent of the non-members were familiar with it. It was estimated that 95,000 white homemakers alone saw the program.[6]

In rural Lancaster and Lebanon counties in Pennsylvania, where religious beliefs of a sizeable number of people frown on television ownership, forty-one percent of all open country residents

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[5] A. T. McAllister and Louise Whitcomb, Television for Delaware Homemakers, Special Circular Number 3 (Newark, Delaware: Delaware Agricultural Extension Service, 1951).

[6] Jewell Fessenden and Wayne C. Rohrer, A Study of an Urban Home Economics Program, Baltimore, Maryland, Miscellaneous Publication Number 159 (College Park, Maryland: Maryland Agricultural Extension Service, 1956).

interviewed owned a television set. Relatively few men or women watched television before late afternoon on weekdays and before one o'clock on Sundays, however. Of those having sets, twenty-five percent of the men and forty-five percent of the women had seen the local extension television program. More than two-thirds of both men and women who had seen it found the information useful.[7]

Wilson and Moo reported on the evaluation of one of the pioneer programs endeavoring to teach clothing construction processes via television. Personal interviews were obtained from 251 women in the metropolitan area of Washington, D. C. who had requested bulletins offered by the television series Let's Make a Dress. Considering all eleven programs in the series the average "attendance" time was forty percent of the total audience interviewed.

Four out of ten interviewed indicated that they already sewed a great deal. The study emphasized complications that were likely to plague extension innovators as they endeavored to incorporate the new channel into the lives of women being served. The problem of competition with family responsibilities of the homemakers was the greatest single complication.

The study did show that a high proportion of young mothers participated in the project, that television demonstration supplemented by a bulletin was highly effective, that the demonstrations were highly effective in communicating ideas and practices regardless of such factors as age or previous skills.

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[7] Lucinda Crile, W. N. Reist and Elton E. Tait, Extension Television in Lancaster and Lebanon Counties, Pennsylvania, U.S.D.A., Federal Extension Circular Number 496, (Washington: Government Printing Office, 1955).

The data pointed emphatically to the importance of supplementary printed matter to the television presentations teaching clothing construction processes. The high interest of this limited audience in more television programs on sewing indicate the potentialities of television as an effective medium for conducting an adult education program.[8]

Several years later the Iowa State College Extension Service presented a similar series of ten thirty-minute telecasts Make a Dress-TV! Nine programs were filmed and the tenth was a live show where homemakers who had participated modeled the dresses they had made. Enrollment was not necessary yet 3004 women enrolled for the series. Interviews were obtained from a random sample of respondents drawn from the names of all the women who had enrolled. A dress had been completed by thirty-six percent of these women during the series. Indications were that a sizeable number of women, by their own admission, did receive a better knowledge of clothing construction processes from television which they, in turn, put into use. No correlation was drawn from information concerning previous skills of the homemakers.

They categorized the respondents into those who had viewed only the television presentation; those who viewed and received home economist assistance; those who viewed and received a bulletin; and those who viewed, received a bulletin and home economist assistance.[9]

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[8] Meredith C. Wilson and Edward C. Moe, Effectiveness of Television in Teaching Sewing Practices, U.S.D.A., Federal Extension Service Circular Number 466 (Washington: Government Printing Office, 1951).

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

It appears that there were little appreciable differences between results of the four teaching methods tested.

The authors made one significant observation that bears on the purposes of this study.

> To what degree learning by TV can be fully measured is open to question. On the basis of present indications, a sizeable number of women did, however, receive from TV a better knowledge of clothing construction processes which they, in turn, put into use.[10]

Davis described how a television series on the Iowa State College television station was organized in conjunction with local county extension programs. After the local program planning group in Franklin County had selected window decorations as one of the areas of emphasis for the ensuing year it was learned that a television series on the same subject was scheduled to be produced at that time. Immediately, the local council took the initiative and organized 800 women in informal "coffee groups" to view the series. A state home economics specialist helped train 150 local leaders from these groups who would conduct discussions after each program. Unfortunately, there was no follow-up evaluation of the project.[11]

In 1954 Pollock and Heloche were able to report the results of another series of telecasts--this time conducted in Wisconsin's Milwaukee County on tailoring a coat. There were twenty-two fifteen to twenty-five minute telecasts presented in the spring of 1953 by

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[10] Ibid., p. 14.

[11] James Davis, Audience Response to Four Educational Television Programs, (Ames, Iowa: Iowa State College AGE-TV, 1953).

the local Home Demonstration Agent. A random sample of 156 women who had requested leaflets on tailoring were interviewed. They included farm, rural non-farm, village, and city homemakers. Ninety percent said the picture came in clearly, eighty percent tried to plan their work so they could follow the program more closely, sixty-five percent saw more than half of the series, and forty percent saw more than two-thirds of them. Out of the group, fifty-seven actually made garments--forty-six of which were coats.[12]

About the same time Mulder and members of the Michigan State College Extension staff attempted to set up an experiment centered around the area coverage of the college television station. It combined the training of local leaders to implement a television series on Understanding Your Children. Through the cooperation of extension agents within the coverage of the local station they were able to locate certain groups agreeing to cooperate. There were four weekly thirty-minute shows telecast. At the time, the local college station was operating under ultra high frequency (UHF) and only a limited number of homes had the necessary converting device on their conventional sets. This factor, coupled with further family and community complications of the cooperators, ultimately led to only five groups with a total of twenty-seven women who completed the series. Almost sixty-five percent of those who did were under thirty-four years of

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

age. The experience allowed the author to make helpful observations for further study.[13]

> It would be valuable for the extension service to know whether a subject taught on television can be as effective as a subject taught in a face-to-face presentation. Other comparative studies which would offer valuable data are television teaching viewed individually versus group viewing; television teaching versus teaching by the leader-training method; television versus radio teaching.[14]

Later, according to Starkey and Carpenter,[15] two television series were publicized and presented over Boston's station WGBH-TV. The Lazy Lunch series used a guest authority. After the series fifty-two out of a random sample of fifty-five recipients of a distributed pamphlet answered a mail questionnaire concerning the clarity of instruction on the programs. Eighty-seven percent thought the explanations were clear enough to understand. According to the station's Audience Research Bureau there were an estimated 7,200 people in the viewing audience.

The second series, a year later, was involved in teaching furniture refinishing. Instruction sheets were again made available

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[13] Dorothy Mulder, "An Experimental Study in the Use of Television as an Extension Information Tool for Presenting Home Economics Programs to Organized Viewing Groups" (Unpublished Master's thesis, Michigan State College, East Lansing, Michigan, 1954).

[14] Ibid., p. 53.

[15] R. W. Starkey and F. S. Carpenter, Television Series for Homemakers, (Amherst, Massachusetts: Massachusetts Extension Service, 1956).

to the viewers on request. A random sample of those requesting the sheets produced fifty-two women who answered evaluative mail questionnaires. Only twenty-nine percent of those had seen all three programs in the series but thirty-three percent had completed some furniture refinishing chore. Again, the local station's Audience Research Bureau estimated the daily size of the viewing audience to be 15,600 viewers. Those in charge of the project attributed its success largely to the amount of publicity both series had received over the air before the programs began.

Merrill and Montgomery evaluated the Michigan Cooperative Extension Service's series of telecasts in 1959 which appeared over Michigan State University television station, WKAR.[16] The head of the college of Home Economics Food and Nutrition department organized and presented the series. It was her intention that the presentations be geared to the level of an average high school graduate.

A group of married home economists and a comparable number of homemakers who were not trained professionally agreed to view and evaluate each program in the series.

In summarizing those evaluations it was found that:

1. Those who viewed half or more of the twenty-two programs reported learning as much as if they had read a book on nutrition.
2. An educational series of this nature appears to demand the undivided attention of women viewers.

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[16] I. R. Merrill and D. D. Montgomery, Evaluation of "Food for Life," WKAR Research Report 591-4, (East Lansing, Michigan: Michigan State University, 1959).

3. Michigan homemakers appear to be able to adjust their homemaking schedules quite freely. However, when households with children of similar ages were compared, no period of optimum viewing was indicated.

4. There appear to be two program approaches to televised home economics instruction for the general women's audience. The approach used successfully in Food for Life appears to reach about half of the women potentially available for a series of this type in any given time period. A somewhat greater share of that audience might be reached by a series that could be viewed while other household activities were being carried on. However, such an approach, using something like the pace of the women's daytime television serial, would permit presentation of far less material during an equivalent time period.[17]

There are other extension studies pertaining to experiments attempting to determine effective utilization of television adequately summarized by Lucinda Crile, Extension Analyst with the Division of Extension Research and Training, Federal Extension Service.[18] Reference to this work would prove fruitful for the student investigating television research. There are doubtless many other extension television projects that have been carried out throughout the United States. It is regrettable that no reports of the experiences came to the attention of the author. Laudable as these reported projects

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[17] Ibid., p. 1

[18] Lucinda Crile, Television Research Findings, U.S.D.A., Federal Extension Service Circular 495 (Washington: Government Printing Office, 1955).

have been, the writer senses that more rigorous formal evaluation studies are needed where results are proven to be reliable enough for the same phenomena to occur if the same given conditions were again in operation. To do this many control factors would have to be singled out and equated.

Related Studies

There are a host of formal and informal studies that have been conducted by various other groups interested in all the many facets of in-school and adult education. Examination of their efforts provided more scientific evidence of learning and retention. It is apparent that research findings have overwhelmingly indicated that it is possible for the television viewer to learn subject matter content.

In the publication Teaching by Television the writers for the Fund for the Advancement of Education[19] had this to say about television.

> When television first began to be used for direct classroom instruction, many questions were raised about its role in education. There were some who took a dim view of its potential. It was argued, for example, that television was essentially a one-way medium of communication and that its use for instruction would deprive the student of valuable contact with the teacher. ...It was also argued that learning would be reduced to a passive experience in which the student merely soaked up what was presented by way of a flickering image on a screen. Finally, of course, it was argued that "television will never replace the teacher."
>
> What most of these arguments overlooked was that television is not a teacher, but merely a conveyor of teaching, and that a good teacher on television can be much more effective in stimulating learning than a mediocre teacher in the intimate environment of a classroom.

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[19] Ford Foundation and Fund for Advancement of Education, op. cit., p. 6.

Closed Circuit Studies

The most exhaustive studies to date are still those sponsored by the various branches of the Armed Services. Early in the last decade Rock and his associates found that 3,000 Army Field Force Reservists who viewed eight one-hour telecast lessons in groups over a period of ten weeks did make significant gains in knowledge between their pre-tests and post-tests. They not only learned but remembered most of what they had learned when retested four to six weeks later.[20]

The same group of researchers reported that comparable groups of naval air reservists who were taught one of two series of eight training lessons by one of three methods (closed circuit television, television kinescopes, and conventional classroom instructions) showed that television is a feasible and effective means of conveying instruction.[21] Those viewing via television made significantly larger scores than those viewing the same material on the other two channels in half the comparisons made. The lessons were taught by different instructors, however.

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

[21]Robert T. Rock, 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).

In 1954 Allen conducted a study to determine the effectiveness of a four-hour television course of instruction with Quartermaster ROTC students as compared to regular classroom study. Measured by a thirty-two item examination, the effectiveness of instruction via television appeared to be equal to that of classroom instruction for short orientation type courses emphasizing the lecture demonstration methods of instruction.[22]

No attempt had been made to control extraneous variables in the previous tests until Kanner and associates embarked on the ambitious study in 1954 covering 12,000 Army basic trainees.[23] Here fourteen hours of selective representative information and skills were carefully equated in content and presentation and submitted to comparable groups via television or regular instruction. Basic comparisons between television and regular instruction under matched conditions indicated that television instruction was at least as effective as regular instruction. Interestingly enough television instruction was even more effective for lower-aptitude groups. The authors concluded that should conditions require the Army to adopt mass media instruction, this kind of instruction could be utilized most efficiently.

Three other Armed Services studies conducted about the same time all reported little significant differences in performances

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[22] M. R. Allen, Quartermaster Training Command Educational-Television Study (Fort Lee, Virginia: Quartermaster School, Quartermaster Training Command, 1955) duplicated.

[23] J. H. Kanner, R. P. Runyon, and O. Desiderato, Television in Army Training Evaluation of Television in Army Basic Training, Technical Report Number 14 (Washington: George Washington University, 1954).

between television trained students and conventionally trained students. Boone[24] tested Naval Academy students who took one of two courses on electronics either by television or through conventional classroom procedures. In one course the television students scored significantly higher while in the other the regular classroom students did significantly better.

Army personnel who took a radio electronics course by television did as well as the group who attended regular classroom instruction on their achievement tests, according to Fritz and his associates.[25]

There have been numerous other studies comparing formal class instruction with in-studio closed circuit television classes. The usual measuring instrument employed to measure learning was an examination or achievement test. There were few cases where a benchmark pretest was administered to determine whether or not the participants varied significantly before they were exposed.

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[24] W. F. Boone, Evaluation of the Naval Academy Educational Television as a Teaching Aid, (Annapolis, Maryland: United States Naval Academy, 1954), (duplicated) appearing in Hideya, Kumata, An Inventory of Instructional Television Research. A Project of the Institute of Communications Research at the University of Illinois (Ann Arbor, Michigan, 1956).

[25] M. F. Fritz and others, Survey of Television Utilization in Army Training, (Port Washington, L. I., New York: Special Devices Center, Office of Naval Research, Human Engineering Report, S.D.C. 530-01-1, 1952) appearing in Lucinda Crile, Television Research Findings, U.S.D.A., Federal Extension Service Circular 495 (Washington: Government Printing Office, 1955).

There follows a brief overview of these studies from formal instructional classes of varied nature. One could argue that these findings could hardly be applicable to the type of informal education commonly associated with the Extension Service. It is the premise of the author that this argument should be rejected on the grounds that they will serve to isolate measurable factors related to learning more effectively to the researcher than most Extension studies are able to do.

Belson reported that the British Broadcasting Corporation exposed a group of adults to two ten-minute television programs and reported that seventy percent showed evidence of having sufficient grasp of all the major points and sixty percent of them mastered part of the major points.[26] In-school elementary students in San Diego who televiewed a series of lessons showed a substantial increase in their raw tests scores, according to Stanley.[27] Ulrick[28] contributed the results of his study indicating that eighth grade television students did significantly better than those taking part in conventional classroom teaching.

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[26] W. E. Belson, Comprehensibility of Two Facts and Figures Series, (British Broadcasting Corporation Audience Report, 1955) appearing in Hideya, Kumata, An Inventory of Instructional Television Research. A Project of the Institute of Communications Research at the University of Illinois (Ann Arbor, Michigan, 1956).

[27] DeGraff Stanley, Comparative In School Television Studies, San Diego, California, n.d., appearing in Hideya, Kumata, An Inventory of Instructional Television Research. A Project of the Institute of Communications Research at the University of Illinois (Ann Arbor, Michigan, 1956).

[28] J. H. Ulrick, "An Experimental Study of the Acquisition of Information from Three Types of Recorded Television Presentations," Dissertation Abstracts, 1955, appearing in Hideya, Kumata, An Inventory of Instructional Television Research. A Project of the Institute of Communications Research at the University of Illinois (Ann Arbor, Michigan, 1956).

Snyder[29] wrote that his adult television students in Pittsburgh's High School of the Air passed seventy-one percent of his testing devices. A year later Tannenbaum[30] tested dentists in Urbana who had been exposed to television training classes and found that they scored significantly higher in final exams than those who were trained in the classroom. Evans[31] reaffirmed this fact when he found no significant differences on final exams between television and campus students studying either biology or speech.

There were those who felt that the earlier studies found students so impressed with the novelty of television viewing that they could not help but learn. This could have influenced their apparent success. Later studies carried out after the novelty had been worn thin still corroborated the findings of the earlier research.

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[29] H. A. Snyder, An Evaluation of Telecourses for Credit Test Results of W[illegible]'s "High School of the Air" (Pittsburgh Public Schools), 1955, appearing in Hideya, Kumata, An Inventory of Instructional Television Research. A Project of the Institute of Communications Research at the University of Illinois (Ann Arbor, Michigan, 1956).

[30] Percy H. Tannenbaum, Instruction Through Television: A Comparative Study, Institute of Communication Research (Urbana, Illinois, University of Illinois), 1956, appearing in Hideya, Kumata, An Inventory of Instructional Television Research. A Project of the Institute of Communications Research at the University of Illinois (Ann Arbor, Michigan, 1956).

[31] Richard I. Evans, "Summary of Research Findings, Concerning Educational TV at the University of Houston" (Unpublished report, University of Houston, Houston, Texas, 1954), appearing in Lucinda Crile, Television Research Findings, U.S.D.A., Federal Extension Service Circular 495 (Washington: Government Printing Office, 1955), p. 61.

Perhaps the most relevant study to the purposes of this research was that reported by Shimberg on the comparative effects on learning of a television trained class of Red Cross volunteers with a conventionally trained class of adults. There were three experimental groups involved; one viewing presentation on television, one televiewing with laboratory practice, and the third receiving standard classroom instruction. It was found that television instruction was as effective as classroom instruction in teaching facts about home nursing and promoting an understanding of the principles involved in care of the sick.[32] While differences in final test scores between the two television groups and the standard class group were statistically reliable, it was too small to be considered of practical significance.

Berninger[33] from Michigan State University wrote that he had tested to measure the impact of two and of five-minute horticultural television programs on existing knowledge and attitude levels, on recall value, and on viewers' preference. Three productions (television recordings) were devoted to roses and one each to peas and the Japanese yew. Eight classes of college students were given a pre-test, a post-test, and a recall-test. A significantly high percentage of information was immediately absorbed. Over a period of three weeks, the retention of this information was excellent, with no occurrence of significant decreases in knowledge. The same was true when the audience was exposed to five minutes of information.

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[32] B. Shimberg, "A Comparison of Television and Classroom Instruction in Teaching the Red Cross Home Nursing Course Preliminary Report," (Princeton, New Jersey: Educational Testing Service, RE-54-19, 1954) p. 49.

[33] L. E. Berninger and D. P. Watson, "Impact of Horticultural Information on Televiewers," Michigan Agricultural Experiment Station Quarterly Bulletin, XXXVII (November, 1954).

Open Circuit Studies

The following are representative of the type of studies where enrolled television students were compared to students taking the same course using conventional methods.

The Chicago City Junior College study is typical.[34] Its College By Television project enrolled 1,300 students. With identical final exams written by the television students and the 2,500 students taking the same courses in the campus classrooms, the television students earned grades at least ten percent higher than their campus counterparts. Research is continuing to determine exactly what factors account for the grade difference. The question remains whether or not those who thought they were not succeeding too well did voluntarily drop out thus leaving the better students to take the final exam. Other studies are not bearing this feeling out, however.

For a more complete description of instructional television research it is suggested that Hideya Kumata's Inventory of Instructional Television Research[35] be further examined.

Summary

It is now generally recognized that it is possible to learn via the television screen. Television students have done as well as

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[34] "Anonymous: At Exam Time—Chicago TV Classes Pass With Honors," National Education Television News, March-April, 1957.

[35] Hideya Kumata, An Inventory of Instructional Television Research. A Project of the Institute of Communications Research at the University of Illinois, (Ann Arbor, Michigan, 1956), p. 3.

other students in comparative studies of methods related to learning and retention. In many closed-circuit tests students have been exposed to television presentations and compared to students exposed to conventional classroom procedures. In most cases they have either scored significantly higher in achievement tests or there has been little significant difference. Occasionally there have been attempts to provide the same instructors, identical subject matter, or same time limitations.

Adults enrolled in television courses televised over the airwaves have consistently scored as high or higher than students in the classroom. However, there has been little to indicate whether these students were equal in other respects. No data has revealed whether or not television students, who felt they were not understanding, ever finished the courses. This could, in part, explain why they, as a group, performed so well on final examinations.

Studies of experimental informal adult homemaking classes in various subject matter areas are serving as guideposts in determining how courses can be integrated into the lives of busy homemakers. Most of the studies revealed strong popularity among all ages of homemakers. They reached all ages of women, especially those in the younger age brackets that have been so difficult to reach by any other method.

The writer did not discover, however, whether any study had been conducted on the problem voiced by Mulder. She had said that it would be valuable for the Extension Service to know whether a subject taught on television could be as effective as a subject taught by the leader-training method. To the writer's knowledge, there has not been

any comparison in effectiveness between these two methods. Since the leader-training method, which consists of the professional extension agent training a second person to teach others, had been developed before the advent of television as a way of multiplying the number of recipients reached by a single professional agent, it should be interesting to compare its effectiveness with that of television. The characteristic of television is that it, too, is designed to reach vast numbers of people.

CHAPTER III

STUDY PROBLEM

In an effort to guide professional extension agents in the choice of methods designed to meet the challenge of change in people's design of living, a brief summary of what Gallup and Wilson have to suggest is helpful.[1]

Assuming that the local extension staff has adequately assessed the needs and problems of the local people and developed a program to meet these needs, they then should decide for themselves the kind of people who make up Extension's clientele in their area and whether or not the emphasis is to be to reach many people less effectively or fewer people more effectively. This will be related to the actual size of the professional staff and the available channels that can be utilized. The audience itself needs to be brought into focus with its characteristics closely examined. The subject matter involved sometimes lends itself better to one channel rather than another.

"In the final analysis the extension worker is faced essentially with a series of compromises, as the selection of methods involves judgment of many factors."[2]

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[1] Meredith C. Wilson and Gladys Gallup, Extension Teaching Methods, U.S.D.A., Federal Extension Service Circular 495 (Washington: Government Printing Office, 1955).

[2] Ibid., p. 76.

At best this is a difficult bit of advice for the extension worker to follow. What has actually been observed in practice is that extension workers tend to regard the television channel as an additional responsibility for the "over-burdened extension agent." When there exists a formal organization of women's extension groups whose system of training local leaders involves the greater percentage of an agent's time, it is not surprising that the typical agent views the television program as a not-too-effective tool that cannot possibly be developed adequately in face of the time already committed in training the local leaders. County extension workers need to be shown that television can teach effectively, reach more people while so doing, and can be successfully incorporated into the present leader-training system.

Subject-matter extension specialists at the state universities are faced with the same dilemma. They too are concerned with the most effective way of disseminating research knowledge to the greatest number of people while at the same time bolstering the efforts of the local field staff. Home Economics specialists in Michigan (a limited number) have been involved full-time in developing bulletins for public distribution and training both agents and local leaders to teach others. In face of these obligations it seems to them that to adopt a new channel for training is not worth the necessary amount of preparation time.

Wilson and Gallup of the Federal Extension Service had indicated that television seemed to be suitable only for particular subject-matter areas and was not as effective as face-to-face

presentations whether on an individual or group basis.[3]

It was felt by the author that if research could be conducted where like groups of homemakers were exposed to the channels discussed here, with as many as possible of the other variables equated, a comparison could result that would prove helpful to both the professional Home Economics Extension Agent and Specialist in their programming decisions.

Major Theoretical Hypotheses

The following major theoretical hypotheses are therefore formulated for this study.

In a group situation, homemakers learn as much or more by:

I. Viewing a television program bolstered by a trained discussion leader compared with taking a traditional extension lesson. (Category III => Category I).

II. Viewing a television program bolstered by a trained discussion leader compared with viewing a television program alone. (Category III => Category II).

III. Viewing a television program compared with taking a traditional extension lesson. (Category II => Category I).

In a group situation, homemakers retain as much or more by:

IV. Viewing a television program bolstered by a trained discussion leader compared with taking a traditional extension lesson. (Category III => Category I).

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[3] Ibid., p. 75.

V. Viewing a television program bolstered by a trained discussion leader compared with viewing a television program alone. (Category III => Category II).

VI. Viewing a television program compared with taking a traditional extension lesson. (Category II => Category I).

Definition of Terms

Certain definitions and clarifications are imperative before proceeding with the analysis. In the major theoretical hypotheses and the succeeding statistical hypotheses there are words and phrases that require amplification.

1. "Group situation" refers to a neighborhood group of homemakers meeting together informally in one of their own homes. This is the usual connotation when one describes a Home Demonstration group. The numbers vary from few to many (five to thirty). This study set a minimum number of six homemakers.

2. "Learn" is the word used to denote changes in attitudes, increased knowledge and amount of information recalled. Authorities differ on the most valid measurement device to employ but in this study a series of three identical tests were developed to administer to each participant. They took a pre-test, then were exposed to the channel, took a post-test, and twelve days later took a second post-test. "Learn" represents the difference in scores between the pre-test and the post-test.

3. "Retain" is the word used to denote the amount of learning the participant is able to remember and apply after a given length of time. In this study the word "retain" represents the difference in scores between the first and second post-test.

4. "Traditional extension lesson" refers to the kind of training that has been developed and used for years by the Cooperative Extension Service. The professional agent or specialist trains representatives (leaders) from the local groups at a training center who, in turn, conduct learning discussions or demonstrations with their local groups. Their training consists of subject-matter information and techniques to employ when teaching.

5. "Bolstered by trained discussion leader" is the phrase used to describe a possible way the television channel could be incorporated with the traditional extension lesson. If television facilities were available it is possible that subject matter could be taped and beamed directly to the viewer. To compensate for the belief, held by some experts, that television lacks effectiveness because there is no two-way communication between the teacher and learner, and the belief that the training of local leaders has many other values relating to leadership potential, a method has been devised where the two channels are combined. In this study the subject matter was viewed on television, the local leader was trained at a training center in the traditional manner, but only on techniques of leading a learning discussion.

6. "Category" is a working classification used in this study to separate the women who were exposed to different channels. Thus, for practical purposes, "category" can be assumed to be synonymous

with the word "channel."

7. "Channel," in this study, refers to the route or tool by means of which information reaches the homemaker. This is not to be confused with teaching method or treatment. Teaching methods or treatment vary in techniques employed as well as in the final quality irregardless of what channel is being employed.

8. "Exposure" is a word used to describe the time period when the participants are "exposed" to her particular classified channel.

9. In this study the women will be divided into four categories.

   Category I -- refers to women exposed to the traditional extension lesson.

   Category II -- refers to women exposed to a television program alone.

   Category III -- refers to women exposed to the combination of television programs plus planned discussion.

   Category IV -- refers to the control group where women received no exposure. This was accomplished by requiring them to discuss an irrelevant topic (flower arrangement).

CHAPTER IV

STUDY PROCEDURE

Problems in Television Research

There have been numerous experiments in television programming, but scientific research findings have been relatively sparse. Television programming has far outstripped evaluation studies. Too frequently an educational television program is planned, and evaluation has been an afterthought. Evaluation has been difficult because there has been difficulty in controlling the many extraneous variables, which is so necessary in relating cause and effect. For example, who can prove what factors actually contributed to the learning experience? Could it have been that the viewer being measured was predisposed at the time to learning one thing in preference to another? Could another viewer have possessed higher aptitudes and native intelligence which caused him to learn more? Could the homemaker have been partially skilled in a process before the exposure? Was the entire group being tested a typical representative group from which inferences could safely be drawn? The more nearly these factors are equated the more focused a study becomes in relating independent variables (cause) to dependent variables (effect).

There is some question as to the most reliable method of measuring learning. Studies do not always employ a measuring instrument that adequately measures the change in learning.

As the variables are equated and factors controlled the research design seems no longer a true-to-life situation. Even though this design may not always reflect true-to-life situations, it is just as vital to control experiments in television research as it is to control conditions when testing a new seed variety.

The author of this study proposes to set up a carefully controlled "laboratory situation" in the real world of homemakers, families and television sets.

Methodology

Categories

In this study groups of homemakers organized in informal neighborhood groups were exposed to the same message by means of one of four different combinations of channels and treatments. Local groups in the first category were taught by local leaders trained by an Extension Agent in Home Economics. Those in the second viewed a television program on the same subject given by the same agent directly from home television screens. The third category of groups was taught by discussion leaders (in turn trained by the same agent) who incorporated the television program as part of their presentations. Groups in the fourth, a control category, discussed an unrelated topic during the same time period. All categories took a pre-test before exposure and a post-test afterwards. A second post-test was filled out by the participants in their own homes twelve days after the

original measure. The basic portions of the three tests were identical. The second contained additional information about the respondent and the third provided space for open-ended evaluation of the experience.

The difference between the pre-test and the post-test was interpreted as the learning score of each individual. The difference between the post-test and the second post-test was interpreted as the retention score.

Subject Matter

Adolescent nutrition was the subject matter chosen for use in this study. Inasmuch as this study was conducted in cooperation with another related study which compared the effectiveness of bulletin reading with television viewing, and which was conducted concurrently, it was convenient for the two authors to select a subject matter already organized in an existing bulletin written in popular form. The title of the bulletin chosen was *In Tune With the Teen. Their Eating.*[1] The content of this bulletin provided the subject matter control for both studies in their entirety.

Devices

In order to conduct this experiment two different combinations of channel and treatment were developed.

The first was a twenty-seven minute television show. Using the bulletin content as basic information, the author developed a detailed script.[2] The producer and director were extremely careful

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[1] See Appendix C-1, p. 88.

[2] See Appendix C-2, p. 89.

to present content as nearly identical with that in the bulletin as possible. The performer, who is the author of this study, was the same agent who trained the local leaders and test "cooperators" at training sessions the following day.

The television show was organized as though the agent were talking directly to the viewer in a semi-classroom situation. The points were emphasized by the use of flip cards, tear sheets, blackboard, labeled food, and even by the use of the tele-prompter to aid the talent in reproducing the exact wording found in the bulletin. The director and the producer were somewhat disappointed in that they were not permitted to utilize the full creative potentialities of the television channel. It was essential that all treatments be kept as similar as possible to make valid comparisons between exposures. Although the resulting presentation was one that was typical of the kind an agent would give under field conditions, it was felt by those producing the show that it did not present television, as a channel, to its best advantage.

The show was video-taped on Thursday, May 19 and shown on the air over Michigan State University station, WKAR, two days later. There was no advance publicity concerning the show.

The second channel was a traditional leader training type lesson on the same subject. The bulletin content was followed just as faithfully and included in the lesson. There were, however, the necessary adaptations to the presentation as it was to appear on television. Some of the visuals that had been used on the television program were not practical to use in a home training situation. This

was especially true when the study design required the leader-training presentation to run approximately forty-five minutes. The author utilized a large pad of newsprint on which the points had been previously written. The training period for subject matter lasted approximately three-fourths of an hour.

The remaining time of the training session was devoted to the leader's preparation of their own visuals on newsprint pads provided for them and to an explanation of how to carry on the guided discussion.[3] A list of possible discussion questions was prepared for them to use after their presentations.[4] This was the same list of questions provided the leaders who conducted discussion for the groups who were to watch the television program. Identical food samples were used, and the leaders advised to assemble a similar collection for use when they did their own presentation. These leaders were not aware that there was a television program going on over the air on the same subject at the same time. This training took place the day before the test period.

Effort was made to make this training session as effective as possible. Since the author had reason to expect that the most effective exposure would be the direct television presentation combined with leader directed discussion, it was felt that in order to erase any possible bias the local leaders should be especially well trained. The resulting training session itself was more intensive than the usual situation in that there were actually only two leaders being trained--far fewer than in a normal training situation. The agent was able to supervise carefully every word that went on the flip charts

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[3] See Appendix C-3, p. 97.

[4] See Appendix C-4, p. 98.

being prepared by the two leaders. The material was factual, which is not always true in field conditions. With all of the points written down on the flip charts for reference there was little opportunity for misinterpretation or for the omitting of essential information. The original bulletin was used by the leaders for reference and background information but was not distributed to the participants.

Measuring Device

A test designed to measure the amount of learning which occurred as a result of the individual participants exposure to the various channels and treatments was developed by the agent who conducted the previously mentioned companion study.[5] The identical test was filled out three different times by each participant: once, before exposure; again, immediately after exposure; and a third time, twelve days later. They will henceforth be referred to as the pre-test, post-test and second post-test respectively.

It was planned to give the second post-test twelve days after the initial exposure to provide a measure of the amount of information actually retained. The comparison of the post-test score and the second post-test score therefore provides a measure of the amount of knowledge retained for this period. It follows that the difference between the score on the post-test and the score on the second post-test indicates the amount of "forgetting."

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[5] See Appendix C-5, pp. 99, 105.

The test consisted of a series of statements, some of which required words to be filled in to complete their meanings, and others of which had to be judged true or false. Many of the statements were, in effect, devised to measure recall and retention of a specific manner of presentation. Other statements were entirely factual. The optimum number of answers totaled fifty-six. The scores were a total of the number of mistakes, with zero equaling no mistakes.

The test was pretested by a group of adult extension workers and their wives. Regardless of their previous knowledge of nutrition facts, in all cases the scores on pre-test and on post-test were significantly different.

The test then was assembled in identical form in four different colors, representing the categories being tested. The pre-test was prefixed by the statement, "Check the correct answer to each question." The post-test and second post-test were prefixed by the statement, "Please answer the questions on the basis of what you read or saw." The post-test included a sheet of information about the respondent which classified her as to where she lived, her age group, the amount of formal education she had completed, and the number and ages of children she had in the required age bracket. The last page of the second post-test provided space for the respondent to evaluate her subject-matter problems, list behavioral changes resulting from the exposure, ask additional questions concerning the subject, and finally, to give a personal three-point evaluation of the effectiveness of the subject-matter presentation.

Selection of Participants

Since the original hypothesis defined the conditions under which homemakers were to participate in the study it was imperative to secure participants who would be able to meet together in their homes in informal neighborhood groups. It was also reasoned that these homemakers should have some similar interest in the subject matter being presented. It followed that mothers of adolescent children would probably be a natural group to contact. These same women were not to have any previous knowledge about the nature of this study in order to prevent preparation.

Thus these conditions were required of all women taking part in the study: All members of the neighborhood groups had to be homemakers and have at least one child between the ages of eleven to nineteen. As a group, they had to agree to meet on Saturday, May 21 at 12:30 p.m. in one of their own homes. The group itself had to be able to provide a "cooperator" who could attend a training meeting for further instructions on Friday, May 20 before the test day. (One of these 'cooperators" found themselves also in the role of leader as will be explained below.) The group also had to have a minimum of six homemakers taking part in the study.

The participants were obtained in the following manner: A letter appealing to their interest in participating in a research project was sent to the 4-H Club member mailing list of Ingham County, Michigan.[6] Ordinarily this would include ten year old 4-H members, but the list had not been brought up to date for over a year, so it

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[6] See Appendix C-6, p. 103.

was assumed that all ten year olds were now eleven years of age. Since the list was one of children's names, the name and address on the envelope was prefixed by the words, "To the mother of —." This arrangement tended to insure that all who received the letter would be women who had children within the required age levels. The letter asked that they take the initiative and gather together friends and neighbors who also had children between the ages of eleven and nineteen, who were interested in participating, and who would agree to meet together at a certain specified time in one of their own homes. If the mother contacted was able to secure a group of women fulfilling the very specific conditions called for she was asked to return a card with the pertinent information included on it.[7] Out of approximately fourteen hundred letters of this type sent out, fourteen cards were returned indicating that there were fourteen different groups of women throughout the county who were interested and curious enough about the study to agree to meet at the specified time. Many others evidenced interest and curiosity about the project, but were unable to comply with the requirements. It was all too apparent that the noontime hour on a busy Saturday (the date which had been set by the television station) was not the most convenient time for a group to meet and a test to be conducted.

The card also listed the name of the "cooperator," the person in the group who would be able to meet ahead of time for "further instructions and training."

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[7]See Appendix C-7, p. 106.

As these cards were received, the groups they represented were listed. Every fourth card was placed in the first category -- that which required the "cooperator" to be trained at a separate time than those of the remaining three categories. That was the "cooperator" who, in addition to her role as "cooperator," was to assume the role of the traditionally-trained local leader. All "cooperators" were contacted individually and told where and at what time to report for training.

Training Sessions

The training sessions took place the day before the test period. All "cooperators" arrived at the Vevay Township Hall in Ingham County on Friday, May 20, at 8:30 (with the exception of those who were previously categorized as traditionally trained local leaders). As they arrived, they automatically categorized themselves when they picked up instruction sheets which had been printed on green, yellow and pink paper.[8] These colors represented, respectively, the television exposure, the television plus discussion leader exposure, and the no exposure (control) categories.

Before they even knew what the colors represented, the instructions were carefully read to them by the author. These included an explanation of the test procedure and what the role of "cooperator" required them to do. Essentially, they were all instructed to give the pre-test to the women at 12:30 p.m. the following day, then initiate the exposure at 1 p.m., after which they were to allow

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[8] See Appendix C-8, p. 107.

the women to fill out the post-test. They were to collect these two tests, filled out by the participants, and return them to the author by mail or through special arrangement. They were not to take part in the tests at all, they were simply "cooperators" in every sense of the word. Twelve days later they were to deliver a sealed envelope to each of the original participants in their own homes.[10] That sealed envelope (already prepared and ready for them to take with them) contained exact instructions to the participants telling them to fill out the enclosed test and mail it directly to the author.[11] A stamped addressed envelope was included for this purpose.

After the instructions seemed to be thoroughly understood by all the "cooperators" (they ceased to ask further questions) they collected the corresponding numbers of pre-tests, post-tests and second post-tests needed for their group and recorded the numbers taken. The tests had been previously coded and they double checked that they had identical numbers of each set.

They were then ready to have their exposures explained to them. The women with the pink instructions, which was the control category, were the first to receive their pink exposure sheet.[12] The instructions required the participants to discuss in any manner the subject of flower arrangement during the exposure time (no exposure). The "cooperators" simply distributed bulletins on the

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[10] See Appendix C-10, p. 108.

[11] See Appendix C-11, p. 109.

[12] See Appendix C-12, p. 110.

subject which were provided for each member. Those three "cooperators," representing a total of thirty-eight women, then left the training session.

The second category "cooperators" were next to receive their corresponding (green) exposure instructions.[13] They were simply told to tune in their television sets to the WKRC television program on IN TUNE WITH THE TIMES at the exposure time. Spontaneous discussion was to be permitted but the "cooperator" was to remain in her role and take no initiative in leading any discussion. These five women, representing a total of forty-five participants, were next to leave the session.

The third category of "cooperators" were all who remained. Their (yellow) exposure instructions advised them to tune in on the same television program at the exposure time.[14] After the program was completed they were to initiate discussions among their group members. A list of discussion questions was provided for them to give each participant.[15] Techniques on how to initiate and guide good discussion were quickly reviewed. These "cooperators," who would be discussion leaders as well during the next day's exposure were last to leave the training session at Vevay. They represented three groups with a total of twenty women.

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[13] See Appendix C-13, p. 111.

[14] See Appendix C-14, p. 112.

[15] See Appendix C-15, p. 98.

At 10:30 a.m. the "cooperators" who had been previously categorized as traditionally-trained local leaders arrived. The same procedure was followed in instructing them on how to give the pre-test, post-test and second post-test. Not until they completely understood their duties as "cooperators," as evidenced by their ceasing to ask questions, and had picked up their numbered (white) tests was it revealed to them that their exposure consisted giving a lesson on adolescent nutrition.[16] A description of the kind of training they received appears above. There were two leaders representing thirty-one women.

Execution of Experiment

The "cooperators" in the study were trained to carry out the study on Saturday, May 21. The author did not take part in any test on that day. Rather, the day was spent viewing the television program itself and surveying what was happening in the homes where the "cooperators" and those who were also trained as leaders were conducting the simultaneous test procedures.

The pre-tests and post-tests were returned completely by the following Wednesday. In spite of urgings to secure additional participants the "cooperators" consistently reported a smaller number of participants than had originally signed up for the test. There were a few participants whose tests had to be discarded because they had failed in some way to completely fill out either the pre-test or the post-test. By the very nature of the requirements it was impossible to include the tests of these women.

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[16] See Appendix C-16, p. 113.

Eleven days later all the "cooperators" were telephoned and reminded to deliver their second post-test envelopes to their group member participants that evening, according to instructions. They were cautioned to make certain each participant received the same code number that she had had on the previous two tests. They did this in order that the second post-test would be in the hands of the participants early Thursday morning. The final post-tests were mailed directly to the author by the participants and were all received by Thursday of the following week. Some phone calls to the "cooperators" were necessary to insure the return from a few procrastinating participants. Six were never returned, thereby reducing again the final number of participants.

Assembling the Data

The final total number of homemakers who completely filled out all three tests under specified conditions was seventy-four. Later another woman was disqualified when it was discovered she had listed no child in the required age bracket.

The final number of participating groups and individual participants are summarized in Table 1.

TABLE 1

NUMBERS OF GROUPS, MODEL CITY AND COOPERATORS
WHO PARTICIPATED IN COMPARATIVE CHANNEL STUDY
INGHAM COUNTY, MICHIGAN, MAY 21, 1960

	FIRST CATEGORY	SECOND CATEGORY	THIRD CATEGORY	FOURTH CATEGORY	TOTAL
Number of					
Local Groups	2	5	3	3	13
Cooperators	2**	5*	3	3	13
Participants	17	24	14	18	73

*Were also trained discussion leaders.
**Were also traditionally trained local leaders.

CHAPTER V

PRESENTATION AND ANALYSIS OF DATA

Statistical Hypotheses

The major theoretical hypotheses are stated in statistical form for study purposes below.

In comparing mean difference between pre-test scores and post-test scores--

I. That of Category III (television plus discussion) is equal to or greater than that of Category I (traditional leader training).

II. That of Category III (television plus discussion) is equal to or greater than that of Category II (television).

III. That of Category II (television) is equal to or greater than that of Category I (traditional leader training).

In comparing mean difference between first post-test scores and second post-test scores--

IV. That of Category III (television plus discussion) is equal to or greater than that of Category I (traditional leader training).

V. That of Category III (television plus discussion) is equal to or greater than that of Category II (television).

VI. That of Category II (television) is equal to or greater than that of Category I (traditional leader training).

In order to check statistically that there was a change in each category as a result of exposure, Category IV is introduced as a control group. Women in this category received irrelevant subject matter for discussion during exposure period.

Minor Statistical Hypotheses

The following minor statistical hypotheses are stated in support of the major hypotheses.

1. There will be a significant difference between the pre-test mean scores and the post-test mean scores in each of the four categories.
2. There will be a significant difference between the post-test mean scores and the second post-test mean scores in each of the four categories.
3. There will be no significant differences in the mean scores of the pre-test among the four categories tested.
4. There will be significant differences in the mean scores of the post-tests among the four categories tested.
5. There will be significant differences in the mean scores of second post-test among the four categories tested.

Evaluation of Hypotheses

All of the scores of the homemakers varied to some degree in every test. They are summarized according to categories and the mean scores for each test computed. Table 2 tabulates this summary as well as both the mean difference between the pre-test and post-test and the mean difference between the post-test and second post-test for each category.

TABLE 2

SUMMARY OF MEAN SCORES OF THE THREE TESTS AND THE MEAN DIFFERENCES BETWEEN PRE-TEST AND POST-TEST AND THE FIRST AND SECOND POST-TEST BY CATEGORIES

MEAN FOR	CATEGORY I	CATEGORY II	CATEGORY III	CATEGORY IV
Pre-Test	27.00	24.50	24.86	25.33
1st Post-Test	12.82	9.75	12.21	25.61
2nd Post-Test	13.94	12.87	14.93	22.55
Mean Difference Pre- and Post-Test	14.17	14.54	12.64	-.10
Mean Difference 1st & 2nd Post-Test	-1.59	-3.79	-2.71	3.055

First Mean Hypothesis

The differences in test scores between the pre-test and post-test has been identified as the "learning" score. In each category the mean difference has been subjected to the statistical "t" test in order to determine whether or not the difference was great enough to indicate change (learning).

Table 3 summarizes the results.

TABLE 3[1]

DIFFERENCES IN MEAN SCORES BETWEEN PRE-TEST AND FIRST POST-TEST IN EACH OF THE FOUR CATEGORIES

CATEGORY	NUMBER	MEAN DIFFERENCE	"t"
I Leader Training	17	14.17	11.91**
II Television	24	14.54	17.9**
III Television Plus Discussion Leader	14	12.64	9.87**
IV Control	18	-.28	-.53

**Significant at 1 percent level of significance

The data shows that there was a significant difference in mean scores between the pre-test and post-test in Categories I (leader training), II (television), III (television plus discussion leader). This supports the first minor statistical hypothesis that there would be a significant difference in mean scores between the pre-test and post-test. In Category IV there is no significant difference and the hypothesis is not supported. This is as expected, since Category IV was introduced into the study as a control factor.

Second Minor Hypothesis

The difference in scores between the post-test and the second post-test has been identified as the "retention of knowledge" score.

[1]See Appendix B for explanation of "t" formula.

If it is a negative value it is to be associated with the amount of "forgetting." It is assumed that the difference in mean scores will be negative after having a period of twelve days elapse between the tests. The question is whether or not the amount of forgetting will be statistically significant. The mean difference in scores is once again submitted to the statistical "t" test for significance. Table 4 summarizes the results.

TABLE 4[2]

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

CATEGORY	NUMBER	MEAN DIFFERENCE	"t"
I Leader Training	17	-1.59	2.92*
II Television	24	-3.79	7.52**
III Television Plus Discussion Leader	14	-2.71	2.32*
IV Control	18	3.06	4.30**

**Significant at 1 percent level of significance.
*Significant at the 5 percent level of significance.

The data shows that there was a significant difference in the mean scores between the post-test and the second post-test taken out after twelve days in all categories. In Category I (leader training),

[2]See Appendix B for explanation of "t" test.

II (television), and III (television plus discussion leader) the difference was in forgetting. In Category IV (control) the difference was positive. The women showed a gain of knowledge instead of a loss.

This data supports the second minor hypothesis that there would be a significant difference between the mean scores of the post-test and the second post-test.

Third Minor Hypothesis

So far it has been indicated that there were significant differences in scores between pre-test and post-test as a result of exposure. Now the question arises as to whether the groups were, in truth, similar to each other at the time the pre-test was given. Did the variances in scores represent only chance variation that occurs among random samples of the population or were they indicative of real differences in women's scores?

It is possible to check statistically on these variances by applying the "F" test, or the Analysis of Variance procedure, to all the pre-test scores at one time.

Table 5 summarizes computations on the mean pre-test scores for the pre-test.

TABLE 5[3]

ANALYSIS OF VARIANCE ON PRE-TEST SCORES

SOURCE OF VARIATION	d.f.	SUM OF SQUARES	ESTIMATED VARIANCE	"F"* (2.74)
Total	73	2317.5		
Between Categories	3	71.5	23.83	.73
Within Categories	69	2246.0	32.56	

*"F" needed for significance at the 5 percent level when degrees of freedom (d.f.) is 3 and 69.

Since the computed "F" value is .73 and less than 2.74, it is thereby concluded that the computed "F" value is not a significant one. Any variance in scores among the women taking the pre-test were not large enough to be indicative of any real difference. There is thus no reason to feel they were not equal in abilities, knowledge, and attitudes on the subject at that time.

The third minor hypothesis, that there would be no significant difference in the mean scores of the pre-test among the four categories tested, is thereby supported.

Fourth Minor Hypothesis

The analysis of variance is again applied to the post-test scores. Here the minor hypothesis, that there will be significant differences in the mean scores of the post-test among the four categories tested indicates the designer of the study expects to find variances.

[3]See Appendix B for explanation of Analysis of Variance statistical test.

Table 6 summarizes computations on the post-test mean scores.

TABLE 6[4]

ANALYSIS OF VARIANCE ON POST-TEST SCORES

SOURCE OF VARIATION	d.f.	SUM OF SQUARES	ESTIMATED VARIANCE	"F"* (2.74)
Total	73	4637.6		
Between Categories	3	600.0	200.00	3.41
Within Categories	69	4037.6	58.51	

*"F" needed for significance at the 5 percent level when degree of freedom (d.f.) is 3 and 69.

Here the computed "F" value is larger than the "F" value needed for significance. This indicates variance in the scores and it becomes necessary to check the mean raw scores of each category on the studentized range tables.[5] The scores of Category I (leader training), Category II (television), and Category III (television plus discussion leader) have no variance among them. The variance lay between the raw mean score of Category IV (control) and any or all of the other three.

The data in Category I, II, and III does not, then, support the fourth minor hypothesis, that there will be significant differences in the mean scores of the post-tests among all the categories.

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[4] See Appendix B for explanation of Analysis of Variance statistical test.

[5] See Appendix B for explanation of studentized range tables and how the mean scores fitted in.

In the case of Category IV there were differences or variance. The difference detected by the computed "F" value lies between the mean score of the control category and the rest of the categories.

Since Category IV (control) had received no exposure, this is as expected.

Fifth Minor Hypothesis

The analysis of variance was applied to the second post-test scores.

Table 7 summarizes computations on the second post-test mean scores.

TABLE 7[6]

ANALYSIS OF VARIANCE ON SECOND POST-TEST SCORE

SOURCE OF VARIATION	d.f.	SUM OF SQUARES	ESTIMATED VARIANCE	"F"* (2.74)
Total	73	3096		
Between Categories	3	1095	365	12.6
Within Categories	69	2001	29	

*"F" needed for significance at 5 percent when d.f. (degree of freedom) is 3 and 69.

It is apparent that the computed "F" value for the second post-test (12.6) is larger than the "F" value needed to indicate significant variance in the scores. This indicates variance in scores

[6]. See Appendix D for explanation of Analysis of Variance.

and the studentized range tables show that the variance lies between Category IV (control) and the remaining three categories.

As far as Category I, II, and III are concerned, there is no variance among them and therefore refutes the fifth minor hypothesis that there is a significant difference in the mean score of the second post-test among the four categories tested.

Major Statistical Hypothesis

It has been shown that all of the major statistical hypotheses have been supported. Each one stated that the mean differences between pre-test scores and post-test scores of the various categories are equal to or greater than differences for Category I, the traditional leader training group. From the support of the several minor hypotheses, support of all major hypotheses is inferred.

Characteristics of Participating Homemakers

Additional sheets on the post-test and on the second post-test supply information on the general characteristics of the homemakers involved in the entire study. The results are summarized by categories in Tables in Appendix A.

Since the study design specifies that the homemakers be mothers of children between the ages of eleven and nineteen, this places a natural bracket on their range of ages. Sixty-one percent of the homemakers are between the ages of thirty and fifty-four years of age and about thirty-nine percent between thirty and thirty-four years of age.

The total number of children in the required age bracket of eleven to nineteen years of age represented by the women is 156 teen-agers, sixty-five boys, and ninety-one girls.

The women checked the description of neighborhood which most nearly identified where they lived. If they live on a farm and earn even part of their living from it they are classified as rural farm residents. If they live in the country and do not farm, near a village, or in a village of less than 2500, they are classified as rural non-farm. Residents of villages or cities with a population upwards of 2500 and of the outlying developed suburban areas around such cities or villages are classified as urban.

The entire group contains forty-three percent farm homemakers; nineteen percent rural non-farm homemakers; and thirty-seven percent urban homemakers. Closer examination reveals that Category I (leader training) women are predominantly rural farm women while urban women predominate Categories III (television plus discussion leader) and IV (control). Category II (television) is reasonably evenly balanced in regard to the type of neighborhood they represent.

As far as the amount of education is concerned, the women range from one who has had only a grade school education to fifteen who are college graduates. Seventy percent of the homemakers indicated that they had finished high school and some sort of post-graduate education or training. An additional twenty percent reported that they were college graduates. In Category I (leader training), women generally reported less formal academic training than did the remaining three categories tested.

Forty-three percent of the women watching the television program and thirty-five percent of those taking the leader-training lesson indicated that they had "done something different as a result of studying teen-age nutrition." It was the television watching category of women who also had the greatest number of problems on the subject (56 percent). The women who had discussed an irrelevant subject (Category IV) had the greatest number of questions to ask as a result of the experience (33 percent).

Tables in Appendix A summarize the remarks made by the participants in the final sheet of the second post-test.

It is difficult to evaluate these remarks since problems were often written as questions, and questions were stated as problems.

Finally, out of seventy-two evaluations made by the women themselves as to whether they had learned little, some, or a great deal; fifty-four percent said they had learned some and twenty-two percent said that they had learned a great deal. Twenty-three percent said that they had learned little. It is significant that twelve out of those seventeen were in the control category (IV).

CHAPTER VI

CONCLUSIONS

Summary

The purpose of this study was to provide some guidance to the professional Home Economics Extension Agent in her ultimate decision as to which channel to use when endeavoring to reach the greatest number of homemakers in the most effective manner. It was an attempt to compare the effectiveness of three channels of communication: Extension's traditional leader-training arrangement where the professional agent trains the local leader who, in turn, trains others; the direct channel of television; and a combination of direct television supplemented by trained local leader discussion.

Teen-age nutrition was studied by seventy-three impartially selected homemakers who were gathered together in thirteen informal groups in their own homes for this purpose. As many factors as possible that could have influenced their learning were controlled so that the independent variable of channel could be effectively compared by means of the dependent variable. The independent variable in this study was the channel of communication; the dependent variable, the difference in scores of identical tests taken by the homemakers before and after exposure. Such factors as method of instruction, identity of instructor, and time of exposure were as near alike as

possible. The women were categorized into four categories which represented the channel variations being tested.

Those in Category I took part in a lesson taught by a local leader who had been trained at a training center; those in Category II watched a television program; and those in Category III watched the program and then took part in a planned discussion led by a local leader trained on procedure at a training center. Those in Category IV were the control category where there was no exposure to the message.

The mean category difference between pre and post-test scores of the first three categories show that the women had learned a significant amount as a result of the exposure. The control group (IV) did not.

All three categories show that the amount of knowledge retained h had lessened significantly (except the control category which actually shows they had gained in knowledge).

The categories are shown to have been equal, at the time of the pre-test, when the mean raw scores of all the categories were submitted to the analysis of variance statistical test.

On the immediate post-test the mean raw scores of the first three categories are shown not to vary significantly from one another. All the difference lay between the control category mean score and any of the first three. The same is true for the mean raw scores of the categories on the second post-test. There was no significant variance among the scores except for Category IV, which had received no exposure.

The story of what had actually happened to the participants in Category IV was that they were equal in the beginning, showed no statistical gain in knowledge after the exposure, but by the time they took the same test for the third time they had shown an increase in knowledge.

Thus the major hypothesis, that the categories would show equal or greater mean differences in pre and post-test (learn as much or more) is supported in that they show an equal amount.

That the categories would show equal or greater mean difference in post-test and second post-test (retain as much or more) is also substantiated in that they show an equal amount of forgetting or retention ability (decrease in mean score).

It can be safely assumed that in this study women learned as much viewing a television program or viewing a television program with a trained discussion leader following as they did taking part in a leader-training lesson, since they were all statistically equal.

Similarly, they seemed to have retained as much when they viewed a television program or viewed one with a trained discussion leader leading them after the program as they did taking part in a leader-training lesson, since they were all statistically equal.

Conclusions

According to data gathered in this study it can be concluded that as far as these women were concerned they learned equally as much and retained just as much when they were in a neighborhood group situation regardless of whether they were taking a leader-training

lesson, watching television alone or viewing a combination of television and leader-training techniques.

This bears out the many comparative closed and open circuit studies where television students generally did as well or better than those taught by the conventional methods. In this instance, it has been shown that television is as effective as Extension's traditional method of extending information to many, the leader-training lesson taught by the local leader.

If it can be accepted that television generally reaches larger numbers of women than the other channel studied, and if the findings of this study, that in this instance television was as effective as the traditional leader-training lesson, be taken into consideration, then the advantage clearly lies in favor of the television channel for extension education.

Mention should be made of the study conducted by Patricia Coolican of the New York Extension Service at the same time this study was conducted. She compared the effects of television viewing, reading a bulletin, and reading a mimeographed version of the same bulletin with a group of Livingston County homemakers under carefully controlled conditions. The subject-matter content for the two studies was constant. She found that the group viewing the television program had learned significantly more than those reading either kind of described bulletin. However, they did not retain enough of the knowledge to make it any more effective than the group reading the bulletin.[1]

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[1]Patricia M. Coolican, A Study of the Effectiveness of Teaching By Television Versus Teaching by the Use of an Extension Bulletin, unpublished Master's Thesis (East Lansing, Michigan, Michigan State University, 1960).

This study in no way attempted to judge such things as which would be the most popular or most effective kind of television presentation, which would be the most suitable time of day for a television class or whether the subject matter was truly meeting the needs of the viewer. It simply measured learning and retention on a given subject, at a given time, by a given number of carefully defined homemakers.

Suggestions for Further Research

It might be interesting and helpful to all those interested in Extension teaching methods to:

1. Conduct this same type of study on a larger sample of homemakers in order to further verify or disprove the findings of this study. In other words, "field trials" need to be carried out.
2. Conduct this same type of study on other variables that might influence the rate of learning. For example, the channel and treatment remain constant and the time of day be the independent variable.
3. Experiment in all subject-matter areas to develop recommended techniques in television teaching.
4. Develop a pilot program in a local county, where television facilities were available, where primary emphasis be placed on television programs as the channel used in teaching television-oriented groups of women and to conduct an evaluative study of such a pilot program. This pilot program should not be conducted in addition to an agent's present responsibilities to the organized groups but as an agent's sole responsibility. Developing suitable

television groups in conjunction with the present program seems to hinder the agent in developing an adequate television program because she already is fully committed to the leader-training type program. Such an evaluation should be conducted before any change in emphasis be recommended to all Home Economics Extension agents. This kind of a pilot program would serve to demonstrate to the agent whether or not women could learn effectively via television.

5. Conduct research into the area of what makes a woman choose the programs on television that she does. Placing all types of television programs on a continuum ranging from purely entertaining to purely educational, there is a wide range where entertainment and education cannot be easily separated and identified. What are the factors that influence the homemaker in the choice of programs she makes? If these factors were known, this information would be helpful to those planning informal educational programs for homemakers.

Implications for Women's Organized Extension Program

This small beginning may serve to inspire others to further research in the area of Extension teaching by television. Making the assumption that if the studies and projects recommended by the author were carried out and did further verify the findings of this study, it is exciting to ponder the effects of them on methods now being utilized by the Cooperative Extension Service to reach homemakers in this changing world.

Certainly the specialists would regard the channel in a different light. Instead of training agents and local leaders by meetings and workshops they would seriously consider television series beamed directly to the homemaker or prepared tapes of lessons that local professional agents could utilize on their local television stations.

The local professional agent would visualize new area boundaries (defined by station coverage) as her clientele and might make every attempt to utilize the channel in implementing the planned program for the area (not county). If television facilities were available there would conceivably be less emphasis placed on the traditional leader-training channels and more on the television channel.

If these recommended studies reaffirmed the direction of emphasis pointed out by this small study, renewed efforts would have to be made by the Cooperative Extension Service to procure the cooperation of local commercial television stations in obtaining suitable time for teaching homemakers. Re-examination of the Service's policies on commercial sponsorship of Extension programs would probably be necessitated.

APPENDIX A

TABLE 3

INDIVIDUAL TEST SCORES FOR CATEGORY I (MACHINE-TWISTED)

Individual	Pre-test	Post-test	2nd Post-test	Difference pre-test and post-test	Difference post-test and 2nd post-test
1	30	16	15	14	-1
2	30	9	9	21	0
3	17	6	4	11	2
4	22	6	7	16	-1
5	25	9	9	16	0
6	25	4	7	21	-3
7	31	12	16	19	-4
8	20	11	15	9	-4
9	30	10	12	20	-2
10	22	1	9	21	-8
11	26	16	15	10	1
12	39	32	29	7	3
14	34	25	26	9	-1
15	27	15	17	12	-2
16	30	13	16	17	-3
17	26	16	15	10	1
18	25	17	16	8	1

TABLE 9

INDIVIDUAL TEST SCORES FOR CATEGORY II (TELEVISION)

Individual	Pre-test	Post-test	2nd Post-test	Difference pre-test and post-test	Difference post-test and 2nd post-test
3	20	7	12	13	-5
4	19	5	7	14	-2
5	23	9	9	14	0
6	33	16	16	17	0
11	22	7	12	15	-5
12	30	13	19	17	-6
13	26	15	18	11	-3
14	22	5	7	17	-2
15	24	6	13	18	-7
21	20	10	13	10	-3
22	17	7	10	10	-3
23	27	22	19	5	3
24	22	4	8	18	-4
25	26	17	23	9	-6
31	24	7	9	17	-2
32	35	26	27	9	-1
33	24	9	12	15	-3
35	26	9	10	17	-1
36	27	4	10	23	-6
37	23	8	13	15	-5
41	20	7	9	13	-2
42	27	9	17	18	-8
43	26	6	20	6	0
44	20	6	10	14	-4

TABLE 10

EXPERIMENTAL TEST SCORES FOR CONDITION III
(MULTIPLICATION AND DIVISION FACTS)

Individual	Pre-test	Post-test	2nd Post-test	Difference pre-test and post-test	Difference post-test and 2nd post-test
1	30	15	13	5	2
2	33	13	30	15	-2
3	21	11	14	10	-3
4	24	13	16	11	-3
5	25	10	22	15	-12
6	28	14	15	14	-1
10	31	11	15	20	-4
11	23	8	9	15	-1
12	20	2	4	18	-2
13	14	5	11	9	-6
17	24	20	16	4	4
18	29	20	21	9	-1
19	27	9	20	18	-11
20	19	15	13	4	2

TABLE 11

INDIVIDUAL TEST SCORES FOR CATEGORY IV (CONTROLS)

Individual	Pre-test	Post-test	2nd Post-test	Difference pre-test and post-test	Difference post-test and 2nd post-test
11	34	31	31	3	0
12	21	21	21	0	0
13	20	23	19	-3	4
14	23	25	20	-2	5
16	22	22	23	0	-1
19	22	20	17	2	3
21	30	29	20	1	9
22	36	32	28	4	4
23	23	23	18	0	5
24	19	20	19	-1	1
29	20	23	23	-3	0
30	28	28	23	0	5
31	27	28	21	-1	7
32	24	22	19	2	3
33	25	26	24	-1	2
34	27	26	29	1	-3
35	26	31	25	-5	6
36	29	31	26	-2	5

TABLE 12

DESCRIPTION OF SAMPLE

		Category I	Category II	Category III	Category IV	Total
I.	Residence					
	Farm	13	9	3	2	27
	Rural Non-Farm	3	6	3	2	14
	Urban	1	8	8	14	31
	Total	17	23*	14	18	72*
II.	Education					
	8th grade or less	1	0	0	0	1
	Some high school	1	1	2	2	6
	High school graduate	11	9	4	3	27
	Some college or special training	4	6	7	6	23
	College graduate	0	7	1	7	15
	Total	17	23*	14	18	72*
III.	Age					
	Under 29	1	0	0	0	1
	30 - 34	4	3	3	3	13
	35 - 39	3	3	5	3	14
	40 - 44	5	7	3	7	22
	45 - 54	4	10	3	5	22
	Over 55	0	0	0	0	0
	Total	17	23*	14	18	72*
IV.	No. Children 11 to 19					
	Boys	17	24	8	16	65
	Girls	22	25	24	20	91
	Total	39	49	32	36	156

*No information on one woman.

TABLE 13

BEHAVIORAL CHANGES RECORDED BY PARTICIPANTS AFTER TWELVE DAYS REGARDING TEEN-AGERS NUTRITION

	Change	No Change	Total
Category I	7	10	17
Category II	10	14	24
Category III	2	12	14
Category IV	4	14	18
Total	23	50	73

Changes Reported by Category I (Leader Training)

1. "Served seafood."

4. "Lectured on the value of a balanced diet to my family and seen to it my son eats--all of it."

5. "I have given more thought to balanced meals."

7. "Served more vegetables and fruit, cheese, eggs, and milk dishes and cut down on servings."

9. "No gum allowed and less money for sweets."

16. "Better lunches."

17. "No problems, sounds ideal."

Changes Reported by Category II (Television)

4. "Made sure they had a good breakfast."

11. "Cut down on milk, made sure butter and cheese were eaten."

15. "Increased green and yellow vegetables, proteins, and milk desserts."

22. "Tried to add more Vitamin C foods."

31. "Bought more nutritious food for snacks."

TABLE 13—Continued

33. "Fruit for snacks."

35. "Talked it over with my daughter and she has agreed to cooperate."

36. "Trying to have more colorful attractive meals and pleasant conversation."

41. "Have allowed each child one food he need not eat thereby cutting down arguments about other non-favored foods."

42. "Tried to use new recipes to make meals more interesting."

Changes Reported by Category III (Television Plus Discussion Leader)

1. "Encouraged eating more fruits and vegetables."

2. "Tried to slow down their eating."

Changes Reported by Category IV (Control-No Exposure)

13. "Are taking Brewer's Yeast three to four times a day."

30. "Less desserts, more milk and eggs."

31. "Insist on breakfast, more vegetables and cut down on sweets."

34. "My daughter and I talked over her overweight problem. She decided on a special protein diet."

TABLE 14

PROBLEMS BY TELEVISION EXPOSURE

Had Problem	Yes	No	Total
Category I	5	12	17
Category II	13	11	24
Category III	5	9	14
Category IV	9	9	18
Total	30	41	73

Problems Reported by Category I (London-Training)

4. "Teen-agers want the wrong food and has a habit of leaving a little."

15. "To get them to eat breakfast and to eat vegetables."

17. "Filling up my son."

Problems Reported by Category II (Television)

4. "Not all my girls like the same foods."

5. "Vegetables are not liked and they won't eat breakfast."

11. "Mine drink too much milk and eat too much meat. They do not eat as many vegetables as they should."

13. "To get a boy to eat more and a girl to eat less."

21. "My youngsters dislike milk so."

22. "They eat too much at bedtimes—even hamburgers."

24. "Skin problem."

32. "My teen-ager is a finicky eater."

33. "My teen-ager does not like eggs and cereal for breakfast."

35. "My daughter has no appetite and I try to interest her in eating."

TABLE 14--Continued

41. "Wish family could agree on what they dislike."

42. "Mine skip breakfast."

44. "Getting them to try new foods. Snacks are a problem too."

Problems Reported by Category III (Television Plus Discussion Leader)

3. "Teen-agers eating a good breakfast."

5. "No breakfast, not enough vegetables, too many malteds, too much pop."

13. "My girls will eat no vegetables or salads. There's no variety in their diet."

17. "My children are overweight. They drink too much whole milk, should be drinking skimmed."

Problems Reported by Category IV (Control--No Exposure)

11. "Limiting food intake."

13. "Not enough breakfast."

14. "I have three girls; one won't eat enough meat, the other won't eat any citrus fruit, the third dislikes potatoes. All dislike vegetables."

19. "My teen-ager does not eat breakfast or care for whole grain cereal. He drinks too much Kool-Aid."

24. "Our teen-ager does not eat enough fruit or salad."

30. "Our teen-ager has to force herself to eat breakfast and eats no fruits."

31. "Dislikes vegetables and won't eat at mealtimes."

32. "Trying to get them to like new foods."

35. "Overweight daughter."

TABLE 15

QUESTIONS ASKED ABOUT TEEN-AGE NUTRITION

Questions Asked		Yes	No	Total
Category I		2	15	17
Category II		5	19	24
Category III		2	12	14
Category IV		6	12	8
	Total	15	58	73

Questions Asked by Category I (Leader-Training)

1. "Are there recipes for nutritious snacks?"
   "Are there menus that would cut the desire for snacks?"

4. "How to be tactful!"

Questions Asked by Category II (Television)

5. "How can you get them to take a decent school lunch?"

15. "How to get our teen-ager to eat breakfast?"

25. "Is there a diet to prevent tooth decay?"

42. "Is there a list of suitable snacks for teen-agers?"

Questions Asked by Category III (Television Plus Discussion Leader

1. "Are there vitamins in skimmed milk?"

2. "What is the food value of hamburgs, potato chips, and French fried potatoes? How often can they be served?"

Questions Asked by Category IV (Control--No Exposure)

13. "Can lack of adequate breakfast be made up later in the day?"

14. "Would they be more interested if they were responsible for planning, preparing, and serving a meal?"

30. "How can I get her to eat breakfast?"

31. "When does a child eat too much?"

33. "How to keep them from eating too much all the time?"

35. "Would like a safe-sure reducing diet."

TABLE 16

PARTICIPANTS' VALUATION OF THEIR LEARNING EXPERIENCE

Learned	Great deal	Something new	Nothing new	Total
Category I	6	8	3	17
Category II	4	19	1	24
Category III	3	6	1	10*
Category IV	0	5	12	17
Total	13	38	17	68

*Question not filled in by four women.

Evaluation of Statistical Formula Used[1]

General 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 chance variations that are to be expected among random samples of 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 has the same variance.[2]

Formulas used were:

$$F = \frac{\text{Between-category variance}}{\text{Error variance}} = \frac{\text{Mean between-category square}\ (1)}{\text{Mean within-category square}\ (2)}$$

$$(1)\ \text{Mean Between-Category Average} = \frac{\text{Sum of Squares Between Categories}\ (3)}{\text{K-1 (Category Variance)}\ (4)}$$

$$(2)\ \text{Mean Within-Category Square} = \frac{\text{Sum of Squares Within Categories}\ (5)}{\text{N-K (Within Category Variance)}\ (6)}$$

Degrees of Freedom Used:

(4) K-1 Category Variance (4-1 = 3)

(5) N-K Within Variance (73-4 = 69)

N is the total number in the sample (73)

K is the number of categories (4)

$$(7)\ \text{Sum of Square of Total Category} \sum x^2 - \frac{T^2}{N}$$

$\sum x^2$ is the sum of each score squared for all four categories

T is the total of the scores of the four categories

N is the total number in the sample

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[1] Author is indebted to the advice of Dr. William E. Eaton, Professor of Statistics and Agricultural Experiment Station Statistician on Statistical Formulas Used.

[2] Abby Nigel, Nonparametric Statistics (New York: McGraw-Hill Book Company, Inc., 1956), p. 179.

(3) Sum of Squares Between Categories

$$\frac{A^2}{n_1} + \frac{B^2}{n_2} + \frac{C^2}{n_3} + \frac{D^2}{n_4} - \frac{T^2}{N}$$

A is the sum of the scores in Category I

B is the sum of the scores in Category II

C is the sum of the scores in Category III

D is the sum of the scores in Category IV

n_1 is the number in Category I

n_2 is the number in Category II

n_3 is the number in Category III

n_4 is the number in Category IV

N is the total number in the sample

T^2 is the total of the scores of the four categories squared.

(5) Sum of Squares Within Categories = Sum of Square of Total Category(7)

- Sum of Squares Between Categories(3)

Studentized Ranges

The table of significant studentized ranges for a 5 percent level new multiple range test 2 was utilized where population was sixty. Between two scores, if they differ more than 2.83, they indicate real differences. Between three scores, if they differ more than 2.98 they indicate real differences. Between four scores, if they differ more than 3.08 they indicate real differences. The formula for each test:

$$\sqrt{\frac{\text{Mean Within-Category Average Error}}{n}} = \sigma_{\bar{x}}$$

Multiply $\sigma_{\bar{x}}$ by values above = amount by which individual scores need to differ to be truly significant differences. Add these to the mean raw test scores; if the sum is greater than the other raw tests scores then the scores are too close together to indicate real difference. If they equal or are smaller than the others, they indicate real difference.

In the presentation of data reference is made to the fact that variance in mean scores was detected in both the first and second post-test. This variance was identified through submitting each category mean score to the studentized range tables. The following tables show the computations:

TABLE 17

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

Significant Studentized Ranges at 5% Level Test		
2	3	4
2.83	2.98	3.08

Shortest Significant Ranges for Averages		
(2)	(3)	(4)
5.06	5.33	5.51

	Results			
Category	II	III	I	IV
Mean Scores	9.95	12.21	12.33	25.61

Note: Any three means underscored by the same line are not significantly different from each other. Any two means not underscored by the same line are significantly different.

TABLE 13

DIFFERENCES IN MEAN SCORES BY DUNCAN NEW MULTIPLE RANGE TEST BETWEEN PAIRS OF FOUR CATEGORIES

Significant Studentized Ranges for 5% Level Test		
2	3	4
2.83	2.98	3.08

Shortest Significant Ranges for Averages		
2	3	4
3.57	3.75	3.88

Category	II	I	III	IV
Mean Scores	12.07	12.84	14.22	22.55

Note: Any three means underscored by the same line are not significantly different from each other. Any two means not underscored by the same line are significantly different.

Test Used for Significance

Formula used was: $t = \frac{\bar{d} - \delta}{s_{\bar{d}}}$ at both five and one percent level of significance. $\bar{d}$ is the average of the difference of corresponding scores. δ is the expected value of $\bar{d}$ assuming there is no difference between corresponding scores on any two tests. $s_{\bar{d}}$ is the standard deviation mean.

To find standard deviation mean: $s_{\bar{d}} = \frac{s_d}{\sqrt{n}}$

n is the number in the category

s_d is the standard deviation

To find standard deviation: $s_d = \sqrt{\frac{\sum d^2 - \frac{(\sum d)^2}{n}}{n-1}}$

n is number in the category

$\sum d^2$ is the sum of the squared differences in scores

$(\sum d)^2$ is the sum of the differences in scores squared

Extension Folder F-274E April 1959

In Tune with the Teens

Their Eating

Michigan State University
Cooperative Extension Service
East Lansing, Michigan

VIDEO-TAPED TELEVISION PROGRAM (1/2 hour)

Topic - "In Tune with the Teens"

Producer - Lois Korslund

Director - Jack Caldwell

Talent - Annette Schaeffer

Presentation - Studio

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 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 teenagers "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 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 TEENAGERS 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 AS 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 MARGARINE 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

Camera 2 - CU - Card

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.

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

CS - Schaeffer

PARENTS, WANT TO TRY OUT FOR THE TEEN-AGE BAND

ANSWER THESE FOR YOURSELVES.

EXPECT TEEN-AGERS ALWAYS TO EAT A HEARTY BREAKFAST. REIMIND 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-AGERS' FRIENDS.

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

HOW ABOUT TEENAGERS 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 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.

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.

(Musical background)

HOW ABOUT IT, PARENTS AND TEENAGERS? ARE YOU TRYING TO KEEP IN TUNE?

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

Camera 2-CU - picture and title

Music

Announcer - You have been listening

. . . . . .

Leaders Outline

"In Tune With the Teens"

Materials Needed to Teach

Newsprint and standard
China marking pencils or brigh colored crayon

Preparation for Lesson

1. Read Bulletin
2. Locate several large pictures of teenagers, paste on 2nd sheet of newsprint. Write underneath pictures (sheet 2) "Are you in Tune?"
3. Prepare sheets 3, 4, 5, 6, 7, 8, 9 as instructed at training session.

Day of Lesson

Arrive early, set newsprint easle in prominent place in room. Sit or stand near it so that you can easily flip the sheets as indicated. Keep pictures covered till after you give "a" test.

Lesson

Introduction:

One of the favorite topics of parents when they get together is that of their children. It seems comforting to know that other parents have similar problems in rearing their offsprings. Parents of teenagers think they have more than their share of problems, but this could be a debatable question when talking with parents who have children of different ages.

We know definitely, however, that these children are in the stage between childhood and adulthood. They grow in spurts, both physically and mentally, and it is often perplexing to parents when they exhibit adult insights at one time and childish atti tudes other times. It requires the utmost in patience and understanding.

Today, we're concerned with their eating habits and related health conditions.

Review Pointers in Bulletin

It takes talent to train taste (Sheet 2)
(Sheet 3)
But there are serious discords (Sheet 4)
If we want harmony,
Let's start building basic chords (Sheet 5)
Then work on the melody (Sheet 6)

Parents - Try out for the Band (Sheet 7)
Teenagers - Are you in Harmony (Sheet 8)
Here are the harmony numbers (Sheet 9)

Discussion - follow instructions on sheet of listed discussion questions.

a. You could ask each member to come up with a contribution for the same
b. You could ask each member to answer a different question. question.
c. Whichever way you do, encourage your ladies to talk.

Discussion Questions - "In Tune with the Teens"

Instructions: Discuss at least five of these questions after your lesson.

1. What are the eating habits of the teenagers in your family?
2. What problems, if any, have developed in your family as a result of these eating habits?
3. Share with group ways you have to solve these problems?
4. As a result of these ideas what could you, as mother of these teenagers, do to improve their eating habits?
5. In your opinion, why do your teenagers eat the kind of breakfasts they now eat?
6. How could you induce the entire family to learn to like new foods?
7. State ways you could make breakfast meals more interesting in your family.
8. Try and list as many different kinds of snacks and light refreshments that would appeal to your Teenagers and still meet the requirements of good nutrition.
9. What is wrong with the snacks and refreshments your teenagers now prefer?
10. What health problems are now evident in your teenager?
11. When your teenager finds himself or herself on a refreshment committee for some kind of affair how could you influence their final choice of menu?
12. If you could put your finger on one single way you could improve the whole family's diet, how would you go about doing it?
13. If you have a daughter who is glamour and weight conscious, how could you guide her in the selection of a sensible, healthful pattern of eating?
14. List ways you could make meal times more plaasant and regular.
15. What kind of lunch does your teenager eat?
16. If your teenager is in apparent good health, how can you get him to realize that any poor eating habits he may might affect his condition as an adult in the future?

First sheet used on post-test and second post-test

QUESTIONNAIRE

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. _____ 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. _____ 25%

ANSWER TRUE OR FALSE FOR EACH OF THE FOLLOWING:

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

4. _____ Boys make poorer food choices than girls.

5. _____ 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. _____ 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 _____, rich foods, and _____ drinks.

8. All teen-agers follow _____ food habits of their parents more often than _____ ones.

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

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

10. PROTEIN: _____ or _____ servings of meat each day.

11. CALCIUM: _____ to _____ cups of milk daily.

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

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

FOR THE QUESTIONS BELOW, LIST THE SOURCE OBTAINED FROM

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

15. IODINE (pep producer): as iodized _____ and _____.

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

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

FOR THE QUESTIONS BELOW, FILL IN THE NUMBER:

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

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

WRITE-IN THE APPROPRIATE WORD IN EACH SPACE

19. _____ is much accelerated during adolescence.

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

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

WRITE-IN THE APPROPRIATE WORD IN EACH SPACE:

Parents say:

22. We spend plenty of _____ for food; the children ought to be _____.

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

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

25. Our son eats more than his _____. It must _____ too much.

WRITE-IN THE APPROPRIATE WORD IN EACH SPACE:

Teen-agers say:

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

27. _____ is snacktime when we're starved.

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

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

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

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 _____ to eat _____.

36. Each person will check on his _____ eating _____.

37. Everybody joins in a leisurely _____ breakfast one day a week. Each one tries to add a few _____ (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)	_____

Last Sheet on Second Post-test

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

May 6, 1960

Mothers of Ingham County 4-H Club Members

Dear Friend:

Mothers of children between the ages of eleven to nineteen are needed to take part in a special research project being conducted by Michigan State University graduate extension students. (Your own County Extension Agent in Home Economics, Mrs. Annette Schaeffer, who is on sabbatical leave, is cooperating with Miss Pat Coolican, Extension Agent in New York State, is conducting this research.) Since the Ingham County Extension Office lists your child as a 4-H club member, you automatically fall into the category mentioned above. Therefore we are asking you mothers to help out on the project.
Here is what we would like you to do:

We would like you to contact a group (6 or more) of your friends and neighbors (who are also parents of children between the ages of eleven and nineteen) and ask them if they would be willing to meet together as a group on Saturday, May 21 at 12 noon. They would meet at the home of any one of the mothers involved.
Part of the research project requires that those who take part know nothing about the project beforehand. We can say only that there will be a program developed for you to discuss in a group at this exact time.
One of the group will be asked to come to the campus to receive further instruction on the project some time Friday, May 20. This campus meeting will involve about two hours at the most.
It is important that the group meet at the exact time specified if the research is to scientifically accurate.
If you and your friends decide to take part in this project, we believe you will find it an interesting and exciting experience. The only compensation we can offer is the satisfaction that comes from knowing you are a part of and are contributing to new research knowledge that will benefit all parents.

Important:
If you and your friends do want to participate, please let us hear from you immediately. Fill out and return the enclosed card with the information required.
We will then contact your appointed representative and arrange with her as to the exact time and place she should report on the 20th. for further information.

We shall truly appreciate your cooperation.

Sincerely

Annette Schaffer

Dear Mrs. Schaeffer

Our informal group of friends have agreed to cooperate with your special research project. We have arranged to meet on Saturday, May 21 at 12 noon at the home of _____

_____

_____

Here is the name of the person who will represent the group on the campus Friday, May 20

Name _____

Address _____

Telephone _____

Sincerely,

TO ALL REPRESENTATIVES --

You are being trained to conduct a study that must be carried out under the conditions where all women are with a group of friends in any one of their homes. All women throughout the county will be doing this at the same time.

Instructions for Giving Tests

Do not discuss subject matter or the whole experiment with your members before you meet. Follow carefully each step as outlined.

1. On Saturday at 12:30 p.m. distribute "a" test to each woman assembled. Tell them to follow instructions on the questionnaire, and to work individually with no comments among themselves.

2. While they are taking the test, record number given each woman on the outside of your own envelope. This is for your own use to double check that they receive identical numbers later on.

3. Allow the women enough time to complete the questionnaire but they must be through by 1 p.m. (Exposure must begin at 1 p.m.)

4. Collect "a" test. Clip together and put in the large envelope.

5. Proceed with Exposure (this varies, depending on your color). You have individual instructions on this.

6. After exposure, distribute "b" test to each woman assembled. Be sure each receives the identical number she had before (double check with own list on envelope). Same instructions as Number 1.

7. After they have completed "b" test, collect, clip together and put in the same large envelope. Seal and return immediately to Annette Schaeffer. (Mail or deliver in person. This will be arranged with each one of you personally before you leave today.)

8. This part of the study is completed. Thank the women for their cooperation.

9. IMPORTANT 3RD PHASE OF STUDY.

   On Monday, June 1 or early Tuesday, June 2, distribute one of the sealed envelopes to each woman who took part in Saturday's test. Again, be sure each receives the identical number she had before (double check with own list on envelope). The sealed envelope tells each woman what to do. She does this in her own home, on her own. Impress on them that the success of the whole study depends on their full cooperation on the 3rd step. The instructions tell her to fill out the "c" test and return it directly to Annette Schaeffer. We'll be calling YOU if we don't receive them.

NOTE: correction on page 2 of all questionnaires.

Clip following instructions to envelope

Please open Thursday, June 2, at 10 a.m. and follow instructions contained inside.

Please fill out in same manner you did the 2 previous tests and mail immediately in enclosed envelope directly to Annette Schaeffer.

We shall inform your leader about the results of this research when it is completed. She will pass it on to you. The success of this depends on your returning this completed questionnaire.

Thank you for your help and cooperation.

Annette Schaeffer

EXPOSURE

IMPORTANT - do not tell any of the women involved ahead of time about the nature of this exposure or the subject matter involved. Your group is the "control" group.
At 1 p. m. distribute bulletins (Parliamentary Procedure) and go over points in the bulletin.
You may lead the discussion or simply report it to them.
Minimum time of presentation - half an hour. Then give "b" test as directed.

EXPOSURE

IMPORTANT - do not tell any of the women involved ahead of time of the nature of this exposure or the subject matter involved.
Tune in on WMSB TV show "In Tune with the Teens" at 1 p. m. Allow group to watch it and react as they would normally. After the program follow instructions on "Discussion Sheet." You lead the discussion and allow them to discuss as long as they wish before giving "b" test.

EXPOSURE

IMPORTANT - do not tell any of the women involved ahead of time about the nature of this exposure or the subject matter involved.
Give leader-training lesson as instructed.
Start at 1 p. m. Allow 45 minutes for presentation and as long a time as discussion (based on points listed) lasts before giving "b" test.

B I B L I O G R A P H Y

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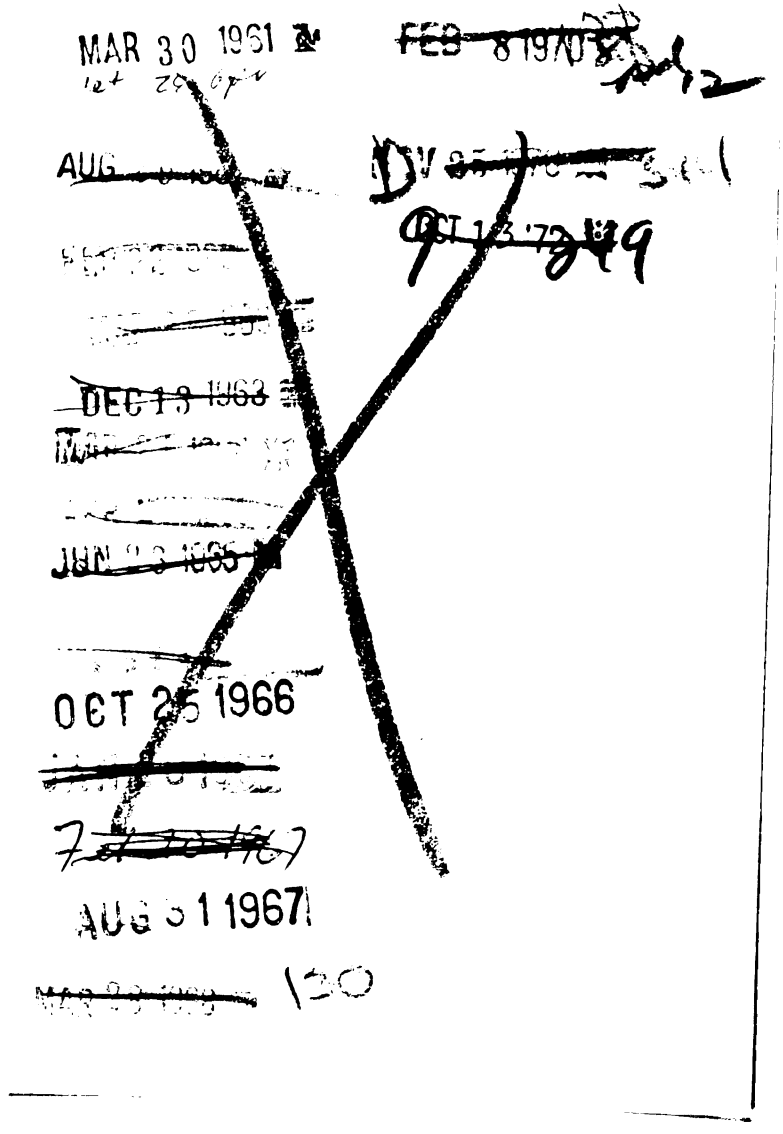
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