EFFECTS OF VOLUNTARY EXPOSURE TO 4-H PROGRAMS THROUGH TELEVISION

By

CARL K. GODARD

Bachelor of Arts

Central State College

Edmond, Oklahoma

1967

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
May, 1969

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Thesis Approved:

Walter J. Ward
Thesis Adviser

Henry E. Scott, Jr.

D. D. Durham
Dean of the Graduate College

PREFACE

Since the advent of educational television in this country, interest has increased greatly in its effects on attitudes and learning in children. In turn, this interest has influenced the development of educational programs on regular television and increased efforts to determine how much influence such fare has over children.

Oklahoma children were exposed to a series of 4-H TV Action Club programs via regular television in the spring of 1968. The purpose of the series was its use as a means to introduce urban children to 4-H club activities and increase their knowledge of and ability to cope with disasters.

This thesis proposes to explore the effects of exposure to the series on the attitudes and learning of grade school children. The study will attempt to show factors related to the series in influencing the attitude of the youngsters toward 4-H clubs and the childrens' learning about the specific content of the programs.

I gratefully acknowledge the assistance of Dr. Walter J. Ward, Director of Graduate Studies, School of Journalism, who guided me throughout the formation and writing of this thesis. I also thank Charles N. Voyles, Extension Editor, Cooperative Extension Service, Oklahoma State

University, for his assistance in the production of the testing instruments used to compile data for this study.

For their part in making this study possible, thanks are due William Tedrick, Program Leader, 4-H Youth Programs, Cooperative Extension Service, Michigan State University; Mrs. Ann Moss, 4-H Extension, Oklahoma State University; Dr. George Rowley, Superintendent of the Blackwell, Oklahoma Public School System; and Royce Stephenson, Principal of Washington and Northside Grade Schools, Blackwell, Oklahoma.

Special thanks are due Thayne Cozart, Assistant Extension Editor, Oklahoma State University, for his helpful suggestions and counsel throughout the writing of this thesis. Also thanks are due Miss Velda Davis, my typist, for her invaluable assistance in preparing this thesis for publication.

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CHAPTER I

INTRODUCTION

The purpose of the 4-H TV Action Club Series,* aired in the spring of 1968 in Oklahoma, primarily was to introduce urban children to 4-H club activities. The problem of this exploratory study was to try and measure the retrieval of facts and attitude change of selected boys and girls exposed to the series.

The series attempted to facilitate increased interest and membership in 4-H clubs without the usual individual meetings under a local adult leader's guidance. Part of this goal was to involve 15,000 to 55,000 grade school and older youngsters in the 4-H TV Action Club program by providing easy access to membership in local 4-H clubs and the opportunity to form local clubs where none exist. The series utilized a theme of "Emergency Preparedness" to promote 4-H TV Action Club membership.

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*The 4-H TV Action Club series is a series of ten educational films prepared for 4-H youth by a program development committee composed of State and Federal Extension Service representatives and produced by the Cooperative Extension Service of Michigan State University, The Federal Extension Service, The Office of Civil Defense and WMSB-TV of East Lansing, Michigan. The 4-H TV Action Club is conducted by the Cooperative Extension Service of the State and Land-Grant Colleges and Universities with the United States Department of Agriculture cooperating.

At least four major questions were involved in measuring the learning and attitude change after exposure to the Action Club Series. These questions were:

1. Did the boys and girls learn about the specific message -- emergency preparedness -- from the program?
2. Did the boys and girls learn about 4-H from the television program?
3. Did the television program change their attitude about 4-H?
4. Was the television show, alone, enough to encourage learning and attitude change in the boys and girls?

The singular purpose of this paper, then, is to illuminate on the performance of the 4-H programs (independent variables) in answering the aforementioned questions.

The overriding concern was the effectiveness of television in communicating to children certain messages of an informational and educational nature. Degree of voluntary exposure, coupled with the data gathered from before and after dependent measures via questionnaires, provided some useful insights on the feasibility of using a public educational television station for relaying informational materials designed to increase learning and to create favorable attitudes about 4-H among grade school children in the 10- to 12-year-old age group.

CHAPTER II

REVIEW OF LITERATURE

Previous studies relating to measurement of the effects of mass communication on learning and attitude change have been conducted by Klapper, Schramm, Lyle, Parker, Deutschmann, McNelly, and Himmelweit, Oppenheim and Vince. Others include Wright, Berelson, Gaudet, Lazarsfeld and Zajonc.

Schramm, Lyle, and Parker, for example, have conducted extensive studies of the effects of television specifically upon children. They feel that television is probably more effective in stimulating interest and contributing to already existing interests than in stimulating activity or creation. They state:

> Our opinion is that -- for television to be really effective in stimulating continuing intellectual or creative activity, or even continuing systematic learning, it must be geared into one or more of the organizations which are concerned with such activity in our society.[1]

In other words, educational systems from the secondary level on up to colleges and universities must phase television in as a controlled part of the educational process.

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[1]Wilbur Schramm, Jack Lyle, and Edwin B. Parker, Television in the Lives of Our Children (Stanford, 1961), p. 153.

Educators or supervisors must be present to reinforce and stimulate interest and activity in the desired direction. Teachers must utilize television as a tool to promote intellectual activity. Children must be guided in the learning situation involving television in order to benefit significantly from it.

Lazarsfeld also is of this general opinion. He says:

> "Print did not raise the intellectual standard of living just because it was invented, but because it was used by educational institutions such as libraries and publishers. In the same way, serious broadcasting will have to become linked with the whole plexus of educational and cultural institutions before it can contribute substantially to the enlightenment of the American community."[2]

Child psychologists tell us that during the first few years of a child's life, the family is the chief influence on his tastes. The family chooses what he reads, sees and hears for the most part. He quickly internalizes the social norms of his family. A family that reads usually has a child who does a lot of reading. A family that watches television a great deal and reads little is likely to have a child that has the same tastes. This is usually the pattern until the child enters adolescence and comes under greater influence from his peer group, developing habits resembling other teenagers.

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[2]Paul F. Lazarsfeld, Radio and the Printed Page (New York, 1948), p. 46 in Wilbur Schramm, Jack Lyle, and Edwin B. Parker, Television in the Lives of Our Children (Stanford, 1961).

Many studies indicate that persuasive mass communication functions more frequently as an agent of reinforcement than as an agent of change. When an audience is exposed to a communication, reinforcement has been found to be the dominant effect. Minor change is found to be the next most common (such as in the intensity of opinion), and the effect of conversion of opinion is found typically to be in least occurrence. Various studies have established this idea, although there have been instances in which conversion of opinion was greater in proportion to reinforcement. Such instances have been rather rare, compared to instances of reinforcement and minor change. The now classic study by Lazarsfeld, Berelson and Gaudet on the effects of the presidential campaign of 1940 upon residents of Erie County, Ohio, and other studies, including that of the decision making processes of voters in Elmira, New York, during the 1948 presidential campaign, lend strong support to these deductions.[3, 4]

As Klapper has said,

> Mass communication ordinarily does not serve as a necessary and sufficient cause of audience effects, but rather functions among and through a nexus of mediating factors and influences.[5]

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[3]Paul F. Lazarsfeld, Bernard Berelson, and Hazel Gaudet, The People's Choice (New York, 1948).

[4]Bernard Berelson, Paul F. Lazarsfeld, and William N. McPhee, Voting: A Study of Opinion Formation in a Presidential Campaign (Chicago, 1954).

[5]Joseph T. Klapper, The Effects of Mass Communications (Glencoe, New York, 1960), p. 8

These influences typically render mass communication a contributory agent in reinforcing existing conditions. The efficiency of mass communication, either as a contributory agent, or as an agent of direct effect, is affected by various aspects of the media and communications situation (including, for example, aspects of the textual organization, the nature of the source and medium, the existing climate of public opinion and the like).[6]

Zajonc, in his study of the exposure of children to power orientations, found that mass communication can have an extensive immediate effect, although possibly short-lived. Significantly, however, Zajonc showed that cultural values already strong in young people are rather resistant to attack, and may even be reinforced through selective perception.[7]

Michigan Study

Deutschmann and McNelly, in a study of the first 4-H series for television, the forerunner of the 4-H TV Action series used in this exploratory effort, attempted to isolate the effectiveness of the series in fulfilling its objectives. Their data can also tell us something about television's potential as a general teaching tool. Their study, helpful as a reference and guide to the author's

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[6]Ibid., p. 8.

[7]Ibid., p. 218.

own efforts, is the Michigan Study entitled "Impact of a 4-H Television Series."[8]

The Cooperative Extension Service of Michigan State University produced the thirteen-program 4-H TV Electrical Club Series as a means of introducing urban children to 4-H club activities. It was envisioned as the prototype of similar 4-H programs to be used on television stations in Michigan and perhaps elsewhere (not to be confused with the 4-H TV Action Club Series).

Purpose

The primary and highly practical purpose of the Michigan study was to shed light on the effectiveness of the series in fulfilling its objectives. The data also were pertinent to television's potential as a general teaching tool. Also involved, on a more theoretical level, were some basic problems in communication: for example, the effects of repeated exposure, and of exposure under differing conditions.

Phases

This study comprised four phases: (1) a telephone coincidental survey of viewing; (2) a field survey of viewing face-to-face interviews of children and parents;

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[8]Paul J. Deutschmann and John T. McNelly, "Impact of a 4-H Television Series," (unpublished study conducted by the Communications Research Center, Michigan State University, 1958).

(3) an experimental test of children viewing in the classroom; and (4) an analysis of write-in respondents to the program.

Classroom Experiment

In order to test the effects of the 4-H program under controlled conditions, a classroom experiment was set up at Jackson, Michigan. Sixth graders in the public schools were the subjects.

A pre-test was administered to four sixth grade classes. Two of the groups (experimental) were shown a kinescope of the program and the other two groups (control) were not. Later, all four groups were given a lengthy attitude-learning test. The results were analyzed statistically and the test was reduced to five attitude and ten learning questions which were found to differentiate most clearly between the viewers and non-viewers. This test version (Appendix A) was used both in the field interviews and in the classroom experiment.

Six different classes were used for the experiment. Four experimental classes saw the film and two control groups did not. All classes were given the same attitude-learning test. After completing the test, the children filled out a brief questionnaire (Appendices B and C).

In the experiment, two classes were used at each of the three Jackson city schools: Bennett, Bloomfield and McCulloch. Both saw the film at Bennett School, a school

whose students were rated as members of the middle or average socio-economic range.[9] Bloomfield students were rated as higher than average socio-economic range and McCulloch as lower than average on the socio-economic scale. An experimental and control classroom were used at each of these latter two schools, in order to balance out any differences which might have arisen from varied socio-economic ranges.

There were 50 experimental students who saw the film at Bennett Grade School and no control group, 24 experimental and 27 control students at Bloomfield Grade School, and 21 experimental and 23 control students at McCulloch Grade School.

Scattered specific replies on what children in both classroom and field situations disliked about the program did not lend themselves to quantification, but may have contained some clues as to ways in which the program might have been improved. The field interviews were conducted face-to-face in East Lansing, Michigan, homes and used the same written attitude and learning test used in the classroom situation (Appendix A).

Field Interviews

Specific answers on what they disliked were given by twelve of the field interviewees in the Michigan Study.

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[9]Ibid., pp. 6-7.

Comments as recorded by the interviewers were: "Parts about steam were hard to understand." "First part wasn't interesting." "Children didn't know too much about it." "Not so much roundtable talk -- more science and questions." "Too many boys." "Talked too much." "Not enough girls in it." "I thought they dragged it out." "Too much conversation." "Previous training." "Nothing -- except it was a bit too simple." "First part of program was introduction of people not very interesting."[10]

It should be kept in mind that the field interviews were conducted two weeks after the second program had appeared on television and this probably affected the retention of information adversely. It was not difficult for children to choose from four alternatives for their favorite part of the program, but unaided recall of features they may have disliked was not easy after a two-week time gap. In the classroom situation, on the other hand, the filmed program was still fresh in the respondents' minds.[11]

Nineteen of the classroom viewers made specific criticisms of the film they had seen minutes before filling out their questionnaires. Of these, six complained of difficulty in hearing parts of the program. For example: "I cannot understand when they are talking." "The boys and girls didn't talk loud enough." "I couldn't hear it

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[10]Ibid., p. 23.

[11]Ibid., p. 23.

very good."[12]

Most of the children exposed to the 4-H program made a receptive audience. Three-fourths of the target-age viewers called the program interesting. Only one-eighth of the home viewers and one-fifth of the classroom viewers had negative comments, even when prompted by a question designed to draw them out.

Learning

In order to test learning, ten questions were asked of all children in the field and classroom situations. The questions were drawn from the same program shown on film in the classrooms. However, most of the questions had to do with general information about 4-H. Classroom viewers of the film, then, were expected to score at least somewhat higher on the learning test than television viewers in the field situation. The classroom viewers had the advantage of taking the test immediately after exposure and all had seen the specific program from which the questions were drawn. But within the classroom group and within the field group the investigators sought to bring out differences between exposed and unexposed children.

Results of the learning test for children in the field interviews showed that boys and girls who saw one or more of the 4-H programs on television and wrote in to

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[12]Ibid., p. 24.

join the club (responding viewers) scored higher than did boys and girls who saw the program but did not write in. It also shows that those who did not write in (non-responders), but who viewed the program, scored higher than those who did not see it.[13]

Analysis showed that the differences between the groups were significant. Tests showed no significant differences between boys and girls within any of the three categories. Responding viewers averaged seven out of ten questions answered correctly. The non-responding non-viewers got over two correct out of ten -- barely above a chance score. Those who had not written in, but had seen one or more programs, answered less than one-half of the questions correctly but were well above the chance level. The table below illustrates the general trends of learning between the various combination of viewing-response behavior.

TABLE I

AVERAGE SCORES ON LEARNING TESTS IN FIELD

	Boys	Girls	Combined
Responding viewers	6.8	6.7	6.8
Non-responding viewers	4.7	4.2	4.6
Non-responding non-viewers	2.3	2.1	2.2

[13]Deutschmann, pp. 25-26.

The higher scores of the responding viewers would seem to be due to stronger motivation. It is probable that they not only saw more of the first four programs than did the non-responding viewer group, but also paid closer attention.[14]

Jackson city children can be divided into four groups: (1) those who were shown the film and who also saw one of the programs on television; (2) those who saw the film without previous television exposure; (3) those who did not see the film but were exposed via television; and (4) those exposed neither by film nor television.

Results of the learning test in the classrooms show average scores ran in order of intensity of exposure, with the "film plus TV" group at the top and the "no film or TV" group at the bottom, as shown in the following table.[15]

TABLE II

AVERAGE SCORES ON LEARNING TESTS IN CLASSROOMS

	Boys	Girls	Combined
Film plus TV	8.7	8.6	8.6
Film without TV	8.5	8.4	8.5
TV without film	2.7	4.1	3.5
No film or TV	2.6	1.8	3.1

[14] Ibid., p. 27.

[15] Ibid., p. 27.

Clearly, in the Michigan study, the decisive factor in the classroom learning test was the film. Children exposed to the film did far better than those who were not, whether or not they had seen the program previously via television. The group which saw the film without previous television exposure did significantly better than the group which had seen one or more of the films on televison but did not see the classroom film. The no-film group did not score much above the chance or guessing level while those who saw the film averaged between eight and nine right answers out of ten questions.

The "film plus TV" group held a slight scoring edge over the "film-without-TV" group but this was not significant. The "TV without film" group did score significantly higher than the "no film or TV" group with the girls' scores making most of the difference. There were no significant differences between the scores of boys and girls within each group.[16]

Attitude Toward 4-H

The 4-H series attempted to produce in children an interest in and favorable attitude toward 4-H. A five-question test was used to determine its success. The results showed a generally favorable attitude toward 4-H among the great majority of the children both in the field

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[16]Deutschmann, pp. 28-29.

and in the classroom. However, there were differences in the degree of favorability among the various groups.

Children who viewed the program on television and wrote in to join the club tended to choose the most favorable alternative on the test on each question, as shown in the following table.

TABLE III

AVERAGE SCORES ON ATTITUDE TESTS IN FIELD INTERVIEWS*

	Boys	Girls	Combined
Responding viewers	5.4	6.0	5.5
Non-responding viewers	6.7	8.2	7.2
Non-responding non-viewers	7.5	8.3	7.9

*The lower the score on this test the more favorable the attitude.

The attitude scores of the responding viewers were significantly more favorable than the scores of the non-responding non-viewers. Again, as in the learning test, scores for the children in the classroom indicate film exposure as the decisive factor, as shown in the following table.

TABLE IV

AVERAGE SCORES ON ATTITUDE TEST IN CLASSROOM*

	Boys	Girls	Combined
Film plus TV	6.3	6.6	6.5
Film without TV	5.6	5.8	5.7
TV without film	7.0	6.8	6.9
No film or TV	8.2	7.5	7.6

*The lower the score on this test the more favorable the attitude.

Disregarding television exposure, the children who were shown the film had significantly more favorable attitude scores than those who did not see the film. The "film plus TV" group had a slightly less favorable attitude score than the "film without TV" group. However, the difference was not statistically significant. The "film without TV" group was significantly more favorable than the "TV without film" group. The average score of the "TV without film" group was not significantly more favorable in direction than that of the the "no film or TV" group.[17]

Previous television exposure, then, did not emerge as a decisive factor in determining the attitudes of the Jackson sixth graders toward 4-H. Exposure to the film did influence their attitudes in a favorable direction.

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[17]Deutschmann, p. 31.

The overwhelming majority of children who saw the 4-H program (shown on Saturday mornings at 9:30) in the Michigan study said they usually watch television on Saturday mornings. The percentage was slightly higher for responding viewers than for the non-responding viewers (92.5 per cent as compared with 91.5 per cent), but the difference was not significant. Among the non-responders, far more viewers than non-viewers were regular Saturday morning television fans.[18]

Interest in electricity or science was the biggest single category. Typical replies in this group, as recorded by interviewers, were: "Wanted to learn about electricity." "I like electricity." "Interest in repairing radios." "Because I like science." About one-fourth of the answers fell under the more general interest category: "Interested." "Would like to learn more about it." "Wanted to see what it was like -- expected it to be fun." "Seemed interesting." Interest in 4-H was specified by three responders: "Interested in 4-H." "Wanted to learn about 4-H." "Good club. Member before in 4-H."[19]

Other Influence

Outside influence was listed by almost 20 per cent of the children who joined as the cause of their response,

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[18]Ibid., p. 37.

[19]Ibid., p. 40.

aside from the television show itself. For example: "Teacher recommended it." "A boy came in to his room in school and asked for members." "Teacher made class sign names." "To organize club here at Bailey school." "Just did because mother suggested it." "Everbody was talking about it." "Sister recommended it." Of the twenty answers in the outside influence category, fifteen mentioned school, one mentioned a parent, and four mentioned friends or a sibling.[20]

In view of the substantial proportion of children who specifically mentioned some outside influence as the cause of their joining the club, it seems probable that others were similarly influenced, even though they did not mention it. For example, a child whose teacher encouraged him to join might have mentioned to the interviewer only a general interest in the club or an interest in electricity.

General lack of interest in or lack of knowledge about the 4-H TV Electrical Club accounted for almost one-half of the non-responders. Typical replies where: "Not interested." "Didn't see enough of the program to become interested." "Not interested in joining a club." "Didn't know about it." "Didn't know you could."[21]

This points out the importance of predisposition as mentioned earlier in this chapter. Viewing educational

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[20]Deutschmann, p. 40.

[21]Ibid., pp. 41-42.

television fare is rather exceptional and has little peer group recommendation. Thus, youngsters who do watch educational programs usually have parental influence and encouragement. Mass communication is not normally the cause of audience effects, but is only one of several influences. These influences tend most usually to reinforce existing conditions.

Others mentioned not having seen the program, lack of time, or a dislike or disinterest in electricity. One-fifth of the replies fell into a miscellaneous category. Some of them were: "Already a member of 4-H." "Can't write down address fast enough to keep up with the speaker." "Kind of too hard." "Mom and dad didn't decide yet." Several children said they thought they would write in later.[22]

Many of the replies by non-responders (or non-joiners) left the door open to persuasion. Apparently in these cases there had been no decisive influence from teachers, parents, or friends to motivate the children to send in their name and address and join. For many of these children, the show alone was not enough.

The great majority of children enrolled in the 4-H TV Electrical Club were reported by the county agents as new to the 4-H organization. The television program was

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[22]Deutschmann, p. 42.

tapping urban populations which had little previous acquaintance with 4-H.

Summary

To summarize the Michigan study this author finds many facets which support his position in the present study as to the effectiveness of the television medium under conditions of voluntary exposure.

A selected program in the series was rated as "interesting" by a three to one margin both by target-age (10-14) viewers in the field and by sixth grade viewers (10-12) in the classroom. The field group saw the program at home on television; the classroom group saw it on film, although some also had seen it previously on television.

There was no significant difference between boys and girls within the field and classroom groups in their ratings of the program.

In the field, boys and girls who saw one or more of the 4-H programs on television and wrote in to join it (responding viewers) scored significantly higher on a learning test than did viewing children who did not write in (non-responding viewers). And the non-responding viewers scored significantly higher than non-responding non-viewers. There were no significant differences between boys and girls within groups on the learning test.

In the classroom, film viewers scored far higher on the learning test than non-viewers of the film. Previous

television exposure appeared to be a minor factor as compared with film exposure in the classroom. There were no significant differences between boys and girls within groups on the learning test. An attitude test showed a generally favorable attitude toward 4-H and electricity among the great majority of children both in the field and in the classroom.

In the field, viewers who wrote in to join were significantly more favorable toward 4-H and electricity, as indicated by the attitude test, than were viewers who did not write in. But the latter (non-responding viewers) were not significantly more favorable than the children who neither viewed nor wrote in. Among non-responding viewers, boys had significantly more favorable attitude scores than girls.

In the classroom, the children who saw the film had significantly more favorable attitude scores than the no-film group. Previous television exposure did not result in significantly different attitude scores.

The overwhelming majority of children who saw the 4-H show were regular Saturday morning TV fans. Responding viewers did not differ significantly from non-responding viewers in this respect.

Asked why they had written in to join the 4-H TV Electrical Club, more than one-half of the responders cited interest in electricity or science, or just general interest. Nearly one-half the remainder mentioned outside

influence -- schools, parents, or friends.

Among children who did not join the club, lack of interest or knowledge about it made up about one-half of the reasons given. Others mentioned not having seen the program, lack of time, dislike of electricity, and various other reasons.

County 4-H agents, under the direction of state headquarters, exerted several kinds of direct and indirect influence to build up and reinforce the effect of the television show itself. They gave the series advance promotion on their own radio programs; they sent out newspaper publicity; they sent letters to local 4-H leaders; they contacted school administrators and teachers urging cooperation in recruiting members for the 4-H TV Electrical Club. After the series was under way, efforts were made to give children who enrolled personal encouragement and notification of an achievement day in their area at which they could show their completed electrical projects. On the whole, these efforts appear to have been responsible for a good share of the active participation by children in the club. Adult encouragement had a strong effect on project completions as well as enrollments.[23]

The personal influence factor was reflected in relative volume of responses to the 4-H series in various Michigan counties. The response in some counties was far

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[23]Deutschmann, p. 43.

out of proportion to population and television coverage. Differences between counties can be explained on the basis of different kinds of direct and indirect influences exerted by 4-H agents through publicity, school administrators and teachers, and local leaders.[24]

Nearly one-half of all parents interviewed had been exposed to the 4-H program. A significantly larger proportion of those with responding children saw it than those with non-responding children. Four out of five parents with children who wrote in to join the club had heard about the program from someone. Only one out of five parents of non-responding children had heard about it from someone. There also was a suggestion that parents of responders also tended to talk more about the program.

Parents were overwhelmingly favorable to the 4-H type of television program, whether their children joined the club or not. Parents of responders tended to rank the program higher in relation to other children's television programs than did parents of non-responders. Mothers and fathers ranked the program similarly.[25]

The results of the Michigan study indicate that the 4-H TV Electrical Club Series reached a large proportion of its target audience in the area surveyed, won favorable reactions from children and adults, and produced learning

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[24]Deutschmann, p. 56.

[25]Ibid., p. 57.

and influenced attitudes favorably toward 4-H and electricity. A sample program showed similar effectiveness in the classroom.

In combination with personal influences exerted through schools and other channels, the series was successful in generating substantial-numbers of club enrollments among urban children who were new to the 4-H organization.

CHAPTER III

METHODOLOGY

Accidental non-probability sampling was used to select the three groups of fifth and sixth grade classes as participants in this study. In the accidental method, as in other methods of non-probability sampling, the researcher can gain useful information for the formulation of hypotheses and construction of questionnaires for future, better controlled studies. Control was provided by random assignation of a program to each group, and by pre-testing the groups.

There were three groups of approximately 50 students each, totaling 162 students in all - consisting of one sixth and one fifth grade class per each group. The six elementary school classes came from two grade schools in the Blackwell, Oklahoma, Public School System. Two fifth and two sixth grade classes, designated Group I and Group II came from Washington Grade School. The third group, Group III, was composed of a fifth and a sixth grade class from Northside Elementary Grade School. Each group was randomly assigned one of 10 programs in the 4-H TV Action Club Series and dates were set for pre-testing and post-testing on the Tuesday prior and the Tuesday following the

program assigned to each group.

Group I at Washington Grade School was assigned to watch the program entitled "The Shaking Earth" on April 27, 1968. Groups II and III were, respectively, assigned to watch programs entitled "When Water Runs Wild" on May 11, 1968 and "Living With The Atom" on May 18, 1968.

Program Content

The following pages are concerned primarily with a more specific explanation of just what the 4-H TV Action Series is about and the content of the three programs used in testing the three groups of grade school children.

The 4-H TV Action Club Series was written for youths in the 10 to 12 age group in September of 1965 by Bob Rowland and produced and directed by Kay Ingram, both of WMSB-TV, Michigan State University Television.

The 4-H TV Action Club Series, broadcast over television station KWTV, Channel 9, Oklahoma City, Oklahoma, beginning April 6, 1968 and continuing through June 15, 1968, was prepared for 4-H youth by a program development committee composed of representatives of State and Federal Extension Service, and produced by the Cooperative Extension Service of Michigan State University, the Federal Extension Service, the Office of Civil Defense, and WMSB-TV of East Lansing, Michigan. The 4-H TV Action Club program in Oklahoma was conducted by the Cooperative Extension Service of the Oklahoma State University with the

cooperation of the United States Department of Agriculture.

Each program in the series began with a group of 4-H club members and their adviser who guided them on discussion of the topic for emergency preparedness for the week. The club members followed informal parliamentary procedure for calling the meeting to order, reading the minutes of the last meeting and beginning discussions on the current topic, etc. The adviser shared his knowledge of the discussion topic with them in the discussion and showed them a film on the particular emergency situation and its effects. Sometimes the 4-H members were shown taking a tour of scientific facilities for measuring and investigating phenomena such as earthquakes, tornadoes, floods, and atomic explosions and fallout. Students in the television audience were encouraged to participate in 4-H TV Action Club programs in their town or area and were provided information by the adviser for becoming members of the Action Club.

During the program, members of the TV Action Club were shown actively participating in emergency preparedness projects. The club members told about projects they had worked on during the week such as posters with emergency information and pictures of emergency situations, first aid kits, emergency food supply kits and shelters. They explained what they had learned about how to act in case of an emergency and what not to do. They took part

in demonstrations of how to give medical aid to injured persons and how to keep them comfortable under differing circumstances. The programs ended with an invitation for viewers to watch the next one in the series and to learn more about 4-H and being prepared for emergencies.

Group I

Washington Grade School students in Group I were assigned to the program in the series entitled "The Shaking Earth." This program dealt with earthquakes and their effects. Also, it told about the preventive measures that can be taken in case of the occurrence of a damaging earthquake. The contents of the program were, summarily, as follows:

> The earth is thought of as being firm. But the earth is constantly changing and remaking itself. Mountains rise through volcanic action or disappear, eroded away by water; islands appear and disappear and jungles become deserts. The earth also changes through a force which scientists call "the crustal movements of the earth."
>
> These movements or earthquakes are felt as shaking of the ground. Earthquakes cannot be predicted nor do they warn one before they strike and one cannot run away from them. The only warning may be a low rumbling noise which

grows louder until suddenly earth tremors rock the foundation of buildings and send them crashing down. These crustal movements may last only seconds or minutes, but they are enough to destroy a city. Tall buildings sway back and forth until they crash into rubble; buildings sink into the earth as the ground opens up under them; giant cracks open and close in the earth. Bluffs, mountains, cliffs, and hills may slide and fall, and the ground surface often rolls and heaves like waves on the sea.

The aftermath of earthquakes is also disastrous. Power usually is cut off immediately. Fires, caused by ruptured oil tanks and gas pipes, are among the greatest dangers and they generally burn without being stopped. Fire trucks may be buried or damaged or unable to get to the fire because the streets are blocked with the litter of wrecked buildings. Very often water pipes are broken and there is no water to fight a fire. As tidal waves roll in off the sea they toss large ships up onto dry land and sweep away buildings and people. Communications are broken off because the telephones, radio and television stations cannot function.

For centuries, man has been trying to

explain this frightening quaking of the earth. There are many thousands of small shocks each year. Most are tremors which cause little or no damage. But when an earthquake is violent, its initial shock and the after effects can cause great damage and loss of property and life.

Group II

This Washington School group was exposed to a program entitled "When Water Runs Wild." This program told of the dangers involved with water.

Floods cause thoughts of dams breaking, releasing great torrents of water which destroy property and lives causing millions of dollars of damage. Most floods, however, are less dramatic. They are caused by too much rain, snow melting too fast, eroded land, improper drainage and water control. These cause rivers and lakes to overflow their banks and cover areas on which people have homes and cities. Many flash floods also occur each year. These are more local in nature.

The hazards of floods include drowning; contamination of water supply, food stuffs and feed; spread of disease; weakening or collapse of buildings; loss of crops; economic loss due

to interruption of electrical power and communications, and possible personal injury.

In recent years, man has learned how to control many flood conditions. Now that it is understood how plant life acts as a sponge to soak up water, man is replanting the bare hillsides. There are dams, levees, reservoirs, and flood walls. Man has also improved forecasting of flood situations before they happen. And he has set up ways to alert people in potential flood areas so that there is less chance of loss of life. A food kit should be made to be used in the event of a flood. Although one can go without food for some time, one can only do without water for a very short time. During an emergency situation, the public supply of drinking water may be contaminated and so an emergency supply of water for both drinking as well as sanitary purposes becomes very important. A person needs about one-half gallon of water per day for drinking purposes alone. One needs seven gallons of water per week.

Group III

Children in this Northside school group were exposed to the program in the series called "Living With the Atom." The content of this program in the series is

summarized as follows:

An atomic emergency does not have to mean a bomb has been dropped. It could result from any nuclear accident at a reactor laboratory or while transporting nuclear materials. The greatest danger is from radiation.

Radiation is nothing new. There has always been some radiation around from natural sources such as the sun, as well as from artificial sources. Exposure to too much radiation could result in burns, sickness, and possibly death to both humans and animals. Certain foods and feeds could be contaminated, and growing plants affected.

Radiation is the danger in fallout. When a nuclear explosion takes place on the ground, particles of dust and debris are sucked up into the mushroom-like cloud. Here, they become radioactive and fall back to earth as fallout. Before falling, however, they can be carried for great distances by the wind.

Fallout takes time to drop. It would likely be 30 minutes before fallout starts outside the devastated area. The most serious danger would come from early fallout - those particles which return to earth within 24 hours after an explosion.

The first two days of fallout are the most dangerous. This is the time that shelter is most vital in a home or community or any place that protects one from radiation. If fallout is light or moderate, after two or three days, one might be able to come out of shelter for at least part of each day. Qualified men known as "monitors" have been trained to measure the amount of radiation in any given location or instance. They will tell one when it is safe to come out and for how long. Meanwhile two weeks' supply of food and water on hand and an adequate shelter are necessary.

After a nuclear explosion, one might not know whether there is any fallout in the area unless he hears about it on the radio. Sometimes, if fallout is heavy, it is visible in the air or on smooth surfaces. It might look like ordinary dust or dirt. Or it could be invisible and detected only with special monitoring equipment. One cannot smell or taste fallout and he cannot feel the radiation from it. One should take no chances and take shelter. The best protection from an atomic explosion is a well constructed fallout shelter.

All three of these programs just discussed followed a pattern set by the author on a theme of emergency

preparedness. Each was 28½ minutes in length and all were shown over KWTV, Channel 9, television in Oklahoma City, Oklahoma, on consecutive Saturdays at 1:30 p.m. beginning April 6, 1968 and continuing until June 15, 1968. Two of the programs were pre-empted by other programs and when this happened the remaining programs were moved up one time spot thus keeping the correct order. Fortunately the author was notified of the change of schedule in each instance and was able to maintain the proper interval between pre-testing, exposure, and post-testing for each group.

Each group was pre-tested the Tuesday prior to the program to which they were scheduled to be exposed and post-tested the Tuesday following the airing of the program. The pre-test and the post-test for each group were given as near the same time as possible on the same day of the week, thus controlling as much error variance as possible - variance due to time of day and mental alertness.

The programs viewed by the three groups were all shown at 1:30 p.m. following the normal dining hour of the youngsters. However Saturday, not being a school day, had that disadvantage. An important aspect of this study, which is seldom seen in "effects" studies is that the author worked with naturalistic conditions in which the youths controlled their exposure to the communications. They were not ordered to watch the program but were asked

to "Please watch the program." Voluntary exposure under naturalistic conditions will be discussed more further in the study.

The before test consisted of ten learning questions and five attitude questions about 4-H in general followed by ten learning questions on the particular program assigned to each specific group. The same test was administered again to the groups following exposure to the program. Learning questions were placed on a nominal scale while attitude items were put into a numerical rating scale (Appendices D and E).

The data provided information on the "drawing power" and the effect of the 4-H program via the television medium. Voluntary exposure, coupled with the data gathered from questionnaire replies provided some useful insights on the feasibility of using a public television station for relaying informational materials designed to create favorable attitudes and increase learning among grade school children in the 10 to 12 age group.

CHAPTER IV

FINDINGS

Design and Analysis

Nine difference between means tests for each of the three groups of respondents were run.

The "t" statistic, appropriate in small sampling theory, simply states a null hypothesis that there is no difference between the means of scores for any two populations. If the difference between the means is greater than that expected by chance fluctuation of scores, then the difference is said to be significant. The "t", like the analysis of variance and other statistical difference tests, simply pits chance differences against "real" differences. In other words, is the difference between two sets of scores too great to be considered a chance happening under the laws of probability? If so, then the null hypothesis is rejected.

In this study, the tests were used to determine any difference in the respondents' knowledge of 4-H, as well as their attitude toward it. The dependent responses were compared through before and after tests.

The "t" tests for the three separate groups of respondents involved nine tests for each group. The groups

were tested for difference between means of the pre- and post-tests on (1) 4-H learning, (2) specific content learning, and (3) attitude for those respondents who did see the program and those who did not see the program - six tests. Also "t" tests were run between the means of post-tests for those who did and did not see the programs on the three areas of learning and attitude - three tests. This same procedure was followed in testing the other two groups. All the tests, combined, totaled 27.

TABLE V

NINE STATISTICAL TESTS RUN ON EACH OF THREE GROUPS TO DETERMINE CHANGE

4-H General Learning	(1) Pre- and post-test	Did
	(2) Pre- and post-test	Did not
	(3) Post- and post-test	Did and did not
Specific Content Learning	(4) Pre- and post-test	Did
	(5) Pre- and post-test	Did not
	(6) Post- and post-test	Did and did not
Attitude	(7) Pre- and post-test	Did
	(8) Pre- and post-test	Did not
	(9) Post- and post-test	Did and did not

Thus, statistical tests for difference between the means of pre- and post-tests involved:

1. Specific Content Learning: Did participants

learn about the specific content of the program they were assigned to watch? These "t" tests were conducted for all 162 participants in all three groups - between the pre- and post-tests of members of each group who did see, who did not see, and also between the post-tests of those who did and those who did not see the assigned program.

2. 4-H Learning (General): Did students who saw the assigned program exhibit a significant difference in learning about 4-H from boys and girls who did not see the program? These "t" tests were conducted between the pre- and post-tests of those who did see, who did not see, and the post-tests of those who did and did not see in each of the three groups.

3. Atttitude of Exposed and Non-exposed: Was there any change in the attitudes of boys and girls about 4-H, which could be due to the assigned programs? These "t" tests were performed on means between the pre- and post-tests of those who did see the program, those who did not see the program and the post-tests of those who did and did not see the program in each of the three groups.

Group I

This group comprised 55 students. Only six voluntarily exposed themselves to the program which was randomly assigned to the group.

Specific content learning. The program - "The Shaking Earth" - was successful in conveying information to those in this Washington Grade School group who saw the program. This exposed group showed an average score of 4.7 before exposure and an average of 6.5 questions answered correctly after having seen the program. The test for difference showed "t" = 2.14 (df = 10), which was well beyond the .05 level of significance. In other words, this great a gain in information among boys and girls about the specific program would occur by chance less than five times in 100.

For the 49 participants in Group I who did not see the program "The Shaking Earth" there was no gain in knowledge on the specific content of the program. The mean score for the respondents on the pre-test was 4.8, while the mean score for them on the post-test was 4.9. "T" = .32 (df = 96), between pre- and post-tests. This fell far short of the .05 level of significance.

The post-tests between those who did and did not see the specific content of the program showed a significant difference when analyzed with the "t" statistic. Those students in Group I at Washington Grade School who saw the assigned show had an average score of 6.5 on the post-test, while those who did not see the program had an average

score of 4.9. "T" = 2.28 (df = 53), was significant beyond the .05 level of 1.68. The mean scores for those who did and did not see or the pre- and post-tests for specific content learning for Group I are shown in the following paradigm in Figure 1.

	Pre-test	Post-test
Did see	4.7	6.5
Did not see	4.8	4.9

Figure 1. Mean Scores for Group I Specific Content Learning

General content learning. Although each program dealt with a specific aspect of 4-H work, the author was interested in any underlying dimensions of information that may have increased the respondents' knowledge of 4-H, in general. Apparently, the group not only netted an information gain about the specifics of the program, but also assimilated new knowledge about 4-H in general. On the pre-test for those who did see the program, the students' mean score was 7.8, compared to a mean score of 9.0 on the post-test - an increase of 1.2. The test showed "t" = 2.0 (df = 10), which was significant beyond the .05 level of 1.81.

Again, as in testing the specific content learning gain, no significance other than that attributable to chance, could be found between the general content pre- and post-test scores of the 49 Washington Grade School students in Group I who did not see the program. On the pre-test, the students' mean score was 7.5 and also 7.5 on the post-test. "T" = .32 (df = 96), which was not significant at the .05 level of 1.66.

The post-tests for those who did see "The Shaking Earth" program and those who did not see the program showed a difference in scores from 7.5 to 9.0. The test for difference showed "t" = 2.14 (df = 53), significant beyond the .05 level of 1.68, a great difference in knowledge about 4-H. The paradigm below shows the mean scores for those who did and did not see on the pre-test and post-test for general content learning in Group I.

	Pre-Test	Post-test
Did see	7.8	9.0
Did not see	7.5	7.5

Figure 2. Mean Scores for Group I General Content Learning

Attitude learning. The program "The Shaking Earth,"

apparently was not effective in its stated purpose to influence the attitude of the respondents who voluntarily watched the program. The six students who viewed the show had a mean score of 19.5 on the pre-test and a mean score of 19.2 on the post-test. The test for difference showed "t" = .50 (df = 10), which was not significant at the .05 level of 1.81.

The test between the pre- and post-test for those who did not see the program in Group I at Washington Grade School showed no significant difference. The mean score for the pre-test was 17.9 and the mean score for the post-test was 17.5; "t" = .80 (df = 96), which was not significant at the .05 level of 1.66.

In comparison of post-test scores, the students who saw the program tended to show no more attitude change than did those students who did not see the program. In the test for difference, "t" = 1.30 (df = 53), which was not significant to reject the null hypothesis of no difference at the .05 level of significance. The mean scores for those who did and did not see on the pre- and post-tests for attitude learning in Group I are shown below in Figure 3.

	Pre-test	Post-test
Did see	19.5	19.2
Did not see	17.9	17.5

Figure 3. Mean Scores for Group I Attitude Learning (The higher the score on this test, the more favorable the attitude.)

Thus, for Group I the tests showed a significant gain in information both specific and general for those students who viewed the program on "The Shaking Earth." For those who did not see the show there was no significant gain in information. In a comparison of post-test scores, the students who saw the program tended to show a significantly higher level of information about both specific and general content than did those students who did not see the program.

However, in comparison of tests on attitude there was no significant change detected. There was no significant difference between pre- and post-test scores of those who did see the program on attitude. There was no significant difference between the pre- and post-test scores of those who did not see the program "The Shaking Earth." Likewise, there was no significant difference between the post-tests of those who did and did not see the program. Results of Group I tests are shown in the summary paradigm in Figure 4.

	Specific Content Learning		4-H General Content Learning		Attitude Toward 4-H	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
Did see	4.7*	6.5*	7.8*	9.0*	19.5	19.2
Did not see	4.8	4.9*	7.5	7.5*	17.9	17.5

Figure 4. Summary of Mean Scores for Group I (*Significant scores at the .05 level.)

Group II

This group comprised 51 students. Eleven students in this group voluntarily exposed themselves to the program which was randomly assigned to them.

Specific content learning. The program "When Water Runs Wild" was not successful in conveying information to those boys and girls in Group II at Washington Grade School who saw the assigned program. This group of individuals exposed to the program showed an average score of 7.0 before exposure and an average score of 7.0 again after exposure to the program. The test for difference indicated "t" = .55 (df = 20), which was not significant at the .05 level of 1.73.

For the 40 students in Group II who did not see the program, there was no gain in knowledge between the pre- and post-tests on the specific content of the program. The mean score for the participants on the pre-test was

6.9 and the average score on the post-test was 7.0. "T" = .71 (df = 78), which was not significant at the .05 level of 1.67.

The post-tests for the specific content of "When Water Runs Wild" showed no significant difference when tested. Boys and girls in Group II at Washington Grade School who saw the program had a mean score of 7.0 on the post-test, the same as that on the post-test of the Group II students who did not see the program. In testing for the difference between the two means of 7.0 and 7.0, "t" = .33 (df = 49), was far from sufficient to reject the null hypothesis of no difference at the .05 level of 1.67. Mean scores for those who did and did not see on the pre- and post-tests for specific content learning for Group II are shown in the following paradigm in Figure 5.

	Pre-test	Post-test
Did see	7.0	7.0
Did not see	6.9	7.0

Figure 5. Mean Scores for Group II Specific Content Learning

General content learning. Group II students apparently were able to gain some information about 4-H in

general from "When Water Runs Wild." On the pre-test for those participants who did see the program, the mean score recorded was 6.7 while the mean score for those same students on the post-test after viewing the program was 8.5, an increase of 1.8. The test for difference showed "t" = 2.70 (df = 20), which was highly significant beyond the .05 level of 1.73.

No further significant scores were determined for general content learning on the randomly assigned program "When Water Runs Wild." In testing for the difference between pre- and post-test scores of the 40 Washington Grade School students in Group II who did not see the program, no significance other than that which would be attributed to chance could be found. The average score on the pre-test was 6.9 while the mean score on the post-test was 7.5 for those who did not see the program. "T" = 1.33 (df = 78), was not significant beyond the .05 level of 1.67.

The test for difference between the post-test of those who did see the program and the post-test of those who did not see the program showed no significance. "T" = 1.56 (df = 49), was not sufficient to refute the null hypothesis at .05 level of 1.67. The paradigm below in Figure 6 shows the mean scores for those who did and did not see on the pre- and post-tests for general content learning in Group II.

	Pre-test	Post-test
Did see	6.7	8.5
Did not see	6.9	7.5

Figure 6. Mean Scores for Group II General Content Learning

Attitude learning. As in Group I, the program randomly assigned to Group II, "When Water Runs Wild," apparently failed to influence the attitude of the 51 participants. The test for difference between the mean scores of 18.7 on the pre-test and 18.5 on the post-test of the 11 students who voluntarily watched the program showed no significance. "T" = .25 (df = 20), was not significant beyond the .05 level of 1.73.

No significance was found between mean scores on the pre- and post-tests for youngsters in Group II at Washington Grade School who did not see the program. An average mean attitude score of 17.4 was found for the respondents on the pre-test and a mean score of 16.9 was determined on the post-test following airing of the program. "T" = .70 (df = 78), which was not significant at the .05 level of 1.67.

Post-tests for boys and girls who did and did not view the assigned program, "When Water Runs Wild," did not differ enough to refute the null hypothesis. The test for difference in attitude showed "t" = 1.45 (df = 49), not

significant at the .05 level of 1.68. The mean scores for those who did and did not see on the pre- and post-tests for attitude learning in Group II are shown in the paradigm in Figure 7.

	Pre-test	Post-test
Did see	18.7	18.5
Did not see	17.4	16.9

Figure 7. Mean Scores for Group II Attitude Learning (The higher the score on this test the more favorable the attitude.)

In Group II, then, the only significant test was for general 4-H content for those who saw the program. The tests for specific content learning and attitude change showed nothing which could be the result of anything other than chance at the .05 level. Results of Group II tests are shown in the summary paradigm in Figure 8.

	Specific Content Learning		4-H General Content Learning		Attitude Toward 4-H	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
Did see	7.0	7.0	6.7*	8.5*	18.7	18.5
Did not see	6.9	7.0	6.9	7.5	17.4	16.9

Figure 8. Summary of Mean Scores for Group II (*Significant scores at the .05 level.)

Group III

This group was made up of 56 boys and girls. Seven students in this group voluntarily exposed themselves to the program which was randomly assigned to them.

Specific content learning. The program "Living With The Atom" was apparently unsuccessful in transferring information of a specific nature to the students in Group III at Northside Grade School who did see the assigned program. This group of students showed a mean score of 4.7 on the pre-test and a mean score of 6.1 on the post-test. The test for difference showed "t" = 1.48 (df = 12), which was not significant beyond the .05 level of 1.78.

The 49 students in Group III who did not see the show, showed no significant gain in knowledge of the specific content of the program. The mean score was 4.7 for the pre-test and for the post-test of these same boys and girls the mean score was 5.2. The test for difference

showed "t" = 1.43 (df = 96), which was not enough to refute the null hypothesis at the .05 level of 1.67.

The post-tests for the specific content part of the program "Living With The Atom" showed no significant gain in information. "T" = 1.17 (df = 54), was not significant beyond the .05 level of 1.67. Mean scores for those who did and did not see on the pre- and post-tests for specific content learning for Group III are shown in the following paradigm in Figure 9.

	Pre-test	Post-test
Did see	4.7	6.1
Did not see	4.7	5.2

Figure 9. Mean Scores for Group III Specific Content Learning

General content learning. A gain in information on 4-H general content was indicated from the "t" test for those boys and girls who did see the program "Living With The Atom." On the pre-test the participants had a mean score of 7.4 while their post-test mean score was 9.0, an increase of 1.6. The test for difference between the pre- and post-tests showed "t" = 4.0 (df = 12), which was significant beyond the .05 level of 1.78. This "t" of 4.0

was the largest significant score in the statistical data range for all samples.

In testing for the difference between pre- and post-test scores for Northside Grade School youngsters in Group III who did not see the program, no significance was found. For the 49 students who did not see the program "Living With The Atom," the mean score before the program was 7.3. The mean score for the same group after the program was 7.7, an increase of only .4. The test for difference showed "t" = 1.08 (df = 96), which was not significant at the .05 level of 1.67.

The post-tests for the boys and girls who did and did not see the program showed a difference in scores of 7.7 to 9.0. The test to determine difference between the means of the post-tests showed "t" = 1.68 (df = 54), which was significant beyond the .05 level of 1.67. The mean scores of those who did and did not see on the pre- and post-tests for general content learning in Group III are shown in the paradigm in Figure 10.

	Pre-test	Post-test
Did see	7.4	9.0
Did not see	7.3	7.7

Figure 10. Mean Scores for Group III General Content Learning

Attitude learning. The attitude phase of the pre- and post-test for Group III students at Northside Elementary Grade School was apparently ineffective in influencing the students' attitude. The seven students who saw the show had a mean attitude score of 19 prior to viewing the program "Living With The Atom" and a mean score of 18.6 after viewing the program. The test for difference indicated "t" = .66 (df = 12), which was not significant at the .05 level of 1.78.

Apparently there was a change in attitude among those Group III students who failed to see the program. The mean score for the 49 students at Northside Grade School who did not see the show was 18.3 on the pre-test. The mean score one week later on the post-test was 17.0, a drop of 1.3. The test for difference showed "t" = 2.60 (df = 96), which was significant beyond the .05 level of 1.66. This was a negative change in attitude over a period of a week and invited speculation (see page 58).

Post-test score comparisons for the boys and girls who did see the program and who did not see the program indicated no change other than that which may be attributed to chance. The test for difference between the mean scores of these two groups showed "t" = 1.45 (df = 54), which was not significant enough to refute the null hypothesis at the .05 level of 1.67. The mean scores for those who did and did not see on the pre- and post-tests for attitude learning in Group III are shown in the

paradigm in Figure 11.

	Pre-test	Post-test
Did see	19	18.6
Did not see	18.3	17.0

Figure 11. Mean Scores for Group III Attitude Learning (The higher the score on this test, the more favorable the attitude.)

Thus, for Group III students at Northside Grade School assigned to watch the program "Living With The Atom," there was no significant learning gain on the message's specific content.

For the general knowledge part of the program, there was an apparent gain in information. The test for difference between the means of the pre- and post-tests for those who did see the show showed significant gain as did the statistical test between the post-tests for those who did and did not see the program "Living With The Atom."

In comparison of tests on attitude, there was an apparently significant change. Those Group III students who did not see the program showed a significant change in attitude. However, this change in attitude was negative. The students' scores dropped by 1.3 between the pre- and

post-tests. This same occurrence was found for the same test on the other two groups, Groups I and II, although the drop was not found significant in those instances. No other significant tests were found for Group III youngsters on attitude. Results of Group III tests are shown in the summary paradigm in Figure 12.

	Specific Content Learning		4-H General Content Learning		Attitude Toward 4-H	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
Did see	4.7	6.1	7.4*	9.0*	19.0	18.6
Did not see	4.7	5.2	7.3	7.7*	18.3*	17.0*

Figure 12. Summary of Mean Scores for Group III (*Significant scores at the .05 level.)

Summary

From a total of 162 participants, there were only 24 who saw the programs assigned to them in this study. This response supports the contentions of Schramm, Klapper and others, whose comments, it will be remembered, were recorded in the Review of Literature, Chapter II.

They said in essence, that television, itself, is not sufficient to influence children to watch it. The students in this study were not influenced by other than a

simple request from the author that they watch the program and a reminder from their teacher that the program would be aired on a certain date.

The 24 students who saw the program represented only 14.9 per cent of the total population in the current study, while in the Michigan study the television series reached a large part of the target audience and produced learning and influenced attitude favorably toward the message and 4-H.

It should be recalled that in the Michigan study, county 4-H agents exerted several kinds of direct and indirect appeal on the subjects to build up and reinforce the effect of the television show itself. They gave the series advance publicity on radio programs and through newspaper promotions. There was little or no advance promotion prior to airing of the 4-H TV Action Club Series in Oklahoma. In the Michigan study, letters were sent to local 4-H leaders urging their participation. County agents appealed to school administrators and teachers, urging cooperation in recruiting members for the 4-H TV Electrical Club. While the series was being shown, efforts were being made to encourage participants to achieve more on their projects. On the whole, these efforts were noted as having been responsible for a good share of the active participation by children in viewing the series and joining the club. Adult encouragement was perceived to have had a strong effect on enrollments also.

It was further determined in Chapter II that the personal influence factor was reflected in the relative volume of responses to the 4-H series in the Michigan study in the various Michigan counties. The response in some counties was far out of proportion to population size and television coverage. It was noted that difference between county responses in the Michigan study could be explained on the basis of the different direct and indirect influences exerted by 4-H agents through publicity, school administrators, teachers and local 4-H leaders. This all lends support to the "two-step-flow-of-communication" and "personal influence" hypotheses, as set forth by Katz and Lazarsfeld.[1]

Also, among parents in the Michigan study, it was found that a significantly larger proportion of parents with responding children saw the series than parents with non-responding children, indicating parental influence as a strong factor in encouraging enrollment.

The present study findings serve as a fruitful contrast to those of the Michigan study in that the response to the programs, in attendance, information gain and attitude change, was much less satisfactory and may be attributed to the lack of influence from 4-H agents, school personnel and parents, and the lack of publicity. Additional factors, such as the time element and cancellations

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[1]Katz, Elihu, and Paul F. Lazarsfeld. Personal Influence (Glencoe, New York, 1964), pp. 31-43.

were found to influence the present study and will be discussed further in the chapter on conclusions.

On specific content learning, "t" tests showed a significant gain in information only for Group I participants who actually saw the program. There was no significant information gain among Group II and III students who saw the assigned program.

The tests for difference between pre- and post-tests for specific content for those who did not see the assigned programs for the three groups showed no significance.

The post-tests for those Group I students who did and did not see the program showed a significant gain in information. The same test for Groups II and III did not reveal any significant change.

For general content learning, "t" tests showed significant gain in information for all three groups. There was no significant gain in general information recorded for students who did not see the assigned program in any of the three groups.

For the post-tests between those who did and those who did not see the program assigned, "t" tests showed a significant information gain for Group I and Group III participants. Group II participants showed no general information gain between post-tests, other than that accorded chance.

On attitude learning, there was no significance found for members of all three groups who saw their respective

programs. Tests for attitude difference in Groups I, II, and III showed no significant "t" scores for the pre- and post-tests of those who saw the programs.

The tests for attitude difference between the pre- and post-tests of those who did not see their assigned programs showed no significant change for Groups I and II at Washington Grade School. Group III at Northside Grade School, however, showed a negative change in attitude on the "t" test. This drop in attitude scores could be attributed to a loss of interest in the 4-H program from the first mention of the series at the time of the pre-test. Also, the lesser attitude indication can be attributed in part to an all-city schools track meet which took place in Blackwell the weekend following the pre-test and prior to the post-test for Group III students at Northside Grade School. High initial interest in the 4-H TV Action Series when knowledge of it was disseminated to the students at the time of the pre-test possibly caused part of the higher attitudinal scores on the pre-test. This is borne out by the fact that attitude scores for those who did and did not see the assigned program dropped for all three groups in the interim from the pre-test to the post-test.

The track meet was a point of high excitement to nearly all Blackwell grade school youngsters and the let-down following the meet could have influenced the attitude change for the Northside youngsters. This factor was not

present during testing of the other two groups in the experiment.

Perhaps the most significant factor in the Group III negative attitude change was the nearness of the end of the school term. Students in Group III were no longer engaged in school work and were only a day away from summer vacation at the time of the post-test. The boys and girls exhibited a lack of interest in anything connected with the classroom and learning. This could very well have played a part in causing the negative attitude change in Group III participants. This was not a factor for Groups I and II.

The post-tests for those who did and did not see the assigned program in each of the three groups showed no significant change in attitude.

Thus, the tests for difference showed attitudinal change in only one of the three groups in the experiment, the Northside group, Group III. And this was a negative attitude change among students who did not see the assigned program in the 4-H TV Action Club Series. The significant finding was attributed to factors which were not present at the time of the testing for the other two groups.

For the learning part of the tests, there were significant "t's" found in all three groups of participants. In Group I, the statistical tests were found significant for both 4-H general knowledge and specific content learning,

including the pre- and post-tests for those who did see the program and post-tests for those who did not see the program "The Shaking Earth."

In Group II, the "t" score was significant only for the 4-H general knowledge section for those who did see the program, "When Water Runs Wild."

In Group III, tests disclosed significance, again, for the 4-H general content of the questionnaire. The "t" score was significant for those who saw the program assigned to them, as was the "t" score between the means of the post-tests for those who did and did not see on the 4-H general knowledge part.

Over-all, 27 measurements were computed on the data with only eight scores significant in the analysis. Of the eight scores, only one showed a significant difference in attitude, the other seven were for learning. A summary of mean scores for all groups may be found in Figure 13.

	Group I						Group II					
	Specific Content Learning		4-H General Content Learning		Attitude Toward 4-H		Specific Content Learning		4-H General Content		Attitude Toward 4-H	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
Did see	4.7*	6.5*	7.8*	9.0*	19.5	19.2	7.0	7.0	6.7*	8.5*	18.7	18.5
Did not see	4.8	4.9*	7.5	7.5*	17.9	17.5	6.9	7.0	6.9	7.5	17.4	16.9

	Group III					
	Specific Content Learning		4-H General Content Learning		Attitude Toward 4-H	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
Did see	4.7	6.1	7.4*	9.0*	19.0	18.6
Did not see	4.7	5.2	7.3	7.7*	18.3*	17.0*

Figure 13. Summary of Mean Scores for All Groups (*Significant scores at the .05 level.)

CHAPTER V

SUMMARY, CONCLUSIONS, AND SUGGESTIONS

Summary

In this study, three groups of fifth and sixth grade classes were selected through accidental non-probability sampling. A program from the 4-H TV Action Club Series was assigned to each of the groups labeled Groups I, II, and III. The programs were assigned at random and pre-tested to provide control.

The 162 students in the three groups came from fifth and sixth grade classes at Washington and Northside Grade Schools in Blackwell, Oklahoma. Group I was assigned the program "The Shaking Earth," while Group II was assigned "When Water Runs Wild", and Group III was assigned "Living With The Atom."

Each of the three groups of students was pre-tested on a Tuesday prior to viewing the assigned program on the following Saturday. The groups were post-tested the Tuesday following the program and all testing was carried out as near the same time as possible on the same day of the week to control for error variance as much as possible - variance due to time of day and mental alertness.

All the programs in the series were shown at 1:30 p.m. on Saturday - not a school day. An important aspect in the study was the fact that the author worked with naturalistic conditions in which the youths controlled their exposure to the communications. They were not influenced to watch the program by conditions such as mandatory classroom requirements, but were simply requested to watch the assigned program as a favor to the author. They were reminded by their teacher on Friday that the program would be interesting and would be on television, Saturday at 1:30 p.m.

The pre-test consisted of ten learning questions and five attitude questions about 4-H in general and ten questions about the specific content of the particular programs assigned the groups. The post-test consisted of the same questions administered to the groups following airing of the programs (Appendices D and E).

Information on the effects of the 4-H programs via television was provided by the data. Also provided were insights as to the drawing power of the series and the use of a public television station for disseminating information designed to create favorable attitudes and cause information gain among grade school boys and girls.

Conclusions

As can readily be seen from the results of tests on the data, there was very little change in the attitude of

the respondents in this study - and that was negative. In only one group was there any notable learning for the specific content of a program, although there was some learning in each of the three groups in regard to the 4-H general knowledge section. Response (watching the assigned programs) was almost negligible (24 students out of 162).

It seems evident from these findings that the boys and girls learned about 4-H from the television program and exhibited no change in attitude toward 4-H other than a negative one. The shows also produced only minor learning about their specific message. Thus, it seems the television show, alone, was not an "all-powerful" medium to encourage learning or attitudinal change in the boys and girls. The main consideration in this study, then, was the nature of exposure to the 4-H TV Action Club Series among the fifth and sixth grade children tested. Also of importance was the method used by the State 4-H Extension Service and County 4-H agents in promoting the series among school age youth in Oklahoma. Of importance, too, was the production of the 4-H TV Action Club Series, itself. The author has attempted to illuminate his findings and the reasons for them in the following remarks.

Voluntary Exposure

There was almost no influence, other than that of the writer (as informant and tester for the specified programs).

Although some of the youngsters in the six classes were, or had been, members of 4-H Clubs (eight in all), close questioning of these individuals indicated neither home nor family influence pertaining to the series. When asked whether they had been told about the series or requested to watch some of the programs by members of their family or others, all these members, or former members, said they had not. In specific instances, several of the youths had been influenced or asked to do other things, such as help around the house or farm. Only one 4-H club member saw his assigned show.

Several of the participating boys and girls were members of outdoor sports organizations such as little league baseball teams. The Northside School children in Group III were attending and/or participating in a city school's track meet, for the most part, during the air time of the program they were assigned to watch. Approximately one-fourth of the Washington School youngsters were attending a local movie matinee at the time they had been requested by the author to watch a program in the 4-H Series. Thus, competing media were a factor in the low voluntary exposure.

From this evidence, it appears that exposure to the specified programs in the Action Series was entirely voluntary on the part of the boys and girls, except for the simple request of the author that they watch the program at home on the television. Although teachers and

administrators in the Blackwell Grade Schools gave their full cooperation, these individuals did little more than allow the writer to enter their classrooms, make his requests and administer the pre- and post-tests. They were requested to remain as indifferent as possible about the series and give information only when asked. They were only asked to do one thing by the tester - remind the students of the air time and the channel number of the station on which the program was to be shown. The fact was emphasized, also, that the test scores and attendance on the program would in no way affect the grades of the boys and girls participating in the study.

The only exception to this procedure occurred in connection with Group I. The teacher of the fifth grade in this group mimeographed a brief note to the parents of all youngsters in Group I and sent the notes home with the students the Friday before the televising of the program on the following Saturday. The message read:

> A young man from Oklahoma State University is conducting a survey on the current 4-H TV Action Club program on television each Saturday from 1:30 until 2 p.m. Your child had been asked to participate in the survey and your cooperation is requested to remind your youngster to watch the program. The student's grades in school will in no way be affected by the survey. Thank you.

"T" scores for Group I showed the most change for any one group among the three on learning, as was expected with the influence mentioned above.

Children seemingly will not voluntarily expose

themselves to television programs of an educational and informative nature. They will do so only when influenced by responsible authorities such as teachers, school administrators, parents, peers, and those connected with the agency supporting, or hired to support, the program.

The 4-H TV Action Club Series, aimed at the target-age group of grade school youngsters in the 10 to 12 year old age bracket, can be termed successful only through the energies and efforts of those authoritative figures in the lives of the youngsters. The television medium, or any other mass medium, in and of its own volition, will not be, or is not capable of, attracting the interest and capturing the imagination of children.

It requires a nexus of mediating message factors and personal influences other than message dissemination through a mass communications channel to produce desired effects. It is these factors and influences which typically render mass communication an effective agent of direct effect or reinforcement - more commonly reinforcement. The efficacy of a mass medium such as television, then, depends upon various aspects of the situation. For example: the nature and source of the message, predisposition to the message, personal influence, textual organization, etc. Thus, boys and girls in any target-age group will be lesser affected by mass communications media than by the mediating factors and influences surrounding it.

Efforts to increase awareness and create a more favorable attitude about 4-H, and to increase learning about emergency preparedness among grade school children will be less effective through a mass medium, such as television, with a minimum of outside influence, than when efforts are made to supplement the mass medium as much as possible with a plexus of mediating factors and influences. Such influences include school authorities and parental interest and urging, coupled with reward factors such as grades, public approval and recognition. In order to effectively communicate a program of the informative and educational nature of the 4-H TV Action Club Series, it is necessary to secure the compliance and help of all those persons with the credibility and opportunity to influence the children favorably toward the program. It is also necessary to maximize the effects of such factors as public opinion, quality and originality of the communication and its attractiveness.

Also, a very important consideration in any message treatment is its immediate and delayed reward characteristics, as pointed out by Schramm. Schramm places information into two classes: immediate reward and delayed reward. In general, immediate reward news is news of crime, corruption, disasters, social events, human interest, etc. Delayed reward may be expected from news of

public affairs, economic matters, social problems, education ....[1] The 4-H TV Action Series was definitely information of the latter type.

It is hoped that the author's findings have provided not only information as to the drawing power of the 4-H TV Action Club Series via the television medium but also some useful insights on the practicality of using popular or educational television. Many other factors, such as those mentioned above, "dare not" be neglected in relaying information designed to create favorable attitudes and increase learning among various groups; specifically in this case, school children at the fifth and sixth grade level. The importance of considering these neglected factors has been pointed out in past information campaigns.

Criticisms of the program by the County 4-H Agents, themselves, included several comments about the production of the series. The most common criticisms were: "Bad timing for a program of this nature ... only two to three programs were presented before school was out." "Program cancellation has caused loss of interest and drew out programs over too long a time span." "Need to have program during school hours" and "Complete course before school is out" "Don't cancel programs after they have been set up."

There were three main objections: (1) cancellation

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[1]Wilbur Schramm, "The Nature of News," Journalism Quarterly, September, 1949. Quoted in Alan Casty, Mass Media and Mass Man (New York, 1968).

caused loss of interest; (2) Saturday was not an ideal day for the programs to get full interest and attention of students; and (3) the programs extended beyond the end of the school year.

Several agents mentioned the need for more advanced publicity and materials in preparing for the series. Some comments were: "More pre-planning." "Need longer time to incorporate it into the club program." and "Need materials well in advance."

A morning program on Saturday when children are usually watching cartoons and the like, probably would not have been more effective than the afternoon time schedule. Several of the agents mentioned a morning air time for the programs and others favored a 30 minute period each week during school. Another suggested a study be made of the possibility of this type of program being carried just prior to the national news on a weekday afternoon.

The technical production of the program is a major factor in the receptiveness of the audience. In the case of the 4-H TV Action Club Series, one serious oversight could have prevented much confusion. Several children in several counties sent their enrollment cards to Michigan State University where the films were produced because of faulty editing of the films for Oklahoma.

Many of the agents felt that the programs were interesting but could have been improved upon from the standpoint of content. Others mentioned that the series would

have been much more attractive if color had been used in filming.

In closing, as the author stated before, factors which affect viewing of informational programs are the nature and source of the message - its immediate and delayed reward characteristics, predisposition to the message, personal influence of credible and authoritative persons and the textual quality and attractiveness of the communication. The mass communication channel of television is, in and of itself, not capable of attracting the interest of children for any given message. Its efficiency as a means of transferring information and influencing attitude depends upon the mediating factors and influences which surround it.

Results of the series lead the author to conclude that many, or all, of these mediating factors should have been given more consideration. More than 60,000 pieces of literature were printed and distributed in Central Oklahoma. Less than 14,000 youngsters ever enrolled in the program, much less completed it. This was substantially less than the 45,000 to 50,000 new members that were hoped for at the beginning of the series.

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APPENDIX A

ATTITUDE AND LEARNING TEST

NAME _____

AGE _____ _____ BOY _____ GIRL

DIRECTIONS: For all of the questions, write an X in the front of what you honestly think is the best answer you can give. For example:
What is the capital of Michigan?

_____ Kalamazoo
_____ New York
_____ Grand Rapids
_____ Lansing
_____ I don't know

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1. Making electrical things is

_____ lots of fun
_____ sort of fun
_____ in between
_____ not much fun
_____ not fun at all

2. Electricity is

_____ interesting
_____ sort of interesting
_____ in between
_____ sort of boring
_____ boring

3. Joining a club for boys and girls to learn about electricity and make electrical things is

_____ a good idea
_____ sort of a good idea

3. (Continued)

_____ in between
_____ sort of a poor idea
_____ a poor idea

4. 4-H clubs are

_____ good
_____ sort of good
_____ in between
_____ sort of bad
_____ very bad

5. 4-H clubs are

_____ fun
_____ sort of fun
_____ in between
_____ not much fun
_____ no fun at all

6. To join 4-H you

_____ have to live in a city
_____ should live on a farm
_____ can live in a city or on a farm
_____ should have farm animals
_____ I don't know

7. To become a member of 4-H you can

_____ send an application to 4-H Headquarters in Washington
_____ write to Director, 4-H, Detroit, Michigan
_____ send a post card to 4-H TV, Box 431, East Lansing, Michigan
_____ write to 4-H Leader, Post Office, Grand Rapids, Michigan
_____ I don't know

8. When you ask to become a member of the 4-H Electrical Club you get

_____ 4-H pin and club manual
_____ membership certificate and T shirt
_____ parts for an electric motor

8. (Continued)

_____ official uniform
_____ I don't know

9. What kinds of camps do they have for 4-H members

_____ summer camp, snow camp
_____ summer camp, fall camp
_____ winter camp, spring camp
_____ water camp, mountain camp
_____ I don't know

10. About how many 4-H members are there in Michigan

_____ a thousand
_____ 60 thousand
_____ 200 thousand
_____ a million
_____ I don't know

11. Water conducts electricity if you

_____ heat it
_____ cover it with powder
_____ stir it up
_____ put salt in it
_____ I don't know

12. Members of the 4-H Electrical Club

_____ make things themselves
_____ watch the leader complete a project
_____ don't actually work with electricity
_____ elect a person to make a generator
_____ I don't know

13. One 4-H TV Electrical Club leader is

_____ Scott Forman
_____ Jim Culver
_____ Governor Williams
_____ Ed Peterson
_____ I don't know

14. One of the things 4-H clubbers do at meetings is

_____ sing the official state song

_____ recite the 4-H pledge

_____ give an oath of loyalty to the 4-H flag

_____ sing "Honor to our 4-H Club"

_____ I don't know

15. When you ask to join the 4-H Electrical Club you send in your

_____ name, age, address and country

_____ name, parents' name, and the project you want to do

_____ name, age, and grade in school

_____ name, address, and size of family

_____ I don't know

APPENDIX B

QUESTIONNAIRE FOR CLASSROOM EXPERIMENTAL GROUP

1. You have just seen a film about a 4-H Electrical Club. Have you ever seen a program on TELEVISION like this?

   _____ yes
   _____ no

   IF SO, when? _____ (day of week)

   What channel? _____

2. In the program you just saw on film, what did you like best?

   _____ how a 4-H club holds a meeting
   _____ how to make a flashlight
   _____ visit with a county 4-H club agent
   _____ world's smallest light bulb

3. What did you dislike about the program you just saw?

   _____

4. In your opinion, the program was

   _____ interesting
   _____ sort of interesting
   _____ in between
   _____ sort of boring
   _____ boring

5. Have you ever written in to join the 4-H TV Electrical Club?

   _____ yes
   _____ no

6. Have you ever belonged to any other 4-H club?

   _____ yes
   _____ no

APPENDIX C

QUESTIONNAIRE FOR CLASSROOM CONTROL GROUP

1. Have you seen a program on TELEVISION in the past several weeks about a 4-H TV Electrical Club in which a young man shows boys and girls how electricity works?

_____ yes
_____ no

IF YOU SAW THE PROGRAM...

When did you see it? _____ (day of week)

What channel? _____

Did you happen to see the one in which they showed a teakettle making steam and generating electricity to turn on a light?

_____ yes
_____ no

IF SO, what did you like best about this program:

_____ how a 4-H Club holds a meeting
_____ how to make a flashlight
_____ visit with a county 4-H club agent
_____ world's smallest light bulb

What did you dislike about this program? _____

_____

In your opinion, the program was

_____ interesting
_____ sort of interesting
_____ in between
_____ sort of boring
_____ boring

2. Have you ever written in to join the 4-H TV Electrical Club?

_____ yes

_____ no

3. Have you ever belonged to any other 4-H club?

_____ yes

_____ no

APPENDIX D

ATTITUDE AND GENERAL LEARNING TEST

ADMINISTERED TO ALL GROUPS

Mark the answer you think is right. Only one is right.

1. I think 4-H clubs are about
   _____ farming and ranching
   _____ animals and plants
   _____ how to prepare for emergencies
2. 4-H club members do one of the following things at every meeting:
   _____ sing the state song
   _____ recite the 4-H pledge
   _____ go on tours
3. Members of the 4-H emergency-preparedness club
   _____ watch the leader complete a project
   _____ don't actually work on projects themselves
   _____ plan projects for emergency preparedness
4. To become a member of a 4-H club, I should
   _____ send a post card with name, address, age, and county to 4-H TV Action Club, Oklahoma State University
   _____ wait until someone asks me to join
   _____ write the Director of 4-H in my city or county
   _____ tell my teacher I want to join 4-H

5. When I become a member of 4-H, I get
   _____ a membership certificate and T-shirt
   _____ 4-H pin, project manual, and membership card
   _____ official uniform
6. 4-H club members make posters about
   _____ the subject of the last meeting
   _____ each other and the 4-H club
   _____ how to prepare for emergencies
7. To join 4-H, I
   _____ must live on a farm
   _____ must live in a town or city
   _____ can live in a city or a farm
   _____ must live in the country
8. The 4-H club motto is
   _____ having fun
   _____ balance, poise, and beauty
   _____ good sportsmanship
   _____ learning by doing
9. When I ask to join the 4-H Action Club, I send in
   _____ my name, age, address, and county
   _____ my name, parent's name, and the project I want to do
   _____ my name, age, and grade in school
   _____ my name, address, and the size of my family
10. 4-H clubs are for
   _____ farm children only
   _____ city children only
   _____ both farm and city children
   _____ some city and some farm children

On this part, there are no wrong answers. Mark the one answer that best describes the way you feel.

1. 4-H clubs are

_____ fun and I would like very much to join one

_____ sort of fun and I think I might like to join one

_____ not much fun and I do not think I would like to join one

_____ no fun at all and I would not like to join one at all

2. Joining a 4-H club for boys and girls to learn what to do in case of an emergency is

_____ a good idea and I am very much in favor of it

_____ sort of a good idea and I am sort of in favor of it

_____ not a very good idea and I am not much in favor of it

_____ a bad idea and I am not at all in favor of it

3. I think 4-H clubs are

_____ good and very interesting for kids my age

_____ sort of good and fairly interesting for kids my age

_____ not very good or very interesting for kids my age

_____ not at all good or interesting for kids my age

4. Making posters for 4-H club projects would be

_____ very interesting and I would enjoy making them very much

_____ sort of interesting and maybe I would enjoy making them

_____ not very interesting and I would not enjoy making them very much

_____ not at all interesting and I would not enjoy making them at all

5. I think a television program about 4-H would be

_____ good for kids my age and I would like very much to see one

_____ sort of good for kids my age and I would sort of like to see one

_____ not very good for kids my age and I don't think I would like to see one

_____ not at all good for kids my age and I definitely would not like to see one

APPENDIX E

SPECIFIC LEARNING TESTS FOR GROUPS I, II, AND III

Group I, The Shaking Earth

1. Earthquake injuries are caused by
   - _____ falling timber and bricks in a house or building
   - _____ falling trees and rocks in the street
   - _____ anything heavy which could fall on a person
   - _____ fires that break out
2. If I am in my home when an earthquake strikes, the best place to stay is
   - _____ by a strong wall
   - _____ in a hall
   - _____ near a doorway
   - _____ in a doorway
3. In an earthquake I should
   - _____ not panic
   - _____ obey the authorities
   - _____ not get in the way
   - _____ get things organized
4. Use the telephone after an earthquake
   - _____ when it is very important to get help for badly injured people
   - _____ when someone is injured but not seriously
   - _____ to find out from the authorities what to do
   - _____ to see if a relative was injured

5. The seismograph

_____ explains things about earthquakes

_____ measures rainfall

_____ is an instrument which records tremblings of the earth

_____ helps seismologists measure the earth

6. Greenwich time is

_____ used because it is used in London

_____ used so there is no confusion about when an earthquake occurs

_____ used to make all London earthquakes happen at the same time

_____ what time it is in New York

7. Earthquakes occur

_____ in cities only

_____ in areas that are not thickly populated

_____ everyday

_____ once a week

8. If I found a person who was injured in an earthquake, I would first

_____ tell someone else

_____ run and get a doctor

_____ try to make the person comfortable

_____ try to help him get up

9. After making the injured person as comfortable as possible, I would

_____ try to learn something about his injuries

_____ ask him who his doctor is

_____ see if his arms hurt

_____ tell him he is hurt

10. Seismographic stations

_____ are located in the larger cities

_____ protect people from earthquakes

_____ are located in the country as close as possible to noises and activities

_____ are located away from cities and towns and man-made activity

Group II, When Water Runs Wild

1. Water
   _____ is probably the most important thing in our lives
   _____ is unnecessary
   _____ is important but not necessary
   _____ is necessary but not important
2. When water from rain and melting snow cannot be absorbed
   _____ lakes will form
   _____ the ground water level rises
   _____ rivers run swiftly
   _____ great floods may occur
3. The safest method of purifying water
   _____ is to boil it for about three minutes
   _____ is to put purification tablets in it
   _____ is to set it in the sun for a few days
   _____ is to strain it through a charcoal filter
4. Water is dangerous when
   _____ it is muddy
   _____ it is out of control
   _____ it cannot be turned off
   _____ there is not enough of it
5. In a flood windows and doors should be opened
   _____ to let water wash the house
   _____ to let water pass through and get out easily
   _____ so sunshine can dry the house
   _____ so the water won't break them
6. When advised to evacuate in case of a flood
   _____ take time to prepare the house for the flood
   _____ go quickly but do not hurry
   _____ shut doors and windows
   _____ do so immediately

7. Fill the basement with clean water to
   _____ wash it out after the flood
   _____ keep out flood water mud
   _____ use after the flood for clean-up
   _____ use for bathwater if the water supply is contaminated
8. Opening doors and windows may prevent
   _____ the water being kept out
   _____ the house from getting messy
   _____ muddy floors after the flood
   _____ the house from being washed off the foundation
9. Return to the house
   _____ only when the water goes down
   _____ only when the authorities say it's safe
   _____ only when the water starts receding
   _____ only when the water is all gone
10. Foods for an emergency food package kit are
   _____ bananas
   _____ bottled milk
   _____ canned fruits and vegetables
   _____ cakes and pies

Group III, Living With the Atom

1. People who stay in shelters longer after radioactive fallout

   _____ will be safer

   _____ may get hungry

   _____ will make many friends

   _____ may get radioactive dust on them

2. A cyclotron

   _____ is used to fix automobile engines that do not run

   _____ is an electric machine that measures radiation

   _____ is used to discover how atomic particles can be used by mankind

   _____ is used to safeguard against radiation

3. To get rid of radioactive dust that may have fallen on me

   _____ I should take a whisk broom and brush myself

   _____ I should take off my outer clothes and shake them out

   _____ I should change my clothes

   _____ I should get rid of my clothes and wash with soap and water

4. Over exposure to radiation results in

   _____ anxiety, tension, and loss of memory

   _____ nausea, fatigue, drowsiness, and vomiting

   _____ a contagious disease

   _____ a shortness of breath

5. Radiation

   _____ cannot be seen, tasted, or felt

   _____ can be seen, felt, and tasted

   _____ can be seen, but not tasted or felt

   _____ can be felt, but not seen or tasted

6. Radiation sickness

_____ is very contagious
_____ is only contagious in some instances
_____ may or may not be contagious
_____ is not contagious

7. The best protection against fallout

_____ is several layers of clothes
_____ is to close all windows
_____ is not to be there
_____ is to be properly informed

8. Fallout is

_____ radio waves which burn when they touch the body
_____ radioactive particles resulting from a nuclear explosion
_____ radiation from the sun
_____ dust carried by air currents for miles and miles

9. Exposure to excessive radiation can result in

_____ burns, sickness, and possible death
_____ fast growing plants and animals
_____ a light-headed feeling
_____ no effects at all

10. Atoms are made up of

_____ cyclotrons
_____ particles called electrons
_____ nuclear energy
_____ radiation fallout

VITA

Carl K. Godard

Candidate for the Degree of

Master of Science

Thesis: EFFECTS OF VOLUNTARY EXPOSURE TO 4-H PROGRAMS THROUGH TELEVISION

Major Field: Journalism

Biographical:

Personal Data: Born in Fort Worth, Texas, September 6, 1944, the son of Charles M. and Kathyrine N. Godard.

Education: Graduate from Blackwell High School, Blackwell, Oklahoma, in 1962; attended Oklahoma University in 1963 and 1964; received the Bachelor of Arts degree from Central State College, with a double major in English and Journalism, in May, 1967; completed requirements for the Master of Science degree in Journalism from Oklahoma State University in May, 1969.

Professional Experience: Reporter on El Reno Daily Tribune, El Reno, Oklahoma. Advertising manager of Edmond Sun-Booster, Edmond, Oklahoma. Assistant director of public relations, Beals Advertising Agency, Oklahoma City, Oklahoma. Assistant editor for publications, Oklahoma State University Division of Public Information. Assistant for public relations to the Vice President for Student and Auxiliary Services, Oklahoma State University.