FORM APPROVED
O.M.B. NO. 68-R0249

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

GRANT APPLICATION

FOLLOW INSTRUCTIONS CAREFULLY

LEAVE BLANK		
TYPE	ACTIVITY	NUMBER
REVIEW GROUP		FORMERLY
COUNCIL/BOARD (Month, year)		DATE RECEIVED

1. TITLE OF APPLICATION (Do not exceed 56 typewriter spaces)
TV's Contribution to Health Images and Practices

2. RESPONSE TO SPECIFIC PROGRAM ANNOUNCEMENT [ ] NO [X] YES (If "YES," state RFA number and/or announcement title)
NCHSR Solitation -- Grants for Research on Health Promotion and Disease Prevention

3. PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR

3a. NAME (Last, first, middle)
Gerbner, George

3b. SOCIAL SECURITY NUMBER
560-26-1969

3c. MAILING ADDRESS (Street, city, state, zip code)
Annenberg School of Communications
University of Pennsylvania
3620 Walnut St. C5
Philadelphia, Pa. 19104

3d. POSITION TITLE
Dean and Professor of Communications

3e. DEPARTMENT, SERVICE, LABORATORY OR EQUIVALENT
Annenberg School of Communications

3f. TELEPHONE (Area code, number and extension)
215-243-7041

3g. MAJOR SUBDIVISION

4. HUMAN SUBJECTS, DERIVED MATERIALS OR DATA INVOLVED
[ ] NO [X] YES (If "YES," form HEW 596 required)

5. RECOMBINANT DNA RESEARCH SUBJECT TO NIH GUIDELINES
[X] NO [ ] YES

6. DATES OF ENTIRE PROPOSED PROJECT PERIOD (This application)
From: 7/81 Through: 6/84

7. TOTAL DIRECT COSTS REQUESTED FOR PROJECT PERIOD (from page 5)
$ 311,090

8. DIRECT COSTS REQUESTED FOR FIRST 12-MONTH BUDGET PERIOD (from page 4)
$ 96,615

9. PERFORMANCE SITES (Organizations and addresses)
Annenberg School of Communications
University of Pennsylvania
3620 Walnut St. C5
Philadelphia, Pa. 19104

10. INVENTIONS (Competing continuation application only)
Were any inventions conceived or reduced to practice during the course of the project?
[XX] NO [ ] YES - Previously reported
[ ] YES - Not previously reported

11. APPLICANT ORGANIZATION (Name, address, and congressional district)
Trustees of Univ. of Pennsylvania
Office of Research Administration
3451 Walnut St.
Philadelphia, Pa. 19104

12. ORGANIZATIONAL COMPONENT TO RECEIVE CREDIT FOR INSTITUTIONAL GRANT (See instructions)
Code [ ] Description:

13. ENTITY IDENTIFICATION NUMBER
23-1352685

14. TYPE OF ORGANIZATION (See instructions)
[X] Private Nonprofit
[ ] Public (Specify Federal, State, Local):

15. OFFICIAL IN BUSINESS OFFICE TO BE NOTIFIED IF AN AWARD IS MADE (Name, title, address and telephone number)
Anthony Merritt, Director
University of Pennsylvania
Office of Research Administration
3451 Walnut Street
Philadelphia, Pennsylvania 19104

16. OFFICIAL SIGNING FOR APPLICANT ORGANIZATION (Name, title, address and telephone number)
R. W. Kinny
Assoc. Director
Research Administration
3451 Walnut St.
Philadelphia, Pa. 19104

17. PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR ASSURANCE: I agree to accept responsibility for the scientific conduct of the project and to provide the required progress reports if a grant is awarded as a result of this application.

SIGNATURE OF PERSON NAMED IN 3a (In ink. "Per" signature not acceptable)
George Gerbner
DATE: 10/27/80

18. CERTIFICATION AND ACCEPTANCE: I certify that the statements herein are true and complete to the best of my knowledge, and accept the obligation to comply with Public Health Service terms and conditions if a grant is awarded as the result of this application. A willfully false certification is a criminal offense. (U.S. Code, Title 18, Section 1001.)

SIGNATURE OF PERSON NAMED IN 16 (In ink. "Per" signature not acceptable)
R. W. Kinny
DATE: 10/28/80

PHS-398
Rev. 10/79

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

ABSTRACT OF RESEARCH PLAN

LEAVE BLANK

PROJECT NUMBER

NAME AND ADDRESS OF APPLICANT ORGANIZATION *(Same as Item 11, page 1)*

Trustees of the University of Pennsylvania, Office of Research Administration
3451 Walnut St. Phila, Pa. 19104

TITLE OF APPLICATION *(Same as Item 1, page 1)*

TV's Contribution to Health Images and Practices

Name, Title and Department of all professional personnel engaged on project, beginning with Principal Investigator/Program Director

George Gerbner, Dean and Professor of Communications -- Co-Principal Investigator
Larry Gross, Associate Professor -- Co-Principal Investigator
Michael Morgan, Research Specialist -- Co-Principal Investigator
Nancy Signorielli, Research Coordinator -- Co-Principal Investigator

All of the co-principal investigators are at the Annenberg School of Communications,

ABSTRACT OF RESEARCH PLAN: Concisely describe the application's specific aims, methodology and long-term objectives, making reference to the scientific disciplines involved and the health-relatedness of the project. The abstract should be self-contained so that it can serve as a succinct and accurate description of the application when separated from it. DO NOT EXCEED THE SPACE PROVIDED.

Culturally sustained behaviors and lifestyles account for a significant amount of poor health and mortality in the United States, and television is the central dynamic of American culture. This research will investigate television's representation of a wide range of health and safety-related values and practices -- including eating, drinking, nutrition, seat belt use, etc. -- and attempt to determine the consequences of such portrayals on viewers' beliefs and actions. The content analysis will utilize an existing eleven-year data base of prime-time and weekend-daytime network television programs and a three-year sample of the commercials embedded within them. We will examine the most repetitive, aggregate patterns concerning the social context of eating and drinking, nutritional values and concerns, and other health and safety related habits as presented in television drama. While television is only one of many factors which may enhance or suppress concerns with preventive medicine and good health, it may well be the single most common and pervasive source of certain widely-shared conceptions and actions which promote unhealthy lifestyles for large segments of the population; yet, virtually nothing is known about the extent and nature of its contribution in this critical area. Through secondary analysis of existing data bases and the commission of new survey data, we will assess the impact of television's portrayals of health matters on people's beliefs and expectations about their own and their families' practices relating to health and safety.

LABORATORY ANIMALS INVOLVED. Identify by common names. If none, state "none"

TABLE OF CONTENTS

Number pages consecutively at the bottom throughout the application. Do not use suffixes such as 5a, 5b. Type the name of the Principal Investigator/Program Director at the top of each printed page and each continuation page.

SECTION 3. Appendix *(Six sets) (No page numbering necessary for Appendix)*

Number of publications: _____ Number of manuscripts: _____

Other items (list):

I: Recording Instrument for the Analysis of Nutrition, Health and Safety in Television Drama

Application Receipt Record, form PHS 3830
Form HEW 596 if Item 4, page 1, is checked "YES"

OTHER SUPPORT

(USE CONTINUATION PAGES IF NECESSARY)

For each of the professionals named on page 2, list, in three separate groups: (1) active support; (2) applications pending review and/or funding; (3) applications planned or being prepared for submission. Include all Federal, non-Federal, and institutional grant and contract support. If none, state "NONE." For each item give the source of support, identifying number, project title, name of principal investigator/program director, time or percent of effort on the project by professional named, annual direct costs, and entire period of support. (If part of a larger project, provide the titles of both the parent grant and the subproject and give the annual direct costs for each.) Briefly describe the contents of each item listed. If any of these overlap, duplicate, or are being replaced or supplemented by the present application, justify and delineate the nature and extent of the scientific and budgetary overlaps or boundaries.

PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR: George Gerbner

(1) ACTIVE SUPPORT:

NIMH - MH 21196-06A1 - TV and Children's Conceptions of Social Reality
10 percent of time - $46,213 direct costs -- from 5/1/79 to 12/31/80.

AoA - 90-AR-2176 - Aging with Television Commercials - 10 percent of time -
$ 118,257 direct costs -- from 10/1/79 to 3/31/81.

(2) applications pending review:

NIMH - NCHSR Solicitation (Grants for Research on Health Promotion and Disease Prevention) -- TV's Contribution to Health Images and Practices -- 8 percent of time -- requesting $311,090 in direct costs over a three year period -- 7/1/81 to 6/30/84.

(3) applications planned or being prepared for submission:

NSF - to the Committee on the Public Understanding of Science --
(budget, exact title, etc. are still in planning stages)

Co-principal Investigator: Larry Gross

(1) Active Support:

NIMH - MH 21196-06A1 - TV and Children's Conceptions of Social Reality -
20 percent of time - $46,213 direct costs -- from 5/1/79 to 12/31/80.

AoA - 90-AR-2176 - Aging with Television Commercials - 5 percent of time -
$118,257 direct costs -- from 10/1/79 to 3/31/81.

(2) applications pending review:

NIMH - NCHSR Solicitation (Grants for Research on Health Promotion and Disease Prevention) -- TV's Contribution to Health Images and Practices 8.5 percent of time -- requesting $311,090 in direct costs over a three year period -- 7/1/81 to 6/30/84.

(3) applications planned or being prepared for submission:

NSF - to the Committee on the Public Understanding of Science --
(budget, exact title, etc. are still in planning stages)

Other Support Continued

Co-Principal Investigator: Michael Morgan

(1) Active Support:

NIMH - MH 21196-06A1 - TV and Children's Conceptions of Social Reality -- 50 percent of time -- $46,213 in direct costs - 5/1/79 to 12/31/80.

(2) Applications pending review:

NIMH - NCHSR Solicitation (Grants for Research on Health Promotion and Disease Prevention) -- TV's Contribution to Health Images and Practices -- 30 percent of time - requesting $311,090 in direct costs over a three year period - 7/1/81 to 6/30/84.

(3) Applications planned or being prepared for submission:

NSF - to the Committee on the Public Understanding of Science -- (budget, exact title, etc. are sill in planning stage)

Co-Principal Investigator: Nancy Signorielli

(1) Active Support:

AoA - 90-AR-2176 -- Aging with Television Commercials -- 33 percent of time -- $118,257 direct costs -- 10/1/79 - 3/31/81.

(2) Applications pending review:

NIMH - NCHSR Solicitation (Grants for Research on Health Promotion and Disease Prevention) -- TV's Contribution to Health Images and Practices -- 30 percent of time -- requesting $311,090 in direct costs over a three year period -- 7/1/81 to 6/30/84.

(3) Applications planned or being prepared for submission:

NSF - to the Committee on the Public Understanding of Science -- (budget, exact title, etc. are still in planning stage)

This proposal and the other one currently pending review by NIMH propose research that will be conducted in tandem. The message system analysis data that will be collected in each project are quite different but can be collected at the same time. The coding budgets reflect this dual collection.

RESOURCES AND ENVIRONMENT

FACILITIES: Mark the facilities to be used and briefly indicate their capacities, pertinent capabilities, relative proximity and extent of availability to the project. Use "other" to describe facilities at other performance sites listed in Item 9, page 1, and at sites for field studies. Using continuation pages if necessary, include a description of the nature of any collaboration with other organizations and provide further information in the RESEARCH PLAN.

☐ Laboratory:

☐ Clinical:

☐ Animal:

☒ Computer: facilities provided by Unicoll Corp., 3400 Market St., Phila. Pa.
IBM - 360/168

☒ Office: in the Annenberg School - G-6, G-7, G-15, G-18, 102,118, 218

☐ Other (_____):

Videotape viewing-recording facilities
Videotape archive
Computerized data archives.

MAJOR EQUIPMENT: List the most important equipment items already available for this project, noting the location, and pertinent capabilities of each.

We have all of the equipment needed to screen programs in our videotape archives and to record future samples. We also have a computer terminal to provide remote access to the IBM 360/168.

ADDITIONAL INFORMATION: Provide any other information describing the environment for the project. Identify support services such as consultants, secretarial, machine shop, and electronics shop, and the extent to which they will be available to the project.

CHECKLIST

This is the required last page of the application.

Check the appropriate boxes and provide the information requested.

TYPE OF APPLICATION:

[X] NEW application *(This application is being submitted to the PHS for the first time.)*

[ ] COMPETING CONTINUATION of grant number: _____.
(This application is to extend a grant beyond its original project period.)

[ ] SUPPLEMENT to grant number: _____.
(This application is for additional funds during a funded project period.)

[ ] REVISION of application number: _____.
(This application replaces a prior version of a new, competing continuation or supplemental application.)

[ ] Change of Principal Investigator/Program Director.
Name of former Principal Investigator/Program Director: _____.

ASSURANCES IN CONNECTION WITH:

Civil Rights	Handicapped Individuals	Sex Discrimination	Human Subjects General Assurance *(If applicable)*	Laboratory Animals *(If applicable)*
[X] Filed	[X] Filed	[X] Filed	[ ] Filed	[ ] Filed
[ ] Not filed	[ ] Not filed	[ ] Not filed	[ ] Not filed	[ ] Not filed

INDIRECT COSTS:

Indicate the applicant organization's most recent indirect cost rate established with the appropriate DHEW Regional Office. If the applicant organization is in the process of initially developing or renegotiating a rate, or has established a rate with another Federal agency, it should, immediately upon notification that an award will be made, develop a tentative indirect cost rate proposal based on its most recently completed fiscal year in accordance with the principles set forth in the pertinent *DHEW Guide for Establishing Indirect Cost Rates*, and submit it to the appropriate DHEW Regional Office. Indirect costs will not be paid on foreign grants, construction grants, and grants to individuals, and usually not on grants in support of conferences.

[ ] DHEW Agreement Dated: March 3, 1980.

_____ % Salary and Wages or 65 % Total Direct Costs.

Is this an off-site or other special rate, or is more than one rate involved? [ ] YES [X] NO

Explanation: _____

[ ] DHEW Agreement being negotiated with _____ Regional Office.

[ ] No DHEW Agreement, but rate established with _____. Date _____.

[ ] No Indirect Costs Requested.

A Proposal to Examine

Television's Contribution to Health Images and Practices

George Gerbner, Larry Gross
Michael Morgan, and Nancy Signorielli

Annenberg School of Communications
University of Pennsylvania

November, 1980

submitted to:

National Center for Health Services Research
National Institutes of Health

SPECIFIC AIMS

The recently published volume Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention (1979) called for a reordering of our health priorities. Perhaps the most significant feature of the report, and the basis for new priorities, was the the finding that culturally sustained behavioral and lifestyle factors account for as much as half of U.S. mortality. By comparison, only 10 percent of mortality could be attributed to inadequacies in health care.

Cultural and behavioral research is, therefore, the new frontier of health promotion and the new high priority need in disease prevention. We propose to conduct such research in a central sector of the cultural and behavioral front: television and its contribution to health and safety related habits.

Specifically, we propose to investigate the representation of eating, drinking, nutrition, health and safety on television and to assess the consequences of that portrayal on public images and practices of healthy lifestyles. This research will consist of two interrelated phases: (1) "message system analysis" to isolate images of eating, drinking, nutrition, health and safety in samples of prime-time and weekend-daytime network dramatic programs and commercial messages and (2) "cultivation analysis" investigating if these images cultivate viewers' conceptions and habits of health and safety. That is, the research will reveal how food, nutrition, health and safety are portrayed in television and will assess the impact of these portrayals on people's beliefs and expectations about their own and their families' practices relating to health and safety.

The proposed work will draw upon existing data bases in our data archives, search for and use other data bases for secondary analysis, and generate new data, in order to uncover television's contribution in this area of crucial relevance to the personal and social context of life in the United States.

Our work thus far has revealed that television makes significant contributions to viewers' conceptions of many facets of social reality (Gerbner, et al., 1980). The proposed research will expand and elaborate upon these findings. We will use message system analysis to isolate in specific detail how these things are portrayed (for example, who eats/drinks, what they eat/drink, how these foods rate nutritionally, whether characters have healthy or unhealthy lifestyles) and will use these results to assess whether those who spend more time in the television world (the heavy viewers, holding other factors constant) are more likely to have views, expectations, or actual lifestyles that reflect these images.

The proposed research will be conducted over a three year period. The first year and a half will focus on new message system analysis data collection while the remainder of the grant period will include data analysis, interpretation and the development, execution and analysis of a cultivation study relating to healthy lifestyles and environmental conditions.

SIGNIFICANCE

While television is only one of many factors which influence people, it may well be the single most common and pervasive source of certain conceptions and actions which promote unhealthy lifestyles for large segments of the population. Yet its possible influence on health remains virtually unknown.

It is worth differentiating between possible consequences of regular exposure to the messages embedded in the content of television programs, on the one hand, and potential effects of the physical activity of watching television per se, on the other. For example, the very act of watching television may well provide a means of relaxing and "escaping" from the stress of everyday life -- a primary "barrier" to good health (General Mills, 1979). At the same time, heavy viewing in and of itself may help generate and maintain a more sedentary lifestyle, and thereby reduce the tendency to exercise.

While such outcomes may be real "effects" of television, they are of secondary concern to the proposed research. Our primary goal is to investigate the contribution made by television's messages -- the behaviors demonstrated and values expressed -- to viewers' perspectives and actions.

Recent research has also revealed how lack of knowledge and inappropriate attitudes can represent severe impediments to the acquisition and maintenance of good health (General Mills, 1979). Specifically, the General Mills study notes a variety of factors which underlie Americans' attitudes and behaviors about health. We believe that television may represent a rich but unrecognized source of information about many of these factors, including

> Denial and unwillingness to believe that catastrophic illness could attack one's own immediate families
>
> Confusion about what are and what are not good health practices and where emphasis should be placed
>
> The increasing tendency for families to eat in shifts, to go off to fast food restaurants, to snack between meals...

In addition, the General Mills study found consistent evidence that certain groups, such as low-income families, minorities, and the elderly experience substantially greater difficulty in achieving good health care and following healthy routines. Most of these groups are likely to watch more television, so the impact television may have on them may be of special importance.

The proposed research is a continuation and extension of our ongoing research project, Cultural Indicators, which has been studying trends in the content of dramatic television programs and viewer conceptions of social reality since 1967-68. Our prior and ongoing studies* have established a

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* supported by the Surgeon General's Scientific Advisory Committee on Television and Social Behavior, the National Institute of Mental Health, the American Medical Association, the Administration on Aging, and other agencies.

ten year data base and have demonstrated the feasibility of this type of research.

Television, through the illusory naturalism of its drama and the sheer masses of viewers it attracts day in and day out, has tremendous potential impact on people's attitudes and behaviors about nutrition, health, and safety. As we discuss below, eating and drinking appear with great frequency; seat belts do not seem to exist in the world of television drama; and much television may cultivate values which are powerful barriers to healthy lifestyles.

Most of the work concerning television's potential to influence health behavior has focused on children's commercials, and the tendency for these commercials to promote unhealthy nutritional practices was well-documented during the middle 1970's. An analysis of 7515 commercials conducted by the Council on Children, Media, and Merchandising (cited in Mauro and Feins, 1976) found that almost two-thirds of the food products advertised to children contain sugar, while about one percent of the food commercials were for meats, vegetables, or cheese. Moreover, none featured milk, eggs, or vegetable juices.

Masover and Stanler (see Mauro and Feins, 1976) analyzed a week of commercials for the U.S. Senate Select Committee on Nutrition and Human Needs and found that 70 percent of food ads promote foods high in fats, cholesterol, sugar, or salt. Three percent were for fruits and vegetables, but no commercials were devoted to fresh vegetables, and less than 1 percent were for fresh fruit and juices.

Kaufman (1980) found that 30 percent of 108 commercials aired in a small sample of prime-time dramatic programs had to do with human food. Kaufman also found that food was seen, eaten or discussed two or three times in each of these 20 half-hour segments of dramatic programming. Moreover, in these programs, food was usually part of a social scene -- characters snacked often, were happy when eating, and rarely ate alone. Thus, on television, as often happens in real life, food was not used to satisfy hunger, but as a social or emotional tool.

Finally, Kaufman found that even those television characters (in programs and commercials) who ate many sweets and non-nutritious foods were usually svelte. Men were slightly more likely to be overweight than women while children and young adults were never portrayed as overweight. And thin and average characters were much more likely to be associated with positive personal and social characteristics such as popularity, intelligence, and attractiveness.

A number of studies revealed that drinking alcoholic beverages appears quite frequently in dramatic television programs. Hanneman and McEwen (1974) found that alcohol appeared between 1.3 and 1.5 times in each hour of entertainment programming aired during March and November of 1973. And, a survey conducted by the Christian Science Monitor in 1975 revealed that, over a two month period, 80 percent of the regular prime-time programs depicted scenes involving alcohol (Dillin, 1975). Greenberg et al. (1980) also found that alcohol appears quite frequently -- one or two incidents per hour -- in two samples of prime-time fictional programs. Finally, drinking is also quite prevalent on daytime serials. Garlington (1977) found that the typical

daytime serial averaged 2.99 instances of drinking an alcoholic beverage (about .142 drinks per minute) and about 2.60 incidents of drinking soda (.124 per minute).

There are also some tentative but suggestive indications that television's portrayal of health matters may contribute to the public's health-related knowledge and behaviors. Leaman (1973) studied 105 fourth and seventh graders in northeastern Pennsylvania, and found that those who watched more television had lower levels of nutritional knowledge. Moreover, the nutritional value of the children's diets also varied inversely with amount of television viewing.

Other, more indirect, evidence suggests that unhealthy practices may accompany greater immersion and involvement with television. The above cited General Mills study on "Family Health in an Era of Stress" (1979) revealed that "television programs" were the second most-cited source for health information. Not surprisingly, "doctors and dentists" were first. More importantly, those who chose television programs (versus those who did not) were significantly more likely to be categorized as "complacent" (versus "concerned") on health attitudes; as holding "old" (versus "new") health values; as being a "non-exerciser" on physical fitness; and as being "poorly informed" (versus well or somewhat informed) in terms of health information.

These data cannot support the argument that television contributes to poor health behavior and less awareness of health information (although they are consistent with such a notion). But they do suggest that those who seek such information from television are not among the more health-minded segments of the population.

Other surveys provide similar information. A 1979 study conducted by the Roper Organization for Virginia Slims revealed support for the concern that heavy viewing may cultivate "laissez-faire" outlooks and behaviors with regard to eating, diet and nutrition. We have found that those who watch more television in this survey are significantly more likely to report "I'm not concerned about weight, I eat and drink whatever I want, whenever I want."

At the same time, data from the NORC General Social Surveys of 1975, 1977 and 1978, show that amount of viewing is negatively related to the degree of satisfaction respondents report deriving from "your health and physical condition." Our analyses show that, in almost all subgroups, those who watch more television are significantly less likely to say that they get a very great deal of satisfaction from their health. Importantly, controlling for respondents' actual state of health does not eliminate the significance of this association (although it is reduced and does produce wide baseline differences).

Thus a variety of findings, though often preliminary or indirect, lend credence to the notion that television may have a considerable impact upon the public's images, knowledge, and actions concerning health. Television programs are frequently-cited sources of health information; those who choose them, and those who watch more television, seem nonchalant and complacent about their well-being, and greater viewing goes with getting less satisfaction from one's health. In addition, the very act of watching television may generate behaviors with clear health implications, such as smoking and eating (Gerbner, et al., 1980e).

All this, we believe, points to the need for much fuller and deeper understanding of the implicit and explicit messages television conveys about health, safety, and nutrition.

George Gerbner
560-26-1969

PRELIMINARY STUDIES

While our ongoing research project, Cultural Indicators, has focused upon a fairly large number of topics, we have only recently -- and not at all extensively -- examined the presence of nutritional and safety-related issues in television. We have, however, tracked the presence of alcohol and drinking in dramatic programs and found that over the past 13 years, about half of all prime-time programs and about 3 percent of weekend-daytime programs make some reference to alcohol or show characters drinking wine, beer or hard liquor (Gerbner, et al., 1980a).

We have also recently completed a small pilot study (Gerbner, et al., 1980e) to examine the portrayal of eating and/or drinking in a week-long sample of fall 1979 prime-time and weekend-daytime network dramatic programming.

In this pilot study instances of eating and/or drinking were recorded in two ways -- (1) each time they occurred in the program and (2) each time a major character exhibited these behaviors. These instances included actual eating and/or drinking as well as references to food and/or drink. For example, a character saying "I'm hungry" or I'm thirsty" was coded as an instance of eating or drinking. We did not, however, code whether or not each and every character ate and/or drank. We also coded whether or not a seat belt was ever used by the character.

Since this pilot project was only conducted on a one week sample of dramatic programming, the number of cases is quite small. Thus, the results of some of the analyses should be viewed with caution. This study also does not give any information about trends in the portrayal of food and/or drinking over time.

As Kaufman (1980) found in her sample of 20 prime-time programs, our week-long sample of fall 1979 network dramatic television programming reveals that eating and drinking appear quite often. There were 84 instances of eating and/or drinking in the 62 children's programs included in the 1979 sample (1.35 episodes per program, or 3.75 per hour) and 554 eating and drinking episodes in the 64 prime-time programs (8.67 times per program, or 9.13 per hour). In prime time there are fewer instances of eating and drinking in situation comedies (5.68 incidents per program) than in non-situation comedies (9.86 per program). Moreover, each major character who ate or drank did so an average of 2.58 times per prime-time program and .55 times per weekend-daytime program. We do not know, however, what percent of all major characters actually eat and/or drink or what they specifically eat.

Eating and Drinking in Prime-Time Programs

More than six out of ten eating/drinking episodes in prime-time programs involve eating. About four out of ten eating episodes are meals and less than a quarter are snacks. Drinking appears about the same number of times as eating -- in about six out of ten episodes. Alcoholic beverages appear quite frequently -- in almost a quarter of all prime-time episodes (19.2

percent of situation comedy episodes and 26.9 percent of non-situation comedy episodes). The next most prevelant beverages are coffee or tea (18.8 percent) while milk and soda appear infrequently -- milk in only 2.5 percent and soda in 2.7 percent of the episodes.

Eating and drinking in prime time is quite unlikely to be a solitary activity -- only one in ten episodes show characters eating alone. Most eating and/or drinking takes place with other people, but not family members. Less than one in five instances of eating and/or drinking involved family members. Eating and drinking also do not often occur at home.

Finally, nutritional concerns are almost totally absent. Nutrition was mentioned in only 1.7 percent of these episodes; it appeared in one situation comedy and in seven non-situation comedies.

This pilot study also revealed that eating episodes are equally likely to show men and women eating meals or snacks -- about a third of the episodes show them eating meals and less than a quarter show them eating snacks. Men and women do differ, however, in the beverages they drink. While men are more likely to be in episodes with hard liquor, men and women are equally likely to be in episodes showing beer or wine.

We also find that episodes with children and adolescents in prime time drama are much more likely to show them eating snacks than meals.* Snacks -- usually candy -- are eaten in about six out of ten of the episodes with children. Boys and girls differ just a little -- the episodes with girls are evenly split between meals and snacks while the boys show a two-thirds to one-third split. As characters get older they are less likely to be shown eating snacks and episodes with young adults are quite likely to show them eating meals. We also find that alcoholic beverages are most often drunk in episodes with settled adults, and that these men are more likely to drink hard liquor while both middle aged men and women drink beer and wine.

As we have seen most eating and/drinking is done with other characters but not necessarily family members. Episodes with women and/or children are, however, a little more likely to show them eating with family members. Episodes with young adults, especially young women, do not usually involve the family. The greatest differences between men and women are found for settled adults. About two-thirds of the episodes with middle-aged men show the men eating or drinking with characters who are not part of their families; less than half of the episodes with women show them <u>not</u> eating with the family. One the other hand, only 15 percent of the episodes with men show them eating with family members, while women eat with the family in over a third of the episodes.

Finally, as Kaufman found most major characters in these episodes are thin or normal in build -- only 9.2 percent of the episodes had an overweight or obese character. And, again, men were a little more likely to be overweight.

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* The number of cases is quite small so the results should be viewed cautiously.

Eating and Drinking in Weekend-Daytime Programs

Eating is much more prevalent than drinking in children's programs. This pilot project revealed that about 80 percent of the eating/drinking episodes in weekend-daytime programs involve food and more than four out of ten are meal related. The rest of these episodes are snacks and feature many different types of foods (candy, cake, fruit, etc.).

Drinking occurs infrequently -- almost three quarters of the episodes do not involve any drinking. When drinking does appear, however, several beverages are featured: coffee or tea, soda, and beer or wine. Milk, however, is never drunk in children's programs nor is hard liquor.

Since home and family are relatively unimportant in children's programming (Gerbner, et al., 1980c) it is not surprising that most eating/drinking episodes do not take place in the home. Moreover, the majority of those that do take place at home are not found in actual "dining" scenes. Eating and drinking takes place in restaurants, "on-the-go," at picnics, and in a variety of "other" settings.

As in prime time most eating and drinking takes place with other people, but not with family members -- only 8.4 percent of the incidents involve family members. About a fifth of the incidents show characters eating alone. Finally, nutrition is virutally never mentioned -- it appeared in only one weekend-daytime eating/drinking episode.

Seat Belt Usage

Although many characters are seen driving or riding in cars in prime-time and weekend-daytime dramatic programming, characters are rarely, if ever, shown using a seat belt. In this pilot project we found only one instance where a character actually used a seat belt. But this episode was very a-typical. Briefly, the seat belt was used in a program in which the characters -- practically all young people -- spent a considerable amount of time riding around in a dune buggy. They usually did not use seat belts and several scenes showed some of the characters standing up or kneeling backwards in the car while it was moving. In this program, only one very short scene portrayed two of the youngsters using seat belts. But, this was while they were driving very sedately. And, the more "macho" male characters in this program did not ever use seat belts.

The results of our pilot study thus reveal that while food abounds in television drama, characters seem to remain thin and beautiful. Moreover, characters in prime-time and weekend-daytime drama do not use food wisely or appear to be concerned with nutritional issues. Food is often seen as part of a social scene -- characters eat with other characters, not because they are hungry but to serve social or emotional needs. Food is eaten more or less as something to do. Characters eat meals, sometimes at home, but rarely with their families and rarely while actually dining or in ways that are generally known to be conducive to good health. Characters, especially children, are quite likely to eat snacks, and usually unhealthy snacks. They are also likely to drink alcoholic beverages and coffee or tea but not

healthy beverages such as milk. And on a final note, although cars are very prevalent in dramatic programming, characters practically never use seat belts. Television thus not only appears to condone a very unsafe driving practice, but also promotes poor nutritional habits.

This discussion and study however, only brushes the surface of an extremely important area of investigation. We do not yet know which characters eat or drink, why they eat, or what they eat. Nor do we know who is thin, who is fat and whether those characters who are likely to eat are fat or thin. Moreover, we do not know whether these images have changed over the years and if so, how they are changed. These and other questions must be answered before we can fully assess how these images are reflected in people's conceptions of nutrition and other issues relating to their health and safety.

METHODS OF PROCEDURE

As noted above the proposed project consists of two separate but interrelated phases -- (1) message system analysis -- a content analysis focusing upon the image of eating, drinking, nutrition, health and safety (i.e., basic lifestyles) in TV drama and commercials and (2) cultivation analysis that will serve to uncover television's contributions to people's conceptions of these issues.

Message System Analysis

This research paradigm begins with message system analysis, a flexible tool for making orderly, reliable, cumulative observations of programming content. Message system analysis is designed to investigate the aggregate and collective premises defining life in representative samples of mass-produced symbolic material. This analysis rests upon the reliable determination of unambiguously perceived elements of communications. Our existing data base and the data we propose to collect do not reflect what a particular individual sees on any particular evening but what large communities absorb over long periods of time. Moreover, we do not attempt to interpret individual programs, networks, or productions nor draw conclusions about artistic merit or the ability to "sell" products. The analysis isolates the patterns and symbolic structures that exist in the samples. The purpose of this particular message system analysis will be to provide systematic, cumulative, and objective observations of how people live - what they eat, drink, how they "take care of themselves" in the world of television. The analysis and what it yields is somewhat like the view one gets when flying over one's own neighborhood; the territory is familiar but the patterns are different and are seen in a broader context.*

The proposed message system analysis will be conducted on two types of television fare: dramatic programs and the commercials embedded in these programs. We will conduct an in-depth analysis of the portrayal of eating, drinking, nutrition, health and safety in programs aired between 1969 and 1979. It will be conducted on all programs in our samples of prime-time and weekend-daytime programs -- 935 prime-time programs and 668 weekend-daytime programs. The analysis will focus upon the program as a whole and the characters who populate these programs. When additional samples of programming are available (the 1980 and 1981 seasons) they will be incorporated into the analysis. We will also conduct a similar analysis of food-related commercials. The commercials will be those aired between 1977 and 1979 and those in additional samples.

In both message system analyses the principal aspects of methodology are the recording instrument, the sample, units of analysis, the training of coders, the coding procedures, the assessment of the reliability of the

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* A full description of the analytical framework can be found in Gerbner, 1969.

observations, and data analysis techniques.

Recording Instrument

The first step of the proposed research will be to finalize and pilot test the recording instrument. Two instruments will be tested -- one for dramatic programs and one for commercials. The instruments will have a core of common items as well as some suited to each source material.

The program instrument will have three sections -- one focusing upon the entire program, one for the characters who populate these programs and commercials, and one focusing upon the discrete episodes of eating and drinking.

This proposed recording instrument (see Appendix I) is an extensive and improved version of the one used in our previously described pilot study. This study revealed some problematic areas and some very important gaps, in particular the lack of information about the entire character population.

Within the entire program we will examine what kinds of food are eaten and beverages drunk, whether there is any concern with health and/or nutrition, and whether there is any driving and/or seat belt use, and whether any other mode of transportation is shown. We will also include items dealing with preventive medicine - do we see any exercise, people going for check-ups (medical/dental).

The foods that appear in these programs and commercials will be rated according to the Jacobson System (Leaman, 1975) -- a food rating system that assigns a single numerical value for "an average serving" of a food product. In brief, foods that are "good for you" have positive scores (e.g. milk = 39) while foods that are "bad for you" have negative scores (e.g. soda = -92). The numerical value of each food is determined by a formula that assigns credits based upon content of iron and calcium; vitamins A, B-1, B-2, niacin, and C; protein (adjusted for quality); naturally occurring carbohydrates, fiber; unsaturated fats; and trace minerals. Equal credit is added if a food has 100 percent of the adult recommended dietary allowance (RDA) of the five vitamins, two minerals and protein. Foods lose credit if they contain more than 20 percent fat; have added sugar, corn syrup; or contain saturated fats and cholesterol.*

The system does not subtract points from fruits and other foods containing naturally occurring sugar because Jacobson contends that the amount of sugar in unprocessed foods is quite small. Deductions are made, however, for

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* Because of the uncertainty of the role of lipids in heart disease, they are difficult to assess. Nevertheless, the cholesterol factor affects only the rating of eggs. Foods that contain equal amount of saturated, mono-saturated, and poly-unsaturated fats neither gain nor lose points from the fat-term of the formula. An excess of poly-unsaturates adds points while an excess of saturated fats subtracts points.

processed foods to which sugar has been added.

The character section will consist of a large number of binary variables -- that is, items where the coders will denote the presence of absence of specific behaviors. Binary variables will be used because it is more than likely that eating and drinking -- when they occur -- are not one-shot deals. That is, a character is likely to eat and/or drink more than one time during the course of a program. These items will focus upon specific foods and beverages, where, when and with whom eating occurs, character's weight and general concern with the state of their health, the use of seat belts and mass transportation.

Finally, each instance of eating or drinking in the program will be coded. In addition to the items coded as part of our pilot project, we will also determine which characters are involved in these episodes.

The instrument for human food commercials will be somewhat similar to that for programs. It will, however, not include the separate section focusing upon individual instances of eating and/or drinking. Among the items will be some to reveal whether the commercial characters actually consume the foods/beverages they are "selling" and if so, whether they indicate that it "tastes" good. Nutritional issues will be of special importance -- we will be particularly interested in any claims made about the product.

These two recording instruments will be as comparable as possible. Thus, we will be able to determine if the lessons, rules of life and lifestyles portrayed in commercials are similar to those found in dramatic programming.

Data Collection

All of the new data collected with these instruments will be added to existing data for programs/commercials and characters. Thus, this data collection phase will be extremely efficient and only entail collection of data relating specifically to eating, drinking, nutrition, health and safety.

We will first review and revise these instruments -- that is, make necessary additions and deletions. We will then conduct another extensive pilot test by having our staff code 15 programs and 15 commercials. All problems encountered will be discussed, resolved, and the instruments revised accordingly. The pilot testing phase will also include development of the necessary and appropriate training materials. We will then hire and train coders and complete all data collection.

The Samples

The samples will consist of all prime-time and weekend-daytime programs and commercials in our video-tape archives as well as samples for the 1980 and 1981 television seasons. Dramatic programs date from 1969, commercials from 1977. The time parameters of the sample from which these programs were selected are as follows. Prime-time programs are those aired Monday through

Saturday evenings from 8:00 to 11:00 p.m. EST and on Sunday evenings from 7:00 to 11:00 p.m. EST. Weekend-daytime programs are those aired on Saturday and Sunday from 8:00 a.m. to 2:00 p.m. EST. Each program and commercial in the existing sample has been videotaped, logged, and placed in the video-tape archive. Thirteen samples have been drawn over this 11 year period. Eleven of these samples -- one for each calendar year -- are annual weeks of fall programming. In addition, in 1975 and 1976 (as part of our methodological work on sampling) two week-long spring samples were selected. The new samples will follow the same time parameters.*

We are proposing to use all programs in our existing sample so that we can add to existing trend analyses and make comparisons with other aspects of television content. The size of the yearly sample -- one week of programming -- has been subjected to a number of methodological studies. This has revealed that the week long sample is adequate and that in regard to dramatic programming, the solid-week sample is at least as generalizable to a year's programming as larger randomly drawn samples for basic sample dimensions -- network, program format (television play, feature film, or cartoon), program type (action, western, etc.), and tone (humorous, serious) (Eleey, 1969).

Moreover, analyses of variance conducted on violence-related content data collected over seven consecutive weeks of fall 1976 prime-time dramatic programming revealed no significant differences by week for dependent measures such as the number of violent actions, the duration of violence and the significance of violence. There were, however, significant main-effects for program-related variables including network, type of program, time of broadcast, new or continued program and so on; but there were no significant interactions by sample week (Signorielli, in press).

These studies thus indicate that while a larger sample may increase precision, our past work has shown that, given our operational definitions and multidimensional measures that are sensitive to a variety of significant aspects of television content, the one-week sample yields remarkably stable results with high cost-efficiency. And, given that we are exercising the same type of care and will be concerned with developing multidimensional measures in our assessment and reporting of this topic, we feel reasonably sure that the one-week samples will be appropriate and yield stable results.

Units of Analysis

There are four basic units of analysis that will be examined in this study: individual fictional stories, individual commercials, characters, and discrete episodes of eating or drinking.

The fictional story unit may be a play produced for television (including situation comedies), a feature film or a made-for-television movie broadcast during the sample period, or a cartoon story (of which there may be one or

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* The strike by the Screen Actors Guild may necessitate a Spring 1981 rather than a Fall 1980 sample.

more in a single program as usually advertised in newspaper and magazine television listings). The corresponding unit of analysis for the sample of commercials is an advertisement for a product or a public service announcement. Advertisements by the network for its own programming (that is, promotion of specific programs that will be aired later) are not analyzed. A specific commercial will be double-coded (for the reliability analysis) only once even though it probably will be aired more than one time. The multiple airings will be measured, however, by calculating a weight factor for each commercial. This weight factor is the number of time the commercial is aired during the sample week. Thus, we will be able to keep track of the relative importance, in terms of number of appearances, of each commercial.

The character unit of analysis will be examined in both the dramatic programs (fictional story unit) and commercials. We will look at major characters (those portraying roles essential to the plot) and minor characters (all other speaking roles).

An important unit in the proposed research is that of the eating-drinking episodes. We will examine each and every eating/drinking episode that appears within a dramatic program or commercial. We must isolate the episode as a separate unit because it is quite possible that a program or commercial might feature more than one episode -- and these episodes will probably involve different people, foods, drinks and situations. These episodes will include actual eating and/or drinking as well as references to food and/or drink. For example, a character saying "I'm hungry" or "I'm thirsty" will be coded as a discrete episode.

Coding and Training Procedures

In message system analysis coders are trained to do a specialized kind of observation. They must reliably make the discrimination required by the recording instrument and record them in specific form. Coders must focus only upon what is presented explicitly in the material they are coding and not how it might be judged by a critical viewer. Coders are instructed to be able to point to specific evidence in the program and commercial for each coding decision they make. They cannot fall back on or use their prior knowledge of specific programs or commercials. Their task is to generate the data for the subsequent analysis that will permit interpretation of the common message elements and structures that are available to the public of diverse viewers.

For the full analysis of these samples, a coding staff of between 16 and 20 coders will be recruited and hired to work for a maximum of 20 to 25 hours per week. The training period will require 5 to 6 weeks of instruction and testing. Introductory sessions will be devoted to item-by-item discussions of the recording instruments. The trainee groups will be subsequently split into randomly assigned coding teams of two each, and all coder-pairs will begin a training period in which they will view and code ten specially selected commercials and ten dramatic programs that have been viewed and coded by the supervisory staff. Training for programs and commercials will be conducted separately, but we hope the same coders will be involved in each

analysis. Each coder-pair will work independently of all other pairs, and will return a joint coding for each commercial and program. Coder-pairs will then meet with members of our supervisory staff and discuss the difficulties encountered in the training exercise. Coders will continue to code training programs and commercials and consult with our staff until all problems are resolved.

The data generated by the coder-pairs on the training programs and commercials will be subjected to extensive reliability analysis. On the basis of these results, instructions and variables will be further discussed and if necessary, revised. Moreover idiosyncratic coder-pairs will be isolated. The coder-pairs who survive this testing process will proceed to analyze the samples of programs and commercials.

During both the training and data-collection phases of the project, the coder-pairs will be able to monitor the assigned videotape of the program or commercial as often as necessary. A subsample of the programs and commercials will be coded independently by two separate coder-pairs to provide double-coded data for the final reliability analysis.

Assessment of Reliability

Reliability measures are designed to ascertain the degree to which the recorded data reflect the properties of the material being studied and not the contamination of observer bias or of instrument ambiguity. Theoretically, both types of contamination are correctable, either by refining the instrument or intensifying coder training; or, as a last resort, by eliminating the unsalvageable variable or dismissing the incorrigible coder. Measures of reliability thus serve two functions: as diagnostic tools in the confirmation of the recording process, and as final evaluators of the accuracy of a phenomenon's representation in the actual recorded data.

Our reliability assessment requires the calculation of an agreement coefficient for each content item in the recording instrument. Five computational formulae are currently available for calculating these coefficients. The variations are distinguished by a difference function, the form of which depends upon the scale type of the particular variable being analyzed. Except for their respective scale-appropriate sensitivity to deviations from perfect agreement, the coefficients make the same basic assumptions as the prototype for nominal scales devised by Scott (1955). Thus, in the case of the binary variable, all formulae yield identical results (Krippendorff, 1970).

The agreement coefficients range from +1.00 to -1.00, where +1.00 indicates perfect agreement and .00 is agreement due solely to chance. A coefficient of .50 indicates that performance is 50 percent above the level expected by chance. We have defined acceptable levels of reliability as follows. Items with agreement coefficients of .8 or above are considered as unconditionally reliable, items with coefficients between .6 and .8 are accepted conditionally, while items whose coefficients fall between .5 and .6 are used with extreme caution. Any item whose agreement coefficient is less than .5 will be excluded from any subsequent analysis and will be either revised or discarded before the next phase of message analysis data collection.

Reliability is thus ascertained by a statistical procedure that measures the agreement of trained analysts (beyond chance agreement) for each content item. If one were to substitute the perceptions and impressions of casual observers, no matter how sophisticated, the value of the investigation would be reduced, and its purpose confounded. Only an objective analysis of unambiguous message elements, and their separation from personal impressions left by unidentified clues, can provide the basis for isolating and understanding stable images in symbolic materials.

The present proposal calls for a separate reliability analysis for each of the samples of commercials and dramatic programs. Approximately one-third of the programs and commercials in these samples will be coded by two independent pairs of coders and this double corpus of data will be subjected to the reliability analysis. Only those items meeting the acceptable levels (as stated above) will be included in the final analyses and reports.

The Data and Data Analysis Techniques

The final set of data will be compiled from the double-coded reliability data base by randomly selecting one of the two codings for each program, commercial, and eating/drinking episode. As a last check against deviant coding, and before the final data selection, reliability measures will be computed for each coder-pair. This procedure will help identify problem coder-pairs who may not have been screened out in the training and pre-test phases. In such an instance, the data recorded by the questionable pair will be excluded from the final selection.

The final sample of data will be subjected to an extensive data analysis. Statistical techniques will primarily include multi-dimensional cross-tabulations. Association procedures, such as contingency and cluster analysis, will also be used to examine constellations of certain types of content data such as themes and binary characterization attributes. Where possible we will devise multi-dimensional indices composed of a number of content items relating to a particular topic. These measures will enable us to take a number of different aspects of the portrayal of various topics into account; for example, how the topic is portrayed in the program, in characterizations, and so on.

Finally we will issue a report of the basic dimensions of the portrayal of eating, drinking, nutrition, health and safety in commercials and programs.

Cultivation Analysis

Questions about the influence of a broad medium of enculturation are very different from the usual research questions about individual messages, campaigns, or programs. Thus, the traditional procedures used in media effects research must be reconceptualized and modified to be appropriate for the study of television's effects.

First, we cannot presume consequences, as conventional research paradigms

often do, without prior investigations of content. Nor can the study of content be limited to isolated elements (such as news, commercials, particular programs) taken out of context, or to the selections made by individual viewers.

We have noted that the world of television is an aggregate system of stories and images. And, only a system-wide analysis of these messages (as achieved through our message analysis) can isolate the symbolic world which structures common assumptions and definitions for viewers and provides the basis for interaction (though not necessarily agreement) among large and heterogeneous communities. The system as a whole plays a major role in setting the agenda of issues that people will agree or disagree about; it shapes the most pervasive norms and cultivates the dominant perspectives of society.

Although a conventional research assumption is that the experiment is the most powerful method, and that change (in attitudes, opinions, likes-dislikes, etc., toward or conveyed by "variable X") is the most significant outcome to measure, experiments are not the best way to study television's long-range effects. In the ideal experiment, subjects are exposed to X and the researcher assesses salient aspects of the receivers both before and after exposure, and compares the change, if any, to data obtained from a control group (identical in all relevant ways to the experimental group) who have not received X. No change or no difference means no effect.

When X is television, however, we must turn this paradigm around: stability (or even resistance to change) may be a significant outcome of viewing. Moreover, if nearly everyone "lives" to some extent in the world of television, clearly we cannot find unexposed (control) groups who would be identical in all important respects to the viewers. Finally, experimental designs are not the most appropriate way to study the effects of television because they are not comparable to people's day-to-day viewing habits, either in content or in context.

Much of the research on media effects has focused on the observation and measurement of behavior which occurs after a viewer has seen a particular program or even isolated scenes from programs. All such studies, no matter how clean the design and clear the results, are of limited value because they ignore a fundamental fact: the world of television drama consists of a complex and integrated system of characters, events, actions and relationships whose effects cannot be measured with regard to any single element or program seen in isolation.

Neither can we assume that television cultivates conceptions easily distinguishable from those of other major entertainment media. (But we cannot emphasize too strongly the historically novel role of television in standardizing and providing the common norms for what had before been more parochial, local, and selective cultural patterns.) We assume, therefore, that television's standardizing and legitimizing influence comes largely from its ability to streamline, amplify, ritualize, and spread into hiterto isolated or protected subcultures, homes, nooks, and crannies of the land the conventional capsules of mass produced information and entertainment. The effects of television are most likely to be those of the centralization and efficient organization and popularization of those elements of mainstream culture that

best support the medium's institutional mission.

Cultivation analysis begins with and builds upon the patterns found in the world of television -- its dramatic programming and its commercial messages. The common message system composing that world presents a coherent image of life and society as well as images of various groups of people. How are these images reflected in the views, expectations, definitions, interpretations, and values held by its audiences? Does exposure to the symbolic world of television cultivate conceptions about the real world among viewers?

The basic hypothesis underlying cultivation analysis is that heavier viewers of television, those more exposed than lighter viewers to its messages, are more likely to understand social reality in terms of the "facts of life" presented on television. To investigate this idea we design a series of questions about social reality. In these questions we examine a specific topic by juxtaposing the findings of our message system analyses with the findings of independent and/or direct observations, such as U.S. Census figures, about real life.

For example, we have found that television drama grossly underrepresents older people. Those over 65, comprising 11 percent of the U.S. population (and growing), make up only 2.3 percent of the fictional population. Moreover, more than half of the character population is between 25 and 45 -- a pattern that more accurately reflects the real-life distribution of income by age.

This message of relative invisibility may be the most potent of all television's messages about aging. We examined this concept by constructing an index from responses to statements in the National Council on Aging's "Myth and Reality of Aging" survey (conducted by Louis Harris and Associates in 1974) asserting that the number of older people, the health of older people and the longevity of older people are declining.* A high score on this index reflected the television view of the world -- a generalized belief that older people represent a diminishing rather than a growing segment of American society (Gerbner, et al., 1980b). Our analysis of this index revealed that heavy viewers are significantly more likely than light viewers to believe that older people are a vanishing breed.

Our message analysis also has consistently revealed that women "age" faster than men on television; that is, compared to males of the same chronological age, female characters are more likely to be portrayed as "old." The implication of this finding was examined by analyzing responses to questions (asked of adults in the NCOA survey and teenagers in our New Jersey sample) about when (at what age) a man/woman becomes old. Again, we found that heavy viewers, especially among teenagers, believe that old age -- particularly for women -- begins relatively early in life.

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* Factor analysis revealed that only a single dimension underlies these variables; they produce a moderate but acceptable alpha of .56 and more than adquately pass a series of validity checks (Gonzalez, 1979).

In sample after sample, and on an increasingly wide variety of topics, we find that heavy viewers are signifcantly more likely to give "television answers" -- responses more congruent with the television image than with the "facts" -- to questions about their conceptions of social reality. We have found substantial evidence that, in addition to conceptions of aging, television cultivates images of fear, danger, mistrust, and alienation (Gerbner, et al., 1978, 1979, 1980d), as well as stereotypes about sex-roles (Signorielli, 1979; Gross and Morgan, in press; Gross and Jeffries-Fox, 1978). The present study seeks to investigate the extent to which television cultivates images, values, and actions regarding health, nutrition, and safety.

Variations in Susceptibility

A fundamental premise of cultivation analysis is that what happens to most people, most of the time, is more important than individual or discrete effects for policy decisions. "Small effects" may be satisfactory where a one percent increase in market share may represent millions of dollars in sales. But the study of how to change behavior and attitudes has neglected the steady cultivation of assumptions and perspectives that gives meaning to all issues, ideas, and actions. That is why we emphasize the common, underlying, and aggregate.

As repeatedly stressed, we are seeking to elucidate aggregate patterns and relationships between amount of viewing and audience conceptions of reality. As part of this analysis, we always implement controls for major demographic variables that may threaten our inferences by causing both heavy viewing and the clusters of outlooks revealed in "television answers." These controls have primarily been used to guard against spuriousness; for the most part, the relationships we observe stand up well under such controls.

Recently, however, we have begun to go further. While the variables we hold constant clearly do not explain the associations, the patterns are not at all identical across subgroups. These conditioning and mediating variables offer considerable theoretical promise for cultivation analysis; by examining between-group differences in terms of factors that may enhance or diminish associations, we can begin to understand which groups, on which issues, are more and less susceptible to the cultivation process.

For example, we have found that younger people are more vulnerable to television's negative portrayals of the elderly, that the negative relationships between television, IQ, and school achievement are stronger for boys, that adult women are more likely than adult men to show evidence of the cultivation of sex-role stereotypes, and that children in less cohesive peer groups (or none at all) show stronger associations between viewing and images of violence.

Our latest published report (Gerbner, et al., 1980d) examined (in some detail) two general processes -- called "mainstreaming" and "resonance" -- which may help explain such variations in cultivation patterns among different groups. Very briefly, "mainstreaming" implies that differences deriving from other influences may tend to disappear among heavy viewers; rather than absolute, across-the-board cultivation, the impact of viewing may be restricted

to those who would not otherwise share a given perspective. "Mainstreaming" thus implies a convergence, a homogenization of outlooks among "otherwise" disparate groups.

"Resonance," on the other hand, occurs when a given feature of the television world is most congruent with the social circumstances of the viewer. In these cases, heavy viewers receive a "double dosage" of messages, and the interaction "resonates" with and amplifies television's impact. For example, the relationship between television viewing and fear of crime is most pronounced among those who life in high crime urban areas -- where the environment is presumably most parallel with the television image. Recent critiques of our work (Doob and Macdonald, 1979; Hughes, 1980; Hirsch, 1980) have neglected to take these important specifications into account.

One goal of the proposed research is to refine these theoreticaly developments in the context of television's impact on health. Issues related to health may be particularly suited to such analyses, given the considerable variance in the public's health behaviors. A great range of systematically different relationships for different groups may be obscured in overall patterns. The cultivation of "mainstream" values and behaviors and the operation of predisposing factors which produce "resonance" may be highly apparent in this area.

Dimensions of Analysis

The statistical analyses that will be performed to test our hypotheses range from the extremely simple to the methodologically sophisticated and complicated. Our simplest analysis involves tabulating the proportion of respondents who give the "television answer" to each question on the basis of television exposure, while controlling for personal and social characteristics. This analysis divides respondents into "heavy," "medium," and "light" television viewers (using as near to an even three-way split as possible) and then compares groups of viewers using two measures -- gamma and what we call the "Cultivation Differential" (CD). The CD is the difference between the percent of heavy viewers who give the television answer and the percent of light viewers who give this answer. The CD thus expresses the difference heavy viewing makes with respect to a particular concept.

Our statistical analysis will begin with examining two- to n-way contingency patterns. This procedure will allow us to assess the general differences in the conceptions and/or behaviors of light, medium and heavy viewers, overall, and for specific subgroups one at a time. And, we will be able to clarify the extent and pervasiveness of an observed relationship and isolate highly susceptible subgroups, as well as provide important information about baseline differences on both independent and dependent measures.

Since crosstabular analyses do not fully guard against the possibility of spuriousness within any given demographic group, we also calculate partial correlations for respondents within specific demographic classifications while simultaneously implementing relevant controls. For example, we examine non-white respondents while simultaneously controlling for their sex, age, education, income, newspaper reading, and so on.

We will then turn to statistical analyses that focus on the functional form of the association and tests for linearity. If we find that the relationship(s) does not manifest significant non-linearity (and it usually will not), we will employ more powerful correlational and regression procedures to evaluate television's independent contribution to beliefs, values, and actions. For example, first-order partial correlations will be used to test for spuriousness and hierarchical regression analysis (with amount of viewing entered after all control variables) will provide estimates of television's independent contribution by revealing whether viewing adds a significant increment to total explained variance.

We will also develop and use indices formed by summing responses to questions related to a specific topic. These indices will be tested for reliability (in terms of unidimensionality and internal homogeneity) to insure that each item actually belongs in the index. These indices will then be subjected to the same type of statistical analyses as individual questions.

When multiple indicators of a specific variable are available, we will set up complex structural equation models of television's influence and explicitly test the model's goodness-of-fit. This technique will provide an estimate of the relationship between true (unmeasured) constructs, measurement error, and residual disturbances in the equations. Other techniques we will employ for specialized analyses include canonical correlation, discriminant analysis, and analysis of covariance.

Samples

Various secondary analysis data bases in our archives contain a number of questions about health images and behaviors. These include questions about smoking, drinking, health satisfaction, and confidence in medicine from the National Opinion Research Corporations's General Social Surveys; questions about eating habits and health concerns from a survey conducted by the Roper Organization for Virginia Slims; and a broad range of questions about older people's health attitudes and concerns from the Louis Harris National Council on Aging's survey on "The Myth and Reality of Aging."

Some preliminary analyses of a few of these questions were presented above. One feature of the proposed study will be to conduct more detailed and complete analyses of these data.

Due to the inherent limitations of secondary analysis -- no available survey contains both a range of items about health images and behaviors and an appropriate television viewing measure -- we propose to collect new survey data designed specifically to reflect the findings of our message system analysis. This survey will be conducted by a professional survey research firm, such as the Opinion Research Corporation, as part of a quarterly caravan survey. We have used this service in the past and find that it is a relatively efficient, reliable, and inexpensive way to collect data from a national probability sample.

Specific Analyses

This section briefly sketches some of the dependent areas to be covered in the survey we will commission to collect new data. The final instrument will include about 20-25 items, including television viewing measures. This list is not exhaustive, and many specific hypotheses must await the completion of our message analysis.

As noted, we approach the question of health as a whole system of interrelated values, attitudes, beliefs, and behaviors. For measurement purposes, however, it is useful to separate the components.

Behavioral Questions. The following are self-reported measures of various health practices. They generally evoke reports of factual information, and are thus not overly prone to such biases as social desirability.

- Not counting housework or what you do on your job, how much physical exercise would you say you get? Do you do some planned physical exercise every day, several times a week, just on weekends, just from time to time, or do you not pay that much attention to it at all?

- For each of the following statements, please tell me whether they are generally "true" or "not true" for you personally

  I basically eat what I like and don't pay a lot of attention to nutrition

  I make it a point to get at least eight hours of sleep a night

  I smoke and have no intention of giving it up

  If I had more time I'd take better care of myself

  I often don't fasten my seat belt in the car

  I often take something to help me sleep

  I'd sooner let the children eat they they want than argue about it

  I wouldn't want my employer to know I was going to a psychiatrist. It might jeopardize my job

  I don't trust a drug product unless I know the brand name

  I probably drink more than I should

  I don't move around or get much exercise at all on my job or around the house

I've tried to quit smoking but I always go back to it

I often need a drink

I find drinking liquor is a good way of relieving tensions

I often take something to calm my nerves

Health Values. These questions represent underlying beliefs and assumptions and perceived motivations. They may be useful as intervening, explanatory mechanisms between television exposure and health behaviors.

- People have a variety of different needs. For each of these statements, please tell me whether this is something for which you feel a strong need, some need, or no real need.

To get ahead financially

To have less stress in my daily life

To be in better physical shape

To be respected by my neighbors

To understand myself better

To get more sleep and rest

To have more time to myself

To have closer ties to my doctor

To be successful and outstanding

To eat better than I do now

To be more attractive physically

To indulge myself from time to time

To fulfill myself as an individual

To escape from the routine of everyday living

To have closer ties with my family

Health Attitudes. Finally, attitudes are an important aspect of health. While attitudes by no means determine behavior in general, attitudes towards health may both help reveal underlying values and have clear behavioral implications.

- Which of these statements comes closer to describing how you feel?

-I'm opposed to all the emphasis on technology. It's responsible for many of the health problems we have today

OR: -I favor more emphasis on technology. It's the only way we will solve our health problems

-It takes too much dedication and discipline to really follow a good health routine

OR: -It's easy to follow a good health routine -- all you need is willingness and determination

- People have many different ideas about health. For each of these statements, please tell me whether you agree strongly, agree somewhat, disagree somewhat, or disagree strongly

  There is still a lot of stigma attached to mental health

  I'm sure that they will come up with a cure for cancer any day now

  You don't get as good medical care at a public health clinic as you do from a private doctor

  Most children's diseases such as polio, measles, etc., have been conquered and there's no need to immunize against them

  Some of the old-fashioned home remedies are more effective than all the new "wonder drugs"

  I'd sooner see a teenager drink liquor than smoke marijuana

  If I had cancer, I'd just as soon the doctor and my family didn't tell me

  It's good to have a tranquilizer in the medicine cabinet in case you need it

  It really bothers me that my children are always asking for the foods they see on TV

  When it comes right down to it, there's nothing much you can do to avoid accidents

- People's ideas about health are changing. Some old ideas are being discarded and new ideas are being added. Do you feel that these days there is too much emphasis, too little emphasis, or just about the right amount of emphasis on:

  People not smoking

  Making sure that every meal is balanced

Not snacking between meals

Taking vitamins to make you healthier

Being thin

Miracle drugs

The importance of eating at home rather than at fast food restaurants

- How much confidence would you say you have in the people running medicine -- a very great deal of confidence, a great deal, only some, or hardly any?

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Appendix I

Recording Instrument for the Analysis of Nutrition, Health and Safety in Television Drama

George Gerbner
560-26-1969

Appendix I

Draft of Nutrition, Health and Safety Recording Instrument

I. The Program

1. Are cars ever driven in program	(0) cannot code (1) yes, no (2) yes, background only (3) yes, foreground - character actually in
2. Seatbelt	(0) cannot code (1) no driving in program (2) driving, no seat belt (3) driving, some seat belt use (4) driving, always use seat belts
3. Mass transportation (buses, airplanes, trains)	(0) cannot code (1) no (2) yes, background only (3) yes, the focus of a scene
4. Type of mass transportation	(0) does not apply (1) bus (2) trolley (3) train - subway (4) train - Amtrak-like (5) plane - small private (6) plane - airliner (7) boat - ferry
5. Exercise: do any of the following appear	(1) walking, normal (2) walking, as exercise (3) jogging (4) active sports, write in (5) exercises
6. Do characters talk of keeping fit, doing exercises	(0) cannot code (1) no (2) yes
7. Do characters talk of needing to lose weight	(0) cannot code (1) no (2) yes
8. Do characters get medical checkups	(0) cannot code (1) no (2) yes

9. Do characters go to the dentist

(0) cannot code
(1) no
(2) yes

10. Is nutrition ever mentioned

(0) cannot code
(1) no
(2) yes

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II. Episodes of Eating/Drinking

Record each instance or mention of eating and/or drinking in the program. Code each occurrence on the following items.

1. Type of food
   - (0) cannot code
   - (1) none
   - (2) meal - breakfast
   - (3) meal - lunch
   - (4) meal - dinner
   - (5) other meal
   - (6) candy
   - (7) cake
   - (8) fruit
   - (9) other snack, write in

2. Type of beverage
   - (0) cannot code
   - (1) none
   - (2) coffee/tea
   - (3) milk
   - (4) soda
   - (5) beer/wine
   - (6) hard liquor
   - (7) other, write in

3. Where consumed
   - (0) cannot code, no eating or drinking
   - (1) home, at a table
   - (2) home, not dining
   - (3) restaurant - full meal
   - (4) restaurant - snack, fast-food, etc.
   - (5) bar, cocktail lounge
   - (6) on the street; walking, etc.
   - (7) in car
   - (8) picnic, beach, seated out-doors
   - (9) other

4. With whom
   - (0) cannot code, no eating or drinking
   - (1) alone
   - (2) alone but in a public place (bar, restaurant)
   - (3) with others, family
   - (4) with others, not family (friends, acquaintances)
   - (5) with others, both family and friends, acquaintances
   - (6) other

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5. Nutrition

(0) cannot code, no eating or drinking
(1) not mentioned
(2) mentioned, not stressed
(3) mentioned, stressed

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III. Major and Minor Characters

Code all of the following variables according to this scheme

(0) no
(1) yes

1. Does character eat or drink any of the following:

soups
red meat
chicken, veal
fish
fruits
vegetables
starches - potato, pasta, rice, bread
sweets - cakes, cookies
candy
salads
other food, write in

coffee-tea
milk
juice
soda
beer/wine
hard liquor
other beverage, write in

2. Does character eat:

meal - breakfast
lunch
dinner
other meal
snack

3. With whom does character eat:

alone
alone, public place
with family
with friends, not family
with family and friends

4. Where does character eat

home, at a table
home, not dining
restaurant - full meal
restaurant - snack, fast-food, etc.
bar, cocktail lounge

Where does character eat continued

on the street, walking, etc.
in a car
picnic, beach, seated outdoors
other, describe

(0) no
(1) yes

5. Character weight

(0) cannot code
(1) character normal
(2) character slightly overweight - chubby
(3) character overweight - obese

6. Does character indicate that he/she should lose some weight

(0) cannot code
(1) no
(2) yes, but does nothing about it
(3) yes, goes on a diet but is unsuccessful
(4) yes, goes on a diet and is successful

7. Does the character show concern with exercise

(0) cannot code
(1) does not talk of keeping fit
(2) talks about keeping fit - nothing
(3) walks
(4) jogs
(5) plays a sport, describe

8. When the character eats, does he/she note being hungry

(0) cannot code
(1) no
(2) yes, mentions it but does not eat
(3) yes, mentions but eats food that is "bad"
(4) yes, mentions and eats food that is "good"
(5) yes, mentions and eats both "good" and "bad" foods

9. Physical checkup

(0) cannot code
(1) no mention
(2) mention, does nothing about it
(3) mentions and gets a checkup

10. Does character show concern with what others are eating

(0) cannot code
(1) no
(2) yes, but does not stop them from eating "bad" foods
(3) yes, and stops them from eating "bad" foods

11. Does character show any concern about nutrition
    (0) cannot code
    (1) no
    (2) yes

12. Does character either drive or ride in a car
    (0) cannot code
    (1) no
    (2) yes, passenger only
    (3) yes, driver only
    (4) yes, driver and passenger

13. Does character ever use a seatbelt
    (0) cannot code
    (1) never seen in a car
    (2) yes, occasionally
    (3) yes, everytime in car

14. Does character ever use any mass transportation
    (0) cannot code
    (1) no
    (2) yes, bus
    (3) yes, train
    (4) yes, plane
    (5) yes, other