

Communication Research

<http://crx.sagepub.com/>

The "Scary World" of the Nonviewer and Other Anomalies : A Reanalysis of Gerbner et al.'s Findings on Cultivation Analysis Part I

Paul M. Hirsch

Communication Research 1980 7: 403

DOI: 10.1177/009365028000700401

The online version of this article can be found at:

<http://crx.sagepub.com/content/7/4/403>

Published by:



<http://www.sagepublications.com>

Additional services and information for *Communication Research* can be found at:

Email Alerts: <http://crx.sagepub.com/cgi/alerts>

Subscriptions: <http://crx.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations: <http://crx.sagepub.com/content/7/4/403.refs.html>

This article critically examines the statistical evidence presented by Gerbner et al. to support their assertion that television-viewing "cultivates" distorted perceptions of the "real world." In Part I, I point out discrepancies in the items, samples, and coding categories employed, and show that when controls are applied simultaneously (rather than singly) there is no linear relationship between amount of viewing and the provision of "television answers." This reanalysis concludes that the "cultivation" hypothesis lacks empirical support and that the very data presented in its support argue strongly for rejecting the assertion that it has any scientific basis in fact.

THE "SCARY WORLD" OF THE NONVIEWER AND OTHER ANOMALIES

A Reanalysis of Gerbner et al.'s Findings on Cultivation Analysis PART I

PAUL M. HIRSCH
University of Chicago

SUMMATIVE INTRODUCTION

This article reports a reanalysis of the NORC data set which Gerbner et al. claim provides much of the empirical support for their "cultivation hypothesis"—that television-viewing inculcates fear, anomia, and a perception by heavy viewers of the world as a "mean" place to live. Although the NORC General Social Survey is publicly available, no one

AUTHOR'S NOTE: *This research was generously supported by a grant from the John and Mary R. Markle Foundation to facilitate dialogue between the social sciences and humanities in the field of mass communication. The research was initiated at the suggestion of Horace Newcomb (1978), an English professor who insisted that findings presented in support of the cultivation hypothesis by the Annenberg group were logically suspect and*

COMMUNICATION RESEARCH, Vol. 7 No. 4, October 1980 403-456
© 1980 Sage Publications, Inc.

independent of the Annenberg School has previously re-analyzed its contents concerning television-viewing and its correlates. The reanalysis finds remarkably little support for the hypothesis. It is especially weakest when nonviewers and extreme viewers are included in the analysis. Over 18 relevant items, *nonviewers* are consistently more fearful, alienated, and favorable to suicide than "light" viewers; extreme viewers are *less* perturbed than heavy viewers. These findings severely undermine the contention that any relationship between TV-viewing and the provision of "television answers" to attitude items is linear or monotonic. Additional findings include: (1) what few bivariate relationships appeared in the analysis by Gerbner et al. are virtually wiped out by the addition of (any two) multiple controls; and (2) at least one previously unreported item from the NORC data set goes directly counter (despite controls) to the cultivation hypothesis. Furthermore—as will be detailed in Part II of this article—(3) the attitudes of people in such victimized categories as blacks, females, and the elderly are independent of their amount of television-viewing; (4) non-demographic variables, such as amount of radio-listening and reported health, are as statistically significant as TV-viewing in their (albeit weak) ability to predict attitudes about the world across the population; and (5) respondents' astrological sign (as a proxy for a random number table) significantly predicts whether persons are heavy viewers.

We therefore conclude that acceptance of the cultivation hypothesis as anything more than an interesting but unsupported speculation is premature and unwarranted at this

warranted reanalysis by the social science community. I am grateful to Delores Conway, Elihu Katz, Peter Miller, Horace Newcomb, and John Robinson for their contributions to and critical readings of this article. While they did not always concur with how each point was weighted or with every conclusion, all agreed that the issues raised, given the prominence of the Annenberg projects, need to be formalized for discussion. I am also greatly indebted to Sally Kilgore, Tom Panelas, and Stephen Struhl for their original contributions and first-rate research assistance.

time. In Part II, alternative explanations for heavy television-viewing, and alternative interpretations and conceptualizations of television's effects will be proposed and outlined.

INTRODUCTION

Two approaches are available for interpreting [these results]. One is that what may be true in America is not true in Britain, for which difference it will be useful to explore the reasons. The second is that the Gerbner thesis has still not been demonstrated convincingly enough in America, and the effect exists neither there nor in Britain [Wober, 1978: 320].

Most researchers interested in mass media and communication research are keenly aware of the violence profiles and cultivation analyses published annually by Dr. George Gerbner and his colleagues at the University of Pennsylvania's Annenberg School of Communication. The violence profiles present frame-by-frame content analyses of television programs, taken over a week's period of prime-time viewing hours; the cumulative profiles provide one set of valuable indicators about what is shown and available to viewers of American network television productions. Focusing primarily on dominance relations, they follow in a long tradition of reporting the frequencies and proportions of characters from specific ethnic and social groups found to portray villains or heroes, aggressors or victims, manipulators or manipulated. The second body of reports, entitled "Cultivation Analysis," seeks to demonstrate that the "television reality" shown in the violence and content profiles is meaningful to and understood by the viewing population. Further, it is proposed that viewers interpret television content in a manner which supports the argument that watching television engenders perceptions in heavy viewers significantly different from what they might otherwise feel or think if they viewed television less. The argument

has been that the more television a survey respondent reports viewing, the more his or her perception of the "real world" approaches the "mean" and "scary" world of television (as yielded by the content categories set forth in the profiles).

The Annenberg projects on television content and effects have strongly influenced the research agendas and theoretical bases of current research on mass communications. Graduate students across disciplines and professional researchers seldom launch a project about television without first seeking to relate it to the Annenberg results and/or adopting that school's paradigm(s). This rapid acceptance is unusual in the sociology of science, where assertions of strong results or important effects are more typically reanalyzed, debated among scholars, replicated, and then supported, rejected, or left to await further research. Recent controversies over sociobiology (Wilson, 1975; Sahlins, 1977; Caplan, 1978), Maslow's theory of job satisfaction (Salancik and Pfeffer, 1977; Alderfer, 1977), Coleman's findings on busing (Moynihan and Mosteller, 1972), and Shockley's assertions on IQ and heredity (Kamin, 1974) provide examples of social science research bearing on public policy being tested and retested within the academic community.

Mass communication research, in contrast, has been remarkably free of such active efforts at reanalysis and replication. Efforts to replicate the reported results of the Annenberg group's cultivation analysis have met with mixed success. Wober (1978) found no evidence of a paranoid effect of television viewing on British audiences. Doob and MacDonald (1979: 170), controlling for the crime rate in respondents' neighborhoods, found "no overall relationship between television and fear of being a victim of crime." Hawkins and Pingree (1980) found partial support in Australia for the cultivation hypothesis. To date, however, there have been no reanalyses by anyone independent of having been trained at or otherwise associated with the Annenberg school.¹ This is especially surprising, insofar as a major and

critical source of the data on which the project has relied is the General Social Survey of the National Opinion Research Center, an omnibus survey conducted annually and available to any interested user for \$25.00. Of all the surveys reported by the Annenberg group, NORC's General Social Survey, along with the University of Michigan (Survey Research Center's) Center for Political Studies 1976 election survey, are the only two nationally representative probability samples they have drawn from and therefore are the most important for reanalysis. If either survey's results fail to hold up, the cultivation hypothesis must be called into serious question.

Conceptually, this article begins at that point where Gerbner et al. seek to impose their categories for purposes of content analysis onto the interpretive mind of the viewer.² There is, of course, some question about whether examining a single survey item and its correlates is adequate to this task (Newcomb, 1978; Himmelweit et al., 1980). However, accepting this presumption for the sake of argument, this article presents a reanalysis of a significant body of data on which much in the cultivation analysis reports are based. The reanalysis is based on the data in the National Opinion Research Center's General Social Surveys of 1975, 1977, and 1978.

We will see that both the items and the codings chosen across surveys by Gerbner et al. are unusually selective and arbitrary: There are unreported items which do not support the model they present, as well as ambiguities in what they have reported, that cast grave doubts on its validity. In almost every case, especially with the addition of multiple controls (practically any two) on the relationship between hours of television watched and its correlates, there is neither statistical significance nor a plausible argument that the results, though insignificant, move in the expected direction. In fact, I will provide instances showing that where patterns do emerge, they are as likely to move in the *opposite* direction. Based on the *cumulative number* of questionable statistical procedures and interpretations on

which the Annenberg group's assertions about cultivation analysis are based—rather than the single instances over which researchers might normally disagree—I will propose that (1) because the NORC data set fails to support most of the inferences and conclusions which have been drawn and is one of the best of the many samples to have been reported to support them, (2) the assertion of cultivation analysis should be transformed from the status of scientific finding to an (albeit interesting) armchair hypothesis. *Note that there is no claim made here about “disproving” its possible validity.* Rather, the attempt is more simply to show that the NORC data, properly analyzed, contain precious little which can be found to support cultivation analysis.

The following sections will take up, in sequence, (1) The General Social Survey data set, comparing it with the others and examining what items and question wordings are available in each; (2) reported and unreported discrepancies across samples; (3) the substantially different results obtained once variables are added or recoded. Over 18 relevant items, *nonviewers* are consistently more fearful, alienated, and favorable to suicide than light viewers. *Extreme viewers* are less perturbed than heavy viewers. These findings severely undermine the contention that any relationship between TV-viewing and the provision of “television answers” to attitude items is linear or even monotonic. Finally, (4) when *multiple controls* are placed on the (already weak) bivariate relationships, the added effect of television hours viewed—over and above such standard controls as education, race, sex, and employment status—is shown to be negligible at best.

In Part II, the major findings reported will include (5) a near-total absence of association between the attitudes of population subgroups (women, elderly, blacks) and the amount of television viewed by each. Indeed, the former is shown to be independent of the latter, and subgroups' attitudes often move in directions *counter* to the “mean world” hypothesis' expectations about their relation to

number of hours viewed. Part II will also discuss (6) anomalous results from items available but not reported by the Annenberg group. Here we find, for example, heavy viewers are *less* favorable than light viewers regarding the use of actual physical violence. Respondents' reported number of television hours viewed also vary significantly with zodiac signs, taken as proxy for a random number table. (I will *not* argue that certain zodiac signs therefore "cultivate" or cause heavy television-viewing.)

THE GENERAL SOCIAL SURVEY AS DATA SET AND RESOURCE

The General Social Survey has been conducted by the National Opinion Research Center annually since 1972 to generate a data base for social science researchers and to make available "fresh, interesting, and high quality data" to a wide population of interested users (Davis et al., 1978: v). Each survey is administered and coded at NORC, but the data analysis is left entirely to the interest and discretion of the user community. Over 600 items have been asked since the survey's inception; many are asked every year, while others rotate and a small number appear only one time. Interviews average one hour in length. Each sample of approximately 1500 respondents is independently drawn from English-speaking persons 18 years of age or older living in noninstitutionalized arrangements within the continental United States. The national samples are designed to be representative of the general population.

Three items on media use have been included for particular years:

- (1) How often do you read the newspaper—every day, a few times a week, once a week, less than once a week, or never? (1972, 1975, 1977, 1978)

- (2) Do you ever listen to the radio? (If yes): On the average, about how many hours a day do you usually listen to the radio? (1978 only)
- (3) On the average day, about how many hours do you personally watch television? (1975, 1977, 1978)

All of the Annenberg group's reports on cultivation analysis focus on the third item, hours of reported television-viewing per day. Responses of "light," "medium," and "heavy" viewers to other items and scales, on a wide variety of surveys, constitute the data base employed:

Our approach reflects the hypothesis 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" they see on television. To investigate this hypothesis, we partition the population and our samples according to television exposure. By contrasting light and heavy viewers, some of the difference television makes in people's conception of social reality can be examined [Gerbner et al., 1978: 194].

The distribution of respondents in the NORC data file on each of these items is presented in Table 1. For both radio and television, over half the samples listen to or watch two hours or less per day. The means (3.2 and 2.9, respectively) are higher, reflecting the skewness of the distribution. Interestingly, about 85% of the respondents fall within one standard deviation of the mean, leaving only 15% as outliers in the distribution. These are nonviewers and those exposed to television or radio for approximately five or more hours. These media use variables are better fitted by a gamma distribution than a normal distribution, suggesting that respondents watching from one to five hours of television daily are less deviant, statistically, than those who watch none at all or more than five hours. In Table 1, we also see that well over half the respondents are "heavy readers" of the daily newspaper, with 80% reporting they read one daily or several times a week.

TABLE 1
Frequency Distributions and Summary Statistics for
Media Use Items on NORC General Social Survey
(cumulative for 1975, 1977, 1978)

Hours/Day Watching TV				Hours/Day Listening to Radio				Times/Week Reading Newspaper			
Years Available: 1975/77/78				Year Available: 1978				Years Available: 1975/77/78			
No. Hrs.	%	Cum	N	No. Hrs.	%	Cum	N	Times/Wk	%	Cum%	N
0	5	5	209	0	9	9	137	Never	5	5	217
1	20	24	892	1	36	45	547				
2	26	51	1198	2	19	64	293				
3	20	70	889	3	8	72	124				
4	14	84	616	4	7	80	112	Less than once a week	6	11	294
5	7	91	313	5	4	83	54				
6	4	95	203	6	4	87	62				
7	1	96	43	7	1	88	13				
8	2	98	78	8	6	94	84				
9	0	98	10	9	1	95	12	Once a wk	9	20	428
10	1	99	34	10	2	97	36				
11	0	99	2	11	0	97	1				
12	1	100	28	12	2	99	26				
13	0	100	3	13	0	99	1	A few times a week	6	38	793
14	0	100	2	14	0	99	2				
15	0	100	7	15	0	99	5				
16	0	100	4	16	0	99	1				
17	0	100	1	17	-	99	-	Every day	62	100	2807
18	0	100	1	18	0	99	2				
20	0	100	2	20	0	99	1				
24	0	100	1	24	0	100	7				
Mean: 2.9 Median: 2.4 Standard Deviation: 2.1 Skewness: 2.1				Mean: 3.0 Median: 1.8 Standard Deviation: 3.3 Skewness: 2.5							

In Gerbner et al.'s treatment of the NORC TV-viewing data, the sample is divided into three categories, defined as follows:

Survey	No. hours viewed	Viewer Category	% Cumulative Sample (3 available years)
NORC	0-2	Light	51
	3	Medium	19
	4-24	Heavy	30

This categorization is used consistently through all of the Annenberg group's reporting of NORC data (Gerbner et al., 1976, 1977, 1978). It is *very roughly* comparable to the coding employed in their secondary analysis of data from the 1976 Michigan Center for Political Studies Election Survey. There, in answer to the item, "How often do you

watch evening entertainment programs about crime and police?" the analogue to NORC's total hours viewed (out of 24 and across all programs, not evening-only crime and police shows) becomes:

<i>Survey</i>	<i>Frequency of Viewing</i>	<i>Viewer Category</i>	<i>% of Sample</i>
Michigan	"Rarely" or "Never"	Light	37
CPS	"Sometimes"	Medium	37
	"Frequently"	Heavy	26

Since daytime viewing and all news and "nonviolent" entertainment programs are excluded from the Michigan item, it is easier for a respondent to show up as a "light" viewer in the Michigan election (CPS) survey than in the NORC data, and possible for the same persons coded as "light" in the CPS file to fall into the "medium" or "heavy" viewing categories derived from the more inclusive NORC item.³ Nevertheless—perhaps because respondents did not see "rarely" or "never" as converging with zero through two hours—it is unexpectedly from the NORC data set that Gerbner et al. obtain 13% more "light" viewers; the percentage coded as "medium" is 17% lower, while the proportion of "heavy" viewers remains about the same.⁴

While Michigan and NORC surveys share the advantage of being large, national, representative samples, both the sample base and coding of data into viewing categories become much more problematic when Gerbner et al. present convenience samples of children under 18 years of age. Table 2 collects in one place the widely discrepant definitions of viewing categories employed in the Annenberg group's Profiles 9 (1978) and 10 (1979a, 1979b). Although the text of each "Violence Profile" reads as though there is consistency across samples by use of the descriptive terms "heavy" and "light" viewers, we now have seen six different definitions of these concepts employed across samples and used interchangeably. In Violence Profile 10, for example, *if a child reported viewing three hours of tele-*

TABLE 2
 Categorization of Viewing Employed in Gerbner et al.'s Reporting on Children Under 18 Years of Age

<u>"Light"</u>	<u>"Medium"</u>	<u>"Heavy"</u>	<u>Sample Description</u>	<u>In Violence Profile #</u>
Less than 4 hours	Dropped	More than 4 hours	"Suburban/rural" 7-8 grades in New Jersey School (N = 477)	10
2 hours or less*	2-6 hours*	6 hours or more**	"Suburban/rural" children in New Jersey School (N = 625)	9
Less than 2 hours	Dropped	2 hours or more	"New York School children," aged 10-17 at private school in New York	10
Less than 2 hours	2 hours or more	Dropped	Bank Street School, a [well-known] private school in New York City (N = 116)	9

*These category intervals overlap, providing insufficient information on how responses were actually coded for this survey.

vision in the New Jersey school, he or she would be coded as a "light" viewer. The same child, if transported to the New York school, is coded as a "heavy" viewer. As we shall see in the next section, the extent to which simple bivariate relationships appear linear and monotonic can be substantially influenced by (1) the number of reported hours selected to define each viewing category and (2) the distribution of respondents falling in each of the hours collapsed to form each viewing category. Writ large, this issue raises obvious questions concerning the computation and comparability of "cultivation differentials" both within and among samples. If, as Gerbner et al. suggest in Profile 10 (1979b), each "latest" statistical treatment is to supersede all previous reported results, the most recent is also the *most* susceptible to distortion when comparisons are made across surveys; for where each sample is broken at the median of its TV-hours distribution, as in the latest profile (1979a: 189), the definitions of "light" and "heavy" become entirely determined by the idiosyncracies of each sample (for example, the TV-hours distribution of 116 middle-class children in one school is treated as comparable or equatable with the viewing hours distribution of the NORC or SRC national probability samples of the adult U.S. population).⁵

REPORTED AND UNREPORTED DISCREPANCIES IN RESULTS ACROSS SAMPLES

Given the wide variations in the size and representativeness of the samples employed and discrepancies in the coding of variables, the question arises whether important issues covered by one or more of the samples are reported at all and, if so, reported accurately. Tables 3 and 4 present the responses of three samples to two comparable items on respondents' approval of the commission of actual physical violence. In Table 3, as reported by Gerbner et al. (1978: 197), more heavy than light viewers among two convenience samples of children (N = 116 and N = 625)—for whom the definitions of "heavy" and "light" are themselves

TABLE 3
 Percentage of Children Agreeing: "It's Almost Always All Right To Hit Someone If You Are Mad At Them"***
 (by Level of Television Viewing)¹

	New Jersey School				Bank Street School				
	Television Viewing ²		CD/Difference		Television Viewing ²		CD/Difference		
	Light (N=141)	Medium (N=339)	Heavy (N=161)	%Heavy- %Light)	gamma	Light (N=65)	Medium (N=61)	%Medium- %Light)	gamma
Overall (N=625)	31	35	41	+10	.13 ^{ns}	10	24	-14	.49 ^{ns}
Controlling for:									
<u>Grade in School</u>									
sixth (N=68)	20	37	44	+24	.28 ^{ns}	18	35	+17	.42 ^{ns}
seventh (N=266)	35	32	41	+6	.07	5	19	-14	.63 ^{ns}
eighth (N=230)	35	39	40	+5	.06				
ninth (N=68)	17	28	33	+16	.28				
<u>Sex</u>									
Male (N=304)	37	44	39	+2	.04	14	42	+28	.62 ^{ns}
Female (N=328)	24	26	42	+18	.27 ^{ns}	6	10	+4	.28
<u>Parents' Education</u>									
Neither went to college (N=228)	29	40	47	+18	.20 ^{ns}	20	33	+13	.33
Father or both went to college (N=349)	33	29	36	+3	.03	9	24	+15	.53 ^{ns}

1. Question for New Jersey School: "How often is it all right to hit someone if you are mad at the person for a good reason?"
 Question for Bank Street School: "How often is it all right to hit someone if you are mad at them?"
 2. "Altogether, about how many hours a day do you usually spend watching TV, including morning, afternoon and evening?"
 New Jersey School: light—2 hours or less; medium—2 to 6 hours; heavy—6 hours or more.
 Bank Street School: light—less than 2 hours; medium—2 hours or more.

*p ≤ .05 (tau); **p ≤ .01 (tau); ***Reprinted from Gerbner et al. (1978: 197).

TABLE 4
 Percentage Approving of Ever Punching a Male by TV-Viewing Hours, Controlling for Age, Sex, Education

	<u>LIGHT VIEWERS</u>	<u>MEDIUM VIEWERS</u>	<u>HEAVY VIEWERS</u>	<u>GAMMA</u>
<u>Overall</u>	71	72	62	.14
Controlling for:				
EDUCATION:				
11 years or less (N=946)	56	60	53	.06
12 years (N=997)	72	78	71	.00
13 years or more (N=924)	81	79	66	.23**
SEX:				
Male (N=1253)	71	73	63	.12*
Female (N=1622)	71	71	62	.15**
AGE:				
Under 30 (N=793)	75	76	68	.13*
30-55 (N=1238)	75	78	69	.07
55+ (N=844)	62	59	50	.17*

SOURCE: NORC General Social Surveys, 1975 and 1978.

* $p \leq .05$ (tau); ** $p \leq .001$ (tau)

not comparable and the distributions within each category not provided—responded affirmatively to the following item, worded in one case as: "How often is it alright to hit someone if you are mad at them? Is it almost always alright or almost never right?"

For the larger sample, the item's wording added "for a good reason" at the end of the first sentence. In their coding of this item to distinguish respondents giving the "television answers" from those better reflecting the "real world," the Annenberg group define a child's positive response to the idea of hitting someone as the former and a negative response as the latter.

In Table 4, we present the cumulated responses ($N = 2875$) from NORC's large probability sample of people 18 and older to the following item, available for 1975 and 1978 but never discussed or referred to by Gerbner et al.

Are there any situations you can imagine in which you would approve a man punching an adult male stranger?

Using the same criteria for significance and the same bivariate controls (plus age) employed by Gerbner et al. in Table 3, the *opposite results shown* for the NORC probability sample are especially striking. *Here, there is not a single row in which "heavy" viewers are more favorable toward actual physical violence than are "medium" or "light" viewers*—quite the contrary: in five of the eight rows, the difference in the percentage of heavy viewers expressing a positive distaste for violence is statistically significant at either the .05 or .01 level. Table 4 is especially damaging to the cultivation hypothesis and will be discussed at greater length in other sections of this article. It is one of the few tables in the NORC data set whose statistical significance remains after the imposition of multiple controls, whereas most of the findings reported by Gerbner et al. as their strongest virtually evaporate on exposure to multiple classification analysis. Theoretically, it is critical because respondents' orientation to actual physical vio-

lence ties up directly to the content analysis portions and are found here to run directly counter to expectations generated in the content analysis parts of the Violence Profiles.⁷

Table 4 provides no support for the repeated contention that scientific findings support the assertions that heavy viewers are "more likely than light viewers to choose answers that reflect television perspectives" and that "'living' in the world of television cultivates conceptions of its own conventionalized reality" (Gerbner et al., 1978: 175; 1976: 194, respectively). Rather, it raises the possibility that in failing to ensure crosssample comparability, introduce multiple controls, and report items where the data do not support the argument for television's "cultivation" of beliefs and attitudes, the Annenberg group has itself contributed to distorting scientific reality. To eschew the importance of statistical significance when it is not found, while simultaneously presenting it whenever it appears, further contributes to the existing confusion over how to interpret results they have reported.

RECODING TV HOURS IN THE GENERAL SOCIAL SURVEY TO ANALYZE NONVIEWERS AND EXTREME VIEWERS

Because Gerbner et al. present no theoretical or statistical rationale for defining the NORC sample into the viewing hour categories (0-2, Light; 3, Medium; 4 or more, Heavy), several alternative formulations were developed for reasons of logic or experimentation. Taking the log of TV hours, for example, reduces the skewness of the distribution, enabling it to more closely approximate normalcy. Similarly, recoding the categories so that the number of viewers called light (0-1), medium (2-3), and heavy (4 or more) is more equal enables the median to fall into the medium viewer category (rather than the light) and the distribution to appear more normal. Finally, breaking out nonviewers (0 hours) and extreme viewers (8 or more hours) by expanding the number of viewing categories

facilitates the isolation of interesting cultural and statistical "deviates" whose viewing patterns fall beyond one standard deviation from the mean of the distribution and differ from 90% of the population (which views between one and five hours per day; see the earlier discussion).

With the exception of this last redefinition of viewing categories, none of these reformulations yields associations with other variables in the data set which depart from results obtained employing the categories used by the Annenberg group. *One reason is that amount of television-viewing independently predicts or explains so little variation in virtually any of the dependent variables that there is little difference for the recoding of viewing categories to make.*⁸ In expanding the number of categories to allow for analysis of the extremes of the distribution, however, a number of surprises emerge. In terms of Gerbner et al.'s assertion that heavy viewers learn lessons in life from television content and that this "cultivates" high scores on items tapping fear, anomia, and alienation, the most important finding is that *on many of these items, the scores of nonviewers are higher than those of television's light, medium, heavy, and/or extreme viewers.*

In other words, what small relationships there are between viewing and other variables are *nonlinear* wherever people who watch *no* television turn out to be more fearful, alienated, or anomic than those classified as light, medium or heavy viewers. This finding is clearly counter to the cultivation hypothesis, in which it is the responses of those least exposed to the "messages" about life transmitted by "television reality" which should be closest to the "real world" in terms of a more positive view of their personal affairs, life chances, and fellow man.

As we shall see, the consistent and important patterns throughout the data set are:

- (1) *The only viewing category where respondents least often provide the "TV answer" and most consistently give the "non-television response" is that of light viewers (1-2*

hours per day). However, there is no clear-cut pattern beyond that for respondents coded as nonviewers, medium, heavy, or extreme. For example, persons providing "television answers" do not cluster in any of these categories. In terms of the attitude items, only the light viewers' mean scores are (statistically) "normal," and all other categories, including nonviewers, exhibit no stable pattern. Since 50% of the sample are light viewers, we think this suggests more about Americans' lifestyles and demographics (Bogart, 1973) than about the experience of television-watching or its effects.

- (2) *Where viewing categories form any pattern at all, it tends to be curvilinear. In a number of interesting cases, across attitude items, the scores of nonviewers and extreme viewers are closer to each other than to the scores of light viewers.*

THE "SCARY WORLD" OF THE NONVIEWER

It is surprising to find that the scores of nonviewers on all of the items analyzed for television viewers have been neither reported nor discussed in the Annenberg group's articles on the cultivation hypothesis. This is not because nonviewers' responses are excluded in their analyses of the NORC and CPS data. Rather, *in both cases nonviewers have been defined as light viewers and their scores coded into that category.* Simultaneously, the importance of nonviewers for assessing the impact of television has been noted in the same articles; for example: "Without control groups of nonviewers it is difficult to isolate television's impact" (Gerbner et al., 1978: 193-194).

One possible argument for excluding them might be that in any one survey, the frequency of nonviewers may be too small to provide sufficient numbers (for example, for cells in contingency tables) once one or more controls are introduced. In this case, one would expect them to be excluded from the statistical analyses rather than retained and collapsed into the category of light viewers. Indeed, since

nonviewers comprise the bottom 4% of the viewing hours distribution, it would then also make sense to exclude (or separately examine) viewers of eight hours or more, who comprise the top 4%. The small numbers problem for both groups is potentially alleviated by combining samples of several years of the GSS. Depending on the other items asked in a given year, it is possible to obtain up to 209 nonviewers from the NORC surveys for 1975, 1977, and 1978, the three years in which respondents were asked their number of viewing hours on an average day. This number will increase as the annual administration of the survey continues and whenever television-viewing and other items of interest are included in the questionnaire.

A second possible reason for excluding nonviewers from the data analysis might conceivably follow from Violence Profile co-author Jackson-Beeck's (1977: 71-72) contention that the data from NORC's 1975 survey

do not support continued reference to nonviewers as if they were a meaningful population subgroup. . . . The most appropriate characterization of the television nonviewer . . . appears to be none at all. Certainly, there are considerable differences between viewers and nonviewers on a number of specific variables. But . . . from the macro perspective, they seem socially insignificant.

Jackson-Beeck found that the nonviewers' profile includes less unemployment, higher education, but also lower incomes than the profile for all viewers. She interpreted this as providing inconsistent signals for constructing a demographic profile that "hangs together." Quite possibly, of course, the nonviewer category could include several demographic segments. But even if it did not, its cultural and theoretical importance is too great to warrant its manifest omission from the Violence Profiles. (Her article does not report nonviewers' responses to any of the attitude items put forth by the profile's authors as relevant to the cultivation hypothesis.)

While the analysis of cumulated nonviewers' demographic characteristics replicates many of Jackson-Beeck's comparisons with *all* television viewers, it also raises serious questions of comparability between nonviewers and those reporting an average of one to two hours of viewing daily. By collapsing both into the category of light viewers, Gerbner et al. ignore (by averaging together) significant differences in these groups' composition. Light viewers (1-2 hours) report much higher family incomes (47% above \$15,000 and 12% below \$5000) than nonviewers (32% and 27%, respectively); are far more likely to be currently married (65%) than nonviewers (42%); and are less likely to have obtained schooling beyond high school (39%) than nonviewers (48%). Substantial differences appear in the responses of these groups to many items in the GSS, but these are masked and obscured by the procedure of combining them into a single category. The disproportionately larger number of cases in the 1-2-hour category always ensures that the average scores, across 0-2 hours, remains close to the mean of the 1-2-hour group, regardless of how far away the mean response of the nonviewer group may be for the same item.

Tables 5 and 6 present items for which the Annenberg group has constructed "television answers" and show that *nonviewers consistently provide the "TV answer" more frequently than do viewers of one or two hours daily*. The questions are:

Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves? [Table 6]

In spite of what some people say, the lot of the average man is getting worse, not better. [Table 5]

Using the same single controls reported in their presentation of Table 5 (Gerbner et al., 1978: 203), we find seven of the nine comparisons between nonviewers and light view-

TABLE 5
 Percentage Agreeing with "Television Answer" to Anomia Statement that
 "The Lot of The Average Man is Getting Worse, Not Better"

	Television Viewing		CULTIVATION DIFFERENTIAL BETWEEN NONVIEWERS AND LIGHT VIEWERS*
	NONVIEWERS (N=57)	LIGHT (N=679)	
Overall (N=1461)	61	50	-11
Controlling for:			
<u>AGE</u>			
Under 30 (N=155)	54	59	5
30-54 (N=385)	65	46	-19
55 and over (N=196)	59	51	-8
<u>SEX</u>			
Male (N=381)	59	50	-9
Female (N=355)	63	50	-13
<u>Years in School</u>			
11 or less (N=212)	84	65	-19
12 (HSG) (N=239)	75	52	-23
13 or more (N=284)	38	38	0

*Computed by subtracting the percentage of nonviewers agreeing with the "television answer" from the percentage of light viewers. A positive sign supports the cultivation hypothesis, for agreement with the "television answer" would be associated with more viewing. A negative sign suggests there is no relationship between them.

TABLE 6
**Percentage Giving "Television Answer" to "Mean World" Question of Whether
 People Try to be Helpful or Mostly Look Out for Themselves**

	Television Viewing		CULTIVATION DIFFERENTIAL BETWEEN NONVIEWERS AND LIGHT VIEWERS*
	NONVIEWERS (N=134)	LIGHT (N=1293)	
Overall (N=2819)	37	35	-2
Controlling for:			
<u>AGE</u>			
Under 30 (N=346)	42	38	-4
30-54 (N=687)	26	33	7
55 and older	48	35	-3
<u>SEX</u>			
Male (N=679)	45	41	-4
Female (N=748)	30	29	-1
<u>Years of Education</u>			
Less than 11 years (N=392)	56	51	-5
12 (HSG) (N=462)	30	32	2
13 or more (N=569)	30	25	-5

*See note to Table 5.

ers moving in the opposite direction from what the cultivation hypothesis would predict. For Table 6, where the number of nonviewers is greater because the item is available for two years, seven of the nine comparisons (though smaller in magnitude) again run in the "wrong" direction. Comparing the "cultivation differentials"⁹ here (column 3) to those reported by the Annenberg group for the same items (but with different viewing categories), we see that the sign of the percentage differences in most rows reverses dramatically: *The interpretation by Gerbner et al. that heavy viewers are more likely to give the "television answer" than light viewers because they see more television is confounded by the (column 3) figures showing that nonviewers are more likely to give the "television answer" as well.*

This finding is not restricted to these illustrative examples; it is replicated within categories of each of these single controls across other relevant items in the NORC General Social Survey. Included here are six of the nine rows for both of the remaining two Anomia items reported by Gerbner et al. (1978: 203)¹¹ and for the item, "Do you think that most people would try to take advantage of you if they got a chance or would they try to be fair?" (reported in Gerbner et al., 1977, and available for two years of the NORC surveys).

In addition, for two unreported sets of items, one on the 1977 NORC survey and the other on 1977 and 1978, nonviewers remain far more disposed than light viewers to what we estimate Gerbner et al. would say is the answer to be expected from respondents most exposed to television.

The first set of items taps attitudes toward suicide. Respondents were asked if "a person has a right to end his or her own life if this person (a) has an incurable disease; (b) has gone bankrupt; (c) has dishonored his or her family, or (d) is tired of living and ready to die." Whereas a fair inference from the Violence Profiles is that television viewing "cultivates" doubts about life's sanctity and raises fear levels about the likelihood of being a victim, we find that

both television nonviewers and extreme viewers are the *least likely* to see any of these circumstances as justifying the taking of one's own life. Comparing the percentages of nonviewers approving any form of suicide with those of light viewers, overall and by age, sex, and education, nonviewers are persistently and consistently more negative in their evaluation.¹² The second set of items consists of six questions seeking to measure if the respondent is "alienated" and one similar to the Anomia items discussed earlier. Nonviewers and light viewers divide equally here, with the majority of rows for three of the "Alienation" tables showing the percentage of "alienated" nonviewers to be greater than the corresponding percentage for light viewers.¹³ For the remaining three items, the direction reverses such that in a majority of the nine rows, the percentage of light viewers providing the "television answer" is higher than the corresponding percentage of nonviewers.¹⁴

In sum, we have reviewed 18 items in the NORC data set to see if viewers of one to two hours of television daily provide the "television response" more frequently than nonviewers, and find they do not across 13 (72%) of the 18 items. Each was examined, following Gerbner et al.'s example, with controls placed on age, sex, and education, singly. For six of the seven items reported by Gerbner et al. as providing support for the "cultivation hypothesis," nonviewers more often gave a "mean world" response than did the light viewers, with whom their responses were averaged by the Annenberg group.¹⁵ For seven of the 10 remaining items reported here for the first time, the percentage of nonviewers providing the "television answer" also was greater.¹⁶ All of the attitude items we have examined in the NORC General Social Survey are reported here, whether or not responses to them undermine or lend support to the cultivation hypothesis. If there are more and they are not reported here, their theoretical relevance to the television item has not occurred to us.

TELEVISION'S EXTREME VIEWERS

At the opposite end of the viewing hours distribution for television's heaviest viewers, the "cultivation hypothesis" requires that the percentages providing the "television" or "mean world" answers for these items be higher than for "light," "medium," and nonviewers. Gerbner et al. define "heavy" viewers as all persons reporting they watch four to 24 hours daily. In this section, we examine how well NORC data support this hypothesis by subdividing their "heavy" viewing category into two groups—"heavy," now recoded as four to seven hours, and "extreme," recorded as eight or more. Extreme viewers, as defined here, comprise four percent of the entire sample (about the same proportion as nonviewers), and attain an N of 173 wherever the three years of General Social Surveys asking the TV use item can be combined. Just as nonviewers are one standard deviation below the mean of 2.9 hours for the entire sample, these extreme viewers fall beyond one standard deviation above the mean. The questions we will pose are (1) How consistently are extreme viewers more likely to provide "television answers" than heavy viewers? and (2) How consistently do heavy and extreme viewers provide responses different from light, medium and nonviewers and in the expected (that is, "mean world") direction?

Table 7 shows that the demographic character of television's heavy and extreme viewers is clear cut and unambiguous. Seventy-two percent of the extreme and 62% of heavy viewers are women. Two thirds (67%) of the extreme and half of the heavy viewers are housewives or retired workers. Forty-one percent of the extreme and 36% of heavy viewers report their health as "fair" or "poor." Not only are people in these categories undeniably more "available" for television-viewing than most; they are also likely to be included disproportionately among the 40% of Americans engaged in viewing as a secondary activity (Robinson, 1969). For example, doing housework or other

things while the set is on defines viewing as a secondary activity rather than as the primary focus of the viewer's attention. Secondary viewing also is widely reported to be found disproportionately among those income and status groups which also constitute television's heavy and extreme viewers.

Television's heavy and extreme viewers also are disproportionately black (15% and 24%, respectively), uneducated (43% and 58%, respectively, without a high school degree), and report relatively high self-identification as lower class (8% and 13%, respectively). While heavy viewers do not differ noticeably from all others on family income or self-

TABLE 7
Background Characteristics of Respondents by Amount of
Television-Viewing Percentages (numbers in parentheses)

	Amount of Television Viewing ^c					
	Overall (Sample Mean)	Extreme (8 hrs & over)	Heavy (5-7 hrs)	Medium (3 hrs)	Light (1-2 hrs)	Nonviewer (0 hrs)
<u>AGE</u>						
Under 30	26 (1177)	42 (72)	30 (151)	25 (226)	23 (473)	26 (55)
30-54	33 (1974)	30 (51)	34 (400)	44 (394)	49 (1032)	47 (98)
55 and over	31 (1385) 100	29 (50) 100	36 (223) 100	30 (270) 100	42 (585) 100	26 (56) 100
<u>SEX</u>						
Male	44 (2001)	27 (47)	38 (448)	41 (366)	49 (1025)	45 (95)
Female	36 (2535)	72 (126)	62 (727)	57 (503)	51 (1065)	55 (114)
<u>RACE</u>						
White	89 (4007)	76 (131)	85 (995)	90 (798)	92 (1900)	88 (183)
Black	11 (494)	24 (41)	15 (175)	10 (85)	8 (169)	12 (24)
<u>EDUCATION</u>						
11 years or less	35 (1576)	58 (100)	41 (505)	35 (311)	29 (599)	29 (61)
12 years	34 (1543)	31 (53)	38 (443)	36 (317)	33 (683)	23 (47)
13 years or more	31 (1401)	11 (19)	19 (223)	29 (257)	39 (802)	48 (100)

TABLE 7 (Continued)

	Overall (Sample Mean)	Extreme (9 hrs. & over)	Heavy (4-7 hrs.)	Medium (3 hrs.)	Light (1-2 hrs.)	Nonviewer (0 hrs.)
<u>FAMILY INCOME:</u>						
Under \$5,000	17 (714)	40 (62)	22 (237)	15 (119)	12 (242)	27 (54)
\$5,000-\$9,999	22 (940)	26 (111)	20 (101)	23 (189)	19 (166)	22 (43)
\$10,000-\$14,999	22 (912)	21 (12)	22 (298)	22 (180)	22 (423)	20 (39)
\$15,000-\$24,999	27 (1111)	10 (14)	22 (262)	29 (244)	29 (575)	22 (43)
\$25,000 and over	13 (548)	1 (5)	6 (70)	12 (97)	14 (157)	10 (19)
<u>WORK STATUS:</u>						
Working full time	47 (2102)	9 (16)	31 (162)	47 (414)	54 (1202)	52 (108)
Working part time	9 (372)	7 (12)	7 (15)	9 (79)	9 (135)	9 (19)
Keeping house	25 (1132)	54 (12)	16 (129)	25 (229)	17 (151)	20 (41)
Retired	11 (473)	13 (22)	14 (163)	11 (94)	8 (177)	8 (17)
School	3 (122)	4 (5)	2 (16)	2 (21)	3 (52)	3 (6)
Unemployed, temporarily out of work	5 (211)	10 (18)	6 (73)	6 (49)	5 (14)	4 (7)
<u>HEALTH:</u>						
Excellent	32 (963)	17 (17)	25 (264)	29 (177)	34 (518)	16 (43)
Good	40 (1212)	42 (49)	40 (125)	43 (259)	40 (536)	37 (44)
Fair	21 (630)	59 (34)	26 (209)	21 (127)	15 (211)	16 (17)
Poor	7 (201)	11 (12)	10 (79)	6 (19)	3 (59)	10 (12)
<u>Self Reported HAPPINESS:</u>						
Very happy	34 (1536)	28 (48)	33 (182)	32 (283)	35 (742)	34 (81)
Pretty happy	55 (2459)	53 (92)	54 (637)	56 (499)	54 (1129)	49 (102)
Not too happy	12 (521)	19 (13)	15 (151)	12 (103)	10 (209)	12 (25)
<u>Self Reported Class Identification:</u>						
Lower class	5 (222)	13 (22)	8 (91)	4 (14)	3 (64)	6 (11)
Working class	48 (2164)	47 (81)	50 (582)	54 (482)	45 (928)	44 (91)
Middle class	44 (1992)	37 (64)	41 (475)	39 (348)	49 (1007)	48 (98)
Upper class	3 (135)	3 (5)	2 (25)	3 (23)	4 (77)	2 (5)

SOURCE: NORC General Social Survey, cumulative for 1975, 1977 and 1978.
 *Percentages for each category and within each column add to 100%, or deviate slightly due to rounding to the nearest integer.

reported general unhappiness, television's extreme viewers are noticeably different, with 40% reporting family incomes of \$5000 or less and 19% reporting that they are unhappy. Also of interest here is the NORC interviewers' collective judgment that among the minority of respondents who least understood the questions asked them, people reporting four or more hours of daily television viewing were 40% less likely than light viewers to comprehend the questions.

The cultivation hypothesis proposes that persons exposed to the largest amount of television will provide "television answers" to survey items more often than persons exposed to TV fewer hours per day. By subdividing the Annenberg group's heavy viewer category, which collapsed 4-24 hours of viewing per day into heavy (4-7) and extreme (8 or more), it becomes possible to examine these groups separately to see if the responses of the extreme viewers go in the expected (television answer) direction. As with the comparisons between nonviewers and light viewers, we are inquiring into the logic of collapsing both into a single category (heavy) and expect that the mean scores of each group on the same items may vary substantially.

The responses of heavy and extreme viewers on the same 18 items reported in the nonviewer-light viewer comparisons are analyzed in this section. Following Gerbner et al.'s format in the Violence Profiles, we compared the percentage of heavy and extreme viewers providing the television answer with each question—for both groups (overall) and also when the controls of age, sex, and education are applied singly. If the percentage of extreme viewers providing the television answer is greater than that of heavy viewers (4-7 hours), its direction supports the expectations of the cultivation hypothesis. Where the percentage of viewers exposed to eight or more hours of television and providing the television response is *lower* than that for viewers of four to seven hours daily, its direction runs opposite to the expectations of the hypothesis. Each of the tables generated by this procedure has nine rows: If the absolute percentage for

extreme viewers is higher in five or more rows of each table, we interpret the item as supporting the hypothesis.¹⁷

On the 18 NORC items described earlier, extreme viewers provide the television answer *less often* than heavy viewers for a majority of the rows in 11 (61%) of the 18 tables. These are: two of the three "mean world" items employed by Gerbner et al. (on whether people are helpful, and on if they can be trusted); the item "fear of walking within one mile from home" employed by Gerbner et al.; the item on whether there are circumstances justifying a man's punching an adult male (this item and those immediately following are not reported by Gerbner et al.); three of the four items tapping attitude toward suicide (types 1, 2 and 3); and four of the items tapping alienation (numbers 2, 3, 5, and 6). On six other items (33%), extreme viewers provided the television response more often than heavy viewers. These were the three Anomia items (on the "lot of the average man," "bringing children into the world," and public officials being indifferent) employed by Gerbner et al.; one of the three "mean world" items ("people try to be fair"), also employed by Gerbner et al.; and one each of the suicide (type 4) and alienation (number 1) items.¹⁸

By breaking out the nonviewers and extreme viewers from the categories into which they were collapsed by the Annenberg group, we have shown that the cultivation hypothesis receives strikingly little support from the two groups of viewers by whom television's "lessons" and "messages" should be most strongly reflected. *Nonviewers gave the television answer more often than those viewing one to two hours daily, and the extreme viewers gave the television answer less often than those viewing four to seven hours per day.* The fundamental weakness of the Annenberg group's coding of viewing categories and its interpretation is perhaps best illustrated in Table 8. Here we see not only that the percentage of respondents endorsing the use of physical violence generally *decreases* as we move from the light to heavy viewing categories; but also

TABLE 8
 Percentage Giving "Television Answer" (Answering "Yes") to Question of Whether There are Any
 Circumstances in which They Would Approve of Someone Hitting an Adult Male

	<u>NONVIEWERS</u>	<u>LIGHT</u>	<u>MEDIUM</u>	<u>HEAVY</u>	<u>EXTREME</u>	<u>GAMMA</u>
Overall (N=2875)	72	71	72	63	60	.13**
Controlling for:						
<u>AGE</u>						
Under 30 (N=793)	76	75	76	70	60	.13*
30-54 (N=1238)	79	74	78	68	74	.07**
55 and older (N=844)	56	62	58	51	44	.15**
<u>SEX</u>						
Male (N=1253)	71	72	73	65	46	.11*
Female (N=1622)	73	71	71	61	63	.14**
<u>EDUCATION</u>						
11 years or less (N=946)	46	58	60	54	47	.05
12 years (N=997)	74	72	78	70	77	.00
13 years or more (N=924)	84	80	79	66	67	.21**

* $p \leq .05$ (tau); ** $p \leq .01$ (tau)

that it is the *extreme* viewers who disapprove most of the idea, and the *nonviewers* who are most likely to embrace such "aggression." These outcomes clearly provide no support for the assertion that television cultivates a higher tolerance for violent acts—which Gerbner et al. argued earlier in their coding as the television answer, the response by children that "it's almost always alright to hit someone if you are mad at them."

Up to this point we have reanalyzed items from the NORC data set reported by the Annenberg group and presented others asked on one or more of these surveys, all in the same statistical framework set up by Gerbner et al. in the Violence Profiles. In none of these instances have two (or more) statistical controls been placed on any item in the surveys, nor have a number of relevant and available variables appeared consistently (or at all) as single controls. We now expand the reanalysis of the NORC data to include multiple controls.

MULTIVARIATE ANALYSIS AND THE ISSUE OF CAUSALITY

Throughout the corpus of Violence Profiles, the Annenberg researchers have sought to distinguish and separate the concept of causality from cultivation while simultaneously employing the language of causal analysis and its assumptions. The following excerpts, from three different years' Profiles, illustrate this ambiguity by moving from an argument eschewing causality straight into the framework and rhetoric of statistical language associated with the search for causal relations.

Cultivation analysis is the study of what is usually called effects or impact. . . . We consider the latter terms inappropriate to the study of broad cultural influences. The "effects" of a pervasive medium upon the composition and structure of the symbolic environment are subtle, complex, and

intermingled with other influences. Also, the concept of causation, borrowed from simpler experimental studies in the physical and biological sciences, is not fully applicable to the steady flow of images and messages that comprise much contemporary popular culture [Gerbner et al., 1978: 193].

Heavy viewing is part and parcel of a complex syndrome which also includes lower education, lower mobility, lower aspirations, higher anxieties, and other class, age, and sex related characteristics. We assume, indeed, that viewing helps to hold together and cultivate elements of that syndrome. But it does more than that. *Television viewing also makes a separate and independent contribution to the "biasing" of conceptions of social reality within most age, sex, educational, and other groupings, including those presumably most "immune" to its effects* [Gerbner and Gross, 1976: 191; italics added].

These findings provide considerable support for the conclusion that heavy television viewers perceive social reality differently from light television viewers, even when other factors are held constant. There is considerable variation between groups in the scope and magnitude of these patterns: the extent of television's contribution is mediated, enhanced, or diminished by powerful personal, social and cultural variables, as well as by other information sources. Yet the relationships remain positive in almost every case. The amount of viewing makes a consistent difference in the responses [Gerbner et al., 1979: 193].

The first statement reflects a misunderstanding of causal reasoning, as conventionally employed in social science. Both "causal" and "cultivation" analysts should find no difficulty agreeing that observed differences can be subtle and that, while differences among groups may not be statistically significant, data may yield patterns that are real and consequential. While television's effects may indeed be complex and subtle, the use of survey data presupposes a minimal level of shared assumptions about the nature of evidence in empirical research. If only to counter the suggestion that an observed relationship is spurious, the areas of shared agreement already include the use of control variables (compare statements two and three) and

the ideas that certain events are prior to others and that their occurrence is patterned. In short, by seeming to reject the relevance of "causal" analysis, the Annenberg group understates the conceptual common ground between causal and cultivation analysis and obscures the degree to which both are bound by the same rules of evidence before either can claim empirical support.

To garner such support, cultivation analysis has consistently employed the logic of introducing the single controls of age, sex, and education on the relationship between television-viewing and selected dependent variables. Since all agree that relationships of this sort are indeed complex, this is clearly an instance for which multiple controls are needed for reliable tests of hypotheses. In this section, we extend the analysis to include multiple controls such as age, sex, and education taken simultaneously, and by examining the evidence for arguing (in statement two) that television-viewing exerts a "separate and independent contribution to" (or influence or effect on) "conceptions of social reality within most age, sex, educational, and other groupings." To so assert, one must go on to show that viewing actually adds to the amount of variance explained, that this continues to hold up (as in statements two and three) after the introduction of multiple controls, and that the adjusted percentages by viewing category are different and in the direction predicted by the cultivation hypothesis. Beyond that, in order to substantiate causal or cultivation inferences about any discovered relationship, it is important to carefully examine the beta coefficients yielded in regression analyses.

Multivariate analyses of the statistical relation between television-viewing and items tapping fear, anomia, alienation, and attitudes toward suicide, strangers, and actual physical violence are shown in Tables 10-16. The basic findings are summarized in Table 9. Following Gerbner et al.'s (1978) example of combining "mean world" items into an index, we have clustered these and the multiple ques-

tions on anomia, alienation, and suicide, respectively, into four indexes. The 16 items comprising them and reported individually earlier are now included in one of these four indexes.¹⁹ The remaining two questions—on fear of walking alone within one mile from home and attitude toward physical violence—are still shown separately.

In Tables 10-16, the grand mean for the entire sample on the dependent variables is displayed at the top. Each table's "unadjusted" column shows the deviation from the grand mean for each category of respondents providing the "television answer" for the dependent variable, by hours of viewing, years of school, sex, and age.²⁰ The first adjusted column shows how much this deviation is narrowed for each of these predictor variables when controlling for the other three simultaneously. For each table these controls are television-viewing, education, sex, and age, selected to coincide with the Annenberg group's presentation of these (as single controls) in most of the tables they present. In the second adjusted column we add race as an additional variable of conceptual interest to see if its introduction further narrows the percentage differences obtained when the others are simultaneously controlled.²¹ For added clarity, Table 11 reformats the same findings on anomia by amount of TV-viewing contained in Table 10. The unadjusted row presents the grand mean, followed by the percentage of viewers providing "television answers" to the anomia items on the General Social Survey. The adjusted row shows how the apparent effect of television-viewing disappears after controlling for age, sex, education, and race simultaneously. The percentages in each row are easily derived by adding the grand mean and the deviations from it for each viewing category presented in the unadjusted and second adjusted columns for TV-viewing in Table 10.

The R^2 statistics at the bottom of the adjusted columns in Tables 10-16 tell how much variation in the attitude items is explained by all of the control variables taken together. For

each of these "predictors" separately, two indicators of its relative effect are the Eta (N) and Beta (B) statistics displayed at the bottom row of each control variable. An indicator of each predictor's relative contribution to explained variance is the percentage spread between each variable's component categories compared with the same differential in the other three. The "High-Low Differential" column shows the percentage spread for each variable, and notes the one (or two, if tied) with the largest differential. (If this does not exceed two percentage points, nothing is circled). This statistic is based on (and includes) the "cultivation differential" developed by Gerbner et al. to report the absolute differences between the percentage of heavy and light viewers giving the "television answer" to "scary" or "mean world" items.

In Table 9's summary of these analyses, we see that (1) *the total amount of variance explained (column one) by all four controls, taken together, is consistently minimal, ranging from .08 to .18 and exceeding 10 percent in only three of six instances.* In the context of such low R^2 findings television viewing's minimal relative effect—across all of the dependent variables—is especially significant: It clearly refutes the Annenberg group's assertion of a "separate and independent" effect and severely undermines their conceptual argument. Table 9 shows television-viewing to be a lesser among equals, whose total combination is itself strikingly unimpressive. (2) Television viewing's standardized dummy regression coefficients (Beta) range from .03 to .08 across all of the dependent variables. That variable and sex are consistently the weakest contributors to the amount of variance explained by the control variables. (3) Of all the potential effects, only education shows any consistent independent strength as a predictor. This is evidenced by its relatively large Betas and the percentage spreads between its "high" and "low" categories after adjusting for the other predictor variables. It is instructive to compare them with the cultivation differentials for television-viewing (column

TABLE 9
 Summary Statistics on Television Viewing's "Separate and Independent Contribution"
 to the Variance Explained Below

Variable	Multiple R ² for Television Viewing, Education, Sex, and Race	High-Low Differential for Television Viewing and Linearity (Y=Yes)	High-Low Differential for Largest Contribution to R ²	Beta for Education	Adjusted Beta of Television Viewing
Alienation	0.08	-2.42 (No)	-20.64 (Education)	.26	0.06
Anomia	0.13	-2.36 (No)	-28.50 (Education)	.32	0.08
Fear	0.18	-6.13 (No)	39.68 (Sex)	.01	0.03
Actual Violence	0.07	-3.33 (No)	16.67 (Education)	.15	0.05
Mean World	0.12	3.81 (No)	-25.03 (Education) 22.19 (Race)	.25	0.06
Suicide	0.07	-6.91 (Y)	10.91 (Education)	.19	0.06

2), which they dwarf. Education's high-low differentials and Betas are the highest, with those of race and age in the middle and television and sex (except for fear of walking alone) typically the lowest. (4) The "high-low" or "cultivation" differential for television viewers runs in the opposite direction, after adjustment, to what Gerbner et al. assert; that is, the negative sign in five of the six cases means that television's heaviest viewers provide the "television answer" in smaller percentages than nonviewers.

Furthermore, the (No) following the differentials in five of the six instances shows that there is no pattern of evidence where the mean percentage of respondents providing "television answers" increases monotonically with hours viewed. Most frequently, it is light viewers who least often yield "mean" or "scary" world responses. Both nonviewers and medium viewers generally provide higher percentages of "television answers." After adjusting for the other variables, the percentage of heavy and extreme viewers giving these responses follows no pattern at all. Were the cultivation differential computed by subtracting the percentage of light from heavy viewers, as Gerbner et al. have done, the resulting improvement in size and sign for the hypothesis would be due largely to the marked deviation in the response of light viewers from all other viewing categories in the direction away from the "television answer." This is reflected in the general finding of nonlinearity in the responses of all categories of television-watching, including those of nonviewers. In the one instance where the cultivation differential is linear, it moves in the direction *opposite* to that proposed by the cultivation hypothesis: Here, the percentage of heavy and extreme viewers opposed to actual physical violence remains higher than that of light and nonviewers, even after the multiple controls are introduced. For only one scale, the "mean world" index, is the sign of the high-low differential positive, in the direction proposed by the cultivation hypothesis.

Tables 10-16 also yield additional information on the relation of television and these "controls" to the dependent variables. Most importantly, we can see that the final, adjusted breakdowns on television-viewing give no support to the Annenberg group's claims on five of the six dependent variables. Only one, the "mean world" index, shows some results which are linear in the hypothesized direction. To list only the most salient anomalies to the cultivation hypothesis: (1) The Heaviest viewers give the television answer *less* frequently than nonviewers. The "cultivation differential," which we adopt from Gerbner et al.'s practice of subtracting the mean score of the highest viewing category from that of the lowest, is *negative* for five of the six dependent variables. (2) Even if we drop these two extreme viewing categories and compute the cultivation differential as Gerbner et al. do, by subtracting the scores of light viewers from those of heavy viewers, we still get negative differentials for three of six dependent variables (fear of walking alone at night, attitude toward actual violence, and attitude toward suicide). (3) For three of the six dependent variables, alienation, fear, and attitude toward suicide, it is the heaviest viewers who give the television answer the *least* often. (4) For two of the six dependent variables, anomia and attitude toward suicide, it is non-viewers who give the television answer more often than any other group. (5) For two of the dependent variables, attitude toward actual violence and attitude toward suicide, we find nearly perfect monotonic *reductions* in the percentage of television answers across viewing categories when adjustments are made; that is, there is a linear relationship between television-viewing and so-called "television answers" which runs *directly contrary* to the cultivation hypothesis.

Although the percentage of blacks in the sample is small, thus mitigating the possible effect of race as a suppressor variable, differences between blacks and whites on all

(text continues on page 448)

TABLE 10
MCA of Anomia by TV-Viewing (TV), Education (E), Sex (S), Age (A), and Race (R)

Grand Mean = 53.12						
<u>Variable</u>	<u>N</u>	<u>Unadjusted Deviation</u>	<u>Adjusted for TV, E, S, A</u>	<u>Adjusted for TV, E, S, A, R</u>	<u>Hi-Lo Differential</u>	
<u>TV Viewing</u>						
NV	54	2.45	4.94	5.37		
L	655	-5.80	-3.25	-3.10		
M	284	3.80	2.90	3.09		
H	353	5.42	2.39	2.01		
EX	52	12.90	3.72	3.01		
		Eta=.16	Beta=.08	Beta=.08		-2.36
<u>Education</u>						
11 years or less	494	14.69	14.79	14.29		
12 years	478	-2.22	-2.69	-2.30		
13 years or more	426	-14.55	-14.09	-14.21		
		Eta=.33	Beta=.32	Beta=.32		28.50
<u>Sex</u>						
M	649	-1.97	-1.30	-1.09		
F	749	1.70	1.13	.94		
		Eta=.05	Beta=.03	Beta=.03		
<u>Age</u>						
Under 30	343	1.50	4.58	2.71		
30-54	637	-2.94	-1.37	4.38		
55 and over	418	3.26	-1.68	-8.99		
		Eta=.08	Beta=.07	Beta=.07		11.70
			$R^2=0.122$			$R^2=.13$

TABLE 11
 Alternative Format for MCA of Anomia by Television Viewing, Education, Sex, and Race

<u>BY VIEWING CATEGORY</u>		<u>Overall Grand Mean</u>	<u>Nonviewers</u>	<u>Light</u>	<u>Medium</u>	<u>Heavy</u>	<u>Extreme</u>
UNADJUSTED:*		53	56	47	57	58	66
ADJUSTED FOR:**	{ Age Race Sex Education together }	53	58	50	56	55	56

* Unadjusted roughly supports cultivation hypothesis.
 ** Adjusted wipes out the "television effect."

TABLE 12
MCA of Alienation by TV-Viewing (TV), Education (E), Sex (S), Age (A), and Race (R)

Variable	N	Grand Mean = 55.77	Unadjusted Deviation	Adjusted for TV, E, S, A	Adjusted for TV, E, S, A, R	Hi-Lo Differential
Education						
NV	74		-1.48	-0.41	-0.25	
L	579		-2.81	-1.34	-1.28	
M	230		0.09	-0.43	-0.15	
H	291		5.28	3.44	3.16	
EX	47		3.80	-1.99	-2.67	
			Eta ² = .11	Eta ² = .06	Eta ² = .06	-2.42
Education						
≤ 11	360		10.06	10.61	10.50	
12	440		1.50	1.05	1.11	
≥ 13	421		-10.17	-10.10	-10.14	20.64
			Eta ² = .26	Eta ² = .26	Eta ² = .26	
Sex						
M	526		0.09	1.27	1.07	
F	695		-0.07	-0.97	-0.81	
			Eta ² = .00	Eta ² = .04	Eta ² = .03	1.88
Age						
≤ 30	338		3.79	4.76	4.67	
30-54	535		-2.44	-0.97	-1.14	
≥ 55	348		0.07	-3.11	-2.79	
			Eta ² = .08	Eta ² = .10	Eta ² = .09	7.46
Race						
W	1095		-0.81		-0.46	
B	126		7.06		4.01	
			Eta ² = .08		Eta ² = .04	4.47
			R ² = 0.04		R ² = 0.082	

TABLE 13
MCA of Fear by TV-Viewing (TV), Education (E), Sex (S), Age (A), and Race (R)

Grand Mean = 45.03						
<u>Variable</u>	<u>N</u>	<u>Unadjusted Deviation</u>	<u>Adjusted for TV, E, S, A</u>	<u>Adjusted for TV, E, S, A, R</u>	<u>Hi-Lo Differential</u>	
<u>TV Viewing</u>						
NV	60	-.03	1.17	.84		
L	698	-2.19	.85	1.10		
M	307	-1.05	-1.90	-1.64		
H	386	4.46	.39	-.02		
EX	57	2.34	-4.02	-5.29		
		Eta=.06	Beta=.03	Beta=.03		-6.13
<u>Education</u>						
< 11	551	2.89	1.33	.56		
12	505	.12	-1.35	-.82		
≥ 13	452	-3.65	-.12	.24		
		Eta=.05	Beta=.02	Beta=.01		.32
<u>Sex</u>						
M	684	-21.93	-21.91	-21.75		
F	824	18.20	18.19	17.93		
		Eta=.40	Beta=.40	Beta=.40		39.68
<u>Age</u>						
< 30	4.42	-3.10	-3.69			
30-54	3.70	-3.47	-3.46			
≥ 55	8.84	7.47	7.85			
		Eta=.05	Beta=.02	Beta=.11		10.95
<u>Race</u>						
W	1323	-2.24		-2.01		
B	171	17.33		15.56		
		Eta=.13		Beta=.11		R ² =.18

TABLE 14
MCA of Attitude Toward Actual Violence by TV-Viewing (TV), Education (E), Sex (S), Age (A), and Race (R)

Grand Mean = 68.78

Variable	N	Unadjusted Deviation	Adjusted for TV, E, S, A	Adjusted for TV, E, S, A, R	Hi-Lo Differential
<u>TV Viewing</u>					
NV	138	2.96	0.76	.39	
L	1320	2.51	1.10	.78	
M	560	3.36	3.32	2.93	
H	740	-6.22	-3.82	-3.24	
EX	109	-9.15	-5.37	-2.94	
		Eta=.09	Eta=.06	Eta=.05	-3.33
<u>Education</u>					
≤ 11	946	-12.97	-10.51	-9.55	
12	997	3.73	3.08	2.48	
≥ 13	924	9.25	7.43	7.12	
		Eta=.20	Eta=.16	Eta=.15	16.67
<u>Sex</u>					
M	1250	0.82	-0.09	-.13	
F	1617	-0.63	0.07	.10	
		Eta=.02	Eta=.00	Eta=.00	0.23
<u>Age</u>					
< 30	793	4.9	2.38	2.71	
30-54	1236	4.8	3.89	4.38	
≥ 55	838	-11.4	-7.99	-8.99	
		Eta=.16	Eta=.11	Eta=.13	11.70
<u>Race</u>					
W	2550	1.91		1.62	
D	298	-16.31		-13.87	
		Eta=.12		Eta=.10	R ² =.068

TABLE 15
MCA of Mean World by TV-Viewing (TV), Education (E), Sex (S), Age (A), and Race (R)

Variable	N	Unadjusted Deviation	Adjusted for $\frac{TV, E, S, A}{A}$	Adjusted for $\frac{TV, E, S, A, R}{R}$	Hi-Lo Differential
Grand Mean = 48.24					
<u>TV Viewing</u>					
NV	129	-6.38	-3.64	-3.23	
L	1233	-4.68	-2.59	-2.12	
M	527	2.43	2.05	2.53	
HI	697	6.14	3.19	2.35	
EX	106	9.78	3.48	0.58	
		Eta=.13	Beta=.07	Beta=.06	3.81
<u>Education</u>					
≤ 11	897	13.19	14.01	12.96	
12	955	-1.48	-2.18	-1.55	
≥ 13	840	-12.40	-12.45	-12.07	
		Eta=.26	Beta=.27	Beta=.25	-25.03
<u>Sex</u>					
M	1182	0.66	1.92	1.75	
F	1510	-0.52	-1.50	-1.37	
		Eta=.01	Beta=.04	Beta=.04	-3.12
<u>Age</u>					
< 30	738	6.17	8.41	8.08	
30-54	1155	-4.43	-2.79	-3.29	
> 55	799	0.70	-3.73	-2.72	
		Eta=.11	Beta=.13	Beta=.12	-10.8
<u>Race</u>					
W	2418	-2.76		-2.26	
B	274	24.39		19.93	
		Eta=.20	R ² =0.087	Beta=.17	22.19
				R ² =0.116	

TABLE 16
 MCA of Attitude Toward Suicide by TV-Viewing (TV), Education (E), Sex (S), Age (A), and Race (R)

Variable	N	Unadjusted Deviation	Adjusted for TV, E, S, A	Adjusted for TV, E, S, A, R	Hi-Lo Differential
Grand Mean = 16.26					
<u>TV Viewing</u>					
NV	145	6.84	4.78	4.74	
L	1365	1.59	0.74	.62	
M	570	-0.43	-0.03	-.08	
11	711	-3.43	-1.99	-1.75	
EX	111	-4.33	-2.47	-2.17	
		Eta ² = .10	Beta = .06	Beta = .06	-6.91
<u>Education</u>					
≤ 11	983	-4.69	-3.71	-3.44	
12	1006	-3.12	-3.16	-3.36	
≥ 13	913	8.49	7.47	7.51	10.91
		Eta ² = .22	Beta = .19	Beta = .19	
<u>Sex</u>					
M	1270	2.57	1.83	1.72	
F	1632	-2.00	-1.43	-1.33	
		Eta ² = .09	Beta = .06	Beta = .06	3.05
<u>Age</u>					
< 30	747	-4.22	3.58	3.87	
30-54	1282	-0.02	-0.68	-.66	
≥ 55	873	-3.58	-2.06	-2.34	
		Eta ² = .11	Beta = .08	Beta = .09	6.21
<u>Race</u>					
W	2557	.70		-.63	
B	318	-5.63		-5.06	
		Eta ² = .08	Beta = .07	Beta = .07	R ² = .068

dependent variables are sharp. Interestingly, the black/white percentage difference does not run in the same direction with respect to the "television answers" in each case. While racial differences are striking for all dependent variables, in the case of attitude toward actual violence (Table 14) and attitude toward suicide (Table 16), blacks give the television answer with considerably less frequency than whites. This suggests that the sentiments tapped by the various attitude questions are quite distinct and that the relationship of attitudes to socioeconomic status, as well as to television-viewing, is more complex than in the Annenberg group's formulation. The impact of race on the "mean world" index, the only one of the dependent variables which gives any support to the cultivation hypothesis, is also of interest. This can be seen by comparing the first and second columns of adjusted deviations with respect to television-viewing in Table 15. In the first column of adjustments, before race had been added, there is a monotonic increase in mean world attitudes across viewing levels. Once race is controlled, the percentages of mean world answers by those in the heavy and extreme categories drop below those of medium viewers, with the percentages of extreme viewers being lower than those respondents in the heavy viewing category. If we take race as a rough proxy for neighborhood crime rate, this finding underscores and supports Doob and MacDonald's (1979) discovery that controlling for local crime rates undercuts the presumed effect of television on fear of victimization.

While sex has a negligible effect on most dependent variables, it is not surprising to find that its effect swamps that of all other independent variables on fear of walking alone at night. Once controls are added, the already weak relationship between television-viewing and fear collapses, and it is evidently sex which is most responsible for this. Considerable disparities exist across age groupings on several dependent variables, but these are not consistently in the same direction, nor are they linear. The oldest

respondents (55 and over) give the lowest number of television answers for four of the six dependent variables but are also by far the highest on fear of walking alone at night, again suggesting that objective vulnerability is the only operative factor in this fear.

CONCLUSION

This article has systematically analyzed responses to the National Opinion Research Center's General Social Survey claimed by George Gerbner et al. to support the assertion that television-viewing "cultivates" misconceptions of the "real world." In Part I of this report, I have shown how the assertion is found severely wanting when standard statistical techniques employed in social science research are applied to these data. Across most of the attitude items reported by the Annenberg group, as well as for others they chose not to report, the effect of television-viewing is clearly minimal when the responses of nonviewers and extreme viewers are analyzed separately. When two or more controls were applied simultaneously, we found the "separate and independent" effect of television viewing to be non-existent.

A more serious issue raised by the results of the multivariate analysis is that the total amount of variance explained by all of the predictor variables—that is, their combined ability to explain respondents' attitudes—is usually less than .10 and never above 15%. Since most social scientists find such low R^2 statistics evidence of nonfindings and clearly not reportable as positive results, one cannot help being impressed at the minimal contribution of television-viewing to even this low amount of explained variance. (In relative terms, education explained the most.) Indeed, if all of them combined explain so little, and we found television-viewing to add virtually nothing to the others before it, to then argue that these data *support* the

cultivation hypothesis is itself an ironic distortion of the "real world" of data analysis.

Another serious problem addressed in this report was the lack of comparability between the items and samples treated by Gerbner et al. as cumulative empirical evidence in their efforts to build a case for cultivation effects. The lack of consistent results within and between samples suggests more a pattern of randomness than evidence for a linear, or even a monotonic, relationship between television-viewing and perceptions of a "mean" or "scary" world.

Two larger purposes of this reanalysis have been to open a scholarly dialogue on the virtues and defects of the Annenberg group's cultural indicators project, and to point up a need for more and expanded research frameworks to study the role and impact of television in society. Dr. Gerbner's violence profiles have articulated and set the stage for such expanded discussions. His efforts to empirically link content analysis to audience perceptions are rightly regarded as important and systematic contributions to communication research. Nevertheless, the demographic profile of extreme viewers reported here (mainly housewives, the elderly, and those in poor health) suggest viewer availability as a key prior determinant of viewing behavior and as indicative of associated attitude clusters. Combined with the relative absence of cultivation effects found for this viewing category, it is clear that the theory specified by Gerbner et al. is incomplete and needs further development.

The methodology of taking single survey items and their attitudinal correlates needs to be expanded by other investigations focusing on the relation of specific genres and programs to viewer interpretations and perceptions—as Gans did in both *The Urban Villagers* (1962) and in more recent work (1980). The complexity of viewers' perceptions also requires more careful treatment—as provided, for example, in Dorr's (1980) integration of the literature on children and television. Most important, researchers and

graduate students must be encouraged to work with and develop alternative frameworks and paradigms since most of the work in the Violence Profiles, as shown here, still awaits replication and support and is best represented as only one among many possible research strategies and designs for studying communications content and effects.

Part II of this report will take up these theoretical issues in more detail and outline one such alternative strategy. In addition, I will complete the analysis of responses in NORC's data set and show that the attitudes of population sub-groups (women, elderly, blacks) are independent of television hours viewed and often move in directions counter to expectations of the "mean world" hypothesis. Also included will be a series of other anomalies, such as findings relating radio-listening to items Gerbner et al. assert tap the "mean" or "scary" world portrayed on television.

NOTES

1. The National Opinion Research Center keeps records of papers and publications making use of its data. NORC has nothing on this in its files, and we are aware of no published or unpublished attempts to reanalyze the Annenberg group's findings with the same data sources they used.

2. There is, of course, a long history of findings and discussion over the documented absence of linkage between the conveyance of specific messages and an awareness by or impact on the intended recipient. The "hypodermic needle" or "magic bullet" model has long been viewed by communication researchers as problematic, due to the intervening filtering mechanisms exerted by selective perception, differential salience, viewer predispositions, and personal influence. For a review of the relevant literature, see DeFleur and Ball-Rokeach (1975).

3. For example, if I watched two hours of morning and evening news, plus two hours of daytime serials and three situation comedies at night, I would appear as a heavy viewer if surveyed by NORC but as light in the CPS data file.

4. When it is employed as a control on TV-viewing, the coding for education varies *within* the analysis of the NORC data. In Gerbner et al. (1978), where NORC and CPS surveys are presented side by side, the breaks for education in the NORC samples appear as either (1) No high school, High School grad, and Some college (pp. 198, 201, 203), or (2) No college and Some college (p. 204). Here, the first two

entries in version 1 are collapsed in version 2. This lack of consistency in coding categories becomes more problematic as we move on to different samples.

5. This problem also arises when Gerbner et al. present correlation coefficients for these very different samples without noting how their differences in composition and size also cast doubt on the significance and comparability of the results. In Profile 8 (1978: 177), for example, a series of partial correlations is presented between amount of television viewed and answers on the attitude items concerning violence and law enforcement. Not surprisingly, the size of the coefficients is highest for the least representative samples (the New York City private school children, the suburban/rural children, and a "quota sample" of adults). They are smallest for the national probability sample (apparently CPS), ranging from .05 to .09, but reported nevertheless as attaining statistical significance—a likely artifact of sample size, for N here is 1627, in contrast to the New York children's N of 133. Results for these very different samples are presented side by side.

6. Within the children's samples reprinted in Table 3, note that the presumed effects are themselves inconsistent and conceivably random. Statistical significance is attained only for girls in the New Jersey school and for boys only in the New York school; for children of *non*-college-educated parents only, in New Jersey, but for children of (at least) some college-educated parents only in New York. The "effects" by age group are similarly contradictory. These inconsistencies actually raise more questions than they purport to answer.

7. The presumption here that a favorable attitude toward actual physical violence constitutes the "television answer" is based on Gerbner et al.'s own coding of the similar items discussed above and inferred from the text accompanying the violence profiles. I do not interpret Table 4 to mean that heavy viewers are therefore more peace-loving than anyone else. The point is more simply that even in terms of the analysis framework set up by Gerbner et al., there are unreported items like this one that severely undermine the case he asserts so vigorously. Since comparisons between samples of children and adults are presented elsewhere in their articles (for example, 1977: 177-178), it is not the age differential which would account for Gerbner et al.'s omission of the NORC items from their reports.

8. For a dramatic illustration of this point, see Gerbner et al.'s (1978: Table 9, p. 198) interpretation of "Percent of Adults Who Would Be Afraid to Walk Alone at Night." Here they separately provide responses to this item by respondents in both the NORC and CPS surveys. In the former, of eight gamma coefficients of association reported where a single control is introduced, all are statistically *insignificant*. The ninth, a zero-order coefficient of .08 for the entire sample ($N=1516$) is "significant" but must be discounted due to the large N . In the CPS survey, the zero-order coefficient is insignificant as well, as are six out of the eight partial gammas reported. (One colleague has noted that if this table were reported but the text changed, it could persuasively support a case for "no effects.") Our finding, given the pervasive insignificance of the table, is that the same insignificance remains after alternative codings of viewing categories are introduced. When the same single controls are introduced, the frequency of consistent upward movements of the percentage from "light" through "heavy" viewing falls from

three rows out of nine to only one in the nine. The two alternative coding categories employed here were (1) 0 hours = nonviewers, 1 = light, 2-3 = medium, 4-7 = heavy, 8 or more = extreme; and (2) 0 hours = nonviewers, 1-2 hours = light, 3-4 = medium, 5-7 = heavy, 8 or more = extreme.

9. The "cultivation differential" is a measure employed by Gerbner et al. to show the percentage difference obtained by subtracting the percentage of light viewers giving the "television answer" from the percentage of heavy viewers. In column 3 of Tables 5 and 6, we compute the same statistic by subtracting the percentage of nonviewers giving the "television answer" from the percentage of light viewers giving the same response to a particular question. A negative sign means the direction is counter to the expectations of the cultivation hypothesis.

10. Another way to interpret these differences is that if there is *any* pattern of discrepancies between the percentages of nonviewers and light viewers responding to survey items, the two categories should not be combined. By this criterion, if the percentages are different enough, the direction of the response is immaterial. In Table 6, for example, if 48% of nonviewers 55 and older compared with 35% of light viewers in that category had *disagreed* that people look out mostly for themselves, the 13% differential would be seen as *arguing against* combining them, even though in this instance it would have been the nonviewers whose response was furthest from the "television answer." Similarly, one would then discount instances where their percentages differed only by small magnitudes.

11. "It's hardly fair to bring a child into the world with the way things look for the future." "Most public officials are not really interested in the problems of the average man."

12. The format of these tables (not shown here) is the same as in Tables 5 and 6. For the nine rows in each of four tables for suicide, nonviewers are less favorable than light viewers in (a) eight out of nine rows of three tables and in (b) five out of nine where an incurable disease is listed as the motive. The procedure employed in this part of the reanalysis is further described in the section comparing television's heavy and extreme viewers. See, for example, footnote 1.

13. These three items are:

- (1) "The rich get richer and the poor get poorer."
- (2) "You're left out of things going on around you."
- (3) "The people running the country don't really care what happens to you."

The single controls, applied after showing the "overall" percentages, continue to be age, sex, and education.

14. These three items are:

- (1) "What you think doesn't count very much any more."
- (2) "Most of the people with power try to take advantage of people like yourself."
- (3) "The people in Washington, D.C. are out of touch with the rest of the country."

15. The one item for which nonviewers did not conform to this pattern is: "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?"

16. The three (alienation) items for which this did not occur are described in note 15. We have not examined two items from the NORC Survey discussed by

Gerbner et al. in *Violence Profile 8* (1977). These pertain to the respondent's views on the likelihood of a war within the next ten years and on isolationism. Our main reason for excluding them is that Gerbner et al.'s basis for deriving a "television answer" for them is too obscure for us to feel comfortable in adopting it.

17. The resulting "pattern" of support or nonsupport is thus based on the frequencies of the upward or downwards movement of percentages across 153 rows of 17 tables. The aggregated result is of theoretical significance, given Gerbner et al.'s strong inferences from similar tables in which both extremes of the distribution are distorted. Significant gamma statistics occur in some rows but not others (as in the tables reported by Gerbner et al.). These are omitted here, as they are essentially irrelevant to the search for "patterns" which they claim to have found and which is so central to their argument. While cell sizes, as noted earlier, are far from ideal in some instances, the sheer number and magnitude of the patterns running counter to the cultivation hypothesis, and the conceptual damage they create for the assertion of cultivation effects, outweigh any argument for their exclusion.

18. The actual wording of each question was provided earlier in this article. The item which tied was the fourth alienation question.

19. For four of these items—*anomia*, alienation, attitudes toward suicide, and attitudes toward strangers—we constructed indexes from groups of questions designed by NORC to measure different dimensions of each attitude. To determine the unidimensionality of each set of questions, intercorrelations of index items were inspected using gamma measures. All were sufficient and high. For the three questions comprising our *anomia* index, the average gamma was .65; for the six questions in the alienation scale, the mean gamma was .61; for the four items in the attitude toward suicide scale, .98; and for the three questions in the index of attitudes toward strangers—or what we will henceforth be calling our "mean world" index following Gerbner et al.'s term for these questions in *Violence Profile No. 8* (1977)—the average gamma was .76.

20. If the grand mean is 50 and the mean percentage of nonviewers is 53, the number in the "Unadjusted" column will appear as + 3. In this case, 50% of the total sample would have given the "television answer," while the percentage of nonviewers giving the same response is 53. See Table 11 for an additional illustration of this procedure.

21. We introduce only one additional control here due to restrictions inherent in both cell sizes and the SPSS package's MCA program. Multiple Classification Analysis is a dummy variable regression program designed to correct the predictive power of a given independent variable for each of the other predictors in the model. The technique and its application to survey data are described in Andrews et al. (1972).

REFERENCES

- ALDERFER, C. P. (1977) "A critique of Salancik and Pfeffer's examination of need satisfaction theories." *Admin. Science Q.* 22: 658-669.

- ANDREWS, F., J. MORGAN, and J. SONQUIST (1972) *Multiple Classification Analysis*. Ann Arbor: University of Michigan Survey Research Center.
- BOGART, L. (1973) *The Age of Television*. New York: Unger.
- CAPLAN, A. [ed.] (1978) *Sociobiology Debate*. New York: Harper & Row.
- DAVIS, J. A., T. A. SMITH, and C. B. STEPHENSON (1978) *General Social Surveys, 1972-1978: Cumulative Codebook*. Chicago: National Opinion Research Center.
- DeFLEUR, M. L. and S. BALL-ROKEACH (1975) *Theories of Mass Communication*. New York: Longman.
- DOOB, A. and G. E. MacDONALD (1979) "Television viewing and fear of victimization: is the relationship causal?" *J. of Social Psychology and Personality* 37: 170-179.
- DORR, A. (1980) "When I was a child I thought as a child," in S. Withey and R. Abeles (eds.) *Television and Social Behavior: Beyond Violence and Children*. Hillsdale, NJ: Lawrence Erlbaum.
- GANS, H. (1980) "The audience for television and in television research," in S. Withey and R. Abeles (eds.) *Television and Social Behavior: Beyond Violence and Children*. Hillsdale, NJ: Lawrence Erlbaum.
- (1962) *The Urban Villagers*. New York: Free Press.
- GERBNER, G. and L. GROSS (1976) "Living with television: the violence profile." *J. of Communication* 26: 173-199.
- N. SIGNORIELLI, M. MORGAN, and M. JACKSON-BEECK (1979a) "The demonstration of power: Violence Profile No. 10." *J. of Communication* 29: 177-196.
- (1979b) *Violence Profile No. 10*. Philadelphia: Annenberg School of Communication.
- GERBNER, G., L. GROSS, M. JACKSON-BEECK, S. JEFFRIES-FOX, and N. SIGNORIELLI (1978) "Cultural indicators: Violence Profile No. 9." *J. of Communication* 28: 176-206.
- GERBNER, G., L. GROSS, M. F. ELEEY, M. JACKSON-BEECK, S. JEFFRIES-FOX, and N. SIGNORIELLI (1977) "TV Violence Profile No. 8: highlights." *J. of Communication* 27: 171-180.
- HAWKINS, R. and S. PINGREE (1980) "Some processes in the cultivation effect." *Communication Research* 7: 193-226.
- HIMMELWEIT, H., B. SWIFT, and M. E. JAEGER (1980) "The audience as critic: an approach to the study of entertainment," in P. Tannenbaum (ed.) *Television Entertainment*. Hillsdale, NJ: Lawrence Erlbaum.
- JACKSON-BEECK, M. (1977) "The nonviewers: who are they?" *J. of Communication* 27: 65-72.
- KAMIN, L. (1974) *The Science and Politics of I.O.* New York: Halsted Press.
- MOYNIHAN, D. P. and F. MOSTELLER [ed.] (1972) *On Equality of Educational Opportunity*. New York: Random House.
- NEWCOMB, H. (1978) "Assessing the violence profiles of Gerbner and Gross: a humanistic critique and suggestion." *Communication Research* 5: 264-282.
- ROBINSON, J. (1969) "Television and leisure times: yesterday, today and (maybe) tomorrow." *Public Opinion Q.* 33: 210-222.
- SAHLINS, M. (1977) *The Use and Abuse of Biology*. Ann Arbor: Univ. of Michigan Press.

- SALANCIK, G. R. and J. PFEFFER (1977) "An examination of need satisfaction models of job attitudes." *Admin. Science Q.* 22: 427-455.
- WILSON, E. O. (1975) *Sociobiology*. Cambridge, MA: Belknap Press.
- WOBER, J. M. (1978) "Televised violence and paranoid perception: the view from Great Britain." *Public Opinion Q.* 42: 315-321.

Paul M. Hirsch is Associate Professor of Sociology in the Graduate School of Business, University of Chicago. He is Associate Editor of this journal.