International Journal of Public Opinion Research Vol. 7 No. 1 0954–2892/95 $3.00

A NEW LOOK AT TELEVISION VIEWING AND ADULT VOCABULARY

John Bare

ABSTRACT

An analysis of a multiyear General Social Survey data set supports previous findings (Gaddy 1986; Gortmaker *et al.* 1990) that, with rigorous controls in place, the negative correlation between television viewing and achievement disappears. Results of a hierarchical regression procedure reveal that television viewing is not a significant predictor of adult vocabulary, over and above demographic variables and newspaper readership. But the findings suggest that new methods of measuring television consumption may be needed. Based on 1993 GSS data, the analysis reveals that frequent viewing of certain types of television programming is related *positively* and significantly to adult vocabulary scores. The finding highlights the need for new methods of measuring television consumption, for the traditional hours-per-day method of measuring television viewership may be preventing researchers from understanding the true relationship that exists between television and learning.

Several studies have suggested that a positive relationship exists between certain types of television viewing and certain types of learning, including vocabulary. Captioned television, with its unique visual and aural properties, has proven to be an effective medium for vocabulary instruction among minority students learning English as a second language (Neumann and Koskinen 1992). A series of studies showed that children who viewed *Sesame Street* and *The Electric Company* generally learned more than those who did not (Huston *et al.* 1992). Specifically, vocabulary scores increased for children three to five years of age who viewed *Sesame Street* (Rice *et al.* 1990).

The impact of television on vocabulary differs by age group. Three-year-old and five-year-old children significantly increased their scores on a vocabulary measure by viewing non-violent programs with voice narration. Researchers (Rice and Woodall 1988) reported that the results confirmed previous expectations that younger children 'pick up' novel terms quickly and easily and that 'young viewers can learn new words when watching television, given an appropriate script.' British educator Brent Robinson (1985) contended that television, because of its ability to communicate written messages that often accompany TV content, is a natural tool for reading development, and new text-based

media delivered through television monitors should further improve reading skills.

A second body of research, however, indicates television has little or no effect on vocabulary development. Scarborough (1989) found that differences in the abilities of children at age five—and the presence of reading deficiencies among their relatives—predicted reading scores among second-grade students, but a measure of the number of hours of television viewed each week did not.

Gaddy (1986), in his panel study of high school students, found a negative and significant zero-order correlation between television and vocabulary achievement, but he explained that the correlations were of a 'potentially misleading nature', and subsequent cross-lagged analysis revealed television to have no significant effect. A later longitudinal study by Gortmaker *et al.* (1990) of student achievement from 1963 through 1970 confirmed Gaddy's finding that, once variables such as prior achievement and parent's socioeconomic status were controlled, 'the amount of television viewing during childhood and adolescence is not a significant influence upon later test scores.'

Harrison and Williams (1986) found that the impact of television viewing on vocabulary achievement differed for children at different grade levels, but the researchers concluded that there are only 'hints' that television viewing is a positive influence on vocabulary for children; they found no broad and persuasive evidence. Overall, they predicted that television effects may be specific, rather than general.

Still a third body of research indicates that, under certain conditions, a negative, possibly even harmful, relationship exists between television viewing and learning. Armstrong and Greenberg (1990) explained that 'human central processing units are limited', and their study of college freshmen who attempted to watch television and read at the same time revealed that background television inhibited students' ability to comprehend reading assignments. A California study of more than 10,000 sixth-grade students (Fetler 1984) found that moderate television viewing was related to higher achievement in reading, but increased television consumption was associated significantly and negatively with achievement. Fetler described a '"threshold" amount of viewing', which, if exceeded, was related to poor academic performance.

Morgan (1980) found a negative and significant association between television viewing and reading comprehension among students, but he could not demonstrate conclusively whether 'television viewing leads to lower scores, or . . . that students with reading problems simply watch more TV.' Morgan and Gross (1982) later summarized the research on television viewing and achievement this way: for students in lower grades and students who perform poorly on IQ tests, watching at least moderate amounts of television may improve achievement;

however, for those who are older and for those who score higher on IQ tests, there is a negative relationship between achievement and television viewing.

Adult vocabulary ability is studied considerably less often than student vocabulary, but Morgan and Gross (1982) also addressed this area. Using 1978 General Social Survey data, the researchers collapsed television viewership into high, medium, and low categories and examined vocabulary scores by television viewership groups and demographic variables age, gender, race, education, newspaper readership, and income. Measures of age, education, newspaper readership and income measures were collapsed into categories for the analysis. Morgan and Gross reported that, across all of the subgroups, the relationship between vocabulary and television was negative and, in all but one category, significant.

In later work, Morgan (1986) again drew on General Social Survey data, this time using 1978 and 1982 surveys. He again found a significant negative relationship between vocabulary scores and television viewing that was evident in nearly all subgroups analyzed. One problem with the work is that television viewing, originally measured on a ratio scale, was collapsed into an ordinal measure (heavy, medium, and light) for the study. Another is that control variables were considered separately, as Morgan examined one subgroup after another, thus it was not possible to determine the unique contribution of each control variable, nor was it possible to examine the influence of all control variables entered at once, into a single equation.

Building on this research and seeking an improved design, this study re-examines the relationship between television viewing and the General Social Survey measure of adult vocabulary. Using hierarchical regression and a multiyear data set, the analysis will answer two research questions.

Research Question 1: Using a multiyear data set and controlling for demographic variables and newspaper readership, what is the relationship between the number of hours of television viewed by respondents and vocabulary scores.

Research Question 2: Using the 1993 data set and controlling for demographic variables, newspaper readership and the number of hours of television viewed by respondents, what is the relationship between viewership of prime-time sitcoms and dramas, television news and public television programs and vocabulary scores.

METHODOLOGY

The data used in the study were drawn from the 1978, 1982, 1988, 1989, 1990, 1991, and 1993 General Social Surveys, which were conducted by the National Opinion Research Center in Chicago. These years were selected because the necessary measures of vocabulary, newspaper usage, and television viewership were asked. In every year, television viewership was measured in terms of the

number of hours respondents reported watching in an average day. Possible answers ranged from zero to 24, and the variable was not collapsed for the analysis.

In 1993, three additional measures were included: the frequency of viewership of prime-time comedies and dramas; the frequency of viewership of television news; and the frequency of viewership of public television programs. The variables were measured on a 1 to 5 scale, ranging from 'never' to 'every day' viewership. Newspaper readership was measured similarly, on a 1 to 5 scale, ranging from 'never' to 'daily' readership. Respondents' ages were measured continuously and were not collapsed for the analysis.

The race measure was dummy coded for the regression analysis, with non-whites coded zero and whites coded 1. Sex was also coded as a dummy variable, with males coded zero and females coded 1. Respondent's education, father's education, and mother's education were scored zero through 20, with zero representing no formal schooling and 20 coded for eight years of college. Income was coded in a dozen, ordinal categories. For each year, the income values were converted into z-scores, and the standardized values from each of the seven years were combined into an aggregate measure. This step allowed income values from 1978 to be considered together with income values from 1993.

The General Social Survey vocabulary measure is a modification of the Thorndike–Lorge Test of Verbal Intelligence. In the test, pollsters show respondents a word and ask them to select which of the five available options is the best synonym. Each respondent gets 10 rounds of vocabulary words, so possible scores range from zero to 10, a perfect score. For the analysis, 'no answers' were recoded as incorrect responses. The descriptive statistics for the vocabulary measure and the other variables used in the analysis are presented in Table 1. The table presents data in two sets: 1978, 1982, 1988, 1989, 1990, 1991 and 1993 data combined; and 1993 data only. These two data sets were used to answer the two research questions.

In the analysis, an SPSS regression procedure was carried out. The technique of hierarchical regression was employed, which allowed variables to be entered in blocks. The SPSS subcommand 'method = test(var)' calculated the R-square change, an F value for the change and significance of the R-square change. Alpha was set at .05. In addition to noting the unique contribution each variable in the model made to explaining variance in the vocabulary measure, the analysis yielded information as to the contribution made by blocks of variables.

RESULTS

The Multiyear Analysis

Because the General Social Survey asked vocabulary questions in several years, it was possible to create a multiyear data set that might allow detection of a

TABLE 1 **Descriptive Statistics**

Variable	*Multiyear Data Set*		*1993 Data Set*	
	Mean	*Standard Deviation*	*Mean*	*Standard Deviation*
Vocabulary[a]	5.59	2.54	5.67	2.51
Age (years)	45.31	17.91	46.05	17.37
Newspaper readership[b]	4.08	1.20	3.98	1.22
Education[c]	12.53	3.13	13.05	3.05
Father's education[c]	10.26	4.35	10.92	4.28
Mother's education[c]	10.45	3.67	11.01	3.40
Hours spent watching TV daily	3.01	2.31	2.90	2.21
Frequency of viewership of prime-time sitcoms and dramas[b]	—	—	3.48	1.19
Frequency of viewership of television news[b]	—	—	4.39	1.00
Frequency of viewership of public television shows[b]	—	—	3.28	1.25
Percent non-white	17.5	—	16.1	—
Percent with annual family incomes under $15,000	35.6	—	25.1	—
Percent female	57.4	—	57.3	—

[a] Scores from 0 (none correct) to 10 (perfect score).
[b] Scores from 1 (never) to 5 (every day).
[c] Scores from 0 (no formal schooling) to 20 (8 years of college).
Source: General Social Survey.

relationship between television and vocabulary that would not be observed in an analysis of a one-time cross-sectional study. It may be that the failure of television viewing to make a significant contribution to vocabulary in any single year was a statistical anomaly and not indicative of the true association between television viewing and vocabulary development. If so, an analysis of data from seven years, drawn over a time span of 15 years, should be powerful enough to detect the actual relationship.

As with the Gaddy (1986) study, the zero-order correlations for the multiyear data set revealed a negative and significant relationship (−.18) between vocabulary score and the number of television hours viewed. Results of the hierarchical regression procedure are presented in Table 2. The block of seven demographic variables accounted for 31.6 percent of the variance in respondents' vocabulary scores. The second block entered was a set of dummy variables designed to control for fluctuations in vocabulary scores that might have been caused by internal or external factors unique to any given year. The block of

TABLE 2 **Hierarchical regression analysis of predictors of vocabulary using 1978, 1982, 1988, 1989, 1990, 1991, and 1993 General Social Survey Data ($N=5,085$)**

Predictors	*Standardized regression coefficients*			
	1	*2*	*3*	*4*
Sex	.07*	.07*	.07*	.07*
Age	.10*	.11*	.09*	.09*
Race	.16*	.15*	.15*	.15*
Income	.09*	.09*	.08*	.08*
Father's education	.04*	.05*	.05*	.05*
Respondent's education	.44*	.45*	.43*	.43*
Mother's education	.06*	.07*	.06*	.07*
Y1982		−.05*	−.05*	−.05*
Y1988		−.08*	−.08*	−.08*
Y1989		−.05*	−.05*	−.05*
Y1990		−.06*	−.06*	−.06*
Y1991		−.06*	−.06*	−.06*
Y1993		−.08*	−.08*	−.08*
Newspaper readership			.07*	.06*
Hours of daily TV viewing				−.02
R-square	.316	.323	.327	.327
R-square change	—	.006	.004	.0004
F-value for *R*-square change	335.07	8.65	29.96	3.28
Sig. of *R*-square change	.0001	.0001	.0001	.0704

* $p<.05$.

dummy variables accounted for a small but significant portion of the variance. Third, newspaper readership was entered into the equation, and it also contributed significantly to the prediction of vocabulary. These three blocks of control variables produced an overall *R*-square of 32.7.

To answer Research Question 1, television viewing was then entered into the equation alone, and it did not reveal a significant and unique relationship between vocabulary scores and television viewing. The negative and significant relationship evident in the zero-order correlations disappeared once control variables were entered into the equation.

THE 1993 ANALYSIS

Next, the 1993 data were analyzed. Using data from this year not only made it possible to replicate the hierarchical model, it was possible also to examine the relationship between vocabulary and three detailed measures of television

TABLE 3 **Hierarchical regression analysis of predictors of vocabulary using 1993 General Social Survey Data ($N=677$)**

Predictors	*Standardized regression coefficients*			
	1	*2*	*3*	*4*
Sex	.03	.04	.04	.03
Age	.08*	.06	.06	.06
Race	.19*	.19*	.19*	.19*
Income	.11*	.11*	10*	.09*
Father's education	.03	.03	.03	.03
Respondent's education	·35*	·34*	·34*	·34*
Mother's education	.05	.06	.06	.04
Newspaper readership		.06	.06	.05
Hours of daily TV viewing			−.03	−.07
Prime-time sitcoms/dramas				.08*
TV news				.06
Public television				.02
R-square	.237	.240	.241	.252
R-square change	—	.003	.0008	.011
F value for R-square change	29.76	3.02	.70	3.21
Sig. of R-square change	.0001	.0825	.4024	.0225

* $p<.05$.

viewing: frequency of viewing prime-time situation comedies and dramas, frequency of viewing television news, and frequency of viewing public broadcasting programs. The results of the zero-order correlations again revealed a negative and significant relationship (−.10) between vocabulary and the number of hours of television viewed by respondents.

The hierarchical model was replicated, and the results are presented in Table 3. The block of seven demographic variables accounted for 23.7 percent of the variance. Newspaper readership was entered into the equation next; it did not increase the R-square by a significant amount. Next, the number of hours of television viewed was entered, and it also failed to reveal a significant and unique relationship.

Finally, the three content-specific television viewership variables were entered into the equation as a block. The block of variables raised the R-square value from 24.1 percent to 25.2 percent, a significant change. Thus, in response to Research Question 2, the addition of the content-specific television measures made a unique and significant positive contribution to the prediction of respondents' vocabulary scores. As part of the block, the measure of the frequency of viewership of prime-time situation comedies and dramas made a

significant and unique contribution to respondents' vocabulary scores, over and above that of demographic variables, newspaper readership, amount of television viewed and viewership of television news and public broadcasting programs.[1]

DISCUSSION

First, the findings from the analysis of multiyear General Social Survey data directly contradict those observed by Morgan and Gross (1982), whose analysis of GSS data described a negative and significant relationship between television viewing and vocabulary. The findings presented here are based on an analysis that included more rigorous controls, a larger data set and a more robust method of analysis.

Second, the results of the analysis of the multiyear data set and the analysis of the 1993 data set yielded convincing evidence that there is not a significant relationship between the amount of television adults view and adult vocabulary scores. Once rigorous controls are in place, the negative relationship between television viewing and adult vocabulary disappear. Taken with previous findings (Gaddy 1986, Gortmaker *et al.* 1990), the results further solidify the notion that the amount of television viewed by adults does not predict vocabulary development above and beyond demographic variables and newspaper readership.

Third, what is most interesting here is the finding that the results of television research may depend on how television use is operationalized and measured. In the analysis of 1993 GSS data, the measure of the amount of television watched was not a significant predictor of adult vocabulary. However, the content-specific measures of television viewership—in which respondents reported whether they viewed certain types of shows every day, several times a week, several times a month, rarely or never—was a significant and positive predictor of adult vocabulary scores. Singly, frequent viewing of prime-time situation comedies and dramas was a significant and positive predictor of respondents' vocabulary scores, even with the extensive controls in place. The finding highlights the need to explore new methods of measuring television consumption, for the decades old method of simply asking respondents how many hours a day they watch television may be preventing researchers from

[1] The SPSS regression procedure also provides information on what each of the three variables would contribute if entered into the equation alone. Entered by itself, the measure of viewership of prime-time situation comedies and dramas would make a significant and unique positive contribution to the prediction of vocabulary scores, as would the measure of viewership of television news. The beta weight for the prime-time shows variable would be higher, indicating its relationship with adult vocabulary is stronger. Entered alone, the measure of viewership of public broadcasting shows would not make a significant contribution to the prediction of vocabulary scores.

truly understanding the complex relationship that exists between television viewing and learning.

Further, the relationship between viewers and the programs they watch may be more complex than imagined, and the discourse that occurs when an adult watches television, as one-sided as that sort of discourse may be, may contribute to viewers' language and vocabulary skills. Adults may 'pick up' new words and terms in the same way as preschoolers do (Rice and Woodall 1988). But whatever the subtleties of the underlying cause, there is convincing evidence that viewership of prime-time shows—once other controls are in place—is related positively and significantly to adult vocabulary development. Although the results of the 1993 analysis, like those from many previous works, are based on correlational data, not panel or longitudinal data that would infer causation, it is plausible that increased viewership of specific types of television content could contribute to vocabulary development in certain adults, particularly considering the controls in place here.

As survey researchers, notably those administering the General Social Survey, continue to ask questions about prime-time situation comedies and dramas, television news programs and public broadcasting programs, the 1993 analysis must be replicated to test the reliability of the findings. Additional answers may be found in analyses that explore the interactions between the number of hours of television viewed and the type of programs viewed. For instance, light viewers may learn most from situation comedies, while heavy viewers might learn more from news programs. These questions emphasize the need to measure television viewership in new, more sensitive ways. Survey researchers must construct questions that delve further into the specifics of television viewing, as it appears that content-specific questions about television viewing may emerge as the most interesting measures and yield the richest results.

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BIOGRAPHICAL NOTE

John Bare is a doctoral student in the School of Journalism and Mass Communication at the University of North Carolina at Chapel Hill. His research focuses on mass communication and society. He is currently completing his dissertation, which examines attitudes of newspaper professionals toward public journalism.