

Facts, Fantasies and Schools

George Gerbner, Larry Gross,
Michael Morgan, and Nancy Signorielli

Whether television harms, helps, or has no effect on academic achievement is a question of long-standing scholarly and popular debate. As with the issue of television's impact on aggressive behavior, it provokes strong opinions on all sides. These are often based more on wishful thinking than on objective, scientific analysis. As with television and violence, the issues and the research are often more complex than they appear at first glance. In some ways, these concerns are nothing new. We do not have to look far back to find the most popular mass media of earlier days accused of causing similarly dire consequences—whether the medium was movies, comic books, or even fiction (the reading of which is generally endorsed today).

Television is different from other media in some important ways. The television set is on in the average American home more than six and a half hours a day. Children are born into a new symbolic environment and grow up absorbing thousands of stories told by television each year. There is no longer any need to go outside of the home—to church, to school—or to learn to read in order to encounter the broader culture. The ritualistic nature of the activity and the quantity of time children and adolescents spend watching television makes it a historically unprecedented phenomenon. We assume that there might be equally unprecedented consequences.

Some claim that television has created a brighter, more aware generation, with greater knowledge of the

people and the cultures of the world. Some argue television can stimulate reading, increase vocabulary, expand general knowledge, and help develop critical faculties.

Many who view the medium's effects as negative tend to be far more vocal, outspoken, and adamant about their position. To support their case, they are also more likely to cite research studies or reports of those studies in the press, which, unfortunately, often exaggerate or sensationalize the data. Some of these critics point to troubling social developments, such as the steady decline in Scholastic Aptitude Test (SAT) scores and the existence of millions of functionally illiterate adults. Critics note that the longer we live with television, the worse these situations become. Similarly, veteran teachers complain about new crops of bleary-eyed pupils with short attention spans, whose frames of reference seem entirely determined by television. There is no potential source of these ills as easy to target for the blame as television.

It is tempting to connect the apparent decline in school performance with the rise of television and let that be the end of the discussion. The problem with such "self-evident," "commonsense" conclusions is that many other things have happened in the last thirty years that might account for the decline. A recent attempt to point this out is the preceding article by Briller and Miller, which states the views of the Television Information Office (TIO) of the National Association of Broadcasters. It attempts to refute the often heard claim that television adversely affects academic achievement. It criticizes one

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well-known study that purports to show that heavy viewers get lower test scores; discusses other studies that show no such relationship; considers other factors that negatively affect school achievement; and presents research that implies television has made "significant contributions to children's education."

The central flaw in the TIO presentation is the way in which it frames the issues. It asks, in essence, whether television is *the* cause of declines in academic performances: "If there is a decline in . . . [children's] ability to read and in their academic achievement, is it the fault of television?" The answer is, "Of course not." The

question that should be asked—one that leads to a sharply different answer—is: "Does television viewing exert an independent influence on academic achievement, and if so, for whom, under what conditions, and in which direction?"

What the Research Says

Research on television's effect on school achievement dates back to the earliest days of television. The past few years have seen a rapid increase in the number of studies on the topic and in-depth reviews of those studies. Within the past two years alone, the question has been the focus of special sessions at conferences of the American Educational Research Association, the Conference on Culture and Communication, and the International Communication Association. The amount of attention paid to the subject shows no signs of diminishing.

In addition to the work done by academic researchers, the Departments of Education in various states (including Rhode Island, Connecticut, Pennsylvania, Texas, and California) have attempted to determine whether amount of television viewing relates systematically to students' achievement scores. These state assessment programs have provided results from many thousands of students. Taken all together, they point to a firm conclusion: Those students who say they spend relatively more time watching television are more likely to get lower scores on achievement tests. There can be no doubt or disagreement about the consistency of this finding across numerous studies all over the country. Even the TIO acknowledges the basic finding that heavy viewing tends to be associated with lower test scores.

The controversy is not over whether or not students who watch more television get lower test scores. It concerns the kinds of interpretations and inferences that have been (or may be) drawn from that finding. Specifically, these revolve around two central issues that are tightly intertwined: (1) the size of the relationship, and (2) the impact of controls for important background factors.

The TIO charges that the relationships found in one highly publicized study (conducted by the California State Department of Education) were termed "very strong," but are more properly characterized as weak. We do not disagree, but we also do not share the conclusion that weak relationships are irrelevant, and that television is somehow "off the hook" just because the observable relationships between television and achievement are weak.

The size of an effect is less important than the direction and consistency of its contribution. Small effects may have far-reaching consequences, in spheres ranging from consumer product sales to election results to geothermal temperature changes. There is a wide gap between small effects and no effects. Small overall effects may also hide larger ones for statistical reasons. For example, most American children may be so heavily exposed to television that our instruments are only able to detect the tip of the iceberg. More importantly, small

effects observed over an entire population may be masking much larger effects in certain subgroups; these may show systematic evidence of greater susceptibility.

The TIO attempts to bolster its case for minimal television effects by citing two articles, one by Susan B. Neuman and the other by Lilya Wagner. Both of these discuss, in very general terms, about a dozen studies

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conducted between the early 1950s and the mid-1970s.

Neuman is quoted as concluding that, across all studies, regardless of the specific research designs or measures being used, "the relationship between the amount of television viewed and reading achievement in the schools was *not* significant." This is not quite accurate: several of the studies cited by Neuman show significant correlations between television viewing and numerous areas of achievement. The Neuman article (and the TIO report) ignore other studies which find substantial associations. The criterion of statistical significance can be misleading, since many of these studies were based on small numbers of children: the same coefficients, if found in larger samples, would have generated the opposite conclusion. The Neuman paper is of remarkably little value in attempting to understand research findings, since none at all are presented beyond the unqualified statements that we quoted. Neuman mysteriously contrasts "survey" and "correlation" as opposing research designs and misrepresents the use of controls for intelligence quotient in these studies, claiming that all but two used such controls. Virtually none of these studies even considered controlling for IQ.

TIO quotes Wagner's "verdict" that "A student's academic standing in an educational system based largely on reading does not appear to be greatly influenced by TV," but ignores the next sentence: "Creativity does seem to be hampered because of television's one-way transaction." Wagner's also notes:

Students of lower intelligence watch more TV while those of higher ability turn to reading with increasing frequency as they mature. However, if they continue their extensive TV viewing, their ability to achieve declines.

Some studies Neuman and Wagner cite are seriously flawed. One, for example, asked students for their own subjective judgments of how television has affected their

reading habits. Such data could hardly represent convincing evidence one way or the other.

Others have reviewed the same (and more) research evidence in considerably greater detail and come up with different conclusions. Robert Hornik discusses most of these same studies in a 1978 article in the *American Educational Research Journal*. He points out critical methodological and analytical limitations that severely challenge their validity. He notes that the strongest of these studies reveals negative trends and that one "cannot help but wonder whether inadequate design or measurement, whether failure to introduce the right control variable, might not have resulted in underestimates of these negative trends." In a 1979 article in the *Review of Educational Research*, Hornik evaluates evidence from more studies:

There are a few studies which find inconsistent relationships between television use and schooling outcomes. . . . However, the great majority of studies find a negative association between number of hours of television watching and level of school achievement or reading ability. . . . In particular, when students beyond the fourth grade level are tested, hours of television watching is always negatively associated with achievement and reading skills.

Even more recently, in the *American Educational Research Journal* in 1982, Patricia Williams and her colleagues published the results of a "research synthesis" on television and achievement. This study systematically consolidated the data from all available studies on the topic as of 1979, about twice as many as either Neuman or Wagner considered. (Some of the studies relied upon by Neuman and Wagner were discarded by Williams et al. because they provided inadequate statistical information.) In this synthesis, the authors find a preponderance of negative associations and conclude that there is a small but overwhelmingly consistent negative association between viewing and achievement.

Their research synthesis does not include a half dozen or so recent studies, all showing consistent negative relationships, such as the California Education Department project. References to even more studies showing comparable negative relationships can be found in a review of the research by Michael Morgan and Larry Gross in the National Institute of Mental Health's report on *Television and Behavior: Ten Years of Scientific Progress and Implications for the Eighties*. That review also presents data from a national sample of adults, showing that those who watch more television have significantly lower scores on a verbal intelligence test. None of these reviews, nor the implications of the studies they evaluate, are acknowledged in the TIO report.

We have been considering only the overall association

between amount of television viewing and scholastic achievement, but neither television nor its consequences operate in a vacuum. Television viewing is part and parcel of various constellations of factors, many of which also affect achievement. Many of the early studies of television and achievement failed to control for these factors.

Controls for such factors as IQ and social class must be implemented for two reasons. First, even if there is a demonstrable and stable association between television viewing and achievement, it may be spurious; that is, some other variable, such as IQ, may be the true cause of both amount of viewing and achievement, and thereby be responsible for any apparent relationship between them. When the true cause is statistically removed, the association may disappear entirely. Second, whether or not various background factors account for the observed relationship, there may be systematically different associations between television and achievement within different subgroups in the sample. There can be a strong negative association within one subgroup and a positive association within another. These different patterns would then cancel each other out in the overall comparison and lead to the misleading conclusion of a small negative association.

The TIO report muddles and confuses these concepts. In discussing the California Education Department study, TIO states that

The report claims that "the relationship was very strong, and none of several other factors—such as socioeconomic status and English language fluency—that were analyzed substantially affected it."

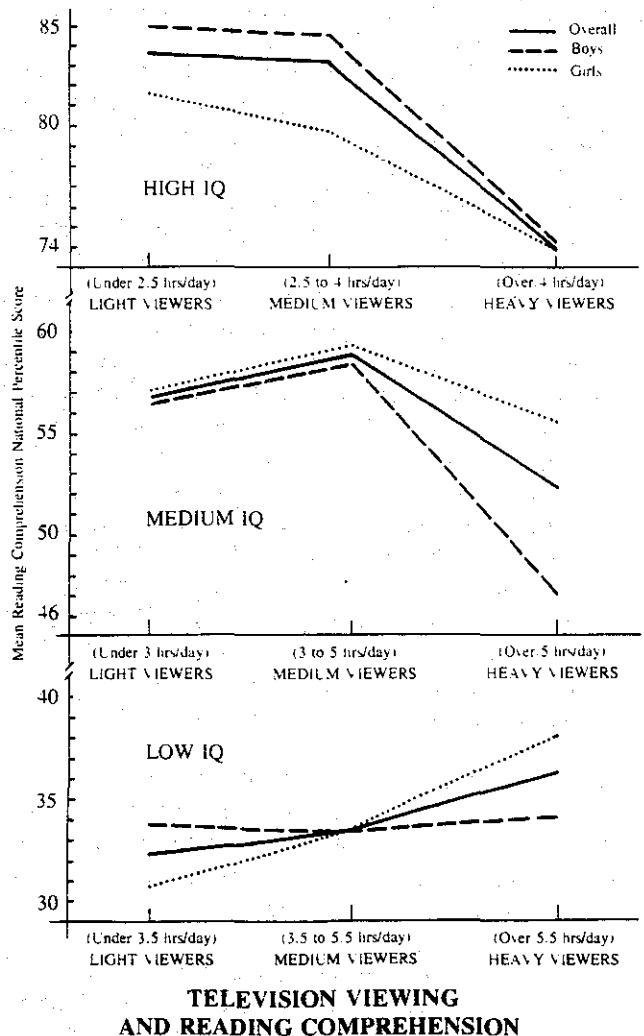
Analysis of the data shows socioeconomic factors to have been one of the major—if not *the* major—influences on test scores results.

This rebuttal is a nonsequitur. We live in a universe of multiple causality. To say that automobiles are the major cause of air pollution is not to say that factories have no effect. Similarly, whatever the impact of variables such as social class and IQ on achievement, they have no necessary, intrinsic bearing on whether or not television also has an influence. Controls for those background factors would have to be shown to eliminate the relationships between television and achievement—that there are no such relationships within any of the different IQ or social class groups. This is not the case.

Other variables have profound but subtle effects on the relationship between television and achievement, in ways not dealt with by TIO. Intelligence quotient is probably the strongest known predictor of achievement scores. In an article in the *Journal of Broadcasting* in 1980, Michael Morgan and Larry Gross point out that there appears to be no dispute over the relatively strong relationship between television viewing and IQ: heavier television viewers have lower IQs than light viewers, and

those with higher IQs watch less television. Apparent relationships between viewing and test scores may be merely an artifact of IQ: high-IQ students watch less and score better, low-IQ students watch more and score worse. In some areas of achievement (especially mathematics skills) this seems to be the case; television has no independent relationship to achievement above and beyond the effects of IQ. In some other areas, notably reading comprehension and language usage, significant associations between television and achievement persist even after IQ is taken into account.

Most importantly, the associations are not the same at all IQ levels. These overall assessments mask systematic variations within different subgroups. The figure graphs the relationship between amount of viewing and test scores in reading comprehension, and does so separately for boys and girls of low, medium, and high IQ. These data show an enhanced negative relationship between television and achievement among high-IQ students, and a small positive association among low-IQ students, especially among girls. The resulting pattern is one of convergence among heavy viewers of otherwise divergent groups, with heavy viewing being associated with the



"center" of achievement. In each IQ group, heavy viewers have the score that is closest to the midpoint percentile.

This is exactly what the California Education Department study found, using controls for social class and English fluency, for most areas of achievement and at most

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ages. The relationships between amount of viewing and achievement were slightly positive among students from lower socioeconomic levels and for students with limited English fluency; in their counterpart subgroups, stronger negative associations emerged. The TIO report interprets these patterns as evidence for no effects.

More researchers in the field are uncovering the same results. Jerome and Dorothy Singer, in a paper presented at the 1983 Conference on Culture and Communication in Philadelphia, found this type of convergence when their sample was partitioned according to social class divisions. Richard Kohr, in a 1979 presentation to the National Council for Measurement in Education, found stronger negative associations between television viewing and achievement among students whose parents have more education (based on data from 90,000 Pennsylvania students). The research synthesis by Patricia Williams and her colleagues also concluded that the negative associations between television viewing and achievement are strongest for high-IQ students.

These findings are paralleled in research conducted by our Cultural Indicators Project at The Annenberg School of Communications, University of Pennsylvania, on television's contributions to viewers' conceptions of social reality. In this work, the process of convergence among heavy viewers has been called "mainstreaming," on the premise that television's portrayals of life and society represent the mainstream of our culture. In general, stronger evidence that television cultivates conceptions of reality has been found within groups who, as light viewers, are least likely to be part of that mainstream. The result is a homogenization of heavy viewers from otherwise different groups: television viewing seems to override or diminish the effects of other factors. The phenomenon of mainstreaming has been found to explain group differences in cultivation patterns in terms of images of violence, sex-role stereotypes, health-related beliefs and practices, science, and other issues. In articles in the *Journal of Communication* and the *Public Opinion Quarterly*, we extend the theory of mainstreaming to television's contributions to political orientations and attitudes.

Variables that mediate relationships between television viewing and achievement in ways that reveal main-

streaming are not limited to social class and IQ. A whole range of personal, social, family, and other factors have been found to make a difference in systematic and theoretically meaningful ways. These are some of the major results we have found:

- Students with higher educational and occupational aspirations get higher achievement scores, but they show stronger negative associations between amount of viewing and those scores.
- Students who devote most of their attention to television while they are watching reveal stronger negative relationships between viewing and achievement: students who engage in many activities while viewing show smaller associations.
- More studious, home-oriented students, who spend more time on homework, chores, religion, art, and music, show stronger negative associations between television and achievement.
- Students whose parents are less involved in their viewing show stronger negative associations. Parental involvement in the viewing experience—whether restrictive and protective or characterized by an active, critical viewing orientation—reduces or eliminates the associations. The more students argue with their parents about how much television and what shows they watch, the greater the negative associations.
- The more socially isolated the student, the stronger the effect. Students who are more integrated into cohesive peer groups reveal weaker relationships between television and achievement.

When we talk about television's implications for academic achievement we are not talking about any simple, clear-cut associations. The TIO report's contention that television viewing is not "the" cause of scholastic decline is correct; but contrary to TIO's interpretations, the bulk of research evidence supports the argument that those who spend more time watching television will get lower test scores and that some groups of students are more vulnerable. In study after study, reading skills in particular are negatively associated with heavy viewing. □

George Gerbner is professor of communications and dean of The Annenberg School of Communications at the University of Pennsylvania, and editor of the Journal of Communication. He has written extensively on mass communication research and recently edited Mass Media in Changing Cultures.

Larry Gross is professor of communications at The Annenberg School of Communications and coeditor of Studies in Visual Communication. His research is on the cultural determinants of symbolic behavior.

Michael Morgan is assistant professor of communications at the University of Massachusetts. His research is on role socialization and academic achievement.

Nancy Signorielli is research administrator at The Annenberg School of Communications. Her research is on television images and their effects upon people's conceptions.