SELECTIVE EXPOSURE TO TELEVISION:

PREDICTING INHERITANCE EFFECTS FROM VCR AND CABLE PENETRATION

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ABSTRACT

This study used secondary analysis of ratings data from Arbitron to investigate the impact of new media technologies on audience behavior, specifically viewer inertia. The dependent variable was the inheritance effects of five prime-time "lead-in" programs, which were analyzed using a multiple regression. The unit of analysis was the average television household by Arbitron market (N=212). Data collected from May 1988, July 1988, November 1988, and February 1989 showed an inverse relationship between new media variables and inheritance scores.

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For more and more people, deciding what to watch on television is becoming a more selective process because of the advent of new media technologies such as premium cable channels, remote control channel changers, video games, home computers, and the videocassette recorder (VCR). The implications are significant. Many of them are practical concerns for mass media practitioners.

It is rare to find a discussion of the plight of over-the-air broadcasting that does not identify VCRs and cable TV as agents of change in prime time television (e.g., Giltenan, 1988). The decline of the present television network system has been an area of scholarly attention (Atkin & Litman, 1986). There is a related interest in remote control "flipping" (Ainslie, 1988; Walker & Bellamy, 1989) and VCR zipping/zapping of commercials (Heeter & Greenberg, 1985; Kaplan, 1985; Metzger, 1986; Yorke & Kitchen, 1985).

There have also been theoretical concerns. Zillmann and Bryant (1985) complained that research on selective exposure has been "scarce, sporadic, and eclectic" (p. 5). Perhaps the reasons for little success in uncovering selective processes in the viewing of television is that the average viewer as recent as 1985 had fewer choices and fewer ways to make those choices.

Also, as Walker (1988) has noted, the issue of a more selective viewer threatens the viability of the cultivation approach to media effects, which hypothesizes that passive audiences are having their reality constructed for them by television.

A pilot study attempted to uncover possible independent variables affecting viewer selectivity. Using focus groups, it found strong qualitative support for the hypothesis that traditional measures of network program flow are less useful as predictors of viewership.

One way of approaching the problem of viewer selectivity involves the measurement of viewer inertia between television programs, known as inheritance effects (Goodhardt, Ehrenberg, & Collins, 1975; Wakshlag & Greenberg, 1979). Inheritance effects are defined as the degree to which the audience watches two or more consecutive programs on the same television channel.

Different researchers of inheritance effects and the new media have investigated different types of programs. Wakshlag and Greenberg (1979) looked at children's programs. Boemer (1987)

concentrated on the lead-in audience to local news programs following prime-time. Anast and Webster (1985) examined soap operas. Although some of these studies found that inheritance effects remain strong (e.g., Tiedge & Ksobiech, 1986), all examined ratings information that pre-dated the recent dominance of cable, VCRs, and proliferation of new channels. Rust and Eechambadi (1989) stressed the importance of adapting future research on inheritance effects to the "rapidly changing technological environment" (p. 18).

Most researchers agree that viewer inertia is a sign of audience passivity (e.g., Goodhardt et al., 1975). If that assumption can be made, then the converse may also be true: The selectivity of television audiences can be measured by "active" decreases in viewer inertia, or inheritance effects. Rather than show that the audience is "active" or "selective" per se, this study used measures of passivity (inheritance effects) to see if changes in choice-facilitating variables (e.g., VCR and cable penetration) pointed to increased viewer selectivity.

The idea in mass communication theory that selective processes (attention, perception, and retention) mitigate the powerful influence of the media is the essence of the minimal effects paradigm (Klapper, 1960). However, this study had no intent to prove or disprove the theory of selective exposure. On the other hand, any evidence that can be gathered to show subtle shifts away from nonselectivity are worthy of theoretical consideration.

For the purposes of this research, inheritance effects are defined as the viewers' inertia between television programs. If such inheritance effects can be shown to be inversely related to one or more "new media" variables, then support for a more selective audience exists. In this study, inheritance effects embodied the dependent variable.

Review of the Literature

A survey of empirical research literature shows both support and also lack of support for selective exposure. This apparent inconsistency of survey and experimental research results is troubling and suggests that the clarification of selective exposure may require different nonexperimental approaches.

Atkin, Greenberg, Korzenny, and McDermott (1979) examined the television exposure patterns of children to aggressive programming and found that prior aggressive orientations are related to

exposure to violent programs. Other researchers have found support for selective exposure (Zillmann, Hezel, & Medoff, 1980; Bryant & Zillmann, 1984). Zillmann and Bryant (1985) brought their ideas together with writings of other researchers in a book entitled Selective Exposure to Communication. Walker and Bellamy (1989) found evidence of selective avoidance dealing specifically with remote control devices (RCDs) used by television viewers to flip channels.

The case against selective exposure is best made by Sears and Freedman (1967). Other researchers have found similar negative findings (Milburn, 1979; Bryant, Carveth, & Brown, 1981; Christ & Medoff, 1984; Signorielli, 1986). In any event, the debate over selective exposure is not likely resolved completely, perhaps because most experiments cannot successfully control the level of predisposition and exposure.

One of the key assumptions of this study was that a continuum exists between passive and active viewing. Thus, the empirical evidence presented below may serve to document the swing from passive to active, if such is the case.

Another assumption of this study was that activity is a precondition for choice. The idea of an active audience has been an important topic in mass communication research (Allen, 1981; Webster & Wakshlag, 1982, 1983; Levy, 1983; Levy and Windahl, 1984; Biocca, 1985). Blumler (1979) wrote that the active audience is not an either/or concept. The same audience will exhibit active and passive tendencies at different times under different circumstances. Rubin (1984) confirmed this view, as did this study's pilot study. The trouble is that the lack of a dichotomy does not much explain very much.

The unusual ability of the newer television technologies to complicate the concepts of selectivity and the active/passive dichotomy has been addressed by Blumler (1979) and Webster (1986). Rust and Eechambadi (1989) noted "[t]he rapidly changing technological environment should provide endless challenges and opportunities for modelling viewing choice" (p. 18). On the other hand, Barwise and Ehrenberg (1988) contended that new technologies brought no fundamental changes to the way people watch television.

The benchmark of most research on the "new media environment" is the journal article by Webster (1986) who first used the term. In his study on cable television, he set forth the idea that "new media" programming is diverse rather than homogenous and correlated with the kind of channel.

Furthermore, he portrayed these channels as differentially available.

Although cable television has existed much longer than the VCR, its rate of diffusion suffers slightly by comparison with the VCR. For example, sales of home video recorders between 1979 and 1980 grew by 70% (Klopfenstein, 1985). The VCR is now found in many more homes (66% versus 55%) than cable television ("In Brief," 1989; "VCR homes pass cable," 1987; "Wired," 1989).

This study used inheritance effects as an indicator of selective exposure and audience activity. The concept of inheritance effects is well-documented, not only in the seat-of-the-pants wisdom of network programmers (e.g., Klein, 1971) but also in the work of media scholars (Fishman & Roslow, 1944; Kirsch & Banks, 1962; Goodhardt, Ehrenberg & Collins, 1969, 1975, 1987; Wakshlag & Greenberg, 1979; Headen, Klompmaker & Rust, 1979; Gensch & Shaman, 1980; Barwise, Ehrenberg, & Goodhardt, 1982; Rust & Alpert, 1984; Henry & Rinne, 1984; McDonald & Reese, 1985; Webster, 1985; Anast and Webster, 1985; Tiedge and Ksobiech, 1986; Boemer, 1987; Rust & Eechambadi, 1989).

Walker (1988) chose an approach to inheritance effects which came the closest to the concerns addressed in this study. His hypothesis was that inheritance effects are inversely related to the penetration levels of cable, VCR, and remote control devices. He made comparisons of four years: 1976, 1979, 1982, 1985. Inheritance effect was defined as the correlation between a program share and the share of its network lead-in program. Using a cluster sampling of 1455 shows and partial correlations, Walker found inheritance significantly higher in 1982 than in 1976, 1979, or 1985. He summarized that the networks had retained a "conservative" audience (p. 10) and that remote control devices should be given much of the credit. Unlike this present study, however, the differential effects from market to market were not studied in his research.

The most unfortunate aspect of all previous studies is the age of the data. Audience measurements from 1969 (Gensch and Shaman, 1980) and from 1977 (Rust and Eechambadi, 1989) hardly apply to the new media environment of the late 1980s, except to suggest important variables. Similarly, longitudinal data in the studies by Tiedge and Ksobiech (1986) and Walker (1988) may reflect a simpler era of television competition. Indeed, the current trend to shorter seasons for programs may confound any future replications of older research.

Regardless of the research, there will always be those in the broadcasting industry who rely on

programming intuition and folklore. Even today, television program directors pay huge sums for off-network syndicated programs (e.g., The Cosby Show) in the hope of supplying their local news shows with a strong lead-in. The idea of inheritance effects will outlive empirical studies to the contrary.

Atkin and Litman (1986) reviewed the economics and audiences of network television programming between 1971 and 1986 and found that revenue losses were offset by greater penetration of homes and somewhat by increases in advertising prices. However, they suggested "competition from cable and VCRs has caused the networks to lower their ratings expectations, causing a non-profit-maximizing adjustment" (p. 48). They gave credit to cable and VCR penetration as a contributory factor in "holding down the median ratings of renewed series" (p. 48).

Krugman and Rust (1987) noted that the combined prime-time share of the three networks declined from 91% in 1976 to 74% in 1986. They pointed out the absence of published articles that quantified "the relationship between cable penetration, network viewing, and telecommunications industry advertising revenues" (p. 9). Using regression techniques, they projected the decline of network viewing to 61.7% in 1990 and 54.6% in 2000. Without presenting evidence, they stated that the penetration of cable, pay cable, and VCRs are highly intercorrellated.

Statement of the Problem

The major assumption of this study was that strong inheritance effects between pairs of television programs represent: (1) low selectivity, (2) a passive audience, and (3) high viewer inertia. The hypothesis of this study was that the new media environment enhances selective exposure to television.

Using multiple regression, this study attempted to determine which variables predict inheritance effects, what strength each predictor exerts, and the direction of the prediction. The direction is the most important result because it supports or rejects the expected impact of new media environment variables on viewer selectivity as reflected by inheritance effects. Negative beta weights on the predictor variables were expected to show support for the main hypothesis that media diversity leads to more selectivity. This study analyzed both main effects and interaction effects.

Method

The dependent variable was the inheritance effect of four types of programs. Kirsch and

Banks (1962) found an inheritance effect among six program types distinguished by a particular network. Tiedge and Ksobiech (1986) found eleven generic program types, but this study collapsed several categories into four: situation comedy, drama, news/information/talk, and quiz/game. Sports programs were not considered for this study because they present a greater likelihood of viewer inertia when an event concludes at a non-standard time (e.g., NFL Football concluding at 7:22 on a Sunday evening). All program pairs fell in the FCC's definition of prime-time (7 PM to 11 PM Eastern time). This allowed the inclusion of syndicated programs in the prime-time access period which precedes programs from ABC, CBS, and NBC.

The independent variables for each market included: VCR penetration, cable penetration, and the number of independent (non-network) television stations. Remote control penetration information was not included because of its unavailability on a market-by-market basis. However, regional data from A. C. Nielsen suggest that such penetration is linked to VCR penetration (Staff, 1989) and lacks variability.

The unit of analysis was the television market as designated by Arbitron (N=212), referred to as an area of dominant influence (ADI) representing clusters of the national TV population. Measurement takes place four times each year: February, May, July, and November. To control for audience availability (Gensch & Shaman, 1980; Webster & Wakshlag, 1983), the four rating periods were averaged in this study, except when testing for possible seasonal differences. Also, program shares (representing percentage of available TV sets) were used instead of ratings (which represent the percentage of all sets) to hold any seasonal differences to lower limits.

Measurement of the four types of programs used the four most popular shows of their genre: The Cosby Show, Murder She Wrote, 60 Minutes, and the syndicated Wheel of Fortune. (Since the inherent strength of Murder She Wrote may distort the lead-in effect of the 60 Minutes program which precedes it, an analysis of 20/20 was also done to test the audience carry-over into local news programs on Friday night). Popularity was measured by inspecting the top-ten list of television programs (network and syndicated) in Broadcasting magazine for the weeks measured in the four rating period. These programs, except for 20/20, were consistently in the top ten. Atkin et al. (1979) also used popularity as a criterion, stating that selective exposure would be more evident in "favorite" shows than

in all programs.

Data were gathered for the most recent one year period at the time of data collection. This encompassed four rating periods: May 1988, July 1988, November 1988, and February 1989. Each period is four weeks in duration. Since five pairs of programs for each of four rating periods in the 212 Arbitron television markets were required, over 8,000 data points were collected to represent each market's individual level of inheritance effects. Also, the five independent variables were gathered for each market.

Arbitron permitted the use of their proprietary data for this study because the results would be made public after their original information was more than one year old. An advertising agency allowed the inspection of their collection of Arbitron books for the four ratings periods. In the case of prime-time network programs, Arbitron's Network Program Analysis volumes summarized program shares. Data for individual local news programs and Wheel of Fortune, however, had to be extracted from a separate book for each market (N=212) for the four rating periods. The major independent variables were also obtained from the individual books for each market.

The VCR and cable penetration figures are straight-forward percentages calculated as the number of homes with VCR or cable divided by the total number of television homes in a given market, as reported by Arbitron. The percentage was a number between 0 and 100.

The number of independent stations came from the totals provided by Arbitron in the ADI Viewing Allocation Report volume published for each rating period. The methodology for this book is similar to standard statistical procedures used by Arbitron in preparation of individual market reports. The number of independent stations was calculated for each market by adding together two totals on the Market Introduction Page: number of outside independent stations viewed and number of home independent stations.

Many audience researchers feel that measurement by meter is more reliable than by diary (e.g., Webster, 1989). However, the diary is the only method used regularly by Arbitron (or Nielsen) in most television markets because of the expense involved. To limit this study to a handful of metered markets would greatly reduce the statistical power of the F-tests in the multiple regression. Moreover, the use of meters is not perfect. The editors of Connoisseur magazine (September 1989, p. 141) noted

that 45% of all households solicited by Nielsen for metering refuse to participate. This raises the question of how representative the metered home is of the total population of households.

A problem common to both methods is that measurement is based on households. Gensch and Shaman (1980) wrote that the principal shortcoming of ratings data is "they do not relate individuals to programs, but simply measure viewing by any or all members of the household" (p. 308). Again, the need for some kind of measurement, particularly when the level of new technology penetration is concerned, makes it necessary for users of secondary data to compromise some validity in order to investigate viewing behavior at all.

The shares for each market and for each rating period were averaged across the rating periods, with deletions made in cases of a program being pre-empted or of a station changing its network affiliation. Such cases resulted in missing data.

The inheritance effect of program-pairs has been previously operationalized as the correlation between a program's lead-in share and the share of the program itself (Tiedge & Ksobiech, 1986; Walker, 1988). This has not been a perfect measure, however. If a group of programs has 75% of the viewers and the group of previous programs also had 75% of the viewers, then a perfect correlation would exist between the two shares. Yet, short of collecting proprietary data, there is no way of being certain that the same viewers watched the second program in the pair. Other researchers have failed to acknowledge this problem; possibly it is unsolvable. Nevertheless, the correlation of pairs has sufficient face validity to be useful until better secondary data are available.

While previous studies were able to use statistical correlation because of attention to average inheritance effects using several program-pairs as a unit of analysis, this study sought to make within-unit comparisons where correlations are impossible (N=1). An alternative method measuring program strength as a ratio of the second show to the first show was used.

Each television show was analyzed along with the show that followed it on the station's schedule. An inheritance score was calculated for each pair of programs by dividing the share of the second show in the pair by the first show and multiplying times 100. For example, if The Cosby Show received a 50 share and A Different World posted a 40 share, the resulting inheritance score was 80 (or 40/50 X 100). The lowest possible score was zero. When the second show "inherited" more viewers

than it was delivered by the program being studied, the inheritance score was frozen at 100. Program ratios more than 1.0 were disallowed because the preceding show could not deliver more than 100% of its audience share: Growth in program shares comes from factors other than the inheritance effect. This strength ratio (called an inheritance score) is a compromise between previous methods and the problematic use of difference scores.

In cases where the share of the first show was unreportable because of limitations of the Arbitron sample size (e.g., the show was pre-empted three of four weeks), the pair was thrown out and no score was calculated. Discarded pairs were not part of the average share of each program per market in the regression for the first hypothesis. In the regressions for individual rating periods, the missing scores were treated as missing data. There were no missing data for the independent variables.

The statistical package SPSSx Version 3.0 was used for all computations. The first set of analysis performed on the independent variables was to examine the means, variability in terms of standard deviations, and the range of scores. This analysis was also made for the dependent variables. The next step was to test the independent variables for multicollinearity. A matrix of intercorrelations showed how strongly the variables were correlated among themselves.

The final test was to enter the independent variables into two different solutions of a multiple regression: stepwise and forced entry. The stepwise process ensures that each variable maintains an appropriate F-ratio throughout the regression, while the forced entry procedure allows the construction of a complete table of beta weights, identifying the ones which achieved statistical significance. The standardized products of pairs of independent variables were also used to test for significant interactions between predictors in cases where main effects were not present (Pedhazur, 1982).

The derived beta weights consisted of two types: unstandardized and standardized. The former produced values useful for prediction purposes, while the latter permitted the comparison of two or more significant variables.

<div align="center">Results</div>

The independent and dependent variables are shown in Table 1 with regard to $\underline{N}$, the mean, standard deviation, and range. For the most part, the independent variables were normally distributed.

However all distributions were skewed positive, especially the number of independent stations. Furthermore, the distribution of cable penetration percentages was somewhat platykurtic. While the number of independent stations lacked variability, the two predictor variables with the strongest theoretical base (i.e., cable and VCR penetration) showed a broad range of scores.

Table 1 goes here

The dependent variables with the least kurtosis and skewness were the three network shows that appear regularly in the top ten list of shows each week: The Cosby Show, 60 Minutes, and Murder She Wrote. Both Wheel of Fortune and 20/20 delivered, on average, inheritance scores which were skewed negative because of the large number of perfect scores, 14 and 35 stations, respectively. Both programs are often adjacent to news programs.

One problem with multiple regression is multicollinearity, where the predictor variables have intercorrelations which are too high (Pedhazur, 1982). Table 1 shows that intercorrelation was not a serious problem.

Table 2 goes here

Table 2 shows the standardized beta weights for the three-variable regression model for the average and individual rating periods. Except for Wheel of Fortune, the direction of the significant beta weights was in the hypothesized negative direction. Murder She Wrote showed the strongest anticipated effect of new media variables on inheritance scores, with The Cosby Show a close second. 60 Minutes was particularly susceptible to the influence of VCRs, while cable penetration influenced The Cosby Show.

There were some distinct differences related to the time of year in which the measurement took place. In the November and February rating periods, when primetime programs receive their first showing, the effects were more pronounced. In May and July, however, weaker effects were present. Again, the main exception was Wheel of Fortune, whose inheritance scores were positively influenced by

the presence of VCRs.

The single most important independent variable in the regressions was VCR penetration. It was the most resilient to the time of year and most consistent in its direction, depending on the program. However, the number of independent stations was a major influence on Murder She Wrote, possibly due to the impact of two strong programs on the Fox network of "independent" stations. The same cannot be said for 60 Minutes which leads into Murder She Wrote on the same CBS network on Sunday night.

Table 3 goes here

Table 3 shows the standardized beta weights for the interactions among pairs of the three independent variables. While there are only 11 significant interactions out of a possible 75, some of them were quite revealing. For example, there were no main effects on 60 Minutes by the number of independents, until combined with VCR penetration. The negative beta weight for the average 60 Minutes increased its magnitude from .25 for VCR penetration alone to 1.70 for the interaction of VCR penetration and number of independents. Moreover, two weak and insignificant variables (VCR penetration and number of independents) showed a strong -1.65 interaction for Wheel of Fortune in November 1988.

The interaction for the average Murder She Wrote showed a substantial increase at the hands of cable penetration (which had tiny insignificant beta weights) and number of independents (previously one-third of the interaction beta weight). The same interaction for the same program was even more pronounced in November 1988. Also, the average 20/20 was the setting for another interaction between cable and independents, where no main effect had existed.

On the other hand, there were no interactions at all for The Cosby Show. Nor were there any interactions for any of the measured programs during the July 1988 rating period.

The statistics for the stepwise regression were compared with the forced entry method. There was no discernable difference between the significance levels of the beta weights obtained through the two methods. The only exception was for Wheel of Fortune in that the influence of independent

channels was stronger.

Discussion

This study sought to find support for the idea that television viewers, when given the means to actively avoid sequential prime time programs, are more selective in the programs they choose. Since the unit of analysis was the television market, it can only be assumed that the findings given in the last section reflect what people in individual households were doing. The hypothesis -- that the new media environment enhances selective exposure to television -- was supported. The direction was frequently negative, suggesting an inverse relationship between the new media variables and inheritance effects. Although the direction occasionally strayed, its relative consistency is noticeable nevertheless.

The suspicion that such effects vary with the time of the year in which the rating period occurs was also confirmed. This finding partially validates the research of Gensch and Shaman (1980). It also coincides with popular views of audience flow among media practitioners (Miletic, 1988).

Significant interaction effects for cable penetration and number of independents show that either variable is not best understood by itself. This conclusion is problematic, however, because the two shows which exhibited the interactions may have been flawed. Murder She Wrote had been scheduled opposite two highly-rated shows being broadcast by independent stations. Also, the significant interactions for Wheel of Fortune are in the unhypothesized direction (positive beta weights). On the other hand, the interactions for VCR penetration and number of independents were often quite strong. This is especially true for Wheel of Fortune, whose main effects were notably weak or in the unhypothesized direction.

The implications are clear. If audiences are becoming more selective, the small ripples detected by this study can be expected to grow as new technologies continue to diffuse. Armed with their VCRs, cable channels and other non-network options can wield their remote controls to avoid all varieties of news, public affairs, mandatory children's programs, and prosocial programming.

Critics of television may have to reconsider the idea that viewers are a flock of sheep who are being acculturated by some monolithic program service destined to promote gratuitous sex, violence, and other dysfunctional modes of discourse. While the amount of choice is television fare is not presently overwhelming, the trend toward demassified and fragmented audiences is clear.

Blumler (1979) has written that the television audience has varying levels of activity. The idea of an active audience is not an either/or situation: Sometimes people are more passive than other times. It would appear from this study, however, that audience activity (operationalized as switching or not switching channels) is related to the presence of new technologies like VCRs or to the number of cable/independent channels.

Barwise et al. (1982) described research on the active audience as giving support for the "what" of being active, but showing little support for the "whether" of selectivity. This study sheds some light on the prediction of how active the audience has become in the new media environment. In any event, the results here show that Krugman and Rust (1987) were wrong about cable/VCR intercorrelation. The correlation of the two penetration figures was very low, as shown in Table 1.

Previous researchers (e.g., Webster & Wakshlag, 1983; Henry & Rinne, 1984; Tiedge & Ksobiech, 1986) have suggested that program type is an important consideration for inheritance effects. This study showed that the news category was influenced by VCR penetration more than the other three categories, for example. Specifically, top-rated news magazine programs like 60 Minutes showed significant effects from VCR penetration, although weaker news magazines like 20/20 did not fare as well. Klopfenstein (1989) found a .16 correlation ($p < .001$) between VCR ownership and the self-reported frequency of recording news magazines programs. This study tends to validate his research in suggesting a small relationship between the presence of VCRs and the watching of news magazines like 60 Minutes.

The networks are still making program decisions based on inheritance effects and audience flow. A recent example is the cancellation of the weekly show Chicken Soup which follows Roseanne on Tuesday nights on ABC. The latter program has been in the top three network programs since early 1989, so the network had high expectations for Chicken Soup. But in its final week on the air, it contributed to Roseanne an inheritance score of only 68.6, while all but one of the other program pairs involving the lead-in of a top thirty show resulted in inheritance scores in the 85 to 100 range. The network apparently felt that the strong lead-in was being wasted on a losing program. As a result, the top rated new show of the 1989-90 season, consistently in the top twenty, was cancelled for having an inadequate audience.

The success or failure of new network programs is determined by a national sample of Nielsen homes, not an aggregate of individual markets with varying amounts of new technologies such as cable television and home video. The results of this study have suggested how VCR and cable penetration have a negative effect on inheritance scores. Perhaps the networks should consider the impact of such new media influences on the reliability of the inheritance effect. Apparently, a program's lead-in is also subject to increasing viewer selectivity in the presence of cable and VCRs. The growth during the 1980s in the number of independent stations has also contributed toward less certain audience flow from program to program.

An example of the magnitude of one new technology is the impact of VCR penetration on the audience flow from 60 Minutes to Murder She Wrote. In the four rating period average, a stepwise regression of that program revealed the unstandardized beta weight for VCR penetration to be -.27 (p < .000). Taking the case of a television market like Reno, Nevada, with 79% VCR penetration, the predicted inheritance score is:

$$I.S. = (-.27) * 79 + [c]$$
$$= -21.33 + [99.75]$$
$$= 78.42$$

Marquette, Michigan, averaged 46% VCR penetration over the course of the study. Thus:

$$I.S. = (-.27) * 46 + [c]$$
$$= -12.42 + [99.75]$$
$$= 87.33$$

While the disparity is not on the order of Chicken Soup, the networks cannot forever abide a show "dropping share" on a magnitude outside the typical 80-100 inheritance score range for shows leading out of top-rated programs.

This raises the issue of practical versus statistical significance. The example cited above is the most extreme case derived from any of the results found in this study. Certainly, the beta weights are statistically significant. But are they of any practical use? Probably there are of only limited use at present. The amount of standard error on the 99.75 residual in the 60 Minutes example was 4.77, enough to narrow the 8.91 drop in share. Moreover, a market with a less extreme amount of VCR

penetration might show only a 2 or 3 share difference.

Of course, the television networks are in no position these days to lose even a small share of their viewers. The real question is: How much difference will the new media environment make as cable and VCR penetration continue to grow? Time will tell, but this study suggests that the inheritance effects should decline further as new technologies further diffuse.

Limitations

Program-pairs involving non-network shows produced unanticipated or insignificant results in terms of the impact of new media variables on inheritance effects. Wheel of Fortune and 20/20, respectively, were the setting for coefficients in the wrong direction (i.e., not hypothesized) and no insignificant beta weights at all. Unlike the network-to-network cases, the inheritance scores of neither show were normally distributed. Owing to the possible nature of channel loyalty (Webster & Wakshlag, 1982) involved in locally-programmed game shows and late news broadcasts, the results of this study suggest that the prediction of inheritance effects is more valid for audience flow between pairs of network programs.

Areas For Further Research

Webster and Wakshlag (1982) wrote that "solitary viewing" leads to avoidance. This study did not look at this issue, but it may be important to predicting how audiences use the new media to selectively expose themselves to television. Future research should address this variable.

Another area for further investigation concerns the knowledge of options held by viewers in the new media environment. Heeter (1985) may have been right: Choice is useless if the chooser does not know the options. Cable penetration and the number of independents are meaningless to the viewer who is ignorant of alternatives.

This raises the issue of channel loyalty. How strong is the effect of habit? The latest research (Goodhardt et al., 1987) suggested that 35% of the viewers of a program on one day are the same viewers of the same program on another day. Future research on inheritance scores needs to control for this variable somehow.

There is a need for further investigation of the different types of shows. Tiedge and Ksobiech (1986) used eleven types, but this study only explored four. There may be stronger (or weaker) beta

coefficients for other types of programs. One could question whether news programs are subject to the strongest impact of new media variables on inheritance scores or whether such shows are only the most notable of the four studied here.

Furthermore, there needs to be research on the content of programs, since it may well account for a good deal of the variance in inheritance effects left unexplained by this study. Such research needs to go beyond the relative convenience of secondary analysis in order to gather the qualitative data necessary for testing the possible hypothesis that content is the strongest predictor of inheritance effects.

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Table 1

Descriptive Statistics

4 Rating Period Average

	Mean	St. Dev.	Kurtosis	Skewness	Range		N
Cable Penetration	57.52	10.42	-.38	.30	36	87	212
VCR Penetration	60.17	6.29	.13	.22	46	79	212
Number of Independent Stations	5.81	3.27	.44	.77	0	17	212
20/20 Inheritance	79.50	21.17	.73	-1.18	13	100	181
60 Minutes Inheritance	83.56	6.91	-.13	-.27	63	98	184
Cosby Show Inheritance	85.62	5.15	.35	-.30	67	99	187
Murder She Wrote Inheritance	77.77	7.08	.32	.09	58	98	184
Wheel of Fortune Inheritance	81.78	15.99	-.50	-.83	44	100	198

Intercorrelations:

	% CABLE	INDEPEDENTS
% VCR	-.025	-.266
% CABLE		.363

Table 2

Standardized Beta Coefficients
for Primetime Television Programs

Dependent Variable: Inheritance Score

Independent Variables: (a) VCR Penetration
       (b) Cable Penetration
       (c) Number of Independents

		20/20	60 Minutes	Cosby Show	Murder She Wrote	Wheel of Fortune
May 1988	(a)	-.13	-.19**	-.09	.05	.24**
	(b)	.08	-.01	-.25**	.02	.09
	(c)	.17*	-.01	-.11	-.05	.12
	F =	2.03	2.30	4.47**	0.29	6.04**
July 1988		-.15	-.23**	.19	-.07	.24**
		.00	.09	-.00	-.06	.08
		.16	.07	.15	-.23**	.13
		1.78	3.07*	1.52	4.21**	6.93**
November 1988		-.05	-.16	-.15*	-.21**	.11
		.03	.05	-.13	-.02	.07
		.11	-.01	-.07	-.21**	.14
		0.55	1.85	3.09*	7.82**	2.82*
February 1989		-.03	-.16*	-.19**	-.17*	.16*
		-.06	.05	-.15*	-.12	.04
		-.06	.00	.02	-.34**	.14
		0.46	1.79	3.70**	13.40**	4.09**
Average		-.08	-.25**	-.11	-.13	.21**
		-.02	.07	-.20**	-.07	.05
		.12	.03	-.03	-.34**	.16*
		0.97	4.13**	3.35*	11.46**	6.70**

See May 1988 (20/20) in upper left corner of table for legend.

* $p < .05$
** $p < .01$

Table 3

Standardized Beta Coefficients for Interactions

Dependent Variable: Inheritance Score

Independent Variables:

        (a)   VCR Penetration X Cable Penetration
        (b)   VCR Penetration X Numbers of Independents
        (c)   Cable Penetration X Number of Independents

		20/20	60 Minutes	Cosby Show	Murder She Wrote	Wheel of Fortune
May 1988	(a)	-.70	-1.01	.02	.96	.32
	(b)	.40	-1.74*	-1.00	-.22	-1.15
	(c)	-.61	.24	-.56	-.38	.85*
July 1988		-1.21	-.74	-1.03	-.55	.28
		.60	-1.08	-.09	.61	-.66
		-.73	-.56	-.43	-.73	.67
November 1988		-1.61	-.12	-.02	-1.49	1.02
		-.56	.70	-.25	-.01	-1.65*
		-.70	.24	.07	-1.09**	.76*
February 1989		-.60	-.21	-.88	-.69	1.38
		1.35	-1.62*	-.13	.17	-.50
		-.76	.08	-.61	-.56	.79*
Average		-.79	-.95	-.58	-1.15	.80
		.93	-1.70*	-.54	.19	-1.41
		-.81*	-.07	-.44	-.98**	1.15**

See May 1988 (20/20) in upper left corner of table for legend.

*   p < .05
**   p < .01