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Magnitude of Effects of Television Viewing on Social Perceptions Vary as a Function of Data Collection Method: Implications for Psychological Processes

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INTRODUCTION

Cultivation Theory

Numerous content analyses of television have shown that a number of constructs are consistently overrepresented on television relative to their real-world incidence. Such constructs include crime, violence, affluence, marital discord, and particular occupations such as doctors and lawyers, just to name a few (Gerbner et al. 2002; Lichter, Lichter, and Rothman 1994; O'Guinn and Shrum 1997). Cultivation theory posits that frequent viewing of these distortions of reality will increasingly result in the perception that these distortions reflect reality (Gerbner et al. 2002). Numerous studies have confirmed the predicted correlation between amount of viewing and beliefs congruent with the television portrayals. For example, TV viewing has been shown to be positively correlated with estimates of the number of doctors, lawyers, and police officers in the real world (Shrum 1996, 2001), the prevalence of violence (Gerbner et al. 1980; Shrum, Wyer, and O'Guinn 1998), and the prevalence of ownership of expensive products (O'Guinn and Shrum 1997; Shrum 2001). In addition, heavy television viewing has been shown to be associated with greater anxiety and fearfulness (Bryant, Carveth, and Brown 1981), greater faith in doctors (Volgy and Schwarz 1980), greater pessimism about marriage (Shrum 1999), greater interpersonal mistrust (Gerbner et al. 1980; Shrum 1999), and higher levels of materialism (Burroughs, Shrum, and Rindfleisch 2002).

Cognitive Processes and Cultivation

Recent work has begun to explore the cognitive processes that may underlie the cultivation effect. To understand the cognitive processes that underlie the effects of television is particularly important given the typically correlational nature of cultivation-type studies. Cultivation is for the most part a repeated exposure process and thus experiments are unlikely to capture effects, particularly with stable beliefs such as attitudes and values. Consequently, television viewing is typically measured rather than manipulated, and as a result is prone to problems associated with inferring causality. This highlights the importance of developing cognitive process models that can explain cultivation effects. Although such models cannot assure causality, they can increase confidence in inferring it. If models that specify particular conditions under which the effect does and does not operate (i.e., specifying mediators and moderators) can be tested and confirmed, it makes the proposed causal path more difficult to explain in terms of third-variable or reverse-causal mechanisms. This difficulty arises because not only must the reverse-causal or third-variable explanation account for the main effect, it must also account for the specific pattern of the interaction (Shrum 2002; Shrum et al. 2003).

Heuristic Processing Model of Cultivation Effects

One such model that has been developed has been termed the Heuristic Processing Model of Cultivation Effects (for a review, see Shrum et al. 2004). This model pertains specifically to the relation between television viewing and social reality judgments of set-size or probability (Shrum 1995). Examples include estimating—either for self or society—the probability or prevalence of crime, divorce, millionaires, and ownership of expensive products. The model has two general propositions. The first is that television viewing increases

construct accessibility. In particular, television viewing makes information pertaining to relevant constructs (i.e., crime, lawyers, swimming pools) more accessible, and more so for those who view relatively more television. The second general proposition is that the set-size and probability judgments typically used to test for cultivation effects are made by applying cognitive heuristics, in particular the availability (Tversky and Kahneman 1973) and simulation (Kahneman and Tversky 1982) heuristics. The use of cognitive heuristics is primarily due to three factors: 1) the types of judgments are for the most part memory-based (Hastie and Park 1986) and thus are made in real time by the recall of relevant information (exemplars), 2) the judgments are usually considered difficult, and 3) given that the data are typically collected via anonymous surveys, motivation to be accurate is often low. These conditions have been shown to facilitate the use of cognitive heuristics (Sherman and Corty 1984).

From these two general propositions, five specific propositions have been derived. These propositions are shown in table 1. In summary, the model posits that watching television results in the accumulation of numerous exemplars that are frequently portrayed on television. Consequently, these exemplars become more accessible in memory as viewing increases (Proposition 1). Because the types of judgments such as set-size and probability are often made by applying heuristics such as availability, then increased accessibility should result in increased estimates. Thus, television viewing increases accessibility, which in turn increases estimates, indicating a mediating role of accessibility (Proposition 2). However, because the accessible examples being retrieved in forming a set-size judgment such as the percentage of the work force that is lawyers or police officers are television examples, it is likely that most people would not consider these examples to be useful in forming real-world judgments. Thus, in order for the processes to occur as hypothesized, the television exemplars should not be source-discounted (Proposition 3). This lack of discounting would occur if the judgments are made relatively automatically without much effort expended in being accurate.

The final two propositions derive from conditions that have been shown to moderate the use of heuristics (for a review, see Sherman and Corty 1984). If, as hypothesized, people use the availability heuristic because they are not motivated to be accurate (i.e., not motivated to process extensively when answering), then increasing their motivation to process (be accurate) should reduce the reliance on judgmental heuristics, which should in turn reduce reliance on the accessibility of television exemplars, and thus reduce the effect of television (Proposition 4). Conversely, if people's ability to process information at the time of judgment is impaired (e.g., time pressure, distraction), it should increase the reliance on judgmental heuristics relative to conditions in which ability is not impaired and thereby increase the effect of television exemplars (Proposition 5).

As table 1 indicates, the first four propositions have been tested and confirmed across a number of studies. It is the fifth proposition, that ability to process information will moderate the cultivation effect, that is tested in the current study.

OVERVIEW AND METHOD

Ability to process information at the time of judgment is hypothesized to moderate the cultivation effect. Specifically, the

TABLE 1
Heuristic Processing Model of Cultivation Effects

Proposition	Supporting Evidence
1: TV viewing increases construct accessibility	O'Guinn and Shrum (1997); Shrum (1996); Shrum and O'Guinn (1993); Busselle and Shrum (2003)
2: Accessibility mediates the cultivation effect	Shrum (1996); Shrum and O'Guinn (1993); Busselle (2001)
3: TV exemplars are not discounted	Shrum, Wyer, and O'Guinn (1998)
4: Motivation to process information moderates the cultivation effect	Shrum (1996)
5: Ability to process information moderates the cultivation effect	The present study

relation between television viewing and judgment should be greater when ability to process is low than when it is high. To test this proposition, ability to process information was manipulated by varying the time pressure that respondents felt while providing their judgments. Moreover, the operationalization of time pressure was a novel one that may have implications for survey researchers interested in the psychological processes underlying response bias. Specifically, time pressure was manipulated via survey method. Respondents were randomly assigned to receive their survey either by telephone (high time pressure) or by mail (low time pressure). Pretests confirmed the differences in perceptions of time pressure, consistent with research showing that telephone respondents are usually unhappy with the length of telephone interviews and that interviewers often hurry respondents through the items (for a review, see Holbrook, Green, and Krosnick 2003).

Television viewing was measured via multiple measures of hours per day or week of viewing. Dependent measures consisted of having respondents estimate the prevalence of several constructs that have been shown to be overportrayed on television relative to their real-world incidence. Specifically, seven composite dependent measures were developed from items used in previous studies: Occupation (particular occupations), Vice (drug use, prostitution), affluence (ownership of expensive products), societal crime (e.g., national crime rate), personal crime (own risk of crime), personal crime in New York City (representing personal crime risk outside one's own neighborhood), and marital discord.

RESULTS AND DISCUSSION

The results were as expected. The strength of the cultivation effect was significant for six of the seven dependent variables in the telephone survey, and these relations held in the presence of multiple control variables. Only estimates of personal crime were uncorrelated with television viewing, and this finding was also expected.¹ None of the correlations between television viewing and the estimates were significant for the mail survey condition.² More to the point of testing Proposition 5, the magnitude of the cultivation effect was significantly greater in the telephone survey condition than in the mail survey condition.

These results provide support for proposition 5 of the model, namely, that ability to process information at the time of judgment will moderate the cultivation effect. Specifically, when respondents

were under more time pressure to respond, they showed a stronger correlation between the magnitude of their estimates and their level of television viewing, compared to those who were under relatively less time pressure. This finding is consistent with the reasoning that in the higher time pressure condition, respondents were more likely to process heuristically (off the top of the head³) and therefore more likely to rely on the accessibility of exemplars to construct their estimates. Because television viewing contributes greatly to the accessibility (of these particular) exemplars, television viewing is also related to the magnitude of the estimates.

The results also have implications for survey researchers interested in issues such as response bias. These results show that research method may affect the type of processing or the extent of processing when constructing judgments. Thus, not only does the survey method affect the purely descriptive aspect of the findings (e.g., the magnitude of the prevalence estimates was significantly greater in the telephone than in the mail condition), but also the theoretical applicability of the findings (e.g., differences in correlations between variables). Future research should consider investigating other possible instances in which differences in processing might result in different correlations between variables.

¹Work by Tyler (1980) indicates that people tend to use media (but not direct experience) to make judgments about societal risk (e.g., societal crime), whereas they tend to use direct experience (but not media) to make judgments of personal risk. This pattern of effects is termed the *impersonal impact hypothesis*. However, other research has shown that direct experience and television viewing can interact such that those with direct experience are particularly affected by the viewing of television crime and violence (Shrum and Bischak 2001).

²It is important not to draw strong conclusions from the lack of cultivation effects noted in the mail survey. Because of differential response rates, the power to detect relations was much less in the mail survey than in the telephone survey. Moreover, the magnitude of the correlations noted in the mail survey were similar (and in fact larger) than those found in meta-analyses (see Morgan and Shanahan 1996). The correlations in this study ranged from $r=.08$ to $r=.23$.

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