

## MEDIA CONSUMPTION AND PERCEPTIONS OF SOCIAL REALITY

### Effects and Underlying Processes

L. J. Shrum

University of Texas at San Antonio

Don't come to television for the truth. TV's a goddamned amusement park. We'll tell you the good guys always win. We'll tell you nobody ever gets cancer at Archie Bunker's house. We'll tell you any shit you want to hear.

Paraphrasing Howard Beale, Paddy Chayefsky's character in *Network* (Chayefsky, 1976).

I opened this chapter in the second edition of Bryant and Zillmann's *Media Effects* series with the same quote. I retained it for this updated volume because it still rings true, despite some significant changes in the media landscape. Although in the movie it is unclear whether his words were those of a madman or a sage, few would be likely to question Howard Beale's claim that television presents a distorted view of reality. Certainly, one can argue that aspects of media content, format, and presentation have changed significantly in just the last few years, with a rise in so-called "reality programming," made popular by the initial success of programs such as *Survivor* and more recently by programs such as *American Idol*. Yet charges such as scripting of outcomes of competitions, selection of contestants based on audience appeal, and product placements have undermined the claim that these programs present the world as it really is.

But even if most people do not question the premise that typical television fare distorts reality, what they do question is if the distortion has any effect, and if so, why and how. These interrelated questions about the why and how of media effects lie at the heart of scholarly debates and critiques of media effects research. Over the past few decades, there have been two persistent criticisms. One is that the evidence accumulated to date has provided little indication of sizable media effects on viewers' thoughts, feelings, or actions, in spite of a generally held "myth of massive media impact" by many researchers (McGuire, 1986). The second criticism is that it has for the most part lacked any focus on explanatory mechanisms. That is, media effects research has been primarily concerned with relations between input variables (e.g., media information and its characteristics) and output variables (e.g., attitudes, beliefs, behavior), with little consideration of the cognitive processes that might mediate these relations (Hawkins & Pingree, 1990; Reeves, Chaffee, & Tims, 1982; see also Wyer, 1980).

Although the purpose of this chapter is to address the criticism of the lack of a cognitive process explanation for media effects, the two criticisms just noted are not independent. One of the useful features of process explanations is that models are developed that specify both moderating and mediating variables. McGuire (1986) notes in his review that even though research to date has shown remarkably small media effects, there are a number of possibilities that may ultimately allow for the "salvaging" of the massive effects notion. In particular, he notes that small main effects may be obscured by messages having different effects on different groups or as a function of different situations (moderators) and by focusing on direct effects at the expense of indirect ones (mediators). Thus, the development of cognitive process models for media effects has the potential to uncover new relations as well as make sense out of old ones.

The development of cognitive process models that can explain media effects has other advantages as well. For one, it has the potential to increase internal validity, or the extent to which we are confident that we are observing a true causal effect and not one that is spurious (Hawkins & Pingree, 1990), another common criticism of many media effects studies (see Hirsch, 1980; McGuire, 1986). A process model should provide clear links between the stimulus (e.g., media consumption) and the response (e.g., beliefs, behavior), and each link in the model should represent a testable proposition to be empirically verified. If these links stand on solid theoretical foundations and are empirically verified, then threats to internal validity such as spuriousness and reverse causality are rendered less plausible, as the threats would presumably have to occur at each stage. Another advantage is that process models may potentially address conflicting findings in previous research. A process model should provide boundary conditions for the effect; that is, a specification of the conditions under which the effect does *not* hold. To the extent that these boundary conditions are related to aspects of inconsistencies in previous research, disparate findings may be reconciled.

Given these advantages of a focus on process, my goals for this chapter are two-fold: 1) to discuss some of the general underlying principles in social cognition research that have particular implications for media effects, with reference to relevant media effects research that exemplify these principles; and 2) to discuss research to date that has focused on explicating the underlying processes of certain media effects such as cultivation (see chapter 3).

### SOCIAL COGNITION AND MEDIA EFFECTS

Social cognition can best be described as an orientation toward the cognitive processes that occur in social situations (Reeves, Chaffee, & Tims, 1982). To be more specific, social cognition research attempts to open the "black box" that operates between a stimulus (e.g., information) and a response (e.g., a judgment) (Wyer, 1980) and has its focus on the cognitive processes that mediate the relations between social information and judgment (Wyer & Srull, 1989).

Social cognition research has had a profound effect not only on the field of social psychology, but on numerous other fields as well (e.g., marketing communications, see chapter 18; political communications, see chapter 11; cross-cultural psychology; organizational behavior). Given the maturity of the field, there are a number of models that have been developed to account for how people acquire, store, and use social information, the most complete of which is that provided by Wyer and Srull (1989; but see Wyer, 2004; Wyer & Radvansky, 1999, for revisions of this model).<sup>1</sup> Even though the

various theories differ in important ways, they all share some basic underlying principles (Carlston & Smith, 1996; Wyer, 1980).

For the purposes of this discussion, there are two important and interrelated principles underlying social cognition research.<sup>2</sup> *Principle 1* (heuristic/sufficiency principle) concerns what information is retrieved in the course of constructing a judgment. This principle states that when people construct judgments, they typically do not search memory for all information that is relevant to the judgment, but instead retrieve only a small subset of the information available. Moreover, the criterion for what is retrieved is "sufficiency": That is, only the information that is sufficient to construct the judgment is retrieved, and the determinants of sufficiency are related to concepts such as motivation and ability to process information (Wyer & Srull, 1989; see also Chaiken, Liberman, & Eagly, 1989, for a similar perspective on attitude judgments).

*Principle 2* (accessibility principle) concerns the role of the accessibility of information in the construction of judgments. In its simplest form, the principle states that the information that comes most readily to mind will be the information that comprises the small subset of available information that is retrieved, and in turn, is the information that is most likely to be used in constructing a judgment (Carlston & Smith, 1996; Higgins, 1996; Wyer, 1980).

Taken together, these two principles have important implications for explaining media effects. These implications revolve around the determinants and consequences of accessibility.

### Determinants of Accessibility

There are a number of factors that may influence the ease with which something is recalled. Although a detailed discussion of these factors is beyond the scope of this chapter (for more extensive reviews, see Higgins, 1996; Higgins & King, 1981), certain ones have implications for media effects (Shrum, 1995). These factors are the frequency of construct activation, recency of construct activation, vividness of a construct, and relations with accessible constructs.

### Frequency and Recency of Activation

Constructs that are frequently activated tend to be easily recalled (Higgins & King, 1981). This general finding has been shown both in studies of word recall and recognition (Paivio, 1971) as well as trait concepts (Wyer & Srull, 1980). Moreover, if activated frequently enough, particular constructs may become chronically accessible (for a review, see Higgins, 1996) such that they are spontaneously activated under many different situations. The same general relation holds for recency of activation: The more recently a construct has been activated, the easier it is to recall (Higgins, Rholes, & Jones, 1977; Wyer & Srull, 1980). However, research suggests that the effect of recency of activation on accessibility is relatively transitory, with frequency effects tending to dominate after a short period of time (Higgins, Bargh, & Lombardi, 1985; Wyer, 2004; Wyer & Radvansky, 1999).

This general relation of frequency and recency with accessibility has implications for potential media effects. For example, cultivation theory rests on the premise that the frequency of television viewing has effects on the beliefs of viewers. In terms of frequency of activation, heavier viewers should more frequently activate constructs portrayed on television than light viewers, particularly if those constructs tend to be portrayed more

heavily on television than in real life. Moreover, heavy viewers have a higher probability of having viewed recently than light viewers; thus accessibility may be enhanced for heavy viewers through the recency of viewing.

### Vividness

More vivid constructs are more easily activated from memory than less vivid ones (Higgins & King, 1981; Nisbett & Ross, 1980; Paivio, 1971). Like frequency and recency, vividness has particular applicability to media effects. It seems reasonable to think that television portrayals of particular actions or events may be more vivid than real world experiences, given the drama-enhancing goal of entertainment. Examples might include a fist-fight, an execution, family conflict, a natural disaster, military conflict, and so forth.

Vividness may also play a role in news reports. As Zillmann and colleagues have noted (for a review, see Zillmann, 2002), news reports often convey information in the form of case studies or extreme examples. Such a bias in favor of vivid examples over precise but pallid statistical information may make those examples relatively easy to remember.

### Relations with Accessible Constructs

As the accessibility of a particular construct increases, so does the accessibility of a closely related construct. This concept is consistent with the associative network/spreading activation model of memory made popular in cognitive psychology as a means of explaining the interconnectedness of knowledge (Collins & Loftus, 1975). This model holds that constructs are stored in memory in the form of nodes, and links are formed between the nodes. When a particular node (stored construct) is activated, other constructs will also be activated to the extent that they are related to that node.

It seems likely that the relation between accessible constructs may have implications for media effects. One of the attributes of media portrayals, particularly on television programs and films, is the relatively consistent and formulaic way in which particular concepts (e.g., anger and aggression, particular classes of people, etc.) are portrayed. These portrayals may provide "scripts" (Schank & Abelson, 1977) or "situation models" (Wyer, 2004; see also chapter 5) for what represents a construct and how to react to it. Given the relations between accessible constructs, the activation of a particular construct (e.g., aggression, anger) may similarly activate scripts for behavior that are closely related to these constructs (e.g., crime, violence).

In summary, television consumption—whether it is the frequency, recency, or the content features of viewing—may serve to enhance the accessibility of particular constructs. This "media effect" is an example of the interrelatedness of the heuristic/sufficiency principle and the accessibility principle: Media consumption enhances accessibility, which influences the information that becomes a part of that small subset of available information.

### Consequences of Accessibility

Simply demonstrating that media information may play a role in enhancing the accessibility of particular constructs is not sufficient to provide an explanation of media effects. It is also necessary to show that enhanced accessibility in turn produces effects that are consistent with the media effects literature.



The consequences of accessibility are directly related to principle 2: The information that is most accessible is most likely to be used to construct a judgment. Moreover, the way in which the most accessible information is used is a function of the type of judgment that is made.

### *Judgments about Persons*

One of the more consistent findings in the social cognition literature is that when people make judgments about other persons, they tend to use the constructs that are most readily accessible from memory (accessibility principle). In the now-classic priming studies (e.g., Higgins et al., 1977; Srull & Wyer, 1979), when participants were required to form trait judgments based on the ambiguous behaviors of a target person, they tended to use the trait concepts that had been primed to interpret those ambiguous behaviors (for a review, see Higgins, 1996; see also chapter 5). The interpretations influenced participants' judgments about the target's behaviors (e.g., reckless, persistent) as well as judgments about how much they liked the target. These results have been replicated numerous times, even under conditions of subliminal presentation of the prime (Bargh & Pietromonaco, 1982).

### *Attitude and Belief Judgments*

Evaluations of an object may be constructed from beliefs that are most accessible (Fishbein & Ajzen, 1975). In the Fishbein and Ajzen model, attitude construction is a function of particular beliefs and evaluations of those beliefs. It follows, then, that *which* beliefs are put into the attitude construction equation may be a function of which beliefs are most accessible at the moment. In a series of experiments, Wyer and colleagues (Henninger & Wyer, 1976; Wyer & Hartwick, 1984) examined the relation between accessible beliefs and evaluative judgments. In those experiments, which tested aspects of the *Socratic effect* (thinking about logically related beliefs makes those beliefs more consistent; McGuire, 1960), they showed that the accessibility of beliefs relating to premises increased the consistency between the beliefs in the premises and beliefs in the conclusions.

### *Judgments of Set-size and Probability*

Set-size judgments pertain to judgments of the extent to which a particular category occurs within a larger, superordinate category (e.g., the percentage of women [subordinate category] in the U.S. population [superordinate category]; Manis, Shedler, Jonides, & Nelson, 1993). Probability judgments pertain to estimates of likelihood. A finding that has been documented consistently is the relation between the accessibility of a construct and judgments of set-size and probability (Sherman & Corts, 1984). In their seminal work on the *availability heuristic*, Tversky and Kahneman (1973) demonstrated that people tend to infer the frequency of a class or the probability of occurrence on the ease with which a relevant example can be recalled. For example, participants in one experiment estimated that words beginning with *k* occur more frequently in the English language than words having *k* as the third letter, even though the opposite is true. Presumably, words beginning with *k* are easier to recall because of how words tend to be organized in memory (by initial letters). Later work also identified a related heuristic, the *simulation heuristic*, in which people judge frequency

and probability on the ease with which an example can be imagined (Kahneman & Tversky, 1982).

### *Media Effects and Accessibility Consequences*

The three types of judgments just discussed and their relation to accessibility by no means exhausts the discussion of the types of judgments that have been shown to be influenced by the accessibility of information (Higgins & King, 1981). Rather, those judgments are singled out because of their relevance to the types of judgments that are often used in media effects studies.

### *Effects of News Reports on Issue and Person Perceptions*

One domain in which information accessibility has been implicated is that of how information about particular issues presented in news reports affects judgments about those issues (e.g., attitudes, likelihood estimates). For example, research by Zillmann and colleagues has shown that information presented in the form of exemplars (e.g., case studies, vivid examples, etc.) tends to influence judgments to a greater degree than does more accurate but pallid base rate information. This general finding has been replicated for a variety of exemplar conditions, including manipulating the proportion of exemplars that are consistent with a story's focus, the degree of exaggeration of the exemplars, and the emotionality of the exemplars (for a review, see Zillmann, 2002). Other research has produced similar findings, with Iyengar (1990) reporting effects of the presence (vs. absence) of exemplars and Brosius and Bathelt (1994) finding an effect of number of exemplars on issue perceptions. Most of this research has conceptualized the results in terms of accessibility and the use of heuristics: The more vivid or frequent examples are easier to remember than less vivid or infrequent examples and thus tend to be used to construct judgments.

Iyengar and colleagues have also argued that media coverage can create an accessibility bias through its frequency of coverage of particular issues. In turn, this accessibility bias has been shown to influence a number of judgments, including issue salience, evaluations of politicians' performances, and voting behavior (Iyengar, 1990). Findings reported by Lichtenstein, Slovic, Fischhoff, Layman, and Combs (1978) have also been conceptualized in terms of accessibility and the application of the availability heuristic. They observed that roughly 80% of study participants estimated that death due to an accident is more likely to occur than death due to a stroke, even though strokes cause about 85% more deaths than accidents. Lichtenstein et al. suggest that examples of accidental deaths are easier to recall than examples of death by stroke, at least partially because the former tend to be reported more than the latter in the media.

### *Effects of Television Viewing on Social Perceptions*

Another media effects domain in which accessibility has been used as an explanatory variable is in the relationship between television viewing and perceptions of social reality. This domain differs from news reports in that it considers all types of television viewing (e.g., fictional portrayals such as soap operas, action/adventure, dramas, situation comedies, etc.) rather than just news programs.

The results of a number of studies can be conceptualized in terms of the enhanced accessibility afforded by heavy television viewing and the subsequent application of

judgmental heuristics, particularly when the dependent variables involve estimates of frequency of a class or likelihood of occurrence. For example, Bryant, Carveth, and Brown (1981) exposed participants, over a six-week period, to either heavy or light viewing of films depicting crime, and those in the heavy exposure condition saw crime portrayals that featured either just or unjust resolutions. They found that those in the heavy exposure conditions indicated a greater likelihood of being a victim of violence and more fear of victimization than those in the light exposure conditions, regardless of whether the resolutions were just or unjust. As with the other studies just discussed, these results are consistent with predictions made by the availability heuristic: The heavy viewing conditions made examples of crime more accessible than the light viewing conditions, and this accessibility, or ease of recall, influenced judgments of prevalence and likelihood of occurrence. Other studies have made this same connection between accessibility as a function of viewing and judgments (cf. Ogles & Hoffner, 1987; Tamborini, Zillmann, & Bryant, 1984).

The concepts of accessibility and the use of heuristics have also been used to explain the effects of sexual portrayals in the media (see chapter 15). Zillmann and Bryant (1982) found that participants who viewed portrayals of explicit sex scenes gave higher estimates of the prevalence of unusual sex practices among the general population, were less likely to object to public display of pornography, and recommended shorter jail sentences for a convicted rapist than did participants who viewed films that were not sexually explicit.

#### *Effects of Media Portrayals on Aggression*

Although the research just reviewed has focused predominantly on cognitive measures as dependent variables, the concept of accessibility has also been useful in explaining the effects of exposure to media violence on behavior. Berkowitz's *cognitive-neoassociationistic perspective* (1984; see also chapter 5) on the effects of violent media consumption posits that frequent viewing of violent media portrayals primes particular constructs (e.g., aggression, hostility) and thus makes these constructs more likely to be used in behavioral decisions as well as judgments about others. Note that this notion is very similar to the original trait priming studies that were discussed earlier: A particular trait concept is made accessible and thus is used disproportionately as a basis for subsequent judgments.

The relation between the activation of a construct such as aggression through media portrayals and the accessibility of aggression-related constructs has been demonstrated in several studies. For example, Bushman and Geen (1990) showed that viewing violent films elicited more aggressive thoughts than viewing nonviolent films. Berkowitz, Parker, and West (cited in Berkowitz, 1973) produced similar findings, showing that children who read a war comic book were more likely to select words with aggressive meanings than children who read a neutral comic book. Other studies have made the connection between activation (and presumed enhanced accessibility) of aggression constructs and subsequent judgments. Carver, Ganellen, Froming, and Chambers (1983) found that people who viewed a brief film portraying a hostile interaction between a business executive and his secretary perceived more hostility in an ambiguous target person than did people who viewed a non-hostile portrayal, and Berkowitz (1970) showed that similar effects of aggressive portrayals on judgments can be observed even when the aggressive behavior is in the form of comedy.

It is also worth noting that what is primed does not necessarily have to be directly

related to an imminent judgment, but may only have to share similar features to a judgment situation. Recall that one of the antecedents of a construct's accessibility is its relation to other accessible constructs. This notion is useful in explaining possible media effects in which the type of aggressive action viewers observe in media content is only tangentially related to the type of aggressive action taken by viewers, a pattern of results that theories of learning, imitation, or "modeling" (Bandura, 1973; see chapter 6) have difficulty addressing (Berkowitz, 1984). In fact, as Berkowitz noted, the behavioral aggression measures that are used in studies are often quite different from the aggression observed in the media portrayals (whether they are experiments or field studies). For example, Phillips (1983) presented correlational data that showed that heavy media coverage of heavyweight championship boxing matches tended to be followed by an increase in homicides in the U.S. on certain days within a 10-day period following the fight (but see Freedman, 1984, for a criticism of this study). Similar aggression-related effects of viewing boxing matches have been reported in experimental studies as well (Turner & Berkowitz, 1972).

#### **Indirect vs. Direct Investigations of Cognitive Processes**

The research just presented is suggestive of the role of accessibility as a cognitive mediator of media effects. However, much of the evidence is still indirect in that many of the studies fall short of actually investigating the processes themselves, but rather offer process explanations for the obtained results. Exceptions to this generalization include Zillmann's work on excitation-transfer theory (Zillmann, 1983) and Berkowitz's cognitive-neoassociationistic perspective (Berkowitz, 1984).

In the following section, I discuss a series of studies that directly investigates such potential cognitive processes. The results of these studies are then used as the basis for the development of cognitive processing models that can account for a particular media effect, the cultivation effect. This model builds on the general principles discussed earlier (heuristic/sufficiency and accessibility) that underlie social cognition research.

#### **PSYCHOLOGICAL PROCESSES UNDERLYING CULTIVATION EFFECTS**

One area of media effects research that has generated considerable controversy is the research on the cultivation effect (see chapter 3). For the purposes of this discussion, a cultivation effect is defined as a positive relation between frequency of television viewing and social perceptions that are congruent with the world as it is portrayed on television, with the presumption that television viewing is the causal factor. Although considerable evidence has accumulated that supports the existence of at least a small-sized cultivation effect (Morgan & Shanahan, 1996), other researchers have challenged the validity of the effect. Some research suggests that the relationship between viewing and perceptions is not causal, but rather a spurious one resulting from third variable influences (e.g., direct experience, available time to view) on both television viewing and social perceptions (Doob & Macdonald, 1979; Hirsch, 1980; Hughes, 1980; Wober & Gunter, 1988). Other research suggests that the causal relation between viewing and social perceptions may be reversed; that is, aspects of the individual (including pre-existing social perceptions) may influence the amount and content of viewing (Zillmann, 1980).

As noted earlier, one of the advantages of developing a cognitive process model of



media effects is that it has the potential to render implausible certain alternative explanations for the effect (e.g., spuriousness, reverse causality, etc.). Two caveats should be noted, however. First, rendering a particular alternative explanation implausible in a study merely means that the explanation cannot *completely* account for a particular pattern of results; it does not mean that the alternative explanation may not be operating simultaneously but independent of other effects. Second, the power of a process model is in the cumulative effect of a pattern of results, not a focus on a single study. Thus, even though alternative explanations may be possible for any one study, in the interest of parsimony, the alternative explanations should address the entire pattern of results to be an effective challenge.

In the following sections, I describe models that attempt to explain the underlying processes of cultivation effects. These models are grounded in the theories of social cognition that were described earlier. The models incorporate advances that have been made over the last few years and thus represent refinements of the model presented in the previous edition of *Media Effects* (Shrum, 2002). In fact, the models are now multiple ones that separately explain the processes underlying different types of cultivation effects, in particular what are generally referred to as effects on first-order (e.g., estimates of prevalence, probability) and second-order (attitudes, values, beliefs) judgments. Recent findings suggest that the processes by which television viewing influences judgments depend on the type of judgment that is made (Shrum, 2004, 2007a; Shrum, Burroughs, & Rindfleisch, 2004).

#### PROCESS MODEL FOR FIRST-ORDER CULTIVATION EFFECTS

The process model for first-order effects, which has been referred to as the heuristic processing model of cultivation effects (Shrum, 2002; Shrum, Wyer, & O'Guinn, 1998) and the accessibility model (Shrum, 2007a), starts with two general propositions that are based on the principles of heuristic/sufficiency and accessibility. The first general proposition is that television viewing enhances construct accessibility. As discussed earlier, aspects of television viewing may plausibly be related to the accessibility of constructs encountered in typical television fare. The second general proposition is that the social perceptions that serve as indicators of a cultivation effect are memory-based judgments that are constructed through heuristic processing. Specifically, rather than constructing judgments through an extensive search of memory for all available relevant information (systematic processing), only a subset of relevant information is retrieved, and specifically, the information retrieved is that which is most accessible from memory. A corollary of this second general proposition is that, at least for cases in which the judgments pertain to perceptions of frequency of a class (set-size) or likelihood of occurrence, judgments are constructed through the application of the availability heuristic; that is, the magnitude of the judgments is positively related to the ease with which an example can be brought to mind (Tversky & Kahneman, 1973).

#### Testable Propositions

These general propositions can themselves be used to generate testable propositions regarding the relation between television viewing and social perceptions and the cognitive mechanisms that may mediate this relation.

#### *Proposition 1: Television Viewing Influences Accessibility*

Proposition 1 is a necessary condition for testing whether the availability heuristic can explain cultivation effects. This proposition was initially tested by operationalizing accessibility as the speed with which judgments could be constructed. Shrum and O'Guinn (1993) had participants provide prevalence and likelihood estimates of constructs frequently portrayed on television (e.g., crime, prostitution, etc.) and measured the time it took participants to answer each question. If television information was more accessible for heavy viewers than for light viewers, heavy viewers should not only provide higher estimates than light viewers (a cultivation effect), but should also construct their judgments faster (an accessibility effect). The results of the study confirmed these hypotheses, even when controlling for individual baseline latencies, grade point average, and use of other media. These same general relations have been replicated using a variety of dependent variables, different operationalizations of television viewing, and multiple control variables (cf. O'Guinn & Shrum, 1997; Shrum, 1996; Shrum, O'Guinn, Semenik, & Faber, 1991).

Although the initial findings linking speed of constructing judgments to judgment magnitude were consistent with theory, speed of judgment is a relatively indirect way of measuring exemplar accessibility. Recent findings provide more direct evidence that television influences accessibility. Busselle and Shrum (2003) had participants recall examples of various constructs, some of which are portrayed frequently in television programs (trial, murder, highway accident), and rate the ease of that recall experience. Consistent with predictions, media examples were more frequently recalled for constructs that are portrayed often in television programs but infrequently experienced personally, whereas personal experiences were more frequently retrieved for events occurring often in real life, regardless of their frequency of occurrence in the media (highway accidents, dates). More important, rated ease of recall of the examples was positively related to frequency of television viewing, but only for the viewing of television programs in which the events were frequently portrayed (e.g., soap operas, dramas, news). Rated ease of recall was unrelated to viewing frequency for program categories in which the constructs were infrequently portrayed (e.g., comedies, sports) and for constructs in which personal experience (direct or indirect) was high (e.g., date, highway accident). These results not only bolster the proposition that television viewing increases accessibility, but also are consistent with research showing the direct experience with constructs enhances their accessibility. It is also consistent with research that shows that it is the subjective ease of recall (the *metacognitive* experience) that influences judgments, not frequency of recall per se (Schwarz, Bless, Strack, Klumpp, Rittenauer-Schatka, & Simons, 1991; Schwarz, Song, & Xu, in press).

#### *Proposition 2: Accessibility Mediates the Cultivation Effect*

Proposition 1 (viewing influences accessibility) is a necessary but not sufficient condition to implicate the availability heuristic as an explanation for cultivation effects. It is also necessary to demonstrate that accessibility mediates the relation between level of viewing and magnitude of judgments (Manis, Shedler, Jonides, & Nelson, 1993); that is, it is also necessary to demonstrate that the enhanced accessibility leads to higher estimates. Otherwise, it could be argued that television viewing impacts accessibility and the magnitude of the judgments independently.

Some indirect evidence of the mediating role of accessibility was provided by Shrum

and O'Guinn (1993). When accessibility (speed of response) was controlled, the cultivation effect was for the most part reduced to nonsignificance. More direct evidence of mediation was provided by Shrum (1996). Path analyses were used to demonstrate that level of television viewing was related to accessibility (again, operationalized as response latencies), which in turn was related to the magnitude of the estimates. However, the path analyses also revealed that the mediation was only a partial one: Television viewing still had a direct effect on the magnitude of the estimates even when the influence of accessibility was controlled.

Busselle (2001) also provided evidence of the mediating role of accessibility by manipulating the conditions under which the prevalence estimates for particular constructs (e.g., a shooting) were constructed. Some participants provided their prevalence estimates before recalling an example of the construct (judgment-first condition), whereas other participants recalled an example before providing their estimates (recall-first condition). Level of television viewing was expected to make an example easier to recall in the judgment-first condition, whereas recalling an example before judgment was expected to make an example equally accessible for all participants, regardless of television viewing level. The results confirmed these expectations.

**Proposition 3: Television Exemplars Are Not Discounted**

An implicit assumption in the notion that the availability heuristic can explain cultivation effects is that the examples that are retrieved and used as a basis for judgment are considered applicable to the judgment. This is an important assumption because research has shown that accessibility effects typically obtain only when this condition is met (Higgins, 1996). Moreover, the judged applicability of the construct is a function of the overlap between its attended features and the features of the judgment.

In terms of the cultivation effect, the recalled construct would presumably be a television example. However, it is counterintuitive that people would perceive a television example (e.g., doctor, lawyer) as applicable to a judgment about its real-world prevalence. If they do not perceive the example as relevant, alternative information would be retrieved and used as a basis for judgment (Higgins, 1996; Higgins & Brendl, 1995; Shapiro & Lang, 1991).

One way in which a television example could be perceived as relevant to a real-world judgment is if people generally do not consider the source of the example they retrieve in the course of judgment construction. Note that perceived applicability is a function of the overlap between the *attended* features of the recalled construct and the features of the judgment. It may be that source characteristics of the retrieved construct are not salient features that are attended to, particularly when judgments are made with little effort. This may be a function of either lack of motivation to attend to source features (consistent with low involvement processing; Petty & Cacioppo, 1990) or lack of ability to recall source information (consistent with research on errors in source monitoring; Johnson, Hashtroudi, & Lindsay, 1993; Mares, 1996; Shrum, 1997). This process is also consistent with the weighing and balancing mechanism proposed by Shapiro and Lang (1991) to explain cultivation effects (for a review, see Shrum, 2007a).

To test proposition 3, Shrum, Wyer, and O'Guinn (1998) conducted two experiments in which source characteristics were primed prior to judgments. In the first experiment, the priming events consisted of a source-priming condition, in which participants provided information regarding their television viewing habits prior to providing prevalence and likelihood judgments of crime and occupations; and a relation-priming condition

in which participants were told that the constructs they would be estimating appeared more often on television than in real life. In a third, no-priming condition, participants provided their estimates prior to providing television viewing information. Analyses revealed that when participants provided estimates under no-priming conditions, a cultivation effect was noted, but when they provided estimates under either source- or relation-priming conditions, the cultivation effect was eliminated. Follow-up analyses indicated that the estimates of light viewers did not differ as a function of priming conditions, but the priming conditions served to bring the estimates of heavy viewers more in line with those of light viewers. This pattern of results can be seen in Figure 4.1.

A second study replicated this pattern of results, and further suggested that the priming conditions induced a source-discounting process (heavy viewers discounted television information to a greater degree than light viewers) rather than an automatic adjustment process (heavy viewers adjusted their estimates downward because they were aware they were heavy viewers, but light viewers saw no need to adjust).

**Proposition 4: Motivation to Process Information Moderates the Cultivation Effect**

Proposition 4 is based on research showing that there are certain conditions under which heuristic processing (as opposed to systematic processing) is expected to occur (Sherman & Corty, 1984; see chapter 7). If so, then manipulating the types of processing in which people engage should have implications for whether a cultivation effect is obtained. To be specific, if people generally process heuristically in the course of constructing their judgments of prevalence or likelihood of occurrence, then inducing people to process heuristically should produce a cultivation effect that does not differ in magnitude from the cultivation effect obtained when people receive no such manipulation. But suppose people are induced to process systematically when constructing

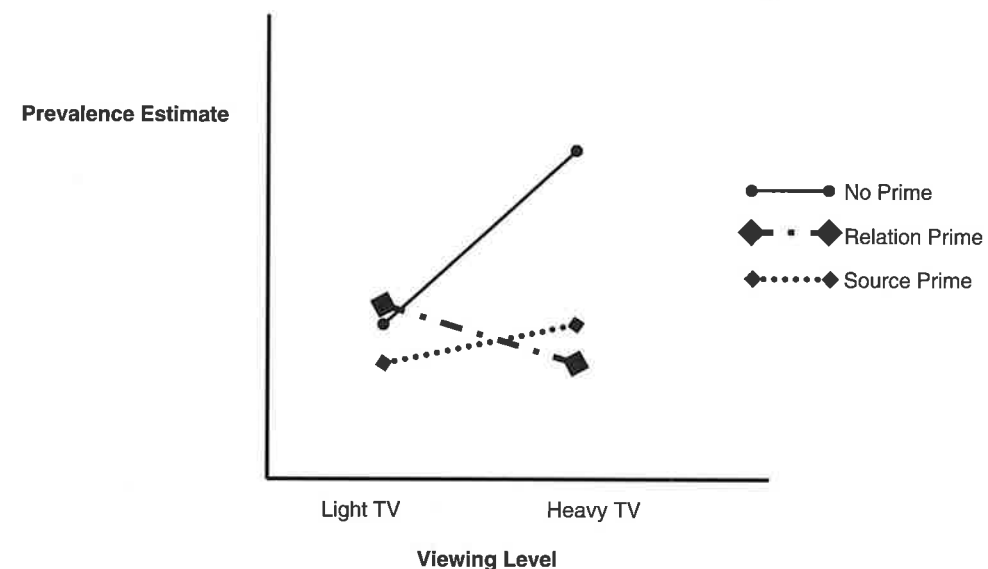


Figure 4.1 Prevalence Estimates as a Function of Priming Condition and Level of TV Viewing. Represents Pattern of Results across Dependent Variables (see Shrum, Wyer, & O'Guinn, 1998).



their judgments. Compared to heuristic processing, systematic processing is associated with the consideration of more information and greater scrutiny of the information that is considered. Systematic processing is used when it is important to determine the validity of information and has been shown to attenuate the effects of heuristics (Chaiken et al., 1989).

Under systematic conditions, it seems likely that the relation between level of viewing and social perceptions would be weakened or eliminated entirely. When people process systematically, they should be more likely to retrieve examples other than simply the first ones that come to mind, should be more likely to scrutinize the retrieved information, and thus should be more likely to ascertain and discount information from unreliable sources such as television programs, than when they process heuristically.

One condition that is related to whether heuristic or systematic processing strategies are adopted is the motivation to process information (Sherman & Corty, 1984). When motivation is high, systematic processing predominates; when motivation is low, heuristic processing predominates. Moreover, motivation is determined by a number of factors, including level of issue involvement (Petty & Cacioppo, 1990) and level of task involvement (Chaiken & Maheswaran, 1994).

To test proposition 4, Shrum (2001) manipulated the processing strategies that participants used to construct their estimates of the prevalence of crime, marital discord, affluence, and certain occupations. Some participants were induced to process systematically via an accuracy motivation/task importance manipulation (Chaiken & Maheswaran, 1994), others were induced to process heuristically by asking them to give the first answer that came to mind, and a third (control) group received no manipulation, but were simply instructed to provide their estimates. Television viewing was then measured after the judgments were made. The results were as expected. Both the control group and the heuristic group produced significant cultivation effects that did not differ from each other, whereas the systematic group showed no cultivation effect. Moreover, the pattern of results was very similar to those obtained by Shrum et al. (1998, Study 1): The estimates of light viewers did not differ as a function of condition, but the systematic condition affected only heavy viewers, bringing their estimates more in line with those of all light viewers, regardless of processing condition. This pattern of results can be seen in Figure 4.2.

**Proposition 5: Ability to Process Information Moderates the Cultivation Effect**

As with proposition 4, this proposition is based on the conditions that facilitate or inhibit the use of systematic or heuristic processing strategies. In addition to motivation to process information, the ability to process information is also associated with processing strategies (Chaiken et al., 1989; Petty & Cacioppo, 1986). One factor that relates to the ability to process information is time pressure (Moore, Hausknecht, & Thamodaran, 1986; Ratneshwar & Chaiken, 1991): the more time pressure, the greater the likelihood of adopting a heuristic processing strategy.

To test proposition 5, Shrum (2007b) used an experimental procedure that not only tested the proposition but also has implications for data collection methods. The experimental manipulation of time pressure was operationalized as either a mail survey (low time pressure) or a telephone survey (high time pressure) using a general population random sample. Pretests had indicated that the two data collection methods differed with respect to time pressure but did not differ in terms of respondents' self-reported

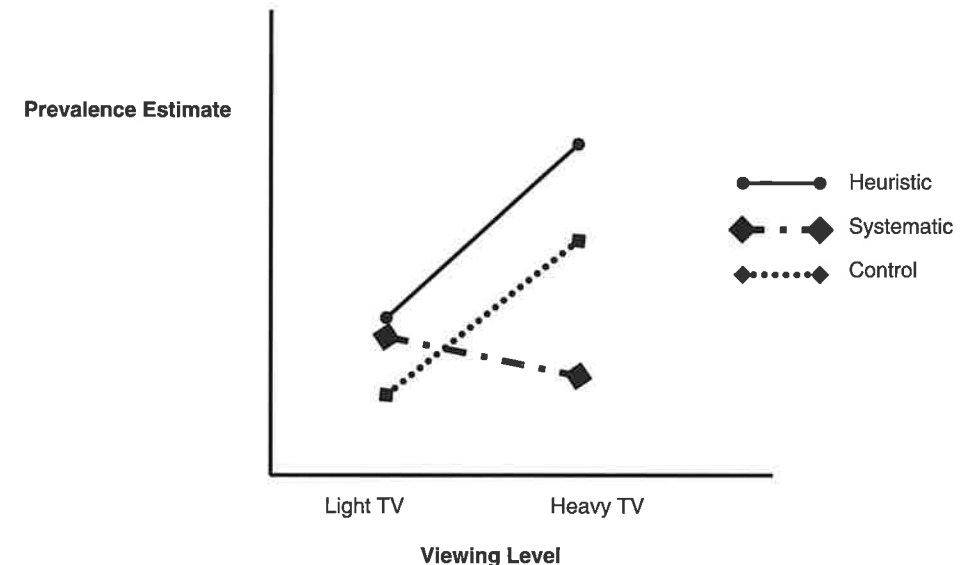


Figure 4.2 Prevalence Estimates as a Function of Processing Condition and Level of TV Viewing. Represents Pattern of Results across Dependent Variables (see Shrum, 2001).

level of involvement. The reasoning and predictions for the experiment were similar to Shrum (2001). If the cultivation effect is a function of heuristic processing, then larger effects should be noted under conditions that favor more heuristic processing (phone survey) than under conditions that favor less heuristic processing (mail survey). The results confirmed this speculation. Across five composite variables representing perceptions of societal crime, societal vice (e.g., prevalence of prostitution, drug abuse, etc.), marital discord, affluence, and the prevalence of particular occupations, the magnitude of the effects was significantly larger in the phone survey condition than in the mail survey condition for four of the five measures (as with Shrum, 2001, all but marital discord).

Other evidence also supports the notion that ability to process information has implications for the cultivation effect. Mares (1996) found that people who tend to make particular kinds of source confusions (mistaking fiction for fact) tend to exhibit a larger cultivation effect than those who do not tend to make such confusions. Thus, even in instances in which people may be motivated to process information (see Shrum, 1997), inability to properly process information (in this case, accurately ascertain source characteristics) may facilitate a cultivation effect.

**Model Integration**

The next step in model development is to integrate the testable propositions, and the implications of their supportive results, into a coherent conceptual framework. This conceptual framework, which is presented in the form of a flow chart in Figure 4.3, specifies a series of links, or steps, which lead from television viewing to the production of a cultivation effect. For the most part, each link (designated by an arrow) represents a testable proposition that has been empirically verified. As the figure indicates, there are in fact a number of ways in which media exposure will not have an effect on judgments (no cultivation effect), but only one way (path) in which a cultivation effect will be produced.

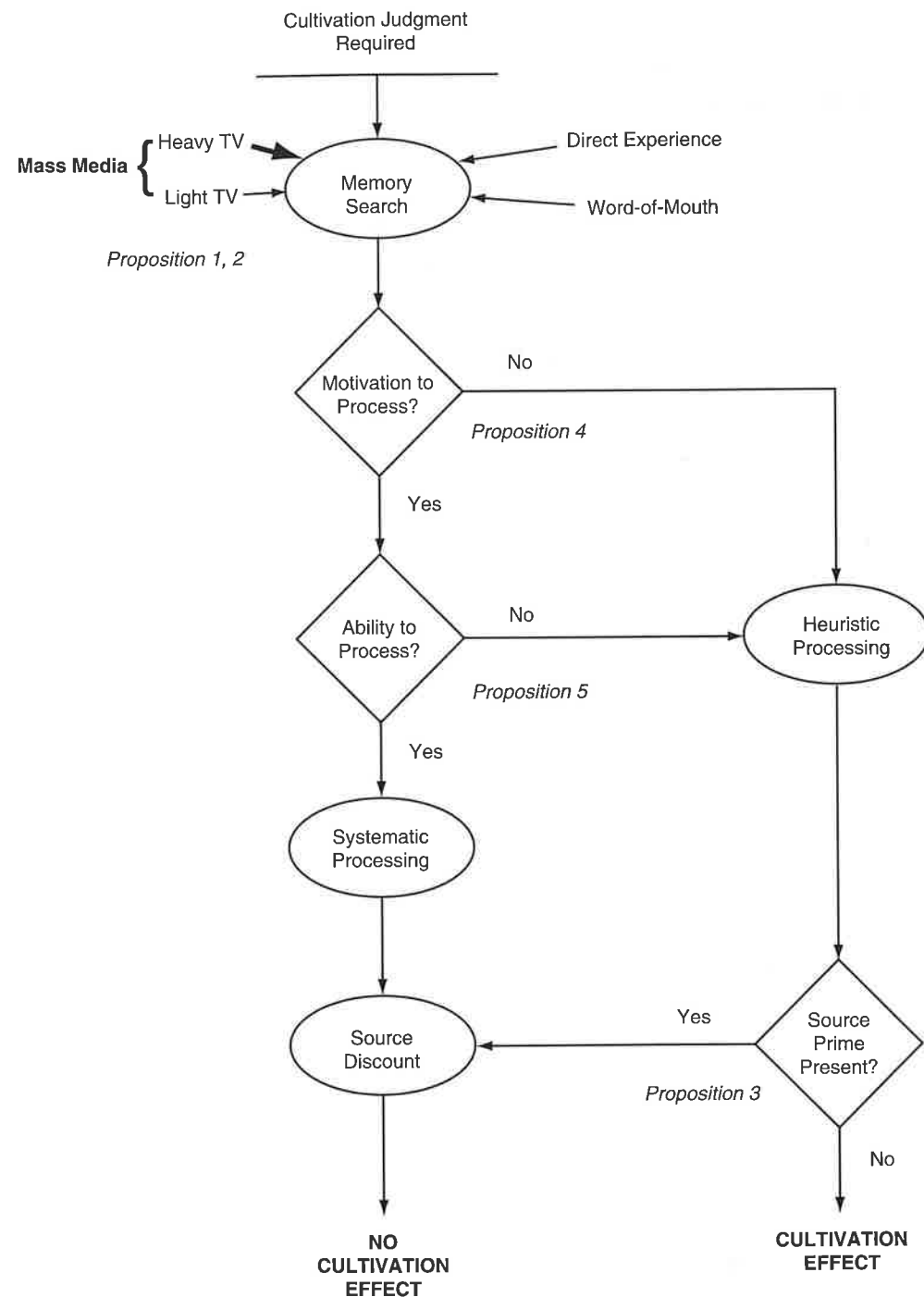


Figure 4.3 Flow Diagram of the Heuristic Processing Model of Television Effects. Circles Represent Mental Processes. The Thicker Arrow from Heavy TV to Memory Search Indicates a Greater Contribution to the Search Process.

In order to present as simple a model as possible, some misleading aspects arise that should be clarified. One of the misleading aspects of Figure 4.3 is that the links (Yes/No) and the outcomes (Effect/No Effect) are portrayed as dichotomous variables. In fact, it is more accurate to think of each as a continuum, and movement along the continuum has implications for the size of the outcome. For example, rather than interpreting the figure as "high motivation to process results in no cultivation effect," it may be better interpreted as "the higher the motivation to process, the smaller the cultivation effect."

### Implausible Alternative Hypotheses

Although some, if not all, of the studies that have formed the basis of the model have potential alternative explanations, it is difficult for concepts such as spuriousness or reverse causality to account for the general pattern. For example, the initial studies that tested propositions 1 and 2 (accessibility) were strictly correlational and thus could be explained in terms of either spuriousness or reverse causality. However, these alternative explanations cannot account for the results of the experiments that tested propositions 3 through 5, particularly the pattern showing that both the experimental manipulations of source priming and of processing strategy produced nearly identical results, with the manipulations reducing estimates of heavy viewers to the equivalent of light viewers, but leaving the estimates of light viewers unaffected.

The consistency of results across the different types of dependent variables also argues against explanations other than a causal effect of television viewing. Consistent results tended to be found for judgments of occupational prevalence (doctors, lawyers, police officers), crime, and affluence (and to a lesser extent, marital discord). Although reverse causality or spuriousness explanations can be used (and often are) to explain the results for any one variable, it is difficult to account for the effects on all variables. Rather, the more parsimonious explanation is that the causal factor is the one that they most have in common: They are constructs over-represented in television portrayals relative to their real-world incidence.

### Explaining Small Cultivation Effect Sizes

As mentioned earlier, one of the useful features of a process model for cultivation effects is that it has the potential to reconcile conflicting findings that have been reported. The myriad of paths toward little or no cultivation effect that are shown in Figure 4.3 has the potential to explain some of these conflicts.

### Source-priming Explanations

The source-priming manipulation used by Shrum et al. (1998) had participants provide information on how much television they watch prior to providing their prevalence and likelihood estimates. This order of data collection was sufficient to eliminate the cultivation effect. As Morgan and Shanahan (1996) noted, a number of studies that have reported finding no evidence of a cultivation effect either measured television viewing prior to measuring social perceptions or introduced the study as one pertaining to television. Although Morgan and Shanahan's meta-analysis did not find support for such source-priming as a moderator, their results showed that the effect sizes for the non-source-primed studies tended to be slightly higher than the effect sizes for studies



in which source was (inadvertently) primed. Thus, it seems possible that the inability to observe cultivation effects in previous studies may have been due to the inadvertent priming of source information.

Note also that it is not necessary to prime source through data collection. Priming simply refers to making a construct more accessible in memory. For some people, particular constructs may be chronically accessible (Higgins, 1996). So for whom might the construct of television, and its potential effects, be particularly accessible? One group may be communication majors, or for that matter, any student who might have had a course that deals with potential effects of television; in other words, people who may often comprise the subject pools that academics (and especially those in communication departments) use in their studies. Thus, it is plausible that null findings for cultivation effects in some studies may be due to the special characteristics of the sample.

#### *Involvement Explanations*

A number of factors may relate to level of involvement with constructing judgments. For example, level of involvement may differ as a function of sample composition. College students may be less intimidated than older adults or younger people by the university setting that may be used to collect data (Shrum, 1997). Alternatively, individual differences may exist that relate to involvement, such as interest in the topic (e.g., crime by those with direct experience with it) or general interest in solving problems (e.g., those high on need for cognition; Cacioppo & Petty, 1982). Involvement may also vary as a function of data collection method. Data that are collected through anonymous questionnaires may induce less accuracy motivation than data collected in, say, personal interviews (Shrum, 1997, 2001).

#### *Time Pressure Explanations*

Shrum (2007b) showed that simple differences in data collection methods, presumably related to differences in time pressure, can have a significant impact on the magnitude of cultivation effects. In that study, the difference was whether the data were collected via a phone or mail survey. Other situations can contribute to time pressure, whether real or imagined. Although not entirely independent of involvement, it has been my experience that a majority of the college students that comprise subject pools seem to be in quite a hurry to finish their task and leave. College students may be less interested in answering survey questions or in more of a hurry to complete the survey than older adults. If so, they would be more likely to use heuristics in their judgments, and thus should show a larger cultivation effect. There is actually some evidence that supports this possibility. Unreported data from Morgan and Shanahan's (1996) meta-analysis (reported in Shrum, 2007b) showed that college student samples produced markedly larger effect sizes than general population adult samples despite their lower incidence of television viewing.

#### *Summary*

The process model for first-order cultivation effects just discussed has provided robust findings that help explain the processes underlying the effect. This process explanation provides much needed support for the validity of the effect by explicating and testing the mediating processes. The model also specifies important boundary conditions or

moderating effects. Cultivation effects tend to be strongest when motivation or ability to process information is low, and the effects tend to be reduced or eliminated when motivation or ability to process is high.

However, first-order effects are only a part of the picture. Although process research to date has tended to focus on first-order effects (perhaps because they have been shown to be more reliable; Hawkins & Pingree, 1982), second-order effects that look at television's influence on values, attitudes, and beliefs are arguably more important. As will be noted in the following section, first-order judgments are fairly uncommon and seldom spontaneous, usually coming only at the behest of one of life's researchers (Hastie & Park, 1986), whereas second-order judgments are typically spontaneous, everyday judgments that influence many aspects of our lives. In the next section, I provide a rough model of the processes underlying second-order cultivation effects and discuss evidence that supports this model.

### PROCESS MODEL FOR SECOND-ORDER CULTIVATION EFFECTS

As just noted, second-order judgments differ from first-order judgments in some important ways, including how they are constructed (Shrum, 2004). First-order judgments tend to be memory-based judgments. Memory-based judgments are constructed by recalling information from memory and constructing the judgment in real time. In contrast, second-order cultivation judgments such as attitudes and values tend to be online judgments.<sup>3</sup> Online judgments are constructed by relying on information as it comes into memory storage from an outside source (e.g., an ad, a speech, etc.). As Hastie and Park (1986) noted, memory-based judgments are actually relatively rare, and often hard to produce, even in the lab. In contrast, online judgments are much more common and tend to be made spontaneously as information is received.

If indeed first-order and second-order judgments differ in how they are constructed, then it follows that the processes that underlie television effects on those judgments may also differ. In fact, as the next section illustrates, not only do the underlying processes differ, but in some cases appear to be exact opposites.

#### *Cultivation as Online Persuasion*

The premise of cultivation theory is that frequent viewing influences attitudes, values, and beliefs in the direction of the television message. Put this way, television viewing can be conceptualized as a persuasive communication. If so, and if in fact the attitudes, values, and beliefs are formed in an online fashion, there are a number of implications for the processes underlying the cultivation of second-order cultivation judgments. For one, it suggests that the influence of television on judgments occurs *during viewing*. Note that this differs from the influence of television on first-order judgments, in which the recall of television information influences judgments of frequency and probability at the time the judgment is requested. Second, if the cultivation is viewed as a persuasive communication, then it follows that factors that facilitate or inhibit persuasion would likewise facilitate or inhibit the cultivation effect. In particular, research on dual-process models of persuasion such as the ELM (see chapter 7) specify that motivation and ability to process information moderates the effects of persuasion: Persuasion is enhanced when motivation and ability to process information are high.<sup>4</sup> Given this,

it follows that cultivation should be enhanced when motivation and ability are high during viewing.

### Initial Tests

A few studies have provided initial support for this proposition. Shrum, Burroughs, and Rindfleisch (2005) conducted two studies that sought to determine whether motivation and ability to process information during viewing moderates the cultivation effect. The first study consisted of a randomly sampled general population survey of U.S. viewers that looked at the relation between frequency of television viewing and the personal value of materialism. Motivation to process information was operationalized as the extent to which viewers tend to elaborate during viewing (need for cognition; Cacioppo & Petty, 1982) and ability to process was operationalized as self-reported tendencies to pay attention to the program while viewing (Rubin, Perse, & Taylor, 1988). As expected, viewing frequency was positively related to level of materialism, but the effect was stronger for those who tend to elaborate more during viewing (high need for cognition) and for those who tend to pay attention more while viewing. A follow-up experiment confirmed the hypothesis that high need for cognition people who are heavy viewers tend to elaborate more, and also more positively, than low need for cognition heavy viewers. The heavy-viewing high need for cognition participants also reported being the most immersed into the program while they viewed. Note that these particular moderating effects for motivation and ability on second-order cultivation judgments are exactly the opposite of their moderating effects on first-order cultivation judgments. For the latter, high motivation and high ability to process information during recall decreased the cultivation effect (Shrum, 2001, 2007b).

The online nature of second-order cultivation judgments also has some implications for the accessibility of attitudes.<sup>5</sup> If in fact currently existing attitude and value structures get continuously accessed and updated during viewing, then the accessibility of those attitudes should be positively related to frequency of viewing. This proposition was confirmed in a study that measured television viewing and speed with which attitude judgments were made (Shrum, 1999). As expected, heavy viewers provided their attitude judgments faster than light viewers, and this effect held over-and-above the effects of attitude extremity.

### CONCLUSION

When combined with the previous studies on memory-based processing and first-order cultivation judgments, the results of the most recent studies on online processing of second-order cultivation judgments make a convincing case that the processes underlying media effects such as cultivation depend on the type of judgment being made. This has important implications for reconciling various disparate findings in the media effects literature. To start, the articulation of boundary conditions for the cultivation effect can be extrapolated to certain conditions that may inhibit the cultivation effect, making it small and at times nonsignificant. The different "routes to cultivation," coupled with those boundary conditions, may also help explain why effects are often noted for one type of judgment but not the other (e.g., first-order effects may be more common and stronger than second-order effects; Hawkins & Pingree, 1982).

Specifying and documenting the underlying effects does more than simply contribute

to the construct validity of the cultivation effect. The boundary conditions specified by the process models also imply ways in which unwanted effects of media consumption (e.g., increased materialism, less trust, inaccurate perceptions of society) may be mitigated. The models just articulated suggest that media literacy programs not only need to teach viewers to "read the media," but they also need to teach viewers to "read the judgment" by educating viewers as to the types of judgments that are often affected by television viewing and how to devise (different) strategies based on the different underlying processes.

### Acknowledgement

Preparation of this chapter was supported in part by a Faculty Development Leave grant and a Faculty Research Award from the University of Texas at San Antonio and by a Faculty Summer Research Grant from the College of Business.

### Notes

- 1 The comprehensive aspect of the Wyer and Srull (1989) model is that it specifies precise mechanisms for all stages in the information processing system (i.e., from input to output) and not necessarily that it is superior or more valid than other models. Most other models tend to focus on only selected aspects of the processing system (e.g., comprehension, storage, retrieval, response, etc.).
- 2 These two principles are discussed at more length by Carlston and Smith (1996) and Wyer (1980), who each use slightly different names for the principles. I have taken the liberty of renaming the principles to provide a better fit with the definitions and context of the discussions.
- 3 Of course, not all attitudes are formed in an online fashion. In certain instances, particularly when a current attitude is not very accessible or we are not confident in its validity, we may recompute our attitude from information we recall from memory (e.g., attitude toward a person, product, etc.). However, most of our attitudes, impressions, and perceptions are made spontaneously (and often automatically). As new information is encountered, new attitudes are formed or old ones are updated.
- 4 This is true only for strong (i.e., compelling) arguments. However, it is reasonable to think that heavy viewers find the story arguments compelling given that they watch frequently.
- 5 Note that this type of accessibility is different than the accessibility noted for first-order effects. Accessibility for first-order judgments refers to the accessibility of exemplars, which are used to construct memory-based judgments. Accessibility of attitudes or beliefs refers to the accessibility of a prior evaluative judgment.

### References

- Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NJ: Prentice Hall.
- Bargh, J. A., & Pietromonaco, P. (1982). Automatic information processing and social perception: The influence of trait information presented outside of conscious awareness on impression formation. *Journal of Personality and Social Psychology*, 43, 437-449.
- Berkowitz, L. (1970). Aggressive humors as a stimulus to aggressive responses. *Journal of Personality and Social Psychology*, 16, 710-717.
- Berkowitz, L. (1973). Words and symbols as stimuli to aggressive responses. In J. Knutson (Ed.), *Control of aggression: Implications from basic research* (pp. 113-143). Chicago: Aldine-Atherton.
- Berkowitz, L. (1984). Some effects of thoughts on anti- and prosocial influences of media events: A cognitive-neoassociation analysis. *Psychological Bulletin*, 95, 410-427.
- Brosius, H., & Bathelt, A. (1994). The utility of examples in persuasive communication. *Communication Research*, 21, 48-78.



- Bryant, J., Carveth, R. A., & Brown, D. (1981). Television viewing and anxiety: An experimental investigation. *Journal of Communication*, 31(1), 106-119.
- Bushman, B., & Geen, R. (1990). Role of cognitive-emotional mediators and individual differences in the effects of media violence on aggression. *Journal of Personality and Social Psychology*, 58, 156-163.
- Busselle, R. W. (2001). The role of exemplar accessibility in social reality judgments. *Media Psychology*, 3, 43-67.
- Busselle, R. W., & Shrum, L. J. (2003). Media exposure and the accessibility of social information. *Media Psychology*, 5, 255-282.
- Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42, 116-131.
- Carlston, D. E., & Smith, E. R. (1996). Principles of mental representation. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 184-210). New York: Guilford Press.
- Carver, C., Ganellen, R., Froming, W., & Chambers, W. (1983). Modeling: An analysis in terms of category accessibility. *Journal of Experimental Social Psychology*, 19, 403-421.
- Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 212-252). New York: Guilford Press.
- Chaiken, S., & Maheswaran, D. (1994). Heuristic processing can bias systematic processing: Effects of source credibility, argument ambiguity, and task importance on attitude judgment. *Journal of Personality and Social Psychology*, 66, 460-473.
- Chayefsky, P. (writer). (1976). *Network* [Film]. Metro-Goldwyn-Mayer, Inc.
- Collins, A. M., & Loftus, E. F. (1975). A spreading-activation theory of semantic processing. *Psychological Review*, 82, 407-428.
- Doob, A., & Macdonald, G. (1979). Television viewing and fear of victimization: Is the relationship causal? *Journal of Personality and Social Psychology*, 37, 170-179.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Freedman, J. L. (1984). Effect of television violence on aggressiveness. *Psychological Bulletin*, 96, 227-246.
- Hastie, R., & Park, B. (1986). The relationship between memory and judgment depends on whether the judgment task is memory-based or on-line. *Psychological Review*, 93, 258-268.
- Hawkins, R. P., & Pingree, S. (1982). Television's influence on constructions of social reality. In D. Pearl, L. Bouthilet, & J. Lazar (Eds.), *Television and behavior: Ten years of scientific progress and implications for the eighties* (Vol. 2, pp. 224-247). Washington, DC: Government Printing Office.
- Hawkins, R. B., & Pingree, S. (1990). Divergent psychological processes in constructing social reality from mass media content. In N. Signorielli & M. Morgan (Eds.), *Cultivation analysis: New directions in media effects research* (pp. 33-50). Newbury Park, CA: Sage.
- Henninger, M., & Wyer, R. S. (1976). The recognition and elimination of inconsistencies among syllogistically related beliefs: Some new light on the "Socratic effect." *Journal of Personality and Social Psychology*, 34, 680-693.
- Higgins, E. T. (1996). Knowledge activation: Accessibility, applicability, and salience. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 133-168). New York: Guilford Press.
- Higgins, E. T., Bargh, J. A., & Lombardi, W. (1985). The nature of priming effects on categorization. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 11, 59-69.
- Higgins, E. T., & Brendl, C. M. (1995). Accessibility and applicability: Some "activation rules" influencing judgment. *Journal of Experimental Social Psychology*, 31, 218-243.
- Higgins, E. T., & King, G. (1981). Accessibility of social constructs: Information processing consequences of individual and contextual variability. In N. Cantor & J. F. Kihlstrom (Eds.), *Personality, cognition and social interaction* (pp. 69-121). Hillsdale, NJ: Erlbaum.

- Higgins, E. T., Rholes, W. S., & Jones, C. R. (1977). Category accessibility and impression formation. *Journal of Experimental Social Psychology*, 13, 141-154.
- Hirsch, P. (1980). The scary world of the nonviewer and other anomalies: A reanalysis of Gerbner et al.'s findings on cultivation analysis. *Communication Research*, 7, 403-456.
- Hughes, M. (1980). The fruits of cultivation analysis: A reexamination of some effects of television watching. *Public Opinion Quarterly*, 44, 287-302.
- Iyengar, S. (1990). The accessibility bias in politics: Television news and public opinion. *International Journal of Public Opinion Research*, 2, 1-15.
- Johnson, M. K., Hashtroudi, S., & Lindsay, D. S. (1993). Source monitoring. *Psychological Bulletin*, 114, 3-28.
- Kahneman, D., & Tversky, A. (1982). The simulation heuristic. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 201-208). New York: Cambridge University Press.
- Lichtenstein, S., Slovic, P., Fischhoff, G., Layman, M., & Combs, B. (1978). Judged frequency of lethal events. *Journal of Experimental Psychology: Human Learning and Memory*, 6, 551-578.
- Manis, M., Shedler, J., Jonides, J., & Nelson, T. E. (1993). Availability heuristic in judgments of set size and frequency of occurrence. *Journal of Personality and Social Psychology*, 65, 448-457.
- Mares, M. L. (1996). The role of source confusions in television's cultivation of social reality judgments. *Human Communication Research*, 23, 278-297.
- McGuire, W. J. (1960). Cognitive consistency and attitude change. *Journal of Abnormal and Social Psychology*, 60, 345-353.
- McGuire, W. J. (1986). The myth of massive media impact: Savagings and salvagings. In G. Comstock (Ed.), *Public communication and behavior* (Vol. 1, pp. 173-257). New York: Academic Press.
- Moore, D. L., Hausknecht, D., & Thamodaran, K. (1986). Time compression, response opportunity, and persuasion. *Journal of Consumer Research*, 13, 85-99.
- Morgan, M., & Shanahan, J. (1996). Two decades of cultivation research: An appraisal and meta-analysis. In B. R. Burleson (Ed.), *Communication yearbook 20* (pp. 1-45). Newbury Park, CA: Sage.
- Nisbett, R., & Ross, L. (1980). *Human inferences: Strategies and shortcomings of human judgment*. Englewood Cliffs, NJ: Prentice-Hall.
- Ogles, R. M., & Hoffner, C. (1987). Film violence and perceptions of crime: The cultivation effect. In M. L. McLaughlin (Ed.), *Communication yearbook 10* (pp. 384-394). Newbury Park, CA: Sage.
- O'Guinn, T. C., & Shrum, L. J. (1997). The role of television in the construction of consumer reality. *Journal of Consumer Research*, 23, 278-294.
- Paivio, A. (1971). *Imagery and verbal processes*. New York: Holt, Rinehart & Winston.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer-Verlag.
- Petty, R. E., & Cacioppo, J. T. (1990). Involvement and persuasion: Tradition versus integration. *Psychological Bulletin*, 107, 367-374.
- Phillips, D. (1983). The impact of mass media violence on U.S. homicides. *American Sociological Review*, 48, 560-568.
- Ratneshwar, S., & Chaiken, S. (1991). Comprehension's role in persuasion: The case of its moderating effect on the persuasive impact of source cues. *Journal of Consumer Research*, 18, 52-62.
- Reeves, B., Chaffee, S., & Tims, A. (1982). Social cognition and mass communication research. In M. E. Roloff & C. R. Berger (Eds.), *Social cognition and mass communication* (pp. 287-326). Newbury Park, CA: Sage.
- Rubin, A. M., Perse, E. M., & Taylor, D. S. (1988). A methodological examination of cultivation. *Communication Research*, 15, 107-134.
- Schank, R., & Abelson, R. P. (1977). *Scripts, plans, goals, and understanding*. Hillsdale, NJ: Erlbaum.
- Schwarz, N., Bless, H., Strack, F., Klumpp, G., Rittenauer-Schatka, H., & Simons, A. (1991). Ease

- of retrieval as information: Another look at the availability heuristic. *Journal of Personality and Social Psychology*, 61, 195-202.
- Schwarz, N., Song, H., & Xu, J. (in press). When thinking is difficult: Metacognitive experiences as information. In M. Wänke (Ed.), *The social psychology of consumer behavior*. New York: Psychology Press.
- Shapiro, M. A., & Lang, A. (1991). Making television reality: Unconscious processes in the construction of social reality. *Communication Research*, 18, 685-705.
- Sherman, S. J., & Corty, E. (1984). Cognitive heuristics. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (Vol. 1, pp. 189-286). Hillsdale, NJ: Erlbaum.
- Shrum, L. J. (1995). Assessing the social influence of television: A social cognition perspective on cultivation effects. *Communication Research*, 22, 402-429.
- Shrum, L. J. (1996). Psychological processes underlying cultivation effects: Further tests of construct accessibility. *Human Communication Research*, 22, 482-509.
- Shrum, L. J. (1997). The role of source confusion in cultivation effects may depend on processing strategy: A comment on Mares (1996). *Human Communication Research*, 24, 349-358.
- Shrum, L. J. (1999). The relationship of television viewing with attitude strength and extremity: Implications for the cultivation effect. *Media Psychology*, 1, 3-25.
- Shrum, L. J. (2001). Processing strategy moderates the cultivation effect. *Human Communication Research*, 27, 94-120.
- Shrum, L. J. (2002). Media consumption and perceptions of social reality: Effects and underlying processes. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (2nd ed., pp. 69-95). Mahwah, NJ: Erlbaum.
- Shrum, L. J. (2004). The cognitive processes underlying cultivation effects are a function of whether the judgments are on-line or memory-based. *Communications*, 29, 327-344.
- Shrum, L. J. (2007a). Cultivation and social cognition. In D. R. Roskos-Ewoldsen & J. L. Monahan (Eds.), *Communication and social cognition: Theories and methods* (pp. 245-272). Mahwah, NJ: Erlbaum.
- Shrum, L. J. (2007b). The implications of survey method for measuring cultivation effects. *Human Communication Research*, 33, 64-80.
- Shrum, L. J., Burroughs, J. E., & Rindfleisch, A. (2004). A process model of consumer cultivation: The role of television is a function of the type of judgment. In L. J. Shrum (Ed.), *The psychology of entertainment media: Blurring the lines between entertainment and persuasion* (pp. 177-191). Mahwah, NJ: Erlbaum.
- Shrum, L. J., Burroughs, J. E., & Rindfleisch, A. (2005). Television's cultivation of material values. *Journal of Consumer Research*, 32, 473-479.
- Shrum, L. J., & O'Guinn, T. C. (1993). Processes and effects in the construction of social reality: Construct accessibility as an explanatory variable. *Communication Research*, 20, 436-471.
- Shrum, L. J., O'Guinn, T. C., Semenik, R. J., & Faber, R. J. (1991). Processes and effects in the construction of normative consumer beliefs: The role of television. In R. H. Holman & M. R. Solomon (Eds.), *Advances in consumer research* (Vol. 18, pp. 755-763). Provo, UT: Association for Consumer Research.
- Shrum, L. J., Wyer, R. S., & O'Guinn, T. C. (1998). The effects of television consumption on social perceptions: The use of priming procedures to investigate psychological processes. *Journal of Consumer Research*, 24, 447-458.
- Srull, T. K., & Wyer, R. S. (1979). The role of category accessibility in the interpretation of information about persons: Some determinants and implications. *Journal of Personality and Social Psychology*, 37, 1660-1672.
- Tamborini, R., Zillmann, D., & Bryant, J. (1984). Fear and victimization: Exposure to television and perceptions of crime and fear. In R. N. Bostrom (Ed.), *Communication yearbook 8* (pp. 492-518). Beverly Hills: Sage.
- Turner, C., & Berkowitz, L. (1972). Identification with film aggressor (covert role taking) and reactions to film violence. *Journal of Personality and Social Psychology*, 21, 256-264.

- Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, 5, 207-232.
- Wober, M., & Gunter, B. (1988). *Television and social control*. Aldershot, England: Avebury.
- Wyer, R. S. (1980). The acquisition and use of social knowledge: Basic postulates and representative research. *Personality and Social Psychology Bulletin*, 6, 558-573.
- Wyer, R. S. (2004). *Social comprehension and judgment: The role of situation models, narratives, and implicit theories*. Mahwah, NJ: Erlbaum.
- Wyer, R. S., & Hartwick, J. (1984). The recall and use of belief statements as bases for judgments: Some determinants and implications. *Journal of Experimental Social Psychology*, 20, 65-85.
- Wyer, R. S., & Radvansky, G. A. (1999). The comprehension and validation of social information. *Psychological Review*, 106, 89-118.
- Wyer, R. S., & Srull, T. K. (1980). The processing of social stimulus information: A conceptual integration. In R. Hastie, E. B. Ebbesen, T. M. Ostrom, R. S. Wyer, D. L. Hamilton, & D. E. Carlston (Eds.), *Person memory: The cognitive basis of social perception* (pp. 227-300). Hillsdale, NJ: Erlbaum.
- Wyer, R. S., & Srull, T. K. (1989). *Memory and cognition in its social context*. Hillsdale, NJ: Erlbaum.
- Zillmann, D. (1980). Anatomy of suspense. In P. H. Tannenbaum (Ed.), *The entertainment functions of television* (pp. 133-163). Hillsdale, NJ: Erlbaum.
- Zillmann, D. (1983). Transfer of excitation in emotional behavior. In J. T. Cacioppo & R. E. Petty (Eds.), *Social psychophysiology: A sourcebook* (pp. 215-242). New York: Guilford.
- Zillmann, D. (2002). Exemplification theory of media influence. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (2nd ed., pp. 69-95). Mahwah, NJ: Erlbaum.
- Zillmann, D., & Brosius, H. (2000). *Exemplification in communication: The influence of case reports on the perception of issues*. Mahwah, NJ: Erlbaum.
- Zillmann, D., & Bryant, J. (1982). Pornography, sexual callousness, and the trivialization of rape. *Journal of Communication*, 32(4), 10-21.