MEDIA PSYCHOLOGY, *5,* 255–282

Media Exposure and Exemplar Accessibility

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This study investigated the relation between television exposure and the ease with which individuals can retrieve examples of social events. Ninety-six college students were prompted to think of examples of constructs, some of which are frequently portrayed on television. Perceived ease of retrieving the examples and the source of the examples were measured. Media examples were more frequently recalled for events portrayed often in the media but infrequently experienced personally (e.g., courtroom trial, murder). Personal experiences were the most easily retrieved for events encountered frequently in real life, even when these events are also frequently portrayed on television (e.g., highway accidents, dates). Ease of retrieving media examples was related to hours of TV viewing, but only for viewing of television programs in which the events were common and when the direct experience with the events was likely to be low. Results are discussed with respect to media's influence on social judgment and heuristic processing.

One important task facing media researchers is to illuminate the processes that link media exposure and social judgment. In fact, some researchers have suggested that it is the lack of process explanations for media effects that has led to skepticism about the validity of these effects (Hawkins & Pingree, 1990; McGuire, 1986). Recent work that has investigated such process issues suggests that one way media exposure may influence judgment is by enhancing

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the accessibility of judgment-related constructs (Brosius & Bathelt, 1994; Busselle, 2001; Gibson & Zillmann, 1994; Iyengar, 1990; Iyengar & Kinder, 1987; Roskos-Ewoldsen, Roskos-Ewoldsen, & Carpentier, 2002; Shrum, 1996, 1999, 2002; Tamborini, Zillmann, & Bryant, 1984), which in turn influences what information is used in the judgment construction process (Wyer & Radvansky, 1999; Wyer & Srull, 1989). In particular, these constructs take the form of *exemplars*. Exemplars are separate instances of a category encountered by an individual (Fiske & Taylor, 1991) and are frequently acquired through the course of media exposure (e.g., news reports, television portrayals). For example, Zillmann and Brosius (2000) suggested that much of the information presented by the media come in the form of exemplars. They estimate that more than half of news reports contain at least one exemplar and that fictional media consist almost entirely of exemplification in the form of stories and narratives.

In this study, we investigate whether media exposure is related to the accessibility of exemplars that frequently appear in the media. We focus on this relation for two reasons. First, two particular theories of media effects—exemplification theory (Zillmann, 2002; Zillmann & Brosius, 2000) and the heuristic processing theory of cultivation effects (Shrum, 2002)—are based partly on the notion that the ease with which media exemplars come to mind can account for some of the effects of media exposure. However, in studies that have tested these theories the actual accessibility of media exemplars was either assumed or measured indirectly. For example, experiments have manipulated characteristics of stimulus content assuming that the manipulations affected the accessibility of the stimuli. Alternatively, response times in answering survey questions have been used as an indirect indicator of the accessibility of content related to the question. In this study we sought to provide a more direct test of the assumption of a relation between media exposure and exemplar accessibility.

The second reason we focus on the relation between media exposure and accessibility is that previous research that has attempted to more directly assess the relation between exposure and accessibility has had only limited success (Busselle, 2001; Shapiro, 1991; Tyler, 1980; Tyler & Rasinski, 1984). However, none of these studies has addressed subjective ease of retrieval, that is, how easy participants feel it is to recall a particular exemplar. Thus, we were interested in building on these studies to investigate the issue in more depth.

In the following sections, we discuss previous research that has addressed the role of accessibility in social judgment in general, and media effects in particular. In doing so, we highlight the different ways in which exemplars might be

implicated in these processes and the importance of being able to determine the effects of the accessibility of media exemplars.

EXEMPLAR ACCESSIBILITY AND SOCIAL JUDGMENT

One of the most important contributions of social cognition research in the last two decades is the explication of the role of accessibility in judgment and decision making (Higgins, 1996; Wyer & Srull, 1989). Accessibility refers to the ease with which something (e.g., an exemplar, trait concept, attitude) can be retrieved from memory (Higgins & King, 1981; for reviews, see Higgins, 1996; Wyer & Srull, 1989).[1] The central finding is that the information that is most accessible from memory—"at the top of the head" (Taylor & Fiske, 1978)—tends to be used disproportionately in the construction of social judgments (Wyer & Srull, 1989).

Accessibility can influence judgment in at least two ways. First, accessible information may be retrieved and used as a basis for judgment. For example, making particular trait concepts (e.g., stubborn, persistent) more accessible increased the likelihood that those trait concepts would be used in subsequent judgments about a person's ambiguous behaviors (Higgins, Rholes, & Jones, 1977). Similarly, manipulating the accessibility of positive or negative beliefs can influence the valence of related attitudes (Roskos-Ewoldsen & Fazio, 1997; see also Srull & Wyer, 1979, 1980). Thus, more accessible information tends to be used in making judgments, even though other equally (or perhaps even more) relevant information is available in memory. Second, accessible information can exert an effect through the use of cognitive heuristics (Sherman & Corty, 1984). Of particular interest in this study is the *availability heuristic* (Tversky & Kahneman, 1973). When this heuristic is used, estimates of frequency and set size are influenced by the ease with which a relevant example comes to mind: The easier something is to recall, the higher the related estimates tend to be. As Sherman and Corty (1984) noted, this is not an unreasonable assumption: Examples that are easy to recall often occur frequently. However, factors other than frequency of occurrence may render particular examples more accessible from memory (e.g., recency of occurrence, vividness of portrayals, or frequent exposure to a topic).

EXEMPLAR ACCESSIBILITY AND MEDIA EFFECTS

There have been two relatively independent approaches to investigating the potential effect of media consumption on exemplar accessibility and subsequently

on social judgment. These approaches differ on a number of conceptual and methodological issues, but also have many similarities. Most important, each posits that the accessibility of particular exemplars, which originate in media portrayals, influence judgments related to those exemplars.

Manipulating Exemplars Within Media Content

One approach to understanding the influence of media exemplars in the judgment construction process has involved the experimental manipulation of exemplars that appear within news reports. A number of studies have provided strong convergent evidence that the nature of these exemplars has a pronounced effect on judgments (for a review, see Zillmann, 2002). These studies typically manipulate the nature of exemplars pertaining to a particular issue or problem (e.g., a car jacking, the plight of family farmers, weight loss) along with providing accurate base-rate information. They then assess the effects of the manipulation on judgments. These studies have shown that the presence (vs. absence) of exemplars (Iyengar, 1990), the number of exemplars (Brosius & Bathelt, 1994), the proportion of exemplars (Zillmann, Perkins, & Sundar 1992), the emotionality of the exemplars (Aust & Zillmann, 1996), and the severity of negative exemplars (Gibson & Zillmann, 1994) have an effect on judgments, even when base-rate information or other qualifying information (e.g., population statistics) is present (Berger, 1998). The related judgments take the form of personal opinions, the extent to which the issue is a societal problem, accuracy of estimates about the extent of a problem, perception of others' opinions about the extent of a problem, and attribution of responsibility. These effects can be stable over time, particularly if people do not have prior beliefs related to the issue presented in the experiment (cf. Zillmann, Gibson, Sundar, & Perkins, 1996; Zillmann et al., 1992).

Television Viewing and Exemplar Accessibility

A second approach to investigating the relationship between exemplar accessibility and media effects has focused on the potential role of television viewing as a route to increasing exemplar accessibility. This approach has generally been framed as an investigation of cognitive processes that might underlie a particular type of media effect, the *cultivation effect* (Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002).[2] Specifically, this approach has treated television viewing as a measured (and generally continuous) independent variable, and has shown that the level of television viewing is correlated with some general measures of accessibility. For example, in a series of studies,

Shrum and colleagues asked participants to provide various probability and set-size judgments about topics that tend to be portrayed more often on television than occur in real life (e.g., incidence of violent crime, prevalence of certain occupations). They also measured the time it took participants to construct their judgments (O'Guinn & Shrum, 1997; Shrum, 1996; Shrum & O'Guinn, 1993; Shrum, O'Guinn, Semenik, & Faber, 1991). They found that heavier viewers not only tended to give higher estimates than lighter viewers, but heavier viewers also constructed their answers more quickly than lighter viewers. Moreover, they found that judgment speed mediated the relationship between media exposure and estimates (Shrum, 1996). Shrum and colleagues argued that speed of response was a surrogate measure of information (exemplar) accessibility, and thus surmised that exemplar accessibility plays a role in the observed media effects.

Whereas Shrum and his colleagues used judgment latency to infer exemplar accessibility, others have attempted to measure the accessibility of examples more directly. Tyler (1980) asked participants how many crimes they had learned about through the media, as well as how easy it was to recall each crime. This self-report measure of exemplar accessibility (referred to by Tyler, 1980, as "memorability") was positively related to estimates of the crime rate, feelings of vulnerability, and using crime prevention behaviors (although these effects varied as a function of whether the source of the memories was from direct experience, interpersonal experience, or from the mass media). Tyler and Rasinski (1984) had participants recall their most recent experience with crime and operationalized accessibility as the amount of time the respondent took to answer each of two questions about the incident. That study found no relationship between the reaction-time measure and judgment. Shapiro (1991) asked participants to think of as many examples as they could from each of six categories related to crime and people. He then had the participants indicate the source of each example. Shapiro found that the number of exemplars generated (availability) that had their origins in television and print media was positively related to participants' use of those media. Finally, Busselle (2001) measured the time it took participants to think of their first example from each of three categories (shootings, affairs, and African American doctors). That study found that the reaction-time measure of exemplar accessibility was related to some measures of perceived realism of television, but not to amount of television exposure.

Exemplar Accessibility and Subjective Ease of Recall

Close scrutiny of the previous review of research indicates that accessibility has been measured in many different ways. However, the issue of how accessibility is

measured has implications for testing particular theories. For example, consider the availability heuristic. This mechanism operates such that judgments of set size and probability are based on the "ease with which instances or associations [can] be brought to mind" (Tversky & Kahneman, 1973, p. 208). The question, then, is how to operationalize ease. A number of studies have operationalized it as the number of examples that can be recalled (for a review, see Sherman & Corty, 1984) and, in fact, Tversky and Kahneman used this operationalization as well (Tversky & Kahneman, 1973, Experiments 3 and 8). However, more recent research suggests that it is not the number of instances retrieved that best captures ease (which is then used as a basis for judgment), but rather the actual perceived ease of retrieval that is used as a basis for judgment. This was demonstrated convincingly in a series of experiments by Schwarz et al. (1991), in which they orthogonally manipulated ease of recall of assertive behaviors and number of assertive behaviors recalled, and found that the ease of recall and not the number recalled was predictive of self-reports of assertiveness. It is also consistent with what Higgins (1996) has called "accessibility experiences" (p. 136).

Given this research, we were interested in determining whether the ease with which participants perceived the task of retrieving an example of an exemplar (subjective ease of recall) is related to media exposure. If so, the finding may help to explain why some previous studies that have used frequency of retrieval rather than subjective ease of retrieval failed to find any effects of accessibility (cf. Shapiro, 1991; Tyler, 1980).

OVERVIEW OF THE STUDY

The purpose of this study was to explicitly test the hypothesis that the ease with which people can recall particular exemplars is related to their level of television viewing. We used some concepts that pretesting for a previous study (Busselle, 2001) identified as those that are experienced more frequently on television than in real life (e.g., murders, drug busts, surgery, and courtroom trials). We were also interested in investigating other constructs that have been linked to accessibility and media effects.

Exemplar Attributes: Vividness, Realism, and Distinctiveness

We selected three attributes that may influence the accessibility of exemplars: vividness, realism, and distinctiveness. We selected these attributes for three reasons. First, these are among the attributes linked to exemplar accessibility in

previous research (e.g., Higgins & King, 1981; Nisbett & Ross, 1980; Smith & Shaffer, 2000). Second, among all of the attributes that have been linked to accessibility, these were broad enough to apply to a range of exemplar categories. Third, we believed that other attributes, such as severity or emotionality, would contribute to an exemplar's vividness, realism, or distinctiveness. For example, consider Gibson and Zillmann's (1994) manipulation of the outcome of a carjacking description. In the most extreme experimental condition, a victim was dragged to death from the stolen car. This example is not only severe, but would also likely be judged as distinct because of its outcome and vivid because of the description of the crime.

Vividness. The vividness of portrayals—whether in the form of manipulated exemplars (e.g., Aust & Zillmann, 1996) or standard entertainment television offerings (Shrum, 1995)—has been suggested as one factor that may make media information more accessible (Nisbett & Ross, 1980; Reyes, Thompson, & Bower, 1980). Vivid portrayals are more likely to attract attention (Taylor & Thompson, 1982) and more likely to evoke emotion (Zillmann & Brosius, 2000) than pallid portrayals, and therefore are likely to be more accessible in memory. It should be noted, however, that there have also been inconsistencies in studies investigating vividness effects (Collins, Taylor, Wood, & Thompson, 1988). Attempts to reconcile some of these inconsistencies have proposed that vivid images cause elaboration of thought that may be unrelated to persuasive goals (Frey & Eagly, 1993), and that vivid images work counter to persuasive messages when they are incongruent with persuasive goals (Smith & Shaffer, 2000). Further, Shedler and Manis (1986) have suggested that vividness may impact recall and judgments independently. Thus, it is possible that the content of vivid images, once retrieved from memory, may influence judgments differently. However, our concern in this study was solely with the relation between accessibility and vividness of exemplars.

Distinctiveness. The distinctiveness of an exemplar may also influence its accessibility. An exemplar should be more accessible if it possesses attributes that are unusual or extreme when compared with other members of a category (Higgins & King, 1981). To the extent that an exemplar is, for instance, more heroic, more violent, or involves more people, it should be more accessible. Thus, we expect that individuals will judge highly accessible exemplars as more distinct than less accessible exemplars.

Realism. Realism should also be related to exemplar accessibility (Johnson, Hashtroudi, & Lindsay, 1993). Some studies have shown that information

believed to be fictional or unrealistic may be "compartmentalized" away from information that is more realistic (Gerrig & Prentice, 1991; Potts, St. Johns, & Kirson, 1989). Other studies have shown that accessibility is related to aspects of the perceived realism of television portrayals (Busselle, 2001). Thus, we predict that more realistic exemplars will be more accessible than those that are less realistic.

Recency Versus Frequency

One aspect of previous studies, particularly those that have looked at the effect of frequency of television viewing on social perceptions, has been the lack of clarification as to whether noted accessibility effects are a function of recency or frequency of exposure (cf. Shrum, 1996, 2001). Both frequency and recency of activation of a construct have been shown to influence accessibility (Higgins & King, 1981). Studies by Higgins, Bargh, and Lombardi (1985; see also Lombardi, Higgins, & Bargh, 1987) suggested that individuals use more recently primed constructs when making judgments shortly after the prime, but use the more frequently primed constructs as the prime becomes more temporally distant. The important distinction is essentially between *primed constructs*—those that are accessible because of activation that is not necessarily frequent, but has occurred within past hours or few days (Fiske & Taylor, 1991; Jo & Berkowitz, 1994)—and *chronically accessible constructs*—those that are accessible as a result of frequent, but not necessarily recent, activation (Bargh, Bond, Lombardi, & Tota, 1986; Higgins, King, & Mavin, 1982; for reviews, see Roskos-Ewoldsen, 1996; Roskos-Ewoldsen et al., 2002). With respect to media effects, we wanted to investigate the extent to which exemplar accessibility may result from recent media exposure to media content. To explore this issue, we measured viewing recency (the amount of television watched yesterday) in addition to frequency (regular viewing habits).

Hypotheses

On the basis of the research and reasoning described above, we formulated several hypotheses. First, we expected that the frequency of television viewing would be positively related to the accessibility of exemplars of constructs frequently portrayed on television. Second, although recency of activation of a construct is related to accessibility (Higgins & King, 1981), these effects tend to dissipate rather quickly (Higgins et al., 1985); thus, we did not expect any effects of recency of viewing over and above those of frequency. Third, we expected that accessible

exemplars would be judged to be more vivid, realistic, and distinct than less accessible exemplars.

To test these hypotheses, we presented participants with categories of social events (e.g., shopping trip, courtroom trial, murder), displayed one at a time on a computer screen. We had participants generate an instance of the category and then asked them how easy or difficult it was to recall that instance. (We purposely used the term "instance" to allow for the possibility that participants might generate a prototype of the category or might imagine an example they had never actually seen.) We then asked them to rate the attributes of the exemplar they recalled (vividness, realism, distinctiveness) and to tell us the origin of the exemplars (source). Finally, participants filled out a questionnaire that measured their media viewing habits and personal characteristics.

METHOD

Participants

Ninety-six undergraduate students (44 men and 52 women) from two state universities (one in the Northwest and one in the East) participated in the study as partial fulfillment of a course requirement. Students for whom English was not their first language participated but were excluded from the analysis.

Procedure

Data collection. Participants met individually with the researcher in a small computer lab. The researcher read a description that informed participants they were taking part in a study about the structure of memory. They were told that a type of event (e.g., a shopping trip) would be displayed on the computer screen in front of them, and that when they saw the event displayed, they were to try to recall or imagine an instance of such an event. They were further instructed that as soon as they had the instance of the event in mind, they were to indicate this to the experimenter by saying "okay." They were told that after they said "okay" they would be asked some questions about what came to mind. Participants practiced the procedure five times using categories such as "trying on shoes," "shopping," and "washing dishes." After each practice category, participants were asked about the attributes and source of the retrieved instance. Last, as ostensibly part of an unrelated study, participants completed a questionnaire measuring variables (discussed presently) that would serve as independent and control variables in the study.

Measures

Exemplars categories. Seven category prompts were developed. Previous research established that four of the categories were concepts that are portrayed more often on television than occur in real life: "drug bust," "murder," "surgery," and "courtroom trial." Two other category prompts, "fistfight" and "highway accident," were constructed to represent concepts that are frequently portrayed on television but with which participants were also likely to have some direct or interpersonal experience. The seventh category prompt, "date," was used because it was more likely that participants had more direct experience with the category than indirect experience through television.

Ease of exemplar retrieval. Participants were positioned approximately 20 in. from a 15-in. (diagonal) computer monitor. When they indicated that they were ready, the experimenter pressed the space bar of the computer keyboard, causing an exemplar prompt (e.g., "A Murder") to appear on the computer screen. When the participants had generated an instance or exemplar, they responded by saying the word "okay," at which time the experimenter pressed the space bar again to clear the screen and gave the participant a questionnaire. We then asked participants to provide their own subjective judgments about the ease or difficulty that they experienced in retrieving the example. Subjective ease of retrieval was measured using a 7-point scale ranging from *very easy* to *very difficult* (Tyler, 1980).[3]

Exemplar attributes. We measured vividness similar to Stapel and Velthuijsen (1996) by simply asking participants to indicate on a 7-point scale (anchored by *vivid* and *not vivid*) how vivid the instance was that they recalled. Participants also indicated on 7-point scales the extent to which the exemplars they retrieved were common (vs. unusual), typical (vs. not typical), ordinary (vs. far from ordinary), realistic (vs. unrealistic), true-to-life (vs. not true-to-life), and fantasy-like (vs. life-like). The first three items were intended to capture exemplar distinctiveness and the last three were intended to capture exemplar realism.

Exemplar sources. Participants also indicated the source of the exemplars they retrieved. Shapiro (1991) found that individuals reported having little difficulty recalling whether an instance originated in real life or media, and distinguishing among different media sources. Shapiro and Lang (1991) suggested that the source of information may be encoded with other event information for later use in reality monitoring. At the same time, we recognize that assignation of

exemplar source is subjective and that source monitoring errors may occur (Johnson et al., 1993). The source information provided by the participants in our study was then coded into five categories: personal experience (e.g., direct experience), interpersonal experience (e.g., heard about from others), media, imagination, and "others" (e.g., a novel).

Television viewing. We expected that the viewing of television programs whose content relates to the category prompts would be most likely to influence the accessibility of examples. Conversely, we expected that the viewing of programs whose content does not relate to the category prompts would have little influence on the accessibility of examples of the categories we created. These categories seemed preferable to an overall viewing measure, which would likely attenuate the relationships we expected to observe. For instance, viewing game shows, which rarely if ever portray murders, should be unlikely to influence the accessibility of examples or information related to murder, but would increase an overall measure of television exposure.

To measure viewing of separate program categories, we asked participants to estimate their typical weekly viewing of 12 program categories: daytime soap operas, news (e.g., local, network), news magazines (e.g., *60 Minutes*), tabloid news (e.g., *Hard Copy*), sports, movies on television, comedies, evening dramas, music television, daytime talk shows, late night talk shows, and game shows. Examples were given for each category to ensure correct interpretation of the category descriptors. We also asked participants to estimate the number of hours they viewed movies on their VCR. We then constructed two viewing measures: *content-relevant* television viewing and *content-irrelevant* television viewing. The former was constructed by adding the number of hours per week participants indicated that they watched the categories of daytime soap operas, evening dramas, news, news magazines, tabloid news, daytime talk shows, movies on television, and movies on VCR. The latter was constructed by adding the number of hours per week participants indicated they watched in the remaining categories (sports, comedies, music television, late night talk shows, and game shows).[4]

As discussed previously, we were interested in the potential utility of a measure of recent exposure to television content and its relationship exemplar accessibility. To measure recency, we used a measure developed by Rubin (1981; Rubin, Perse, & Taylor, 1988): how many hours of television participants watched yesterday.

Supplementary information. We asked participants to provide information pertaining to their sex, family income, and age. These are demographic

variables that have been used as statistical controls in previous media effects research (Busselle, 2001; Shrum, Wyer, & O'Guinn, 1998; for a review, see Hawkins & Pingree, 1982). We also were interested in obtaining information pertaining to the participants' cognitive abilities and orientation as well as the extent to which they tended to pay attention while viewing, both of which have been shown to be related to the processing of media content (Henning & Vorderer, 2001; Kaufman, Stasson, & Hart, 1999; Perse, 1992; Zhang & Buda, 1999). Thus, we obtained information regarding their current grade point average (open-ended format) and their need for cognition (Cacioppo & Petty, 1982). Need for cognition refers to the extent to which people enjoy engaging in effortful cognitive activity and was measured using Cacioppo and Petty's 18-item scale (Cacioppo, Petty, & Kao, 1984). We also measured total television viewing with a single item (amount on the average day) and tendency to pay attention to television using a 5-point scale adapted from Rubin et al. (1988; see also, Rubin & Perse, 1987, 1994).

RESULTS

Data Reduction

Prior to conducting the analyses that would test our hypotheses, we conducted preliminary analyses to form composite indexes and investigate correlations among independent variables.

Exemplar attributes. To determine whether the seven exemplar attribute items (three items each for measuring realism and distinctiveness, one item measuring vividness) were valid operationalizations of their respective constructs (realism, distinctiveness, vividness), principal-components analysis with varimax rotation was performed on the seven exemplar attribute measures separately for each exemplar category. The resulting factor structures varied slightly but were for the most part consistent. In all cases, the three realism measures and the three distinctiveness measures loaded on separate factors. We thus averaged the corresponding three items to form a composite measure of exemplar realism (*r*s ranged from .82 to .89 across the seven categories) and exemplar distinctiveness (*r*s ranged from .87 to .92 across the seven categories). The vividness measure showed some variation in its relation to the other two factors. In three of the seven categories, vividness did not load on either factor, but in one case it loaded on the distinctiveness factor, and in the other three cases it loaded weakly on the realism

factor. In spite of these inconsistencies (whose limitations are addressed in the DISCUSSION section), we retained the individual measure of vividness in our analyses.

Intercorrelations among viewing measures. To address multicollinearity issues, we computed the simple bivariate correlations between content-relevant TV, content-irrelevant TV, and recency of viewing. The results of this analysis indicate that the three variables are only moderately correlated, as follows: content-relevant with content-irrelevant ($r = .34$, $p < .01$); recency with content-relevant ($r = .39$, $p < .01$); and recency with content-irrelevant ($r = .57$, $p < .01$). This moderate level of intercorrelations suggests that multicollinearity issues are not a problem for our regression analyses. The correlations also suggest that the participants in this study were relatively selective in their viewing habits.

In the analyses that are reported, we have noted statistical differences that are significant at the 90% confidence level, as well as those at the 95% and 99% confidence levels, but with the appropriate caveats. We did this for three reasons. For one, we are interested in patterns of relations across categories, and a more liberal significance criterion may reveal patterns that would be otherwise obscured. Second, some of our measures used only single items (e.g., recency of viewing, vividness), which contributes to measurement error, and other measures (e.g., reaction time) tend to inherently produce a lot of measurement error (Fazio, 1990; Roskos-Ewoldsen, 1996). Third, we have also predicted null effects in certain situations. Thus, in order not to unfairly reject the null hypotheses when these variables may have in fact exhibited a real relation with other variables, we have indicated instances in which the observed effects only approach conventional ($p < .05$) levels of significance.

Exemplar Source Results

Our first analysis consisted of a simple tabulation of the sources of the exemplars that participants either retrieved or imagined. Prior to the study, we were unsure as to what the exact nature of the distribution of exemplar sources would be. Although four of the seven categories were chosen because examples tend to occur more often in media portrayals than in real life, it was unclear as to what types of exemplars, and thus from what sources, participants would recall.

Information bearing on the distribution of the sources of the exemplars that participants retrieved can be found in Table 1. Although the percentage of exemplars coming from particular sources varied across exemplar category, there is consistency across the results. In looking across exemplar categories, as

TABLE 1
Source of Exemplars Retrieved

	Exemplar Categories						
Source	Drug Bust	Murder	Surgery	Trial	Fistfight	Highway/ Accident	Date
Personal experience	13	6	35	19	57	68	78
Interpersonal source	10	4	11	5	7	7	1
Media	16	65	40	61	17	9	2
Imagination	8	14	8	5	6	8	6
Other	1	2	0	2	5	0	1
Total (*n*)	48	91	94	92	98	92	82
% From media	33	71	42	66	18	10	2

Note. Only about half of the participants received the Drug Bust category as a prompt because of experimenter error. Totals are not equal because some participants provided unrelated or inappropriate examples that were not recorded.

expected, the first four categories in Table 1 (drug bust, murder, surgery, and courtroom trial) produced more exemplars originating in the media (ranging from 33% to 71%) than originating elsewhere. The remaining three categories (fistfight, highway accident, date) produced media exemplars relatively less frequently. To confirm this statistically, we combined personal and interpersonal sources and then computed chi-squares for the distribution of sources for the drug bust (33% from media, which is the lowest percent of media examples from the four categories for which media examples were expected to dominate) and the fistfight categories (18% from media, which is the highest percent of media examples from the three categories in which media examples were not expected to dominate). These two distributions differed significantly, $\chi^2(2, N = 81) = 4.31, p < .05$.

Looking within exemplar categories and comparing frequency of sources, more exemplars came from media or imagination sources than from any other single source for the categories of murder, $\chi^2(1, N = 75) = 40.33, p < .001$, and trial, $\chi^2(1, N = 80) = 16.10, p < .001$, as expected. However, the source of exemplars for the categories of drug bust and surgery were relatively equally distributed between media and personal/interpersonal sources. Also as expected, more exemplars came from personal experience for the categories of fistfight, $\chi^2(1,$

$N = 81) = 73.20$, $p < .001$, highway accident, $\chi^2(1, N = 84) = 51.86$, $p < .001$, and date, $\chi^2(1, N = 81) = 27.27$, $p < .001$. It should be noted that in these analyses, to provide the most conservative test against media sources, we combined the personal and interpersonal sources and compared that combined category only with the media source.

These results provide general support for our expectations that recall of media examples would tend to be more prevalent when people are asked to think of examples of events portrayed very often in the media, but with which direct experience is likely to be lacking. However, even when media portrayals are frequent (e.g., fistfights), if people have direct experience with the construct, those directly experienced examples are the ones that tend to be retrieved.[5] Consequently, in terms of our expectations for the relationship between content-relevant media exposure and accessibility, we would expect a relationship between content-relevant media exposure and accessibility for drug bust, murder, surgery, and trial, but not for fistfight, highway accident, and date. That is, we would not expect television exposure to be related to the ease of retrieval of exemplars if those retrieved exemplars come predominantly from direct experience.

Exemplar Attributes and Ease of Retrieval

Our next analysis sought to determine whether any of the exemplar attributes were related to ease of exemplar retrieval. The attributes that are related would be candidates for inclusion in the regression analyses to follow. We computed simple bivariate Pearson product-moment correlations between the attributes and retrieval ease (see Table 2). Retrieval ease was correlated with vividness in every category (*r*s ranging from .22 to .46). It was not correlated with distinctiveness in any category. Therefore distinctiveness was excluded from further analyses. Retrieval ease was correlated with realism in only three categories: drug bust ($r = .36$, $p < .05$), courtroom trial ($r = .22$, $p < .05$), and highway accident ($r = .25$, $p < .05$). Realism also was correlated with the vividness measure (*r*s ranging from .33 to .51). Therefore, vividness was the only attribute measure included in subsequent analyses.

Exemplar Accessibility and Television Viewing

Our primary objective in this study was to determine whether level of television viewing was related to the accessibility of the types of exemplars that are encountered more often on television than in real life. To determine this we used hierarchical regression analyses. The control variables of age, gender, income, grade point average, need for cognition, and attention to viewing were entered simultaneously in

TABLE 2
Zero-Order Correlations Among Ease of Retrieval and Exemplar Attributes Per Exemplar Category

Exemplar Category	Vivid	Realistic	Distinct
Drug bust			
Ease of retrieval	.317*	.359*	.229
Vivid		.510**	.462**
Realistic			.342
Murder			
Ease of retrieval	.361**	.197	.191
Vivid		.486**	.325**
Realistic			.500**
Surgery			
Ease of retrieval	.215*	.096	.061
Vivid		.326**	.119
Realistic			.517**
Court trial			
Ease of retrieval	.350**	.217*	.132
Vivid		.372**	.012
Realistic			.346*
Fistfight			
Ease of retrieval	.457**	.166	.179
Vivid		.359**	.048
Realistic			.446**
Highway accident			
Ease of retrieval	.213*	.250*	.081
Vivid		.471**	.071
Realistic			.183
Date			
Ease of retrieval	.240*	.155	.127
Vivid		.376**	.240*
Realistic			.386*

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

the first step, exemplar vividness was entered in a second step, and the amount of television watched yesterday (recency), content-irrelevant television viewing, and content-relevant viewing were entered simultaneously in a third step.

Results of the regression analyses can be found in Table 3. The pattern of results was consistent with our expectations, with only a few exceptions. On the one hand, as the last row in Table 3 indicates, content-relevant television viewing was a significant, positive predictor of the ease of retrieval for three of four exemplar categories in which we expected such a relation: drug bust, murder, and surgery (although for the latter, only at $p = .07$). The relation between content-relevant viewing and ease of retrieval of an example of a trial was not significant. On the other hand, content-relevant television viewing showed no relation with ease of exemplar retrieval for those categories in which direct experience with the category was likely to be high (fist fight, highway accident, date). This pattern lends discriminate validity to our findings.

Further discriminate validity is provided by the lack of relations noted between content-irrelevant viewing and ease of exemplar retrieval. In only one category (date) did the amount of content-irrelevant viewing show a significant relation with ease of exemplar retrieval. Oddly, this relation was negative, meaning that the more people viewed content-irrelevant television, the more difficult it was for them to retrieve an example of a date.

Viewing Recency

The results of the regression analysis shown in Table 3 also have implications for whether the frequency of viewing or the recency of viewing (or both) contribute to exemplar accessibility. The results suggest that recency of viewing, at least to the extent of the number of hours of television participants viewed the previous day, has no positive effect on ease of retrieval. In five of the seven cases, recency of viewing was not a significant predictor of exemplar accessibility. If anything, the results suggest a small, negative effect of recency of viewing.

Ease of Retrieval and Vividness

The results from Table 3 also indicate that vividness played an important role in subjective ease of retrieval. Only the ease of retrieval of an example of a date was unrelated to the vividness of the example (although the relation between vividness and ease of recall only approached conventional levels of significance for the example of a drug bust, $p = .08$). These results are consistent with research that has shown that vividness can enhance the accessibility of information (Nisbett & Ross, 1980; Shedler & Manis, 1986).

TABLE 3
Regression Results Showing Relation of Television Viewing With Subjective Ease of Recall for Exemplar Categories

	Exemplar Categories													
	Drug Bust		Murder		Surgery		Trial		Fistfight		Highway		Date	
Predictor	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Sex	.25		.21		.20		.08		.12		.08		–.06	
GPA	–.05		.07		.01		.15		.16		.13		–.14	
Age	–.17		–.01		.04		–.04		.03		.19		.00	
Income	.02		.15		.04		.10		–.10		–.17		–.43**	
Attention	–.18		–.01		.16		–.13		.20		.06		.04	
Need for cognition	–.02	.14	.03	.06	.04	.05	–.16	.07	.03	.08	.07	.08	.16	.24*
Vividness	.26^{x}	.07	.35**	.12	.27**	.07	.30**	.10	.46**	.22	.23*	.06	–.02	.00
TV viewed yesterday	–.37^{x}		–.23		–.13		–.15		–.11		–.04		.13	
Content-irrelevant TV	–.10		.02		.09		.16		–.13		–.07		–.41**	
Content-relevant TV	.32**	.16	.24*	.07	.22^{x}	.05	.05	.00	.16	.04**	.02	.01	.15	.10*

Note. Numbers in table represent standardized regression coefficients. GPA = grade point average.
$^{x}p < .10$. *$p < .05$. **$p < .01$.

DISCUSSION

This study provides support for an important but untested assumption in media effects research: that media exposure increases the accessibility of exemplars that are a common component of media content. Studies investigating the effects of different types of exemplars in news reports, as well as research into the cognitive mechanisms underlying cultivation-type effects, both attribute observed effects to exemplar accessibility. The results of this study are consistent with that reasoning, and in fact provide more direct evidence of this link. These data indicate that for some categories of events—those that frequently occur in the media, but infrequently occur in real life—greater exposure to television content that deals with these events can increase the accessibility of judgment-related exemplars. Discriminate validity for this notion was demonstrated in two ways: first, by showing that the viewing of programs in which the particular constructs were unlikely to appear (content-irrelevant) was unrelated to ease of recalling the exemplars; and second, by showing that the viewing of programs whose content was likely to contain related constructs was unrelated to the ease of retrieval of exemplars that are not likely to be portrayed in those genres or with which participants are likely to have had direct experience.

The results also suggest the utility of operationalizing accessibility as subjective ease of retrieval, at least when testing the application of the availability heuristic. As noted (see Note 3), we did measure the time participants needed to recall an exemplar, but observed no relation between retrieval time and media exposure. We also noted that there were a number of problems with our measure of retrieval time that preclude drawing any firm conclusions from these results. Certainly, reaction time is by far the most commonly used and frequently validated measure of accessibility (Fazio, 1990). Among its advantages is that it is a ratio measure and can be easily used to compare both within and across participants without worry about differing perceptions across participants that is present when subjective measures of ease are used. As such, it is likely the best measure of how accessible a construct actually is. However, in the case of the application of the availability heuristic, the issue may not be how accessible an exemplar actually is, but how accessible it is perceived to be. Thus, it may very well be that perceived ease of retrieval best captures what people use when they apply the availability heuristic.

These data indicate a relationship between exposure and the accessibility of exemplars of constructs frequently portrayed on television. However, they do not necessarily suggest that it is the examples seen on television that are always the most easily retrieved. In fact, post hoc analyses found that amount of viewing

tended not to be related to the source of the examples. This is not surprising for two reasons. The first reason is fairly straightforward: When direct experience is relatively lacking, even lighter viewers will be forced to retrieve television examples. The second reason is more interesting: Television examples may prime direct experience examples, no matter how infrequent the direct experience examples occur. One should consider someone who has been a victim of a violent crime (or had heart surgery, been busted for drugs, etc.). When that person views an example of the same violent crime on television, it seems reasonable that the direct experience example will be activated and perhaps even compared with the television example. Even if such a comparison does not occur, the activation of the violent crime construct should make the related direct experience example more accessible (Higgins, 1996). Thus, rather than providing viewers with a steady stream of exemplars, the most recent of which is most accessible, television may only prime more important exemplars. A drug bust at one's school, a relative's surgery, or a particularly gruesome murder may be frequently activated and remain highly accessible as a result of seeing other less important but similar events. In fact, this process is quite similar to what Gerbner and colleagues called "resonance", or a "double dose" of a construct (Gerbner, Gross, Morgan, & Signorielli, 1980, p. 15), and is consistent with recent findings regarding the interaction of television viewing and direct experience with crime on perceptions of crime and violence (Shrum & Bischak, 2001).

Although the pattern of results fit with our predictions, there were anomalies. The first finding that ran contrary to expectations is that no relationship between content-relevant viewing and ease of recall of an example of a courtroom trial was found, even though a large majority of participants reported examples from media. It is possible that the notoriety of a few recent, highly publicized trials (e.g., O. J. Simpson, the Rodney King case, or the Menendez brothers) were highly accessible regardless of a participant's viewing level. The heavy media coverage of these cases may have rendered them particularly accessible examples in the memories of most Americans.

We were also surprised to find a fairly consistent (though not always significant) negative relation between recency of viewing (TV viewed yesterday) and ease of retrieval. Although we had generally expected no relation (we expected the effects of recency of viewing to be quickly overwhelmed by frequency), the negative relation was unanticipated. However, there are several reasons to treat this result with caution. First, the recency measure was a single item, which may have lead to attenuated observed relationships. However, attenuation would not increase the likelihood of observing negative relationships. Second, we did not measure the recency of relevant and irrelevant content. That is, if had we asked

participants *what* they watched yesterday, as well as how much, we may have found that recent exposure to content-relevant programming predicted accessibility. Finally, for the recency of viewing variable, the average was about 2 hr and the mode was 1 hr (SD = 2.10), whereas the weekly content-relevant viewing measure was more variant (M = 12.62 hr, SD = 6.26).

Another finding that was only partially supportive of our reasoning is that vividness was correlated with subjective ease of retrieval in every category, but was unrelated to any viewing measure. There are at least two possible explanations. First, it is reasonable to assume that the most accessible exemplar, of most categories, for most participants, is a relatively vivid one. Assuming so, then most participants would retrieve a vivid exemplar, but heavier viewers would find the task of retrieving a vivid exemplar easier than lighter viewers. Thus, it may be that most individuals possess somewhat vivid exemplars of common constructs, and viewing simply renders those exemplars more accessible, but not more vivid. Indeed, where differences were observed, media exemplars were judged less vivid than those observed or experienced firsthand. This is consistent with the argument that firsthand experience produces the most vivid memories and media exposure matters most where personal experience is lacking.

A second explanation for a correlation between vividness and subjective ease but not between vividness and viewing is that in this study vividness judgments resulted from ease of retrieval. One might speculate that the easier an exemplar is to retrieve, the more vivid it seems or the less effort it takes to "flesh out" its details. This is consistent with the lack of relationship between distinctiveness and accessibility, suggesting that the extent to which an exemplar seems distinct or unusual is a function of the exemplar itself, rather the ease with which it was retrieved. Our method may have contributed to this pattern of results. Participants answered source and attribute questions immediately after retrieving each exemplar. Early questions may have motivated participants to search for exemplars that were vivid (or realistic or distinct). If this were the case, it may also have motivated them to dismiss a first or second exemplar and continue searching for one that was more vivid. This would not mean that the viewing effect on accessibility we observed was spurious, but simply that heavier viewers had an easier time than lighter viewers retrieving vivid exemplars from three of the four categories predicted.

Even though we investigated and found relations between media exposure and accessibility, we did not test the other component of the media effects process, namely, the link between accessibility and judgment. Although this might be conceptually desirable, it was not possible within our procedure. As Busselle (2001) pointed out, it is difficult if not impossible to test the relationship between viewing

and information accessibility and the relationship between accessibility and judgment in one study. This is because the process of testing for accessibility renders relevant information highly accessible for all participants and thus wipes out any subsequent effect on judgment. In fact, this is precisely what Busselle found: When participants provided judgments of frequency or probability prior to recalling an example, the judgments were positively related to television viewing; but when the examples were recalled prior to making the judgments, no relation with viewing was noted.

Finally, it is important to reiterate where these findings contribute to the media effects literature. We have demonstrated that for a particular group of categories, exemplars are more accessible for individuals who consume relatively greater amounts of television content likely to contain those exemplars. Various media effects models assume this link, but to date it has received little support when directly tested. Empirical confirmation of this link provides important validation for the process models put forth to explain media effects.

AUTHOR NOTE

Rick Busselle is Associate Professor at Washington State University. L. J. Shrum is Associate Professor at University of Texas–San Antonio. This research was supported by a grant from the Rutgers University Research Council to L. J. Shrum.

NOTES

[1]Higgins (1996) defines accessibility as the "activation potential of available knowledge" (p. 134). This definition is useful because it separates the concepts of *accessibility* and *availability*, which are often confused. Availability refers to whether information is stored in memory; accessibility refers to the ease of retrieving information that is available (Higgins & King, 1981; Tulving & Pearlstone, 1966).

[2]In its most simplistic form, a cultivation effect refers to a positive relationship between the amount of television a person views and the degree to which the person's judgments about social reality reflect a television-world point of view. Thus, a cultivation effect might be noted by a positive correlation between the hours of television persons view and their estimates of the percentage of the work force that is comprised of lawyers or doctors. A cultivation effect also might be evidenced by heavy viewers having a greater fear of being the victim of a violent crime than light viewers.

[3]This procedure also allowed us to measure the response time for retrieving exemplars. However, we found no relation between response time and any of our measures of media

exposure. This was likely due to the extreme variation in the response-time data, which may have resulted from lack of sufficient practice required to make participants comfortable with the task (Fazio, 1990; Roskos-Ewoldsen, 1996) or the cumbersome measurement procedure. Moreover, the response-time measure was only moderately correlated with the self-report measure of ease of retrieval (*r*s ranging from .29 to .42). Given that the response-time measure was uncorrelated with any media exposure measure, we do not discuss this data further.

[4]One reviewer noted that the terms *relevant* and *irrelevant* are not completely accurate because certain programs we termed irrelevant (e.g., sports) occasionally show some of the events participants were asked to recall (e.g., fist fights). We admit the operationalization of the relevant and irrelevant categories is imperfect. Our goal was to construct the content-relevant variable combining viewing of program categories that regularly incorporate most if not all of the events participants recalled. Thus, whereas some sports programming does occasionally show fist fights, it rarely shows the drug busts, highway accidents, or murders. In terms of the categories we picked, content analyses support our findings for several of the program categories (e.g., Lichter, Lichter, & Rothman, 1994), but content analyses of all categories were not available.

[5]We did not measure the amount of direct experience, so we cannot say with certainty that direct experience with these constructs is necessarily low. However, given population statistics and the demographics of our subject pool (which we measured and controlled), it seems face valid that frequent direct experience would be relatively low for such things as crime, surgery, and trials, and particularly relative to encountering those constructs on television.

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