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Media Priming and Accessibility

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Imagine you are talking with a colleague about some research and that colleague asks you about a particular theoretical approach to the issue you are discussing. If the theory is one that you work with extensively, then your knowledge of that theory should come to mind quickly, maybe even automatically (e.g., with no intentional effort on your part). Conversely, imagine that the last time you had discussed this theory was 30 years ago in graduate school. In this instance, the knowledge of the theory is not likely to easily be brought to mind. In other words, these two theories (and the related knowledge) vary in how chronically accessible they are from memory.

Now imagine a slightly different scenario. In this instance, due to serendipity, you had just received an email from the individual who developed that past theory minutes before talking to your colleague. In this instance, the knowledge related to that old theory was temporarily more accessible due to the recent email activating the information in memory related to the author of the theory. Because information related to the author of the theory had been active, information about the theory was likely activated at the same time. In other words, that knowledge had been primed, which temporarily increased its accessibility. We discuss both *chronically accessible* constructs, that is, the theory you work with daily, and contrast it with temporary accessibility, or the *priming* of constructs in specific situations, in this chapter. Research on priming and chronic accessibility has grown increasingly important for media scholars during the past 30 years. This chapter will review this work and the major theories that explain these related phenomena.

Accessibility

Simply put, accessibility refers to the ease by which a concept is activated from memory. Research on accessibility originated in theoretical work within cognitive and social psychology during the 1970s and 1980s. Specifically, network models of memory posited that concepts are represented in memory as nodes (J. Anderson, 1983; Wyer, 2004).[1] Going back to the opening example, you would have a node in memory for the theory you learned in grad school, as well as potentially separate nodes for elements of the theory depending on how elaborate the memory representation was for that theory. You may have very elaborate networks for those aspects of the theory that you work with a lot and only a few nodes in components of the

theory that are not relevant to your current work. The critical point is that your representation in memory is hypothesized to reflect your knowledge of that domain.

A node in a resting state is not active. But a node can receive activation if something in the environment or the cognitive system triggers that concept (e.g., someone mentions an old theory or you think about a related theory). Each node is hypothesized to have a threshold, and once there is enough energy in the node to reach that threshold, the node fires or is activated. A concept's threshold is not set but can change for various reasons. For example, if a concept is activated repeatedly, the threshold for that concept is hypothesized to change so that it is easier for the concept to be activated (J. Anderson, 1983). This change in the threshold explains how concepts can vary in their chronic accessibility.

Research suggests several ways in which the resting threshold of a concept can change to make it more accessible. By far the most often cited way to chronically increase a concept's accessibility is through frequency of activation (Wyer, 2004). Likewise, more effortful processing of a concept should increase the chronic accessibility of that concept (Wyer, 2004). The activation threshold can also weaken across time so that the concept becomes less accessible. If a concept is not activated for an extended period of time, it will become less chronically accessible. In other words, *once* accessible does not mean *always* accessible (Grant & Logan, 1993).

These models also hypothesize that nodes are interconnected via associative pathways. These pathways allow energy to spread from one node to a related node. Further, the strength of these associative pathways varies. Stronger pathways allow more energy to transfer from one node to another node. The classic example is that if the "doctor" node is activated in memory, activation will travel from the "doctor" node to the "nurse" node because doctor and nurse are likely highly associated. Assuming the strength of the pathway is high, if doctor is activated (e.g., its activation threshold is met), then energy should travel to the "nurse" node, which may result in the "nurse" node becoming active or it may increase the ease by which nurse is activated because the node is closer to its activation threshold. The energy that spreads from "doctor" to "nurse" dissipates in time. Therefore, the effect of the spreading activation is to increase temporarily the accessibility of "nurse." This is commonly referred to as *priming*.

Chronic Accessibility

Construct Accessibility

As already discussed, the chronic accessibility of various concepts can vary in memory. Research has generally considered chronic accessibility across three domains: construct accessibility, attitude accessibility, and norm accessibility. Construct accessibility has not been studied extensively by media scholars. Research in media effects in this stream has relied on the availability heuristic, which maintains that people make quick judgments of how frequently something occurs based on the ease with which they can activate exemplars of that construct from memory. The most extensive use of the availability heuristic to understand media effects comes from Shrum's (2009) line of work on cultivation theory. Briefly, cultivation theory (see Chapter 5 of the current volume) hypothesized that heavy viewers of television would have their perception of social reality distorted to assimilate with the reality depicted on television. Later, Shrum focused his explanation more on construct accessibility with the development of the heuristic processing model of cultivation (Shrum, 2009). Numerous studies have supported the construct availability explanation of cultivation effects (Bradley, 2007; Busselle & Shrum, 2003; Riddle, 2010).

The availability heuristic has been offered as an explanation for the agenda-setting effect of the media (Scheufele, 2000; see Chapter 3 of the current volume). Agenda setting refers to the impact of heavy news coverage of an issue on the public's judgment of the importance of that issue. The basic idea is that heavy coverage of an issue should increase the accessibility of that issue from memory. The ease of activating that issue from memory acts as a piece of information to form the judgment that this is an important topic (Roskos-Ewoldsen, Bichsel, & Hoffman, 2002).

Research on political communication has also demonstrated that construct accessibility can serve as both a mediator and moderator of media effects. Consider the area of political framing. *Framing* refers to the information that is emphasized and made salient within a story (see Chapter 4 of the current volume). One obvious explanation for framing effects is that a story's frame influences what information people have accessible from memory after reading the story (Schuldt & Roh, 2014). In this way, then, construct accessibility operates as the mechanism by which message framing affects the audience's perceptions of the issue. However, construct accessibility can also limit the influence of media frames on how people interpret a story. When viewers' accessible constructs about a candidate were contrary to how a message was framed, the message had less influence on viewers' judgments (Shen, 2004). In this case, the chronic accessibility of the audience's constructs overrode the effects of the frame.

Attitude Accessibility

A second area of research that has focused on chronic accessibility is the work on attitude accessibility (Rhodes & Ewoldsen, 2013). Attitude accessibility refers to the ease by which an evaluative response to an object is activated from memory (Fazio, 1986). This work hypothesizes that summary attitudes toward an object (broadly defined) are stored in memory, and these stored attitudes exist along a continuum. At one end of the continuum are attitudes that are so highly accessible from memory that they are automatically activated when the attitude object is in the environment without any intention to activate the attitude on the part of the individual (Roskos-Ewoldsen & Fazio, 1992). For example, many people have an automatic "dislike" response whenever they see a rat or other rodent and may react with revulsion without consciously thinking about it. At the other end of the continuum are attitudes that are stored in memory but that are not accessible and require conscious effort on the part of the individual to activate from memory. For example, if you were asked about a class that you took in graduate school, you almost certainly had an attitude toward that class that was accessible at the time. Even though that attitude may still be stored in memory, because of the passage of time, you now would have to work hard to recall how well you liked that class.

The work on attitude accessibility grew out of work on the attitude–behavior relationship (Fazio, 1986). Extensive research has demonstrated that attitudes that are more accessible from memory are more likely to predict a person's behavior (Rhodes & Ewoldsen, 2009, 2013). This makes sense because an attitude can only influence behavior to the extent it is active in memory, and accessible attitudes should be more likely to be active at the time when the person is engaging in the behavior. Later research demonstrated that accessible attitudes are more likely to bias how a person processes information (Rhodes, Roskos-Ewoldsen, Edison, & Bradford, 2008). For example, people will process information that is contrary to their accessible attitude in a biased manner. Other research has also demonstrated that if you have an accessible

attitude toward the topic or source of a message, it influences how much you elaborate on a message (Rhodes et al., 2008; Roskos-Ewoldsen et al., 2002). Finally, accessible attitudes will influence what people attend to in their environment (Roskos-Ewoldsen & Fazio, 1992).

Research on processing of media messages is consistent with these findings. For example, people with accessible racist attitudes interpreted a movie in a way so that the movie did not threaten their attitude (Eno & Ewoldsen, 2010). Likewise, people with more accessible racist attitudes interpreted newspapers that were sympathetic to blacks as being of lower quality (Holt, Ellithorpe, & Ralston, 2017). Similarly, smokers were biased in how they processed anti-smoking Public Service Announcements (PSAs), which is not surprising; however, this effect was moderated by the accessibility of their pro-smoking attitudes (Rhodes et al., 2008).

Research has demonstrated that media messages can influence the accessibility of attitudes from memory. For example, a feature length anti-racism movie was found to decrease the accessibility of participants' racist attitudes (Eno & Ewoldsen, 2010). Fear appeal messages have been found to increase the accessibility of people's attitudes toward performing adaptive behaviors (e.g., breast self-exams) and the accessible attitudes predicted future intentions to engage in the behavior (Roskos-Ewoldsen, Yu, & Rhodes, 2004). We believe this finding has important implications for health promotion campaigns, given the role of accessible attitudes in predicting behavior. Studies have demonstrated that heavy viewing of TV is associated with more accessible attitudes (Shrum, 2009). Likewise, several studies have also demonstrated that long-term exposure to coverage of an issue or topic can influence the accessibility of attitudes from memory (Arendt, 2010; Arendt & Brantner, 2015).[2] As Arendt (2010) noted, consistent with second-order cultivation effects, long-term exposure to media can influence the accessibility of people's attitudes from memory.

Additionally, consistent with a network model of memory, it appears that media can influence the accessibility of attitudes indirectly through spreading activation. Rhodes, Toole, and Arpan (2016) found that entertainment programming that contained incidental mentions of pro-environmental practices increased the accessibility of viewers' attitudes toward those practices that were depicted in the program. Importantly, the increased activation of those attitudes also increased the activation of related pro-environmental practices, such as recycling, that were not depicted in the program. The increased accessibility of these related attitudes predicted increased intention to engage in these related, but not depicted, behaviors.

Finally, as discussed, research has found that accessible attitudes influence what people attend to in the environment (Roskos-Ewoldsen & Fazio, 1992). Consistent with these findings, research has found that accessible attitudes are related to selective exposure. Specifically, research suggests that accessible attitudes toward a topic will influence whether people select a news story about that topic (Knobloch-Westerwick, 2015; see also Chapter 10 of this volume). For example, people with more accessible negative attitudes toward the European Union were more likely to avoid reading stories about the EU (Arendt, Steindl, & Kumpel, 2016; cf. Knobloch-Westerwick, 2015). Relatedly, people with more accessible attitudes toward a topic were also more likely to share news stories about that topic on social media (Arendt et al., 2016).

Roskos-Ewoldsen (1997) proposed a transactive model of attitude accessibility. The main point of the transactive model is that accessible attitudes operate to maintain or protect themselves. As already discussed, attitudes that are activated frequently or that are primed are more accessible. The model also posits merely expecting to need an attitude toward a particular object increases chronic accessibility, and cognitive elaboration is another manner by which attitudes become more accessible. According to the transactive model, accessible attitudes tend to

operate in a manner that maintains their accessibility through frequent activation and elaboration. For example, because accessible attitudes orient our attention to objects in our environment, the accessible attitudes are reactivated (Roskos-Ewoldsen, 1997). Additionally, the activation of an attitude motivates biased elaborative processing that maintains or increases the attitude's accessibility (Rhodes et al., 2008; Roskos-Ewoldsen et al., 2002). For example, in a recent study, cigarette smokers showed more biased processing of anti-smoking messages than did non-smokers (Rhodes et al., 2008). In addition, as the smokers judged the anti-smoking ad to be more biased, they also indicated they were less likely to quit smoking. In other words, the anti-smoking ad created reactance in the smoker, which reinforced their desire to smoke. Importantly, the accessibility of the smokers' attitudes mediated this process. The accessible pro-smoking attitude operated as a defense mechanism for these smokers to protect their smoking behavior from threats such as anti-smoking ads, and their accessible attitudes strengthened the behavioral response to continue smoking.

Norm Accessibility

Normative beliefs, such as the subjective norm discussed in the theory of reasoned action (TRA; Fishbein & Ajzen, 2010), can vary in accessibility (Rhodes & Ewoldsen, 2009). The subjective norm is made up of beliefs about whether important others in one's social world would approve or disapprove of one's engaging in a particular behavior. Take, for example, the case of a high school student at a party with friends who is offered an opportunity to smoke marijuana. The decision to smoke or not may rest on the accessibility of normative constructs. If the student anticipates that the other kids at the party will approve, then the student may go ahead and partake. However, if that student can quickly recall that his or her parents would be strongly disapproving, then the student might decline. Research in this area has found that accessible norms are related to a variety of behaviors, such as drinking alcohol, smoking cigarettes, using marijuana, or engaging in early sexual behavior (Rhodes, Ewoldsen, Shen, Monahan, & Eno, 2014). For teenagers, there is often a conflict between parental and peer norms, such that peer norms favor riskier behavior. Accessible parental norms have been found to be a protective factor for teens: When parental norms are accessible from memory, they appear to be predictive of that teen's behavior.

The accessibility of norms also has implications for how individuals process information. In a study of smokers' processing of anti-smoking public service announcements (PSAs), the accessibility of smoking norms was measured, and then participants viewed anti-smoking PSAs. Smokers with accessible norms that were supportive of smoking engaged in less central processing and more peripheral processing than did smokers whose norms were less accessible or were opposed to smoking (Rhodes et al., 2008). Further research found that teens with accessible pro-smoking peer norms reported higher reactance after viewing an anti-smoking PSA. Three months later, these teens reported greater readiness to smoke cigarettes than did their peers with accessible anti-smoking norms (Rhodes, Ralston, & Bigsby, 2016). Thus it appears that chronically accessible norms operate to insulate the individual from thinking about information that may challenge the behaviors that are approved by the peer group.

Two types of norms are commonly discussed in the literature (Cialdini, Reno, & Kallgren, 1990). *Descriptive* norms refer to beliefs about how common a particular behavior is within a particular group. *Injunctive* norms refer to one's belief that a particular behavior will meet with approval from important people in one's life. In this chapter so far, we have mostly reported results of studies that examined the accessibility of injunctive norms, as these measures

were modeled after the subjective norm (a type of injunctive norm) featured in the TRA (Fishbein & Ajzen, 2010).

Theories of norms have tried to explicate when and how these different norms affect behavior. Most work in this area has suggested that there is an interactive effect between injunctive and descriptive norms, such that the effect on behavior is strongest when injunctive and descriptive norms align (e.g., Rimal, 2008). Recent work has examined this relationship by measuring the accessibility of injunctive and descriptive norms and has found these variables interact to affect behavioral intention to engage in environmentally friendly behaviors such as recycling. These data suggest that when injunctive norms are strong and accessible, there is little additional effect of descriptive norms on behavior. In contrast, when someone lacks an accessible injunctive norm, descriptive norms have the strongest effect on behavior (Toole, Arpan, & Rhodes, 2012). Our findings suggest that when individuals lack an accessible injunctive norm to guide their behavior, they seek the environment for information about what people typically do in this situation, an interpretation that is consistent with dual process theories such as the MODE model (see next section; Ewoldsen, Rhodes, & Fazio, 2015).

Predicting Deliberative and Spontaneous Behaviors

Several models incorporate attitudes and norms to predict behavior such as the TRA. The TRA hypothesizes that a person's attitude toward a behavior and the subjective norms concerning that behavior combine to predict a person's behavioral intention. The behavioral intention then predicts behavior. There have been several derivatives of the TRA (Fishbein & Ajzen, 2010). These models have been tested extensively over the years, and research generally has supported these models. However, one criticism of this category of models is that they predict behavioral intentions and thus only explain deliberative behavior (Fazio, 1990; Rhodes & Ewoldsen, 2013).

Fazio's (1986) process model of the attitude–behavior relationship addresses how accessible attitudes predict behavior. The process model maintains that accessible attitudes are more likely to be activated when an object is in the environment. The activation of this attitude biases the perception of the object and, consequently, how the event is defined. A person with an accessible negative attitude toward spiders is likely to have that attitude activated when they see a spider; they will perceive the spider as "bad" and define the event as aversive. Norms operate within the process model by influencing how the situation is defined. Specifically, the accessible norm defines the range of behaviors that are appropriate in the situation. For example, if I see a spider in my basement, I am in a different situation than if I see a spider walk across my plate at my favorite eating establishment. I am much more likely to scoop up the spider and take it outside when in my basement than when I am at a restaurant. As already discussed, accessible injunctive norms guide a person's behavior, and the process model hypothesizes that this occurs because the accessible norms dictate what are or are not acceptable behaviors within that situation.

At this point, we would seem to be in a situation where we have two competing models: the TRA and its derivatives, and the process model and related models (e.g., transactive model of attitude accessibility; Roskos-Ewoldsen, 1997). However, these models apply in different contexts. As already discussed, the TRA and its derivatives do an excellent job of predicting deliberative behavior. Conversely, the process model predicts spontaneous behavior. The Motivation and Opportunities as DEterminants (MODE) model merges these two frameworks (Ewoldsen et al., 2015; Fazio, 1990). Specifically, the MODE predicts that when people are highly motivated and have the opportunity, they will carefully consider the available information when deciding

how to act. In these situations, people are engaged in deliberative behavior, and models such as the TRA and the Integrative Model do an excellent job of predicting behavior. Conversely, when people are not motivated or do not have the opportunity to carefully make a decision, they are more likely to engage in spontaneous behavior and will rely on accessible information (Rhodes & Ewoldsen, 2013).

We believe that the MODE model has important implications for media scholars. Specifically, the distinction between spontaneous and deliberative behavior is often ignored by media scholars (Ewoldsen et al., 2015), but if scholars are going to understand the processes that underlie behaviors related to the media (e.g., media selectivity, binging, outcomes of viewing), then these distinctions need to be carefully considered because the processes underlying these different types of behavior will differ.

Priming

Priming refers to the effect of some preceding stimulus or event on how we react, broadly defined, to some subsequent event or person (Roskos-Ewoldsen, Klinger, & Roskos-Ewoldsen, 2007; Roskos-Ewoldsen, Roskos-Ewoldsen, & Carpentier, 2009). As applied to the media, priming refers to the effects of the content in the media on people's later behavior, thoughts, or judgments. Priming is used to explain the short-term effects of media violence, the effects of political coverage on evaluations of a candidate, and stereotyped portrayals of minorities (Roskos-Ewoldsen et al., 2007). More recently, priming emerged as an explanation for the effect of avatars on people's judgments and behaviors (Peña, 2011).

Characteristics of Priming Effects

Not surprisingly, theory predicted and research quickly found that not all primes are the same. Research on priming has demonstrated three important characteristics of priming. First, the effect of a prime dissipates with time. Recent primes have a greater effect on judgments or behaviors than temporally distant primes (Higgins, Bargh, & Lombardi, 1985). *Recency* refers to the time lag between the prime and the target (e.g., the time between seeing a gun on TV and seeing an ambiguous behavior that could be interpreted as hostile). Eventually, given no more activation, the activation level of the node returns to its resting state and is no longer primed. With cognitive tasks such as lexical decision tasks, which involve judgments of whether a string of letters is a word, or attitude priming tasks, which involve judgments of whether a word has positive or negative connotations, the priming effect dissipates typically within one second (Higgins et al., 1985). However, in tasks that involve social judgments or evaluations of a social stimulus, the priming effect can last up to 15 to 20 minutes and possibly up to one hour (Roskos-Ewoldsen et al., 2007). Whereas much media research has ignored the influence of time and the fading of priming effects (Arendt, 2013b; Roskos-Ewoldsen et al., 2009), meta-analysis suggest that media primes do fade with time (Roskos-Ewoldsen et al., 2007) and experimental research clearly indicates that at least certain types of media primes fade with time (Arendt, 2013b; Riddle, 2010; Roskos-Ewoldsen et al., 2007).

Second, primes that are stronger (e.g., involve more energy) will tend to have stronger effects on people's judgments and behavior (Higgins et al., 1985). One of the problems with discussions of prime strength involves exactly what makes a prime stronger. The strength or intensity of a prime is manipulated either through the *frequency* of the priming event (e.g., a single

exposure to a gun vs. five exposures to a gun in quick succession) or the duration of the priming event (e.g., 15 minutes of exposure versus 1 minute). Research has demonstrated both frequency (Arendt, 2013a, 2015) and intensity of priming as influencing media priming effects (Dillman Carpentier, Roskos-Ewoldsen, & Roskos-Ewoldsen, 2008). Vividness might also influence priming, with highly vivid portrayals resulting in stronger priming effects (Riddle, 2010). Importantly, a linear increase in the strength of the prime does not result in a linear increase in the priming effect (Arendt, 2015).

Third, primes tend to have stronger effects on situations that are ambiguous (Roskos-Ewoldsen, 1997). Unambiguous situations leave little room for different interpretations, but an ambiguous behavior can be interpreted in myriad ways. Given the ambiguity of much of social behavior, priming effects can be occurring quite frequently in our day-to-day lives. Arendt (2017) demonstrated this is the context of news coverage priming racial stereotypes. The primed stereotype influenced judgments only when the to-be-judged object was ambiguous.

Priming of Violence and Aggression

Research on media violence and aggressive thoughts, feelings, emotions, and behaviors has been studied extensively (Huesmann, Dubow, & Yang, 2013). The available research indicates that TV and video game violence may influence people's behavior, particularly in the short term (Huesmann et al., 2013), and these effects can range from decreased sensitization to violent behavior to increases in such behavior. Consistent with a priming explanation for media violence, many studies have demonstrated that people who are exposed to a violent TV clip or play a violent video game are more likely to think aggressive thoughts (see Bushman, 1998; Bushman & Anderson, 2002). However, does the priming of aggressive thoughts translate into aggressive behavior? The answer seems to be "it depends" (see Chapter 14 of the current volume).

There are two major models of aggression priming. The first is Berkowitz's (1984, 1990) neo-associationistic model, which draws heavily from network models of priming. The model hypothesizes that depictions of violence in the media activate hostility and aggression-related concepts in memory. The activation of these concepts increases the likelihood that ambiguous behavior is interpreted as aggressive or hostile and increases the likelihood that one will engage in aggressive behaviors. Without further input, however, the activity levels of these hostile and aggressive concepts fades with time, as does their associated likelihood of influencing aggressive behavior. Across the research on Berkowitz's model, people who are primed with violent media content are more likely to respond with hostility when a person provokes them after the priming event. Consistent with our earlier discussion, this provocation is ambiguous and the violent prime leads people to interpret the provocation as aggressive.

The second model is the General Aggression Model (or GAM), which is an extensive elaboration of the neo-associationistic model (C. A. Anderson, Gentile, & Buckley, 2007). This model incorporates affect and arousal into a network framework and introduces a multi-stage process by which situations influence aggressive behavior. In the first stage of the GAM, situational variables (e.g., pain, frustration, depictions of violence) prime aggressive cognitions (e.g., hostile thoughts, memories) and affect (e.g., hostility, anger). These external situational variables can result in increased arousal, aggressive thoughts, and aggressive emotions. This first stage involves relatively automatic processes that are outside the control of the individual. In the second stage, the primed cognitions and affect, in conjunction with the increased arousal, influence *primary appraisals*. Primary appraisal involves the interpretation of the situation, including the attribution of one's arousal in that

situation, and tends to be more automatic than effortful in nature. This stage of the model is similar to Fazio's (1986) process model and explains spontaneous behaviors similar to the MODE. The final stage of the model involves *secondary appraisals*, which are more effortful, controlled appraisals of the situation, and involve thoughtful consideration of various behavioral alternatives to the situation (e.g., deliberative behaviors within the MODE). This final stage can override the primary appraisal. For example, a person may have aggressive thoughts primed by playing a violent first-person shooter game. The activation of these thoughts leads to an increased likelihood of making hostile attributions when, for example, someone cuts the person off in traffic. However, the person can override these attributions and choose not to respond in a hostile manner towards the other driver.

Political Priming

Political priming research has traditionally focused on how media coverage of different events influences what information people use when making judgments about politicians and political issues (Iyengar & Kinder, 1987; S.-H. Kim, Han, & Scheufele, 2010; Krosnick & Kinder, 1990). Historically, scholars in this area have focused on global judgments of presidential approval as the chief outcome variable. Political priming research has found that when the media predominately focus on domestic issues, then judgments of how well the president is doing on domestic issues weigh heavier in people's overall evaluations of the president, compared to the case where international news is the predominant focus of the media. Importantly, in political priming, the emphasis is on how the media influence what information is salient (e.g., weighted) when people make judgments.

In a classic study, Krosnick and Kinder (1990) measured the priming effect of Iran-Contra media coverage on public evaluations of President Reagan's overall performance. In 1986, the Center for Political Studies at the University of Michigan conducted lengthy face-to-face interviews which included evaluations of President Reagan, both overall and regarding his performance on foreign affairs, domestic policy, and other publicized issues. The interviews were conducted both before and after the date on which the Attorney General publicly confirmed the sale of arms to Iran and the subsequent distribution of the sale profits to the Contras. Krosnick and Kinder (1990) compared responses obtained before and after the Iran-Contra announcement (the priming event) to see which foreign or domestic affairs issues contributed most to the respondents' overall performance evaluations of President Reagan. Before the priming event, domestic issues predicted overall evaluations of Reagan more than foreign affairs issues. After the priming event, the opposite was true; foreign affairs issues, especially those issues involving Central America, predicted the respondents' overall evaluations of Reagan more than domestic issues. This study shows that media coverage of political events can prime the information that people use when making judgments of presidential performance.

In addition, there is a growing focus in research on political priming on the types of information that are primed by news coverage and what type of information people use when primed by the media (S. Kim, Scheufele, & Shanahan, 2002). Research on political priming has implicitly assumed a "hydraulic model" in which the media prime people to use certain information at the expense of competing information. In a study of political priming in coverage of the first Gulf War, Y. M. Kim (2005) found evidence that news coverage increased the variety of information that was used by people who pay careful attention to the media.

Models of Political Priming

Until recently, the theoretical mechanisms by which the media prime evaluations of the President have been largely unspecified. Initially, some scholars argued that priming is really just an extension of agenda setting (Iyengar & Kinder, 1987). Consistent with this idea, Iyengar and Simon (1993) used the availability heuristic to explain political priming effects. As in other domains, the availability explanation has not been well developed within the political priming domain.

Only one model of political priming has been developed sufficiently to explain the political priming (Price & Tewksbury, 1997). Price and Tewksbury's model of political priming is based on network models of memory and the role that the media play in increasing the accessibility of information from memory. As discussed earlier, network models maintain that both chronic and temporary accessibility of constructs influences their likelihood of firing. In addition, Price and Tewksbury incorporate the *applicability* of information into their model. Applicability refers to deliberate judgments of the relevance of information to the current situation. Clearly, if primed information is not relevant, it should not be used when making political judgments. Within Price and Tewksbury's model, constructs that are activated by the media and judged as applicable to the current situation influence how the message is framed or interpreted. On the other hand, those constructs that are activated by the media and judged as not applicable to the current situation are not brought into working memory, but the activation of these constructs by the media means that they may act as a prime.

The research by Dillman Carpentier et al. (2008) is generally consistent with Price and Tewksbury's model of political priming. The one difficulty is the time frame of the priming effect. Dillman Carpentier and her colleagues found that the effect of a prime faded within 30 minutes after exposure (see also S.-H. Kim et al., 2010). Although these time frames are consistent with Price and Tewksbury's model, they are difficult to reconcile with much of the political priming literature that looks at effects of exposure that last for several weeks. Price and Tewksbury's model can explain these long-term priming effects by assuming that continued media coverage makes the concepts chronically accessible.

Some research challenges the accessibility explanation of political priming. Miller and Krosnick (2000) experimentally manipulated media exposure to current issues and found a standard priming effect. The accessibility of the primed issues was also measured using reaction times. Contrary to an accessibility explanation, those participants who were quicker at the reaction time task did not weigh the accessible information more heavily than those who were slower. Thus, the researchers concluded that construct accessibility could not be the direct cause of political priming. However, Miller and Krosnick (2000) incorrectly interpret the role of deliberative processing as meaning that accessibility was not an important component of the political priming effect. The activation of highly accessible constructs can motivate deliberative processing (Rhodes et al., 2008; Roskos-Ewoldsen et al., 2002). Thus, the deliberative processing that they found evidence for may well be a consequence of increases in the accessibility of the constructs primed by the manipulated media coverage.

Priming of Stereotypes

A growing area of research concerns the potential for media to prime various stereotypes, including gender (Hansen & Hansen, 1988), mental illness (Holman & McKeever, 2017), and

racial stereotypes (Arendt, 2013b, 2017; Dalisay & Tan, 2009; Oliver, Ramasubramanian, & Kim, 2007; Power, Murphy, & Coover, 1996; see also Chapter 16 of this volume). This area of research has grown remarkably with a focus on the impact of media primes on perceptions of both individuals in interpersonal settings and on the media, and the effects of stereotype primes on political judgments (Oliver et al., 2007).

Exposure to rock music videos that portray stereotypical images of men and women resulted in more stereotypical impressions of a man and a woman interacting in a second video (Hansen & Hansen, 1988). In particular, participants perceived the woman as less dominant after exposure to the stereotypical portrayals than after exposure to rock music videos that included no stereo-typical portrayals. Also focusing on perceptions of individuals, Power et al. (1996) found that reading stereotypical information in a newsletter about either African Americans or women influenced judgments of later unrelated media events concerning the target group. For example, counter-stereotypical depictions of women resulted in higher ratings in Anita Hill's credibility in the Clarence Thomas sexual harassment hearings, whereas stereotypical depictions lowered ratings of Hill's credibility (see also Brown Givens & Monahan, 2005). However, research is mixed on the impact of stereotypical depictions in video games on the accessibility of racial stereotypes (Burgess, Dill, Stermer, Burgess, & Brown, 2011; Cicchirillo, 2015).

An interesting area of research involves how priming a stereotype can spread to influence other judgments. For example, representations of African Americans in the news was found to influence people's attitudes toward various political issues (Oliver et al., 2007). Dixon (2006) found that participants had stronger support for the death penalty after viewing a newscast with African American suspects as compared to a newscast involving the same crimes but in which the race of the criminal was unspecified. Domke, McCoy, and Torres (1999) also demonstrated that the framing of a news story about immigration (the story focused on the economic effects versus the ethics of immigration) could influence whether racial stereotypes of Hispanics were primed, despite no mention of Hispanics in the story. These activated stereotypes also influenced subsequent political judgments such as the effects of immigration on the economy (see also Domke, 2001). Similarly, priming the Asian American as a "model minority" stereotype resulted in more positive judgments of Asian Americans and more negative judgments of African Americans, even though African Americans were not represented in the story (Dalisay & Tan, 2009). In addition, priming the Asian American "model minority" stereotype undermined support for affirmative action.

A final issue that has been explored in research on racial stereotypes involves whether highly accessible stereotypes can be further primed. In a laboratory setting, chronically accessible constructs can be primed so that they are even more accessible in memory (Bargh, Bond, Lombardi, & Tota, 1986). The question is whether such an effect—which is by its nature subtle—can be demonstrated in a media context. Specifically, for Caucasians in the United States, racial attitudes of African Americans tend to be highly accessible from memory. Can these already chronically accessible racial stereotypes be primed? Certainly, evidence suggests political campaigns have attempted to prime high accessible racial stereotypes. For example, a content analysis of pictures of Barack Obama from the 2008 presidential campaign suggests that the McCain campaign might have used pictures of Obama with darker skin tone, particularly in ads that associated Obama with crime issues (Messing, Jabon, & Plaut, 2015). However, can media prime already highly accessible racist attitudes? Research does suggest that media can increase the accessibility of these chronically accessible attitudes through priming (Luttig & Callaghan, 2016; Messing et al., 2015).

Avatars as Primes

Other than the research on video games, little research has directly assessed the impact of new communication technologies on chronic accessibility or priming and the research. Research has found that pictures and texts interact to influence priming, suggesting the potential for complex priming effects from websites (Northup & Dillman Carpentier, 2015). Likewise, sidebar and banner ads on a website that featured strong sexual appeals primed judgments of an individual's social media profile picture (Dillman Carpentier, Parrott, & Northup, 2014). Research like this has certainly demonstrated that priming can occur in rather novel ways in online environments.

But the area that has received by far the most recent research is the potential for avatars to prime people's judgments and behavior (Peña, 2011). In a particularly clever experiment, Peña, McGlone, and Sanchez (2012) demonstrated that avatars could prime social stereotypes. Specifically, participants assigned sophisticatedly dressed avatars used significantly different language than participants assigned a glamorously dressed avatar. For example, participants with sophisticatedly dressed avatars were more likely to talk about education and books, whereas participants with glamorously dressed avatars talked more about sports, entertainment, and clothes.

The Proteus effect is the finding that the appearance of a person's avatar can influence judgments of the self (Yee, 2014). Research suggests that the Proteus effect is consistent with priming effects (Peña, Hancock, & Merola, 2009). As an illustration, Peña et al. (2009) had participants in a virtual museum use avatars that were either wearing Ku Klux Klan (KKK) garb or dressed as a doctor (or the "avatar" was transparent in the control condition). The KKK garb primed more aggressive thoughts and potentially inhibited positive thoughts.

The research on media priming has greatly improved in the last decade with a growing focus on understanding the processes underlying media priming effects. Clearly, media content act as a prime. In addition, media operate as a prime in a number of different domains, through a number of different channels. Critically, there has been an increased focus on understanding the processes underlying the media priming phenomenon. Unfortunately, there have been no attempts to integrate the research on media priming across the different research domains.

Conclusion

This chapter has reviewed research on both chronic and momentary accessibility (i.e., priming) of concepts in memory. Using Fazio's MODE model and Roskos-Ewoldsen's transactive model as an organizing framework, we have shown how the media can affect the chronic accessibility of concepts through repeated exposure and in the moment through priming. In turn, we have shown how the accessibility of concepts in memory affects interpretation of media content as well as the prediction of future behavior.

This is an exciting time to be studying accessibility and priming effects. The research across the last decade in this area is much more theoretically driven than was true of earlier research. Likewise, research is demonstrating greater generality of both of these phenomena. The study of norm accessibility has emerged in the last decade. Likewise, although the study of political priming has a much longer history, early research on political priming only focused on the impact of television news on judgments of the U.S. president. Today, a much broader range of topics are studied and priming and accessibility effects continue to be found. Furthermore, although early work on violence priming focused on video games, research on priming and accessibility effects is found across media platforms. The work on the Proteus effect as an

example of priming is a promising line in theorizing. As this work shows, priming and accessibility effects are found across media technologies.

Notes

1 We will be using examples from network models of memory such as J. Anderson's (1983) ACT* model because that is the way accessibility and priming are often discussed in the communication literature. However, there are many different theoretical models of memory. For example, connections models assume a very different cognitive system, yet these models can also explain accessibility and priming (Sun, 2014). Although our examples use the language of network models, we are agnostic in this chapter as to which model of cognition is correct.

2 Arendt and Brantner (2015) argue that they were studying attribute agenda setting, which refers to the ability of the media to make particular attributes of a phenomenon salient. However, they used Payne, Cheng, Govorun, and Stewart's (2005) affective misattribution measure (AMP) to measure attribute agenda setting. The AMP is traditionally interpreted as a measure of automatically activated attitudes; so, we think this is a clearer interpretation of their results. Indeed, many of the more recent studies cited in this chapter rely on implicit measures of attitudes. An implicit measure involves measuring a variable without the participants' awareness. A number of implicit measures exist and a complete discussion of these measures is beyond the scope of this chapter (see Blanton & Jaccard, 2015). However, all of these measures are based on the assumption that they are measuring highly accessible attitudes (Ewoldsen et al., 2015).

Scholars often appear to assume implicit measures are measuring a different attitude than explicit measures. To be clear, based on one's theoretical perspective, it may make sense to talk about implicit vs. explicit attitudes (see for example, Arendt, 2013a). However, not all models assume implicit measures are measuring a different attitude (Ewoldsen et al., 2015).

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