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ARTICLES

Volume 2, Nos. 1-2

9  Carson B. Wagner and S. Shyam Sundar
   Sneaking It In: The Importance of Peripheral Processing in Promoting Strong Anti-Drug Attitudes

44  Mark Cistulli and Leslie B. Snyder
    Priming, Repetition, and the Effects of Multiple Messages on Perceptions of a Political Candidate

57  Michel M. Haigh, Pamela Jo Brubaker, and Aaron Hersoco
    The Impact of Mood and Story Frame on Associative Networks

76  Elza Ibroscheva and Jyotika Ramaprasad
    Hostile Imagination at Work: American Opinion Makers’ Perceptions of the Media Role in Stereotypes of Russians and Eastern Europeans

103 Won Yong Jang, Edward Frederick, and Jack A. Kapfer
    Impact of Information Subsidies on Student News Writers’ Thinking About Science News

Volume 2, Nos. 3-4

ARTICLES

126  Bradley M. Waite, Laura E. Levine and Laura L. Bowman
    Instant Messaging, Multitasking and Media Use of College Youth: Connections to Impulsiveness and Distractibility

147  Srividya Ramasubramanian and Meghan S. Sanders
    The Good, the Bad, and the Ugly: Exploring the Role of Emotions in Understanding the Appeal of Video Game Characters
169  Joel Turner

*I Hear What You’re Saying, I Just Don’t Believe You: Counterarguing and Dissonant Media Sources*

189  Clay Warren

*Subliminal Stimuli, Perception, and Influence: A Review of Important Studies and Conclusions*

211  Guo-Ming Chen and Tong Yu

*The Impact of TV Viewing Motivations on Psychological and Socio-cultural Adjustment: A Pilot Study*
ARTICLES

9    Carson B. Wagner and S. Shyam Sundar
     Sneaking It In: The Importance of Peripheral Processing in Promoting Strong Anti-
     Drug Attitudes

44   Mark Cistulli and Leslie B. Snyder
     Priming, Repetition, and the Effects of Multiple Messages on Perceptions of a
     Political Candidate

57   Michel M. Haigh, Pamela Jo Brubaker, and Aaron Heresco
     The Impact of Mood and Story Frame on Associative Networks

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     Hostile Imagination at Work: American Opinion Makers’ Perceptions of the Media
     Role in Stereotypes of Russians and Eastern Europeans

103  Won Yong Jang, Edward Frederick, and Jack A. Kapfer
     Impact of Information Subsidies on Student News Writers’ Thinking About Science
     News
Sneaking It In: The Importance of Peripheral Processing in Promoting Strong Anti-Drug Attitudes

Carson B. Wagner and S. Shyam Sundar

Historically, anti-drug ad research has relied on measuring self-reported attitudes toward predicting the messages’ behavioral influence. However, dual-process theories from social psychology suggest assessing drug-related strength of association (SOA) via response latency measures would offer a more rigorous test of the ads’ effectiveness along with superior behavioral prediction. An experiment conducted to test this contention revealed that SOA is more difficult to modify than self-reported attitudes, while a second study proposes and tests a solution by manipulating motivation and opportunity to attend to ads.

Keywords: anti-drug ads, implicit attitudes, peripheral persuasion, elaboration-likelihood model (ELM), Motivation and Opportunity as Determinants Model (MODE)

"Gut feelings" gauged by response latency measures tend to be more predictive of behavior than the comparatively rational processes captured by self-report attitude measures (Dovidio & Fazio, 1991; Fazio, 1986; Fazio, 1990). Yet, the bulk of anti-drug ad research has considered effectiveness in terms of well-reasoned responses (McGuire, 2001; Petty, Baker, & Gleicher, 1991; Wartella & Middlestadt, 1991). Perhaps this is because the bulk of anti-drug ad theory assumes a rational subject who always makes decisions through controlled cogitation (see e.g., Capella, Fishbein, Hornik, Ahern, & Sayeed, 2001), but on the contrary, “not all social behaviors are deliberative or reasoned” (Dovidio & Fazio, 1991,

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p. 205; Fazio, 1990, p. 78). Indeed many drug-related decisions may be made spontaneously rather than deliberately.

As a consequence, although many studies have demonstrated that anti-drug public service announcements (PSAs) affect our attitudes, a question remains as to whether or not those ad-induced attitudes will come to mind when making decisions about drug use, especially in situations involving competing influences such as peers. We know PSAs can be recalled (e.g., Black, 1991), the knowledge they impart can be remembered (e.g., Flora & Maibach, 1990), and the negative attitudes to which they contribute can be later expressed (Johnston, 1999), but prior research doesn’t lend such extensive insight into the likelihood that these attitudes will be activated to guide drug-use decision-making.

Gauging attitudinal strength of association (SOA) conceptualized by Fazio, Sanbonmatsu, Powell, and Kardes, (1986) along with self-reported attitudes should be useful in this regard. This is so because response latency SOA measures, such as the implicit association test (IAT) conceptualized by Greenwald, McGhee, and Schwartz (1998), gauge the likelihood of automatic attitude activation. SOA tests can also circumvent methodological concerns in anti-drug ad research arising from situational norms and social desirability (Carifio, 1994; Carifio & Biron, 1978; Tourangeau & Smith, 1996) because they are administered unobtrusively (Dovidio & Fazio, 1991; Fazio, 1990). A given research participant “need not be at all aware that his or her attitude is being assessed” (Fazio, Sanbonmatsu, Powell, & Kardes, 1986, p. 237), and this diminishes the possibility that participants will falsely represent themselves. As a result, SOA measures enjoy better validity and behavioral prediction than self-reported attitudes—reasons why SOAs are the norm in stereotyping research (Dovidio & Fazio, 1991; Fazio & Towles-Schwen, 1999).

If anti-drug ads don’t influence drug-related SOA, it could be argued that viewers are left somewhat handicapped in situations characterized by unreasoned, spontaneous decision-making processes. In other words, there would be a breach in audiences’ defenses against yielding to illicit drug offers. Although anti-drug commercials that are designed to be processed less effortfully, for example fear and celebrity appeals (Baker, Petty, & Gleicher, 1991; Petty, Baker, & Gleicher, 1991), are theoretically ideal for affecting SOA, their effect on processing styles has not been empirically verified. It is still uncertain whether drug ads affect the automatic processes that may be more likely, in the course of a day, to be predictive of drug use behaviors. This paper presents a line of work designed to achieve a better understanding of the ways in which drug ads might influence SOA, automatic attitude activation, and subsequent decision-making.
LITERATURE REVIEW

Empirical investigations of anti-drug ads have shown that these commercials tend to raise drug awareness (e.g., Maloney & Hersey, 1984; McAbee, Miller, & Burnside, 1986; Palmgreen et al., 1995) and instill anti-drug attitudes (e.g., Kelly & Edwards, 1992; Reis, Duggan, Adger, & DeAngelis, 1994). Studies have also revealed that both the formal features of such public service announcements (PSAs) (e.g., Outwin, 1987; Palmgreen et al., 1991; Witte, 1994) as well as viewers’ personality traits and predispositions (e.g., Everett & Palmgreen, 1995; Skinner & Slater, 1995; Slater & Rouner, 1996) play a role in effectiveness. Stated another way, prior research has investigated attitude efficacy across “various source, message, recipient, and channel variables” (Baker, Petty, & Gleicher, 1991, p. 200), and examples abound demonstrating that, in general, anti-drug PSAs can influence attitudes toward drug use.

It has also been demonstrated that PSAs work better when their targeting is matched with particular audiences, such as high sensation-seekers (HSS) conceptualized by Donohew, Lorch, and Palmgreen (1991), Palmgreen et al., (1991), Palmgreen et al. (2001), Stephenson and Palmgreen, (2001). Based on numerous studies, Palmgreen and his colleagues have formulated and successfully tested the Sensation Seeking Targeting (SENTAR) (Palmgreen et al., 2001) prevention approach. Work in this area has also led to the formation of the Activation Model of Information Exposure (AMIE) conceptualized by Harrington, Lane, Donohew, and Zimmerman (2006), which is premised on ads “capturing attention and encouraging cognitive processing as steps toward achieving attitude and behavior change” (Harrington et al., 2006, p. 141). On the other hand, some scholars have shown that purposefully distracted viewers are more influenced by persuasive communication than their non-distracted counterparts (Gilbert, Tarafodi, & Malone, 1993), and experimental studies have demonstrated that we can be persuaded and influenced to behave by stimuli we don’t consciously perceive (for an overview, see Nisbett & Wilson, 1977).

The divergent conclusions of these lines of work, though, may be attributed, at least in part, to the measures used. While AMIE and other anti-drug ad studies rely almost exclusively on self-reported attitudes, intent, and behavior, studies that have shown persuasion and influence as a function of less effortfully-processed stimuli often include direct behavior measures. Unfortunately, given the illicit nature of drug-related behaviors, self-report measures may not often yield a veridical assessment due to social desirability concerns (Carifio, 1994; Carifio & Biron, 1978; Tourangeau & Smith, 1996). Response latency measures of attitudes that gauge SOA, such as the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998), though, avoid the influence of social desirability on responses (Dovidio & Fazio, 1991).
While a large body of research has documented anti-drug ads’ ability to modify self-reported attitudes, comparatively little attention has been paid to drug-related SOA, despite the advantage of being administered unobtrusively. Further, while self-report may assess the effects of ads on stated attitudes, the measures don’t assess the likelihood that the newly formed attitudes will activate to influence decision-making (Dovidio & Fazio, 1991; Fazio, 1990). So, even though we know that anti-drug attitudes derived from ads can be expressed long after viewing (Johnston, 1999), we don’t know whether they are invoked when people aren’t specifically asked to do so.

**SOA AND DECISION-MAKING**

It is well-known that we make decisions in at least two very different ways (see, e.g., Bodenhausen & Macrae, 1998; Fazio, 1990; Hastie & Park, 1986; Smith & DeCoster, 1999; Wegner & Bargh, 1998). People are “cognitive misers” (Fiske & Taylor, 1984), and when lacking the ambition and resources to think something through, we rely on more “automatic” processes (Bargh, 1999) to define situations and choose behaviors. Fazio’s (1990) **motivation and opportunity as determinants model (MODE)** of attitude-behavior consistency explains that when we are motivated to think through a decision, given the cognitive capability and time—the opportunity—we will. The author terms this the “deliberate” decision-making pathway. Without either or both of these luxuries, though, our decisions tend to flow from immediate contextual cues or stored associations about the attitude object at hand. This is named the “spontaneous” pathway. If our associations about an attitude object are not strong enough, they will not activate attitudes to guide decision-making, and we will then rely on context cues to make a choice. As Dovidio and Fazio (1991) note:

“Immediate appraisals may be unduly influenced by momentarily salient features, they may not be representative of the individual’s attitude, and thus behavior may not be attitudinally consistent” (p. 216).

As a consequence, even if one holds a negative association toward drugs, if the strength of that association isn’t sufficient, then it will not activate an attitude to guide perception and behavior. If, on the other hand, one’s SOA is sufficiently high, the mere presence or mention of drugs would automatically activate the attitude to direct behavior. At the same time, a highly negative drug SOA can color perception of incoming information, which suggests its measurement is also important when predicting more deliberate choices. A highly negative SOA can lead one to discount incoming positive information about drugs even if one wants to believe it (Fazio, 1990), because the discounting process occurs preconsciously (see Bargh, 1999), and so it also plays a role in what might be considered better-reasoned actions.

To assess SOA, psychologists have employed “primed response latency measures” (Fazio, Sanbonmatsu, Powell, & Kardes, 1986; see Fazio & Towles-Schwen, 1999 for a
review) in which researchers quickly introduce participants to an object descriptor and then record the amount of time it takes the participants to correctly categorize subsequently presented positive and negative adjectives. The prime is used to activate an *a priori* attitude, if one exists, and it is theorized that response latency is a function of valenced SOA wherein attitude congruency facilitates correct categorization and incongruency impedes it. For example, if one primes participants with an object about which they hold a positive association—say, “puppies”—this will quicken their ability to subsequently categorize words like “good” or “wonderful,” while it will slow their categorization of “bad” or “horrible,” and vice versa for a negative association. The amount of facilitation or impedance, in turn, relates to the strengths of the associations.

Since SOA tests don’t directly ask participants to form specific responses about an attitude object, participants are unlikely to misrepresent themselves—a matter of great concern in research on socially sensitive topics such as drugs (Carifio, 1994; Carifio & Biron, 1978; Tourangeau & Smith, 1996). On the other hand, self-report attitude measures can result in unfaithful responses generated both intentionally and unintentionally (Dovidio & Fazio, 1991). That is, individuals may knowingly hold a socially undesirable attitude (e.g., pro-drug) and purposefully respond in a way that doesn’t match, or they may unknowingly hold such an attitude, implicitly refuse to admit this to themselves, and answer the questionnaire in such a way as to present an “ideal” self. So, as compared to attitude questionnaires, SOA measures tend to predict a greater number of less-sensitive attitudinal covariates reported on separate questionnaires in a wide range of studies (Dovidio & Fazio, 1991).

**SOA AND ANTI-DRUG ADS**

In exploring anti-drug ad effects on SOA, it is necessary to consider the characteristics of the underlying psychological mechanism. This in turn will allow us to target SOA through PSA presentation. Simply put, associations are formed and their strength increased through associative learning (Fazio, 1990, p. 81), which is the direct connection of an object cue with a descriptor cue (e.g., table/blue; Smith & DeCoster, 1999). In order to modify drug-related SOA, then, it would be best to engage participants in associative learning, wherein they connect the attitude object of drugs with negative descriptors. Petty and Cacioppo’s (1986a; 1986b) elaboration-likelihood model of persuasion (ELM) lends insight into how this might best be achieved.

Similar to MODE, ELM posits two information processing strategies, a more effortful, “central route” and a less effortful “peripheral route,” but whereas MODE examines information processing in attitude-behavior consistency, ELM is concerned with the role of persuasive content (e.g., advertising) processing in attitude change. When using ELM’s central route, people actively engage and intensely scrutinize persuasive message
information and arguments toward (re)forming an attitude, and in this way, attitudes change when people integrate agreed upon tenets (Petty & Cacioppo, 1986a; 1986b). For instance, when processing centrally, the greater the number of convincing arguments in an ad, the more attitudes should change in the intended direction as a result of ad consumption (Petty & Cacioppo, 1983; Petty & Wegener, 1999).

When proceeding via ELM’s peripheral route, people passively process an ad in forming an association for a given attitude object (Petty & Wegener, 1999). That is, we simply connect the subject of an advertisement with the descriptors used to frame it. This is very similar, if not identical, to “associative learning” (see Smith & DeCoster, 1999), which is the process of psychologically pairing an object cue with a descriptor cue—e.g., table/blue or drugs/bad—and associative learning is the process by which SOA is theorized to change (Fazio, 1990, p. 81). Although unfortunately there is a decided lack of “cross-pollination” among dual-process theories in the literature, meaning there is little evidence to suggest the ways in which the persuasion theories would interact with those that focus on decision-making, connecting ELM and MODE in this way, through the concept of associative learning, is perhaps the best theoretically-viable option for instilling stronger anti-drug SOA among viewers.

Specific to anti-drug ads, Petty and colleagues (Baker, Petty, & Gleicher, 1991; Petty, Baker, & Gleicher, 1991) say the two types of ads designed to invoke peripheral route persuasion are celebrity and fear appeals. While the former relies on the use of heuristics (see e.g., Chaiken, 1987), the latter works through classical fear-conditioning (see Staats & Staats, 1958; LeDoux, 1996). In the first instance, it is thought that in seeing well-liked celebrities disapprove of drug use, viewers link the celebrity’s evaluation of drugs to the concept of drugs in their minds. In the second, it is theorized that fear appeals can elicit a fear-conditioning response in which a negative association attaches to the attitude object. In support, instances of fear-conditioning have been shown to work quickly and powerfully with as little as one encounter causing people to avoid various stimuli without explanation (LeDoux, 1996). Having a basis in hard-wired cognitive structures (i.e., the Amygdala), in fear-conditioning, implicitly recognized trigger stimuli cause avoidance responses prior to effortful evaluation. Related to ELM, drugs would theoretically become a “trigger” for the negative associations among viewers, and this in turn may be the most powerful form of associative learning.

Connecting ELM’s peripheral route to MODE’s theorization of SOA formation and change via associative learning, we propose:

**H1:** Viewers’ drug-related SOA will be more negative after seeing celebrity and fear appeal anti-drug ads than before seeing them.
STUDY 1: FEAR AND CELEBRITY APPEAL

ANti-DRUG AD EFFECTS ON SOA

A controlled laboratory experiment was conducted to investigate the effects of anti-drug ads on SOA. However, in order to check the efficacy of the stimulus, an experimental manipulation check study was first run to determine that the stimulus was sufficient to elicit self-reported attitude change. Given the extent of prior research findings that demonstrate anti-drug ad efficacy in this manner, it seemed necessary to ensure that the chosen stimulus met this base criterion (see e.g., Aronson, Brewer, & Carlsmith, 1985). Along with the manipulation check, Study 1—which replicated the manipulation check with the exception of the measure employed—was run to determine whether the same stimulus could similarly affect SOA.

Both studies were pretest/posttest within-participants designs. Participants were randomly assigned to one or the other of the studies from a single participant pool. To do so, participants drew pieces of paper containing a study assignment and a participant ID number from a Ziploc™ bag. The bag contained twice as many pieces of paper that would assign participants to Study 1 as compared to the manipulation check self-reported attitude study, which was done in order to allocate as many participants as possible to Study 1.

For the manipulation check, all participants’ (N=13) self-reported attitudes were measured with pencil-and-paper questionnaires administered both before and after viewing anti-drug ads produced by The Partnership for a Drug-Free America. The scale was adapted from prior drug ad research (Palmgreen, et al., 1991). The instructions and six of the adjective pairs (good/bad, pleasant/unpleasant, valuable/worthless, favorable/unfavorable, acceptable/unacceptable, and nice/awful) were taken directly from the original study, and two sets of adjective pairs were added by the researchers (wonderful/horrible and excellent/poor). The order of the pairings was reversed from the pretest to the posttest measure, and this was counterbalanced across groups of participants.

A total of six PSAs were shown, each of which was a thirty-second ad targeted toward young adults. Three of the ads were celebrity appeals, while the other three were fear appeals. The presentation began with a fear appeal then moved to a celebrity appeal. It repeated this pattern for the duration. The PSAs are briefly described in Appendix A in the order of presentation.

The eight attitude assessment items were summed, with equal weighting, to form an Attitude Index. In order to investigate the effect of PSAs on self-reported attitudes, the pretest and posttest Attitude Indices were entered in a paired t-test. A significant effect for time of measurement was found [paired t (12) = -3.97, p < .01] such that attitudes were more anti-drug after viewing anti-drug PSAs (M= -11.30) as compared to before having seen the commercials (M = -7.53). This suggests the stimulus was sufficiently powerful.
Study 1 was run to test H1, assessing the fear and celebrity appeal ads’ effects on anti-drug SOA. In a within-participants experiment, all participants’ (N=26) drug-related SOAs were measured with a pencil-and-paper SOA measure both before and after viewing anti-drug ads. The six PSAs used in the manipulation check were viewed in the exact order using the same videotapes and equipment (see Appendix A for a description of the PSAs listed in order of presentation). Also, the participants were drawn from the same pool as in the manipulation check. Beyond the measure employed, the procedure was equivalent.

Twenty-six undergraduate students enrolled in journalism classes participated in the experiment for course credit. The students were invited in class to participate and they signed up there for group administration time slots.

Procedure

Upon arrival, participants were asked to sign an informed consent form, which described their rights as research participants. This document explained that the purpose of the study was to remain unknown to them until after the procedure was finished. After signing the forms, participants responded to an initial drug-related SOA measure and returned it face down to the researcher. Participants then viewed the six PSAs on a 27” screen at the front of the room. Afterwards, the participants filled out a second SOA measure. Throughout the experiment, participants were seated around a conference table, with sufficient distance between each so as to avoid revealing their responses to others, and the experimenter was seated at the head of the table.

Dependent Measures

Two SOA measures were administered, one before the ads and one after. The measures were pencil-and-paper versions of the Implicit Attitude Test (IAT) (Greenwald, McGhee, & Schwartz, 1998) developed by Lowery, Hardin, and Sinclair (2001). The measures were originally designed for stereotyping research and were adapted to drug-related SOA by the researchers. As with other variations on the IAT (e.g., Dasgupta, McGhee, Greenwald, & Banaji, 2000; Greenwald, McGhee, & Schwartz, 1998; Rudman, Greenwald, Mellot, & Schwartz, 1999), the Lowery et al. (2001) measure uses five separate timed judgment stages. In each stage, a list of words printed singularly in the middle of each page comprised the judgment items, and evaluations were indicated by checkmarks in the appropriate right and left-hand columns (see Appendix B).

Before entering the judgment stages, participants were shown four lists of words (contained in the measure packets) two at a time, and they were asked to become familiar with the words before the experiment progressed. The first set of lists included names of both drugs and colors, and the second set included both positive and negative adjectives.
Eight words of each type were shown on the lists, and these words would later be used as items in the association tasks.

The list of drugs included eight of the most popular drugs among youth: Heroin, Marijuana, Hashish, Glue, Mushrooms, LSD, Cocaine, and Crack (Johnston, O’Malley, & Bachman, 2003). The newly re-emerging drug “ecstasy” was not used because of the positive denotation of its descriptor. In other words, as a positive word in itself, it was believed that “ecstasy” would either confuse participants trying to categorize adjectives or otherwise skew the study’s results. Despite being constant across conditions and therefore not theoretically meaningful to the results of the study, drugs were paired with a list of colors because, on the whole, they are non-evaluative. That is to say, although one may hold positive or negative associations toward one or another color, one would likely not hold attitudes toward colors in toto, nor all of the specific colors used: blue, orange, pink, green, brown, yellow, purple, and red.

The lists of positive and negative adjectives included those sixteen words used in the manipulation check study questionnaire. That is, the sixteen anchors from the attitude measure’s semantic differential scales, including eight of each positive and negative adjectives, were used to promote consistency across studies. Again, the positive adjectives include good, pleasant, valuable, favorable, acceptable, nice, wonderful, and excellent, and the negative adjectives include bad, unpleasant, worthless, unfavorable, unacceptable, awful, horrible, and poor.

After participants studied each set of words and raised their heads to indicate they were finished, the researcher commenced the judgment stages. The first two stages were “practice stages,” wherein participants became familiar with the activity of categorizing words before being assessed. In the first of these stages, the lists of drugs and colors ran down the middle of the page, mixed in a random fashion, and participants were given fifteen seconds to categorize them by placing a checkmark on the appropriate side as they moved sequentially down the page. Appropriate sides to check were indicated at the top of the page (i.e., “drugs” is printed on the left or right, with “colors” opposing), and participants are given verbal instructions as to what the appropriate side would be prior to beginning the timed judgment stage. For example:

```
COLORS                                                                                                         DRUGS

MARIJUANA                                                                                                       YELLO W
```

The second stage was similar to the first, except the list was composed of the positive and negative adjectives. The words “positive” and “negative” anchored the sides of the page at the top.
The third stage was a “critical judgment phase,” or rather one that was used in the final SOA assessment, and it included all four sets of words. The list began with either a positive or negative adjective or a drug or color name, and the following word was drawn from the opposite category (i.e., a name or adjective). The next word came from the initial category, and the measure continues on in that fashion. The appropriate judgment sides, similarly indicated at the top of the page, combined both drugs or colors and positive or negative words. So then, one of the sides was the proper one to check for either drugs and negative or positive, while the other side was the correct one for colors and the opposite kind of adjective. The specific sides matched those used in the preceding practice stages for all participants. For example:

<table>
<thead>
<tr>
<th>COLORS OR positive</th>
<th>DRUGS OR negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>awful</td>
<td></td>
</tr>
<tr>
<td>MARIJUANA</td>
<td></td>
</tr>
<tr>
<td>good</td>
<td></td>
</tr>
<tr>
<td>YELLOW</td>
<td></td>
</tr>
</tbody>
</table>

Participants were again allotted fifteen seconds to categorize as many of these terms as they could, moving sequentially down the page. This phase included two such lists given one after the other.

The fourth was also a practice stage. As the measure calculates association strength by subtracting the number of items correctly categorized when drugs were paired with negative adjectives from the number of items correctly categorized when drugs were paired with positive adjectives, the appropriate side for each drugs and colors in the fifth critical stage was switched while keeping positive and negative constant. This fourth stage was introduced to allow participants familiarity with categorizing drugs and colors on the sides opposite those they had just done, and the list therefore only included names of drugs and colors.

The fifth stage was again a critical phase, requiring simultaneous categorization of both drug and color names and positive and negative adjectives. This phase was the same as the third stage except that the appropriate side for the drug and color names was switched, and participants were therefore categorizing these names with the opposite kind of adjective. For example, if the participant had categorized drugs and negative adjectives in stage three, they would categorize drugs and positive adjectives together in stage five.
Data Analysis

The scores from each of the two critical phases—the total number of correctly-categorized words, with no penalty for incorrectly-categorized terms—were summed with equal weighting to form a Total Score Index (see Lowery, Hardin, & Sinclair, 2001). The Total Score from the drug/negative phase was then subtracted from the Total Score of the drug/positive phase to form an SOA Difference Score Index. In order to examine the effects of anti-drug ads on SOA, the pretest and posttest SOA Difference Score Indices were entered in a paired t-test.

RESULTS

Participants’ categorization error rates were less than five percent, which is similar to those reported by Greenwald et al. (1998) and Lowery et al. (2001). No effect for time of measurement was found \[\text{paired } t(25) = 1.12, p = .27\] such that drug-related SOAs were not significantly different after viewing anti-drug PSAs \(M = -5.03\) as compared to before having seen the commercials \(M = -6.50\). Therefore, H1 was not supported.

Despite that the stimulus was of sufficient strength to produce self-reported attitude change, the manipulation did not allow for the demonstration of SOA effects. This suggests it may be more difficult to alter SOA as compared to self-reported attitudes. But, at the same time it may be that the ads did not invoke peripheral processing (see Petty, Baker, & Gleicher, 1991), although designed to do so. One possibility is that it may be necessary to instead manipulate the ELM processing route determinants motivation and opportunity (Petty & Wegener, 1999) in order to ensure that participants are processing the ads passively as opposed to actively. That is, motivation and opportunity to attend to the ads dictate the ways in which participants can process information; if one is either unmotivated or unable to actively engage a persuasion attempt, he or she will process the incoming information peripherally. Conversely, only when motivation and opportunity are both high will we attend to persuasive messages via the central route. Although ad types have been shown to work as independent variables that can lead to differential persuasion processing (e.g., Petty, Cacioppo, & Goldman, 1981), theory and research suggests that such a strategy may not always produce the intended results (Choi & Salmon, 2003; Petty & Wegener, 1999).

Since in Study 1 these determinants were not experimentally manipulated, it is unclear whether participants were viewing the ads peripherally. The case could be made that in Study 1 both motivation and opportunity to view the ads were high, and this, in turn, may have led some—if not all—participants to process the ads centrally. For instance, it has been demonstrated that in research situations participants are motivated to act in a “socially correct” manner (Weber & Cook, 1972), and such an effect may have promoted active engagement with the ads. Knowing that some type of task would follow ad presentation, a
“need for accuracy” or “fear of invalidity” (Kruglanski & Freund, 1983; Sanbonmatsu & Fazio, 1990; Schuette & Fazio, 1995) motivation may have likewise stemmed from the research situation. Also, no secondary task was imposed on participants that would have limited their capacity to process the ads (see e.g., Gilbert & Hixon, 1991), and as the study used TV commercials, the amount of time participants had to attend to the persuasive content, beyond that the ads were all thirty seconds long, was not limited. As such, the study conditions afforded ample opportunity to process the ads’ content, and participants in the study who were motivated to watch the ads would have processed the content centrally.

By experimentally manipulating motivation and opportunity to watch anti-drug ads, though, the ELM routes by which participants would process the commercials could be better ensured. In other words, whereas high motivation and opportunity to scrutinize the ads may have led participants to discount the messages, limiting participants’ motivation and/or opportunity to view the ads should prevent such a possibility, thereby allowing the message to be “snuck in under the radar,” so to speak. Therefore, the following hypothesis can be proposed:

H2: Drug-related SOA of participants with low motivation and/or low opportunity to process anti-drug ads, or those who process the commercials peripherally, will be more negative as compared to those of participants who view the same PSAs under conditions of high motivation and opportunity—or those who process the messages centrally.

Further, the lack of demonstrated SOA effects in Study 1 could in part be a matter of stimulus content. No formal measures were taken concerning the message sources—the celebrities in the ads—and no assessment was run to gauge the intensity of affect that watching the ads generated. If the ad celebrities weren’t well-liked by the sample or if the fear appeal ads weren’t scary enough, the chances for demonstrating intended effects would be diminished, and so it would be helpful to administer such measures to examine them as covariates. Beyond ad responses, it may also be fruitful to include individual difference measures such as ego-involvement—or rather an interest in the issue of drugs which is not experimentally manipulated but held by participants a priori (Johnson & Eagly, 1989)—and perception of social norms (e.g., Ajzen & Fishbein, 1977; 1980), or the extent to which participants believe that drug use takes place, because through numerous ELM studies, these variables have been shown to play an important role in persuasion (Petty & Wegener, 1999).
STUDY 2: PERIPHERAL versus CENTRAL PROCESSING SOA EFFECTS

All participants (N=57) in a between-participants experiment were exposed to six thirty-second anti-drug ads. Prior to viewing the commercials, participants were randomly assigned to one of four conditions in a 2x2 factorial design manipulating their motivation and opportunity to watch. After stimulus presentation, all participants’ drug-related SOAs and self-reported attitudes were examined as dependent variables, and their affective states, source responses, drug-related ego-involvement, and perceptions of social norms were measured as covariates in order to explore relationships to the dependent variables. Motivation and opportunity to view the ads were also assessed in order to check the efficacy of the respective manipulations.

Participants

Fifty-seven undergraduate students enrolled in introductory journalism classes participated in the experiment for course credit. All four conditions were run in two separate experimental sessions, each of which was composed of two different conditions administered in separate rooms by one of two white, male experimenters. Fourteen participants were randomly assigned to the high opportunity/high motivation and the high opportunity/low motivation conditions. Thirteen were assigned to the low opportunity/high motivation condition, and sixteen comprised the low opportunity/low motivation condition. All participants signed an informed consent form prior to participation.

Stimulus Materials

Six ads produced by the Partnership for a Drug-Free America were used as stimuli (see Appendix C for a description of the ads in presentation order). Targeted at young adults, three spots were celebrity appeals, and the other three were fear appeals. As in Study 1, the presentation began with a fear appeal, and then moved to a celebrity appeal, and it repeated this pattern for the duration. The stimulus materials and presentation order were identical across all conditions.

Procedure

Upon arrival at the study, participants were asked to draw a slip of paper that contained their identification (ID) numbers, which in turn signified their condition assignment, from a Ziploc™ bag that contained ID numbers for all four conditions. Two sessions, one featuring both the high motivation conditions and the other featuring the low motivation conditions, were run simultaneously by separate experimenters. After selecting
ID numbers, participants were escorted to separate rooms—depending upon the numbers they drew—in which the experimental sessions were run. Before starting, participants were asked to sign informed consent forms, which described their rights as research participants. This document explained that the purpose of the study was to remain unknown to them until after the procedure was finished.

Treatments were implemented to minimize and maximize motivation to view the ads (see, e.g., Fazio & Towles-Schwen, 1999; Petty & Wegener, 1999). In the high motivation conditions, the experimenter wore a suit and tie and described the study as follows: “Today I’m going to ask you to please help me with some research that means a lot to my professor, who’s gotten a large research grant, and so please pay careful attention to the ads I’m going to show.” In the low motivation conditions, the experimenter was dressed in a sloppy manner, was unshaven, and described the study in this manner: “I don’t really want to be here, but my advisor wants his research done before the end of the term, so here I am.” Accountability for the study results was purposefully placed on an unnamed advisor in each case in order to avoid unnecessarily invoking demand characteristics (Orne, 1969; Watt & van de Berg, 1995, p. 256).

Opportunity was manipulated by imposing a secondary cognitive load (Gilbert & Hixon, 1991), and this was done by asking participants in the low opportunity conditions to complete the secondary task of remembering a seven-digit number during ad presentation. Before viewing the first ad, the experimenter held up a sheet of paper with a sample number, which was identified as such on the sheet, and spoke out the number, naming it as a sample before doing so. The experimenter next asked if participants understood the procedure and then went on to display and read the number for the first ad, which was identified as number “A” on both the display sheet and the seven-digit report sheets. After each spot was presented, the experimenter stopped the videotape, asked participants to write the number in the corresponding space (A, B, C, etc.) on the provided report sheets, and presented the next number both verbally and visually. In the high opportunity conditions, no secondary task was given so that no secondary load was imposed.

The opportunity manipulation was based on Gilbert and Hixon’s (1991) secondary task manipulation. In order to simulate external thoughts on which people might normally focus during commercial breaks, instead of the eight-digit numbers employed in the Gilbert and Hixon (1991) study, seven-digit numbers presented as “telephone numbers” were used, and these included a dash after the exchange number. Seven-digit numbers were deemed sufficient to limit cognitive capacity based on Miller’s (1956) “magical number 7,” the number of items to which most people can simultaneous attend. Seven-digit report sheets were used as a manipulation check, ensuring that participants kept the digits in mind while the ads played.
Dependent Measures

All dependent measures were administered to all participants in all conditions in the same order. After viewing the ads, participants filled out Self-Assessment Mannequin (SAM) scales, (Greenwald, Cook, & Lang, 1989), which were used to gauge their valence, intensity, and potency of affect. SAM is composed of three items, each of which is five-point scales. Every point in each of the scales is represented by a figure drawing designed to resemble an individual in a particular affective state. For instance, the first item includes a spectrum of figures ranging from “happy” to “sad,” wherein the “happy” end of the scale shows a figure smiling and the “sad” point shows the figure frowning. The remaining two items are similarly constructed scales ranging from “excited” to “relaxed” and from “I feel submissive” to “I feel dominant.” At the top of the measure are instructions directing participants to “Please indicate how you feel right now by placing an ‘x’ over one of the five figures in each row.”

Following affect assessment, the same drug-related SOA measure used in Study 1 was employed. Next, the self-report attitude questionnaire used in the Manipulation Check study was administered. After the attitude measure was completed, participants rated the source celebrities’ likability, attractiveness, trustworthiness, expertise, and familiarity (Erdoğân, Baker, & Tagg, 2001) for the ads shown. All items were designed by the researchers and included five-point scales ranging from low to high wherein each of the five characteristics could be assessed for all five of the celebrities (or sets) who appeared in the ads.

Lastly, a questionnaire designed to gauge participants’ motivation to watch and opportunity to attend to the ads (as a manipulation check) along with their perceptions of social norms and involvement concerning illicit drugs was administered. All items were designed by the researchers. The first nine were statements followed by scales wherein participants indicated their level of agreement by circling letters representing “very much disagree,” “somewhat disagree,” “undecided,” “somewhat agree,” and “very much agree.” The remaining three questions assessed participants’ perceptions of social norms, by simply asking them to estimate the percentage of students who have used illicit drugs at least once in the past year, the past month, and the past day.

Data Analysis

As in Study 1, for drug-related SOA, the scores for each of the two critical phases—drugs paired with positive and drugs paired with negative adjectives—were summed into positive and negative indices, respectively, and the negative phase scores were subtracted from the positive phase scores to create an SOA Difference Score Index. In order to investigate the effects of motivation and opportunity to watch anti-drug ads on SOA, the
index obtained in this manner was then entered as a dependent variable into a 2x2 (Motivation X Opportunity) between-participants factorial analysis of variance (ANOVA).

For self-reported attitudes, the eight items were summed, with equal weighting, to form an Attitude Total Score Index, as in the Manipulation Check study. To check the effects of motivation and opportunity to view the ads on self-reported attitudes, the index was entered as a dependent variable into a 2x2 (Motivation X Opportunity) between-participants factorial ANOVA.

In order to assess the relationships of the covariates to SOA and self-reported attitudes, all covariates were entered into two separate analyses of covariance (ANCOVAs), with each SOA Difference Score Index and Attitude Total Score Index as the dependent variables and Motivation manipulation and Opportunity manipulation as independent factors.

Celebrity source ratings and drug-related perception items were first subjected to a factor analysis with varimax rotation. The number of common factors was determined by counting the number of principal components with Eigenvalues greater than one. Factor loadings above the cut-off point of 0.6 (with no secondary loading on any other factor being more than 0.4) were examined for identifying relevant clusters of measures (McCroskey & Young, 1979). Those measures loading under a given factor were then summed, with equal weighting, to form an index. The indices obtained in this manner were checked for internal consistency and used as covariates in the ANCOVAs designed to test their relationships with the dependent variables.

Intensity of affect valence was measured by multiplying responses to SAM’s (Greenwald, Cook, & Lang, 1989) excited/relaxed dimension responses (representing affect intensity, and scored from one to five) by responses along the happy/sad continuum (representing affect valence, and scored from negative two to positive two). The index obtained in this manner was also used as a covariate in the ANCOVAs designed to test relationships with the two dependent variables.

RESULTS

Manipulation Checks

To assess the efficacy of the motivation manipulation, the manipulation check item scores were entered as the dependent variable into a one-tailed t-test with motivation manipulation as the independent variable. A significant effect for the motivation manipulation was found \(t(54) = 1.84, p < .05\) such that high motivation participants agreed more with statements about being highly motivated to view the ads \((M = .67, SD = .98)\) compared to low motivation participants \((M = .14, SD = 1.17)\).
As Gilbert and Hixon (1991) explain, interpreting the errors made by low opportunity participants in reporting remembered numbers could be very complicated. Errors may be as indicative of a lower cognitive capability as they are of a lack of mental rehearsal. Therefore, it is suggested that one can only consider those who made large errors in recounting seven-digit numbers as impervious to the opportunity manipulation. Following Gilbert and Hixon’s (1991) criterion, an a priori cutoff was used such that only participants who reported an average of four or more digits correctly were thought to have been kept cognitively busy. Full credit was granted for placing a digit in the correct location in the number string, but only half was given if the digit was misplaced but on the correct side of the phone number exchange dash. No single digit was repeated in any of the six seven-digit numbers presented to participants.3

A secondary, subjective check was also run to support the idea that the opportunity manipulation caused low opportunity participants to pay less attention to the ads as compared to high opportunity participants. For this, the opportunity check item was entered as the dependent variable into a one-tailed t-test with opportunity manipulation as the independent variable. A significant effect for opportunity manipulation was found \( t(54) = 5.27, p < .0001 \) such that high opportunity participants agreed more with statements about paying a lot of attention to the ads (\( M = 1.62, SD = .74 \)) as compared to low opportunity participants (\( M = .34, SD = 1.04 \)).

**Celebrity Source Ratings**

Two types of celebrities were shown and evaluated in the study. One was composed of contemporary tennis stars Serena and Venus Williams and the country/rock stars Dixie Chicks, both of whom discuss the dangers of drugs. The second celebrity set included three rock stars—Shannon Hoon of Blind Melon, Hillel Slovak of Red Hot Chili Peppers, and Brad Nowell of Sublime—who are shown to have died from drug overdose. Because these two kinds of celebrities, alive and dead, convey their message in two theoretically different ways, their ratings were separated before further analysis. The scores for each of the five rating scales—likability, attractiveness, trustworthiness, expertise, and familiarity—were summed into separate additive indices for live and dead celebrity sets.

A factor analysis of the resulting ten dependent measures—five each for the live and the dead celebrity sets—yielded three factors with Eigenvalues greater than one. Upon varimax rotation, three common factors were ideally differentiated and accounted for 75.17% of the variance. As shown in Table 1, the indices had acceptable reliability.
Personal Drug-Related Covariates

A factor analysis of the seven drug-related perception items yielded two factors with Eigenvalues greater than one. Upon varimax rotation, two common factors were ideally differentiated and together accounted for 67.02% of the variance. Table 2 shows the loadings of the seven measures on the two labeled factors and Cronbach’s alpha for each.
A 2x2 factorial analysis of variance (ANOVA) was conducted to test the hypothesis, which predicts that drug-related SOA will be lower among participants in the peripheral conditions compared to those in the central condition. SOA Difference Score Index was entered as the dependent variable for this test.

The ANOVA showed both main effects and the interaction effect to be significant in the hypothesized direction. First, differences in SOA by the Motivation manipulation were found \( F(1, 55) = 3.94, p = .05 \) such that high motivation participants displayed less negative SOA (\( M = -4.21 \)) compared to low motivation participants (\( M = -7.92 \)). Next, SOA difference as a function of the Opportunity Manipulation was significant \( F(1, 55) = 24.39, p < .0001 \) such that high opportunity participants displayed less negative SOA (\( M = -4.07 \)) compared to low opportunity participants (\( M = -7.93 \)). The Motivation X Opportunity
interaction was also significant \([F(1, 55) = 4.97, p < .05]\) such that participants in the high motivation/low opportunity condition \((M = -7.71)\), the low motivation/high opportunity condition \((M = -7.69)\), and the low motivation/low opportunity condition \((M = -8.13)\) each revealed significantly more negative SOA as compared to participants in the high motivation/high opportunity condition \((M = -0.71)\). Consequently, H2 was fully supported. Figure 1 illustrates SOA means by experimental condition.

**Self-reported Attitude Effects by Condition**

A second 2x2 factorial analysis of variance (ANOVA) was conducted to test the effects of motivation and opportunity to watch drug ads on self-reported attitudes. However, neither of the main effects nor the interaction effect was significant. No effect for
Motivation manipulation was shown \[ F(1, 55) = 1.78, p = .18 \] between high motivation (\( M = -6.75 \)) and low motivation (\( M = -9.14 \)) participant attitudes, and no effect for Opportunity manipulation \[ F(1, 55) = .71, p = .40 \] was shown between high opportunity (\( M = -8.81 \)) and low opportunity (\( M = -7.13 \)) participant attitudes. Also, no significant interaction effect was shown \[ F(1, 55) = .21, p = .64 \] such that attitudes for participants in the high motivation/high opportunity condition (\( M = -7.21 \)), the high motivation/low opportunity condition (\( M = -6.28 \)), the low motivation/high opportunity condition (\( M = -10.53 \)), and the low motivation/low opportunity condition (\( M = -7.93 \)) were not differentiated.

**Dependent Variable Relationships with Covariates**

In the MANCOVAs that entered SOA Difference Score Index and Attitude Total Score Index as the dependent variables and Motivation Manipulation and Opportunity Manipulation, and their interaction as effect terms, Dead Celebrity Global, Live Celebrity Appeal, Live Celebrity Authority, Perception of Social Norms, Ego-Involvement, and Intensity of Affect Valence were entered as covariates. When entering the SOA Difference score as the dependent variable, Motivation Manipulation \[ F(1, 55) = 4.12, p < .05 \], Opportunity Manipulation \[ F(1, 55) = 21.76, p < .0001 \], as well as their interaction \[ F(1, 55) = 7.28, p < .01 \] were all found to be significant such that lower motivation, opportunity, and their combination were each related to greater anti-drug SOA. In the ANCOVA entering Attitude Score Index as the independent variable, neither Opportunity manipulation \[ F(1, 55) = .008, p = .92 \] nor its interaction with Motivation manipulation \[ F(1, 55) = .0006, p = .98 \] was significant, such that participant attitudes were not differentiated. Motivation manipulation was marginally significant \[ F(1, 55) = 3.13, p = .08 \] such that low motivation participants’ drug-related attitudes were more negative (\( M = -9.14 \)) compared to those of high motivation participants (\( M = -6.75 \)).

Four covariates showed independent relationships to drug-related SOA. First, Live Celebrity Appeal was found to be significant \[ F(1, 55) = -4.38, p < .05 \] such that higher appeal ratings were associated with greater anti-drug SOA. Live Celebrity Authority was marginally significant \[ F(1, 55) = 3.72, p = .06 \] such that higher authority ratings were associated with less negative SOA. Dead Celebrity Global was also significant \[ F(1, 55) = 11.63, p = .001 \] such that lower dead celebrity ratings were associated with greater anti-drug SOA. Lastly, Perception of Social Norms was significant \[ F(1, 55) = 7.53, p < .01 \] such that higher estimates of peer usage were related to less negative SOA. Neither Intensity of Affect Valence \[ F(1, 55) = 2.27, p = .13 \] nor Ego-Involvement \[ F(1, 55) = -.99, p = .32 \] demonstrated significant relationships to SOA.

Two covariates were correlated with self-reported drug-related attitudes. First, Dead Celebrity Global was significant \[ F(1, 55) = 5.63, p < .05 \] such that lower dead celebrity ratings were associated with more negative attitudes. Second, Ego-Involvement was found
to be significant \([F(1, 55) = 7.49, p < .01]\) such that higher involvement was associated with more negative attitudes. No relationship was shown between self-reported attitudes and Live Celebrity Appeal \([F(1, 55) = -.44, p = .50]\), Live Celebrity Authority \([F(1, 55) = .12, p = .73]\), Intensity of Affect Valence \([F(1, 55) = .003, p = .95]\), or perceptions of social norms \([F(1, 55) = .52, p = .47]\).

Overall, in the analyses designed to test the hypothesis and explore relationships among SOA and theoretically meaningful covariates, the hypothesized effects of elaboration likelihood—motivation, opportunity, and their interaction—were found on SOA. The effects of opportunity and the interaction of motivation and opportunity on SOA became clearer after controlling for the covariates using an ANCOVA, and the fact that they did not lose their significance shows that the covariates related to SOA operated independently of processing style. SOA was significantly related to dead celebrity ratings, live celebrity appeal ratings, and social norm perceptions, and a marginally significant relationship were also shown between SOA and live celebrity authority ratings. No significant elaboration likelihood effects were shown on self-reported attitudes, but a marginally significant relationship between attitudes and motivation was shown after controlling for covariates. Also, two covariates showed a significant relationship to self-reported drug-related attitudes: dead celebrity ratings and ego-involvement.

**DISCUSSION**

The results of *Study 2* indicate that anti-drug attitudes are more likely to be activated automatically subsequent to viewing drug ads peripherally compared to watching the spots centrally, as the more passive ELM route led to significantly more negative drug-related SOA. This supported H2, which was based on the theoretical connections made between the ELM, which describes peripheral processing as a process very similar, if not identical to, associative learning, and the MODE model, which states that SOA change is a function of associative learning. In other words, those participants who viewed the ads peripherally showed more negative SOA as compared to those who viewed centrally, and so the results demonstrate that associative learning occurred more as a function of peripheral processing. Rather than relying on stimulus characteristics (i.e., ad types) to induce passive consumption, experimental manipulations of motivation and opportunity to consume the ads were utilized to ensure participants’ processing routes (central or peripheral), which seem to have addressed a limitation in *Study 1*.

The findings suggest that a theoretical bridge exists between ELM’s peripheral route to persuasion and MODE’s spontaneous decision-making path, which has implications beyond drug ad consumption. A review of dual-process literature (see Chaiken & Trope, 1999 for an overview) reveals a lack of “cross-pollination” between persuasion and attitude-behavior consistency theories, and linking these may help in overcoming the difficulty in
predicting behavior from persuasion effects on attitudes (e.g., Schultz & Barnes, 1999, pp. 108-113). Theory and research describe active-passive spectra of persuasive information processing and decision-making, but it does not adequately explain their intersection.

The results also imply that the peripheral route to persuasion may have substantial benefits, despite that anti-drug ad research has focused largely on the central route (Harrington et al., 2006; Wartella & Middlestadt, 1991), as it is suspected that attitudes changed by argumentation are likely to be more permanent, resisting subsequent change (Petty, Baker, & Gleicher, 1991). However, assumptions about the superiority of central processing likely stem from the manner in which drug-related attitudes are theorized and measured. It is intuitive to theorize that to protect youth from the ills of illicit substances, we must adequately convey cogent counter-arguments they can use to defend themselves (e.g., McGuire, 1964). From this perspective, attitudes are positioned as the sum (or the weighted average (Anderson, 1981; 1982) of all concept-related beliefs (Ajzen & Fishbein, 1977; 1980), each of which would need to be recalled in a somewhat unbiased manner at the point of decision—as opposed to the time of measurement—in order to influence behaviors in the way drug ad theory and research suggest.

In other words, attitudes can be thought of as an object—a list in memory (see Jacoby, 1991)—to which we purposefully attend in order to retrieve specific pieces of information so that we might apply them to our current conditions. However, attitudes might otherwise be conceptualized as a tool—a disposition or inclination to avoid or approach an attitude object (Fazio, 1986; 1990)—that influences perception of the object and the situation, and in turn behavior, in a less intentionally-controlled fashion. In this way, attitudes work to produce an affective response predicated on valenced strength of association (Fazio, 1990). As such, attitudes might be likened to a “readiness potential” (see e.g., McAdam & Rubin, 1971), which is characterized by a psychophysiological impulse that directs perceptions and actions but precedes awareness of intentions by approximately 400ms (Libet, 1999; Libet, Wright, & Gleason, 1982). Similar to readiness potentials (Ruesseler, Hennighausen, & Roesler, 2001), strengths of stored associations can also be very difficult to alter through argumentation, one reason for which is that sufficiently strong associations influence the perception of new information during the learning process (Fazio, 1990; Fazio & Towles-Schwen, 1999). A strongly held association can lead someone to see new data about an attitude object or category as incredulous, or it can guide one to rationalize the information in a way that fits the association, often further strengthening it.

Therefore, if anti-drug ad consumption can lead to sufficiently intense negative SOA, it could be argued that youth would be better inoculated than if they had stored a number of drug-related facts in memory. This inference could be made spontaneously (Uleman, 1999), without the conscious effort to retrieve and apply attitudinal contents as is necessary in planning reasoned responses (Ajzen, 1991; Ajzen & Fishbein, 1977; 1980). By demonstrating that anti-drug SOA can be better influenced through passive as compared to effortful consumption of anti-drug commercials, Study 2 supports recent appeals (e.g.,
McGuire, 2001) to pay greater attention to peripheral-route persuasion in public communication campaigns.

Several relationships were also demonstrated between the measured covariates and SOA in Study 2. These results demonstrate that classic attitude variables such as source ratings and the perception of norms are meaningful concepts to SOA, which suggests other attitude-related variables such as self-perception (Bem, 1972) or the use of heuristics (Chaiken, 1987) may be as well. Two relationships were also shown between self-reported attitudes and covariates, which is consistent with predictions in the attitude literature (see, e.g., Petty & Wegener, 1999).

Twice as many covariate relationships were shown for drug-related SOA as compared to self-reported attitudes in Study 2, which supports a growing body of evidence that SOA tests are more veridical than traditional attitude measures because they better predict answers to related but relatively mundane questions (Dovidio & Fazio, 1991), and as such these results further demonstrate the value of using SOA measures to investigate the socially-sensitive topic of drugs.

This research also supports the idea that manipulating motivation and opportunity can better ensure elaboration likelihood than assuming processing styles based on the ad type (see Choi & Salmon, 2003; Petty & Wegener, 1999). This research also suggests useful techniques for manipulating motivation and opportunity. First, the data show subjective differences between high and low motivation to watch, indicating the treatment stories’ effectiveness. Second, asking low opportunity participants to report memorized numbers following ad presentation yields evidence that they were kept cognitively busy, whereas having participants count backwards from one hundred by seven, for instance, does not (Gilbert & Hixon, 1991). Using seven-digit “phone numbers” has the added benefit of simulating thoughts we might normally focus on during commercial breaks—as in ordering pizza—and it meets Miller’s (1956) criterion. Limiting the time participants have to gather information also ensures limited opportunity (Sanbomatsu & Fazio, 1990), and that technique could prove useful for research on static drug ads, although it could not have been applied herein.

The demonstrated effects of elaboration likelihood manipulations also have practical implications. First, they suggest that ad producers should not intentionally motivate audiences to pay attention, although common wisdom and a research focus on argumentation imply that drug commercials should be made to get noticed. Many recent campaigns such as the “terrorism” (Teinowitz, 2002) and “drugged driving” (Cooke, 2005) ads exemplify such a strategy. Drug ad producers might instead creatively devise techniques to keep audiences thinking unrelated thoughts as they watch so as to limit the attention viewers pay to the specific drug-related arguments contained in the ads. Second, ad planners might schedule ads at times when motivation and opportunity to watch are likely low. For instance, audiences tend to view commercials more attentively during programs they often watch.
(Schultz & Barnes, 1999, pp. 317-318), and so drug ads might best be placed in shows with less consistent viewership.

The findings’ suggestion that peripheral processing is more likely to change SOA does not come without caveats. As it might be argued, the fear and celebrity appeal ads used in Study 2 worked better with peripheral route participants because the spots contain peripheral cues. Such commercials are categorized as peripheral in part because viewers can base their attitudes on associations with ad-generated fear and/or the presence of celebrities (Petty, Baker & Gleicher, 1991); so if the ads offered no such cues, peripheral-condition participants’ SOA may have been less negative. However, while the stimuli contained peripheral cues, they also offered structured arguments; so central-condition participants’ SOA likely would not have been more negative given different ads. Further, it was demonstrated in the manipulation check that similar PSAs were sufficient to alter drug-related attitudes, and this suggests that the arguments were adequately strong to work when processed centrally. However, future studies should check the possibilities more straightforwardly by using drug ads based solely on rational arguments.

Likewise, future research might investigate other questions this research raises. First, it may be that the combination of fear and celebrity appeals was necessary to show differences. Future research can use separate tests for each ad type to clarify this relationship. Second, although the results of Study 2 show that peripheral processing of anti-drug ads is more likely than central processing to result in future automatic activation of anti-drug attitudes, it does not show that watching, as opposed to not watching, drug ads can cause changes in individuals’ SOA. A before-and-after design that ensures low viewing motivation and opportunity or a comparison of passive ad watchers to a control group could demonstrate this. Third, although the opportunity manipulation used herein could prove useful in future research, newer studies might investigate the effects of various personal motivations, as disparate motivations have been shown to make a difference in information processing (Fazio, 1990; Fiske & Neuberg, 1990; Kruglanski, 1996; Kruglanski & Webster, 1996; Petty & Cacioppo, 1986b). Directly relevant motivations might be derived from drug ad research on rebellious youth (Skinner & Slater, 1995; Slater & Rouner, 1996) and sensation-seekers (e.g., Palmgreen, Donohew, Lorch, Rogus, Helm, & Grant, 1991; Everett & Palmgreen, 1995; Lorch, Palmgreen, Donohew, Helm, Baer, & Dsilva, 1994). Examining classic social psychology motivations (see e.g., Kruglanski, 1996) such as need for cognition (Cacioppo & Petty, 1982; Harrington et al., 2006) should also be fruitful.

The present findings obviously run counter to studies underlying the Activation Model of Information Exposure (AIME), which states that, “For a message to be most effective, however, both the viewer’s attention and cognitive processing must be optimized” (Harrington, 2006, p. 158). As with prior research showing effects of less processed but influential stimuli, the present studies also employed measures other than self-report, and again, it is likely that the difference is a function of the measures. Interestingly, AIME “assumes a more primal system, in which humans frequently act on the basis of affect,
without much awareness, regardless of whether they are engaging in routine or complex behaviors.” While this viewpoint is very much in line with the present research, the self-report measures used in AIME studies are unable to reveal the effects of anti-drug ads on such primal systems. Insofar as AIME’s focus on the central route is influenced mainly by the measures used, it may prove very useful to employ SOA measures in future studies.

In conclusion, this research helps clarify the role of drug ad viewing styles in subsequent attitude activation likelihood, and it presents various avenues for continued research. Investigating drug ad effects on SOA can allow better behavioral prediction than simply examining traditional attitude measures, as the measures have been shown to have better predictive abilities, especially with regard to socially undesirable behaviors (Dovidio & Fazio, 1991; Fazio, 1990; Fazio & Towles-Schwen, 1999). Along with the unobtrusive nature of SOA tests (Dovidio & Fazio, 1991; Fazio, Sanbonmatsu, Powell, & Kardes, 1986), the measures seem ideal for drug ad research. Moreover, the findings suggest new means by which to answer calls to reconsider the role of peripheral processing in public communication campaigns (see e.g., McGuire, 2001). Clearly, though, more SOA research is needed that systematically varies ad samples and differential motivations in order to determine the best kinds of ads for various audiences under different viewing conditions.

ENDNOTES

1. It should be noted that random assignment is not necessary in this case, because the two groups are not being statistically compared. Restated, they differ in their DV measures while retaining the same IVs. The two groups in this study are not two conditions of the same experiment, but rather two different studies altogether.

2. The order of pairing drugs with negative words and with positive words (phases 3 and 5), along with the side participants checked to categorize the drugs and colors, were counterbalanced across participants, but this did not qualify the reported results.

3. One of the fifty-seven participants did not meet this criterion and was therefore excluded from all statistical analyses.

REFERENCES


Libet, B. (1999). Do we have free will? *Journal of Consciousness Studies, 6*(8-9), 47-57.


APPENDIX A:
MANIPULATION CHECK AND STUDY I AD STIMULUS DESCRIPTIONS

1) “Model” (Fear Appeal) – This spot portrays a female model “dressing down,” presumably following a photo shoot. Ominous-sounding pan flute music plays in the background throughout the ad as the viewer sees the model watching herself in a dressing mirror that is surrounded by light bulbs. The ad begins with the model confronting herself in the mirror and letting her hair down. It then moves through various shots of the model removing her makeup, and each progressive shot shows her face to be more aged and flawed. At last, we are shown a close-up of the model removing her false teeth, revealing both her missing teeth and the partially rotted teeth that remain. The screen then fades to black with the words “It’s hard to face what heroin can do to you” shown in white. The screen again fades to black and the words “Partnership for a Drug-Free America®” appear in white.

2) “Andy MacDonald” (Celebrity Ad) – This ad centers around professional skateboarder Andy MacDonald describing his job. In it, he explains that getting to the place he is in his career takes a lot of motivation, hard work, and dedication. Further, he says that he has been riding for thirteen years, and that it took him six years just to “learn to skate.” He claims that there are boarders out there who are just as talented as any athlete in any professional sport and that, no matter who it is, wiping out on a skateboard is part and parcel of the experience. As he speaks, several shots of him doing stunt work, both on pavement and on a half-pipe, are shown in quick procession, shot from oblique angles and tinted in various bright colors. Toward the end of the spot, he admits that drugs “will only slow you down” and that he couldn’t do what he does if he took drugs. The commercial ends with Mr. MacDonald stating, “That, right there, is my idea of getting high,” as viewers are shown a shot of him flying off the end of a half-pipe. The ad then cuts to black, with the words “Partnership for a Drug-Free America®” in white, centered on the screen.

3) “Ashley” (Fear Appeal) – This commercial focuses on a female named Ashley discussing her experience with heroin. She first describes what it was like to use heroin, saying that it gave her a warm feeling and made her feel like she was floating. She then says that she swore she would never “shoot up” and that when she started “doing dope,” the fighter inside her and the part of her that found joy in day-to-day living died. The commercial, mainly composed of a black-and-white, close-up, still-camera shots, fades twice to and from color stills of Ashley ten and four years previous, and she continues talking through both. The first color shot shows her at age 18, and a caption explains that at the time she was president of her high school class. The second color shot shows her at age 24 as an advertising executive. As the commercial closes, we see a caption explaining that she is currently a 28-year-old heroin addict. The image of Ashley then fades to black, with the words “Partnership for a Drug-Free America®” in white, centered on the screen.

4) “Serena and Venus Williams” (Celebrity Ad) – This ad centers around Serena and Venus Williams, two professional tennis stars. As the commercial opens, Serena explains that “As a kid, I remember dreaming of becoming the best.” The spot then cuts to Venus saying “Of course, I do more than dream—I also make plans.” Venus then explains that she is always working hard at becoming better, looking for new plateaus to which to raise her abilities. The PSA then cuts back to Serena stating, “I don’t have to mess around with the drugs, ‘cause I know that it’s not good for me... it’s not good for anything that I do.” The images that compose the ad are quickly cut close-ups of various body parts of the two female athletes juxtaposed with medium-range shots of each of them talking. The commercial closes with Serena stating, “Drugs kill dreams—it’s just not worth it” played over a black screen with the words “Office of National Drug Control Policy” and “Partnership for a Drug-Free America®” shown in white, and, finally, the ad ends with a shot of the two laughing as we hear one of them say, “It’s your choice. You just have to make the best one.”

5) “Welcome to Heroin” (Fear Appeal) – This spot begins by showing a subjective camera shot of a person’s foot stepping into snow then breaking through the ice below. The shot then fades to several subjective camera underwater shots, all connected with fades, of hands trying to break through a sheet of ice confining the
person below the surface. Finally, the commercial cuts to an objective camera shot from above the surface, and below the ice is shown a blurry image of the person trying to break free. During this objective camera shot, we hear a voice-over stating “Welcome to heroin. Enjoy your stay.” The ad then cuts to black, with the words “Partnership for a Drug-Free America®” in white, centered on the screen.

6) “Dixie Chicks” (Celebrity Ad) – This PSA begins with the Dixie Chicks, an all-female alternative rock band, introducing themselves and describing themselves as being “dorks” in their youth. The three band members then go on to discuss being victims of peer pressure at a young age, but that having a creative outlet such as music allowed them to overcome bad influences from their cohorts. They say that that time was among the hardest in their lives, but that it is also the time when one discovers his or her talents and passions. Throughout the discussion, the ad quickly cuts back and forth between shots of the conversation (shot in black and white) and stylized concert footage. The commercial ends with one of the band members stating, “I couldn’t imagine [living out my dreams] with something like drugs hanging over my head” in a voiceover. The image shown as the spot closes is split-screen, with the band closing a concert on top and the words “Partnership for a Drug-Free America®” and the logo and words “Musicians Assistance Program” in white on black at the bottom.

**APPENDIX B**

**DRUG-RELATED SOA MEASURE SAMPLE COLORS OR POSITIVE DRUGS OR NEGATIVE**

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STOP. DO NOT CONTINUE!
APPENDIX C

STUDY 2 AD STIMULUS DESCRIPTIONS

1) “Serena and Venus Williams” (Celebrity Appeal; see Appendix A)
2) “Lenny/Love” (Fear Appeal) – This ad depicts a heroin addict, Lenny, describing his affection for the drug as he details both the “highs” the drug elicits as well as the common, malevolent side effects that derive from extensive use. Throughout the spot, several cuts are made from one angle to another, and from one set of comments to another, as we see Lenny in a cold, run-down apartment bedroom assumedly located in the inner city. When the commercial begins, we get a close-up of Lenny’s hands adeptly yet nervously tooling with a wrapper of powdered heroin and filling a cap on a nightstand with the contents. As he does so, we hear his voiceover, tinged with a New York accent, excitedly explain that he had cellulitis in his thigh and scars “so big, it was unbelievable, man.” He then tells the viewer that he had gangrene on his foot, and at this point the camera cuts to a shot of Lenny’s leg, revealing several small, red scars. Lenny then declares that “they almost took my foot off.” Next, we see a close-up of Lenny’s arms as he describes and points out scars from several abscesses—four of which, he says, had to be cut off. Lastly, we get a medium-long shot of an expressive Lenny proclaiming, “You can do anything, man, anything on it… I love it!” The spot then cuts to darkness, and the word “Heroin.” reveals itself in white, followed by “Want some?” Again there is a cut to darkness, and “Partnership for a Drug-Free America®” appears centered and in white.
3) “Dixie Chicks” (Celebrity Appeal; see Appendix A)
4) “Rodney” (Fear Appeal) – The present PSA recounts the life of Rodney Harvey, a male model, progressing from a lively, clean-cut, drug-free young man to his death as a harrowed heroin addict. During the ad, several pictures of Rodney are shown, each presented along with the sound of a still-image film camera aperture clicking, while a close friend repeats “Rodney…on heroin.” The commercial begins with a medium-close black-and-white modeling shot of Rodney, shown from the shoulders up, while a voiceover explains, “This is my friend Rodney.” Next, we see a medium range shot—an L.A. police department mug shot—of a smiling, less attentive Rodney with blood on his face and chest. The voiceover then details “this is my friend Rodney on heroin.” We then move back-and-forth between the original modeling shot and two more mug shots that depict a progressively more distressed Rodney, with the voiceover repeating “Rodney…on heroin” as the photos switch. Three home-made black-and-white shots are then interspersed with the original, and each shows Rodney progressively more “wigged-out.” The voiceover repeats until finally, when we see Rodney passed out with a band around his arm (indicative of “shooting up”), the voiceover explains “that was my friend…Rodney.” The commercial then fades to black, and the words “Rodney Harvey” and “July 31, 1967 - April 11, 1998” appear in white. Again there is a cut to darkness, and “Partnership for a Drug-Free America®” appears centered in white.
5) “Stealing our Music” (Celebrity Appeal) – This ad focuses on several feverishly-cut shots of young adults having fun while listening to music, and it ends by presenting photos of three rock musicians—Shannon Hoon of Blind Melon, Hillel Slovak of Red Hot Chili Peppers, and Brad Nowell of Sublime—who have died from drug overdose. Throughout the spot there is a blaring rock music soundtrack. As the commercial begins, we see shots of adolescents riding in cars, dancing, watching TV while listening to headphones, and “hanging out.” Most of the images are taken from changing, obtuse angles, and some of them are tinted with bright hues, while others are not. Toward the end of these shots, a voiceover explains “This is what music does to people…” Next, broadcast static is cut in followed by a cut to black. Then, black-and-white pictures of each of the rock stars are shown in progression in the middle of the screen with a black matte. Broadcast static marks the switch from one star to the next, and below each picture are the star’s name, musical group, and birth and death years. As the musicians are displayed, the voiceover proclaims “…and this is what drugs do to music.” Next, there is a cut to black, and the words “Partnership for a Drug-Free America®” appears centered in white, with the logo and words “Musicians Assistance Program” in white below.
6) “What would make you” (Fear Appeal) – The last of the PSAs shows several stop-motion shots of common nostalgic moments in young adults’ lives which are presented with the cameras points-of-view rotating around each subject. During each shot, we hear a faint version of image-relevant sounds such as laughter, and various announcers’ voiceovers ask questions, all of which begin with “What would make you…” First, we see a young woman brushing her hair while seated at her bedroom dressing table, and a female voiceover asks, “What would make you pick your skin until it scarred?” Next, we are shown three subjects, two male and one female, lofting their trenchers in the air at a graduation ceremony while a male voiceover asks, “What would make you rob a convenience store?” We are then shown a youth descending a staircase, and she is looking at her father, who is at the bottom holding a camera. A female voiceover then poses, “What would make you so paranoid you never left your room?” Fourth, a young female-male couple is shown smiling at one another inside a car, with the male driving and the female drinking an ICETM. As the shot evolves, a male voiceover interrogates “What would make you rape someone you love?” We are next shown two young male friends “slapping five” and laughing to one another. For this, a male voiceover asks, “What would make you shoot your best friend?” Lastly, we see a young child riding on one end of a double-swing, and we begin to hear the eerie sound of a swing slowly rocking. A male voiceover asks “What would make you abuse your own child?” The spot then cuts to black, and a male voiceover poses “What would make you try crystal meth?” while the words appear on the screen centered in white. As the commercial ends, there is another cut to black, and “Partnership for a Drug-Free America®” appears centered in white.
PRIMING, REPETITION, AND THE EFFECTS OF MULTIPLE MESSAGES ON PERCEPTIONS OF A POLITICAL CANDIDATE

MARK CISTULLI AND LESLIE B. SNYDER

The purpose of this pilot study is to understand priming effects in the context of multiple, consistent news and advertising messages by contrasting priming and message repetition. We conducted an experiment comparing the effects of exposure to a priming article about the importance of leadership traits followed by viewing an advertisement for a particular candidate with the effects of seeing the ad twice (the repetition condition) or just seeing the ad once (the ad control condition). Participants (N=386) were undergraduate students. The results showed that the priming plus ad condition and the repetition condition had similar positive effects on dynamism, competence, trustworthiness, liking, and attitude toward the ad. The effects on intention to vote for the candidate were weaker. No differences were found between the prime and repetition groups and their effects on the outcome variables. The results suggest that when multiple, consistent political messages are involved, priming effects operate similarly to repetition effects.

Keywords: media priming, repetition, political advertising, public relations, repetition

In our daily lives, we are bombarded by messages coming from all forms of media – newspapers, magazines, television and the Internet are all channels through which we obtain information and, at times, come to judgments on certain topics and issues. Through these various channels of communication, advertisers attempt to persuade the target audience to

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consider their products or services and ultimately buy what they are selling. In the same spirit, political candidates attempt to reach a constituency and persuade them to vote based on certain issues or characteristics associated with the candidate. However, little is known about the combined effects of news and advertising messages on candidate judgments, despite an abundance of information on the effects of advertising on public attitudes, intentions and behaviors. The present research attempts to understand priming effects in the context of multiple, consistent messages by comparing priming and repetition effects.

**PRIMING**

Priming the audience with a particular message can ultimately affect their attitudes and behaviors. The premise of the priming effect is that an initial communication, the prime, sets up a certain way of thinking that affects subsequent interpretations or evaluations. Priming is defined as a “process by which activated mental constructs can influence how individuals evaluate other concepts or ideas” (Domke, Shah, & Wackman, 1998). Priming draws attention to some aspect of life (Iyengar & Kinder, 1987). For mediated messages, a priming effect refers to the effect of the content of the media on people’s subsequent behaviors or judgments related to that original content (Roskos-Ewoldsen, Roskos-Ewoldsen, & Carpenter, 2002).

Priming effects have been found across a range of content areas. Iyengar, Peters, & Kinder (1982) found that when primed by a newscast, viewers became more concerned by the issue to which they were exposed. Priming voters with articles framed in moral and ethical terms influenced their evaluation of candidates’ integrity and ethical performance (Domke, et al., 1998). In a priming study of racial attitudes and stereotypes, media coverage of minority crime suspects reinforced existing views of stereotypes in viewers (Valentino, 1999). Boys’ aggression increased after being primed by a violent television show, as compared to a control group (Josephson, 1987). This is consistent with studies by Krcmar & Curtis (2003) that showed that violent stories can prime small children. Business students primed with information about stress related to getting a Masters in Business Administration reported more stress than those who were not primed (Moss & Lawrence, 1997). Teens primed with either pro-smoking ads or anti-smoking public service announcements (PSA) exhibited stereotypes about smokers in the direction advocated by the ad or PSA content (Pechmann & Knight, 2002).

The direction or other information in the content of the message is often termed the frame of the message. Framing is the selection of some aspects of perceived reality to make them “more salient in a communicating text, in such a way as to promote a particular problem, definition, causal interpretation, moral evaluation, and or treatment for the item described” (Entman, 1993). From the standpoint of the audience, framing calls to attention particular aspects of the reality described, activating certain ideas and judgments in the mind.
of the public, and not others (Cappella & Jamieson, 1997; Kahneman & Tversky, 1984; Sniderman, Brody, & Tetlock, 1991). The positive frame for smoking in cigarette ads primed teens in the Pechmann & Knight (2002) study toward viewing smoking in a positive way. Consistent with Deighton’s (1984) and Pechmann’s (2001) two-step model of advertising effects, in step one, the participant was primed by a video-based ad promoting cigarette consumption. In step two, participants exposed to the prime sought out favorable information about peers they saw smoking (Pechmann & Knight, 2002).

**MULTIPLE MESSAGES AND REPETITION EFFECTS**

One limit of the priming literature to date is that it has not dealt with the possibility of multiple messages in multiple formats. For example, if a person is primed with a corporate ad for a company, how will this affect interpretation of subsequent news stories about corporate malfeasance? It is easy to apply the priming approach to anticipate the effects of multiple messages—the first message has the potential to frame the issue in a particular manner, thus orienting the person to interpret the second message in a manner consistent with the frame in the first message. Focusing on the case of consistent messages, will the first priming message enhance the effectiveness of the subsequent message? Or, will the two messages merely have the same effect as viewing the second message alone would have had?

Potential insights into the effects of multiple, consistent messages can be gained from examining the literature in advertising on repetition effects. For example, participants liked an ad more after repeated exposure to it (Moorthy & Hawkins, 2003). Multiple exposures to an ad are seen as increasing familiarity with the brand, leading consumers to increase their positive association with the brand (Sawyer, 1981; Wilson, 1979; Zajonc, 1980). People generally like familiar people, objects, and products more than they like unfamiliar subjects (Bettinghaus & Cody, 1994). In addition to increasing familiarity, repetition provides a better opportunity to learn about a message (Bettinghaus & Cody, 1994).

Thus, it may be that multiple, consistent messages work through increased familiarity to increase liking of the object of the message, as with repetition effects. Or, following a priming explanation, it may be that a prime framed in a particular way sets up certain evaluative criteria consistent with the frame, and enhances the effectiveness of a subsequent message beyond what would happen from mere repetition. In the Pechmann and Knight (2002) study, participants saw multiple ads of the same type within each condition, so some of the effect may have been due to repetition. According to Heeler (1972), repetition of similar but non-identical advertisements can be more effective than repetition of the same ads. In the same way, perhaps viewing a prime prior to viewing an ad is more effective than seeing the same ad twice.
The present research seeks to understand priming effects in the context of multiple, consistent messages by comparing priming to repetition effects. The content area chosen for the study is political evaluations, which have previously received a lot of attention in the priming literature (e.g. Capella & Jamieson, 1998; Domke et al., 1994; Entman, 1993; Iyengar & Kinder, 1987; Sniderman et al., 1987). As with Domke, et al. (1994), we focus on judgments about candidates and subsequent voting decisions.

Information processing theory suggests that important aspects of evaluations of a leader include the traditional dimensions of source credibility (competence and trust), as well as aspects of charisma, including dynamism and liking the source (Hamilton & Hunter, 1998; Hovland, 1957). Other research on presidential leadership has shown that individuals seek intelligence, “optimistic resilience,” an active disposition, and flexibility in their presidential candidates (Goethals, 2005). Such attributes are reflected in the dimensions of source credibility. We expect to find priming and repetition effects on competence, trust, dynamism, liking, and leadership assessments.

Within the field of marketing, ads are seen as having an effect on brand attitudes by creating positive attitudes toward the ad itself (Lutz, Mackenzie & Belch, 1986). In the case of political ads, the candidate is the “brand.” As a precursor to changes in brand attitudes, attitudes toward the ad may be more sensitive to both priming and repetition effects than to opinions about the candidate. Therefore, we expect to find priming and repetition effects on attitudes toward the ad.

The final outcome variable we examined was voting intentions. Most researchers in the field of political communication hold that in the right context, political communication can influence voting behavior (Goldstein & Freedman, 2002). For example, in the 1992 campaign season, the “Rock the Vote” Public Service Announcements (PSAs) were seen at almost every commercial break on MTV (Tindell & Medhurst, 1998), and voter turnout of the targeted 18 to 24 year olds increased from 36% to 43% (Jennings, 1992). It is possible that the repetition of the PSAs helped change voter behavior. In the current study, we examine the effect of priming and repetition on voting intentions, as a proxy for voting behavior. Note that it is quite possible that the limited amount of communication during the study about a previously unknown candidate may not be enough to influence behavioral intentions, which, according to information processing theory, are harder to impact than beliefs and attitudes (McGuire, 1984). Although it may be more modest than the other relationships, we hypothesize that there will be a positive relationship between priming and repetition and voting intentions.
HYPOTHESES AND RESEARCH QUESTION

In summary, we test the following hypotheses and research questions:

H1: Exposure to the prime and ad will have a positive effect on respondents’ (a) perceptions of the candidate’s dynamism, (b) perceptions of the candidate’s competence, (c) perceptions of the candidate’s trustworthiness, (d) perceptions of the candidate’s liking, (e) candidate leadership rating, (f) attitude toward the ad, and (g) intention to vote for the candidate.

H2: Exposure to repeated television advertisements will positively affect the respondent’s (a) perceptions of dynamism, (b) perceptions of competence, (c) perceptions of liking the candidate, (d) candidate leadership rating, (e) attitude toward the ad, and (f) intention to vote for the candidate.

RQ1: Is there a significant difference between the prime and the repetition groups and their relationship to the source characteristics, leadership rating, attitude toward the ad, and voting intention?

METHOD

Participants

Participants (N=387) were undergraduate students. They received extra credit for their participation. The sample was 58% women, with a mean age of 19.7 years. To estimate power, we used a study by Moorman, Neijens & Smit (2002) on the effects of magazine ads used as primes on involvement ($R^2 = .17$), positive feelings ($R^2 = .26$) and negative feelings ($R^2 = .17$). Based on these figures, we required an N of 152, (one-tailed, $p < .05$).

Materials

There were two stimuli used in this experiment. The first was a fictional news article that described the importance of leadership perceptions of voting behavior. The article contained the statement, “70% of voters believe that leadership is an important quality for a political candidate, however only 7% use it as the primary criteria for whom they will vote for.” The claim was designed to prime the reader to pay attention to leadership qualities, yet at the same time not give information about a particular candidate.

The second stimulus was a 30-second television political ad of a federal-level candidate running for office. The ad was originally aired in another state, and contained no references to the state to avoid any familiarity of the subject. The ad contained the only
information that participants had about the candidate. The main focus of the advertisement was the leadership qualities of the candidate. In fact, the leadership qualities of the news article described above were derived from the television ad itself to maintain message consistency.

**Design and Procedure**

There were two experimental groups and one control group. In the prime plus ad condition, participants read the article immediately prior to watching the ad ($n = 105$). In the ad repetition condition, participants saw the same ad twice ($n = 148$). In the ad control condition, participants saw the ad once ($n = 133$). Note that all participants saw the ad at least once.

All participants completed a questionnaire after viewing the ads. All scales had a range of seven and had a middle point of four, indicating a neutral evaluation of each of the characteristics, and voting intention. Therefore, a “five” rating on a scale would suggest a modest positive evaluation.

Each session lasted approximately 15 minutes. The experiment took place in classrooms equipped with video monitors. To assure confidentiality, students placed the completed survey in unmarked envelopes and labeled them with their individual identification numbers.

**Measures**

*Source characteristics of the candidate.* Participants rated the candidate’s credibility using semantic differential items from the charisma sequence of information processing theory (Hamilton & Hunter, 1998). The four scales were: *dynamism* (7-item, $\alpha = .83$, $p < .001$), *competence* (7-item, $\alpha = .84$, $p < .001$), *trustworthiness* (6-item, $\alpha = .87$, $p < .02$), and *liking* (8-item, $\alpha = .90$, $p < .001$). The participants were asked, “Please evaluate the candidate in the advertisement,” followed by the semantic differential items. The seven items for dynamism were: dynamic/inactive, dull/charismatic, controlled/expressive, exciting/boring, fun/tedious, calming/stimulating and arousing/monotonous. The seven competence items were: rational/irrational, competent/incompetent, unscholarly/scholarly, inept/capable, educated/uneducated, knowledgeable/ignorant, and unskilled/skilled. The six trustworthiness items were: disreputable/reputable, deceitful/believable, trustworthy/untrustworthy, unselfish/selfish, honest/dishonest, and reliable/unreliable. The eight liking items were: pleasant/unpleasant, unfriendly/friendly, unsociable/sociable, awful/nice, gloomy/cheerful, contemptible/admirable, dislikable/likable, and cruel/kind.
Candidate leadership rating. Five 7-point Likert items comprised an additive leadership scale ($\alpha = .83, p < .05$). The items, slightly modified from Goldberg (1999) were: “The candidate in the ad is captivating,” “The candidate in the ad expresses himself easily,” “The candidate in the ad would be the first to act in a tough situation,” “The candidate in the ad would take charge in a tough situation,” “The candidate in the ad would not be at a loss for words.” It has been argued that expressiveness and ease of communication are important indicators of leadership by Boone and Buck (2003) and Buck and Vieira (2002). In his extroversion component of source credibility scales, McCroskey (1974) has used variations of expressiveness and ease of verbal communication. It can be argued therefore, that “expressive” and “not at a loss for words” are items important in evaluating the leadership qualities of a candidate. For example, Barack Obama is widely viewed as an expressive and communicative leader.

Attitude toward the ad. We used a ten-item scale ($\alpha = .94, p < .05$) developed by Donthu (1998) to measure attitude toward the ad. The items were presented to participants as a Likert scale ranging from 1 (strongly agree) to 7 (strongly disagree). The question read: “To me, the advertisement I just saw was ______.” The items were: unpleasant, vulgar, unlikable, boring, tasteless, bad, inferior, unenjoyable, unattractive, and worthless.

Voting intention. Participants’ intentions to vote for the candidate was measured by asking them the following questions using three, seven-point Likert items: “How likely is it that you would vote for this candidate?” “How likely is it you would consider voting for this candidate?” “How likely is it you would tell a friend to vote for this candidate?” The items, which were developed for the study, were reliable ($\alpha = .88, p < .05$).

Analysis Strategy

The charisma sequence scales were assessed using confirmatory factor analysis (Table 1). The attitude toward the ad, liking, leadership, and voting intention scales were also factor analyzed and each produced a single factor. For hypotheses one and two, we conducted a series of regressions to determine the effect of the prime and repetition on source characteristics and voting intention. Two dummy variables represented the three conditions in the experiment. The first was the effect of viewing the prime before viewing the ad versus not viewing the prime. The second was the effect of viewing the repeated ad versus not viewing the repeated ad. Partial correlations were used to compare the independent effects of the prime and repetition groups compared to the ad control group (Cohen, Cohen, West & Aiken, 2003). The Analyses of Variance (ANOVAs) were run to compare differences between the experimental groups.
RESULTS

The first hypothesis predicted that the prime would have a positive effect on (a) dynamism, (b) competence, (c) trustworthiness, (d) liking, (e) candidate leadership ratings, (f) attitude toward the ad, and (g) voting intentions. The group means for each condition are presented in Table 2, and the regression results are in Table 3. The partial correlations provide the best measure of the effect size of the prime plus ad condition compared to the ad control group. We found that the prime plus ad condition had a positive effect on dynamism (see Table 2; \( pr = .23, p < .001 \)). Similarly, the prime plus ad condition had a
significant positive effect on competence ($pr = .12, p < .05$), trustworthiness ($pr = .25, p < .001$), liking of the candidate ($pr = .27, p < .001$), and attitude toward the ad ($pr = .26, p < .001$). However, hypotheses H1e and H1g were not supported. The prime plus advertisement condition did not have a significant positive effect on voting intention ($pr = .08, p > .05$), or candidate leadership rating ($pr = .06, p > .05$). The strongest priming effects were on liking, attitude toward the ad, trustworthiness, and dynamism.

The second hypothesis predicted that the repetition condition -- exposure to the same ad two times -- would have a positive effect on the same outcomes. The regression analysis found that the repetition condition had significant positive effects on dynamism ($pr = .19, p < .001$), competence ($pr = .12, p < .02$), trustworthiness ($pr = .21, p < .001$), liking ($pr = .20, p < .001$), candidate leadership rating ($pr = .10, p < .05$) attitude toward the ad ($pr = .26, p < .001$), and voting intention ($pr = .10, p < .05$). As with the priming effects, the strongest repetition effects were on liking, attitude toward the ad, trustworthiness, and dynamism.

Finally, to answer RQ1, we explored the extent to which the prime plus ad condition differed from the ad repetition condition. Was viewing a prime about leadership similar to viewing another ad? A one-way ANOVA showed a significant difference across the three experimental groups for dynamism, $F (2, 364) = 12.22, p < .05$, competence, $F (2, 364) = 3.87$, trustworthiness, $F (2, 364) = 14.74, p < .05$, liking, $F (2, 364) = 16.10, p < .05$, and attitude toward the ad, $F (2, 364) = 18.72, p < .05$. A one-way ANOVA did not show a significant difference across the three groups for voting intention, $F (2, 364) = 2.28, p = .103$, and leadership $F (2, 364) = 1.96, p = .142$. Tukey post-hoc comparisons were run to show the differences of the variables between each experimental group (see Appendix, Table 3). Also, note that candidate leadership rating correlated highly with dynamism ($r = .62, p < .01$), competence ($r = .59, p < .001$), trustworthiness ($r = .56, p < .001$), liking ($r =
DISCUSSION

This pilot study examined priming in the case of multiple, consistent messages. In particular, we studied the impact of priming people to notice leadership qualities of a political candidate prior to viewing a political ad, as compared to the effect of viewing the ad either once or twice. We found that both the priming and the repetition condition had a similar magnitude of effects on evaluations of the ad and of characteristics of the political candidate over and above a single viewing of the ad.

The results seem to suggest that part of what may be happening in a priming effect when multiple messages are involved is similar to a repetition effect. It may be that the strength of the cognitive association made when viewing an ad twice is similar to that of viewing an ad once after having been set up to pay greater attention to certain priming content. In this case, the prime emphasized the importance of leadership traits, while the ad associated the particular candidate with leadership. It may also be that priming sets up the subsequent ad viewing to increase the memorability of the ad, and therefore has an impact on familiarity. The repetition literature has assumed that repeated viewing of an ad has an increased effect on brand liking through increasing brand familiarity. Future research could directly measure familiarity.

Note: *p < .05, **p < .01, ***p < .001
We also found that viewing the ad twice increased respondents’ intentions to vote for the candidate over viewing the ad once and increased the ratings of the candidate’s leadership abilities, while priming affected neither in a statistically significant way. The differences in the effect sizes were very small, however, and should be replicated before relying on these findings.

Looking at the effect sizes, we note that the perceptions of leadership qualities of the candidate showed a much smaller effect than did source credibility. Given that the news story used as a prime was about the importance of leadership in voting decisions, we expected the prime to have a greater impact on candidate leadership assessment than it did. In fact, assessments of liking the candidate, trustworthiness, dynamism, and attitude toward the ad were much more impacted by exposure to the prime – and, to only a slightly less extent, by repetition – than were leadership perceptions. The prime’s effect on leadership was closer to the prime’s effect on competence. Or it is possible that the ad only weakly affected competence and overall leadership ratings, and neither repetition of the ad nor priming with a news story about leadership increased the ratings.

Consistent with information processing theory (McGuire, 1981), the impact of either the prime or the repeated ad on voting intentions was much smaller than effects on attitudes toward the ad and toward the candidate. As in other domains, behavioral intentions are more difficult to impact than attitudes and beliefs.

The study begins to address a need in the literature to understand the effects of people receiving messages via multiple formats and channels. As in the real world, where many individuals are exposed to both news and ads in newspapers and electronic media, the participants in the study read a news story and viewed TV ads. The present research only examined the effects of consistent messages; it is expected that inconsistent messages between a prime and an ad would yield very different results. The study used only one prime and one ad, and should be replicated with other messages. In addition, the study population was limited to college students.

Future research could consider other pairings of formats and channels, such as using a PSA as a prime and education/entertainment program as the message. How similar do a prime and a message need to be, in order to have an increased effect over simply viewing the message once? Are there conditions under which a prime plus a message outperforms a repetition effect? It would be beneficial for future research to examine the priming and repetition effects over time.
REFERENCES


THE IMPACT OF MOOD AND STORY FRAME ON ASSOCIATIVE NETWORKS

MICHEL M. HAIGH, PAMELA JO BRUBAKER, AND AARON HERESCO

This study examines how mood (positive or negative) and story frame (episodic or thematic) impact individuals’ associative networks (nodes and strength). An experiment (N = 175) found individuals’ associative networks changed after reading news stories. Those in a positive mood process news stories with an episodic frame heuristically and rely on information already known instead of gaining new information from the news story. They have fewer nodes and a weaker associative network weight. Participants in a negative mood process information more systematically and rely on the information available in the news story. Participants in a negative mood deem news stories more credible than those in a positive mood regardless of story frame.

Keywords: mood, episodic/thematic frames, associative networks, newspaper stories

Individuals wake up in a positive or negative mood. State of being impacts thinking (Bless, 2001), memory (Ellis & Moore, 1999), perceptions of others (Forgas & Bower, 1987), perceptions of self (Sedikides & Green, 2001), judgments of political candidates (Ottati & Isbell, 1996), and consumer products (Adval, 1996). Moods impact cognition and everyday decisions (Robert et al., 2000). People regulate their moods by using media to gratify cognitive or affective needs (McQuail, 1984). Therefore, it is reasonable to propose that moods influence processing of news.

There is limited research examining mood and its impact on processing of print news stories (e.g., Biswas, Riffe, & Zillmann, 1994). People “do not often think of news in emotional terms” (Sundar, 2003, p. 275). This study examines how mood (positive or
negative) and story frame (episodic or thematic) impact individuals’ associative networks about societal issues. Moods and affect will be defined before explaining the role of media framing in cognition. Finally, cognitive structures or associative networks will be explained to provide a better understanding of how cognition is assessed.

**LITERATURE REVIEW**

**Mood, Affect, and Processing**

Moods are “low intensity, diffuse, and enduring affective states that have no salient antecedent cause and therefore little cognitive content” (Forgas, 2001a, p. 6). Emotions are intense, accessible, short-lived, have a salient cause, and cognitive content (Forgas, 2001a). Emotions can be grouped as having positive (happiness, joy, pleasure) or negative (sadness, anger, fear) valences (Forgas, 2006). Moods have little cognitive content and no antecedent, whereas emotions do. The term affect includes both mood and emotion (Forgas et al., 2006).

Affect impacts the selection and retrieval of information and how individuals use knowledge in cognitive tasks (Forgas, 2001a). Affective influences on cognition take on either a direct (affect-as-information mechanisms) or indirect (affect priming mechanisms) role in how information is processed. Research indicates individuals use systematic processing during bad mood conditions and heuristic processing during good moods (Schwarz & Clore, 1988). Individuals in a negative affective state focus their attention more on details, and individuals in a good mood rely on general knowledge and pay less attention to details (Schwarz, 2001). Happy people are not necessarily “cognitively lazy” but sad people are more “motivated” to pay attention to details (Schwarz, 2001, p. 164).

The mood-as-information model (Clore, Gasper, & Garvin, 2001) states individuals’ moods provide information they use to make judgments (Lang, 2000; Martin, 2001; Schwarz, 2001; Schwarz & Clore, 1996). This is also known as affect-as-information (Clore et al., 2001) or feeling-as-information (Schwarz, 2001). There are four strategies individuals employ when affect influences information processing. **Direct access** processing is performed when the task is familiar and strong cognitive, affective, and motivational cues are absent. The **motivational** processing strategy occurs when a specific motivational object triggers individuals to search for specific information (Forgas, 2001b). **Heuristic** processing is utilized when hasty, impromptu judgments need to be made (Forgas, 2001b; Schwarz & Clore, 1988) and when the task requires limited cognitive elaboration (Forgas, 2001b). **Substantive** processing requires the most effort because it includes the discovery, selection, and interpretation of novel information. This type of processing occurs when a task is new; the individuals have the ability to process, and the situation calls for elaborative processing (Forgas, 2001b; see Forgas & Bower, 1987). As a result, affect primes thoughts, ideas, memories, and interpretations (Forgas, 2001b). Mood influences how internal knowledge...
is employed (Gasper & Clore, 2002). Individuals in a positive mood may rely heavily on news previously read about the topic and use the heuristic process when reading new stories. Individuals in a negative mood may rely heavily on information available in the news stories and rely less on previous knowledge, using the substantive process. Mood effects information processing (Bless, 2000).

**Framing**

Media frames impact individuals’ information processing (Capella & Jamieson, 1997; Iyengar, 1991; Shah, Domke, & Wackman, 1996). Previous research on framing and information processing has been conducted in the health communication area (Levin & Chapman, 1983; Meyerowitz, Wilson, & Chaiken, 1991; Block & Keller, 1995). These studies examine gain/loss frames. Results indicate when people process information systematically, information presented in loss frames seems worse than information in gain frames (Keller, Lipkus, & Rimer, 2003). Or rather, the topic being discussed seems more severe in a story employing a loss frame rather than a gain frame. Framing occurs when certain aspects of a topic are made more salient (Entman, 1993). There are many different types of frames, including gain or loss, causal or treatment, and episodic or thematic.

According to Iyenger (1991) “episodic framing depicts concrete events that illustrate issues,” whereas, “thematic framing presents collective or general evidence” about issues (p. 14). Thematic frames provide more evidence, depict the issue more broadly, and place them in a context – historical, geographical, or otherwise, and are often considered backgrounders. On the other hand, episodic frames are based on illustrative examples. They are comprised of “concrete instances.” Most stories contain aspects of both types of frames.

News activates ideas and feelings (Price et al., 1997). Pan and Kosicki (1993) and Price and Tewksbury (1997) found evidence that media frames activate various thoughts in audience members. Framing effects depend on how accessible the idea is to an individual (Iyengar, 1991). Price and Tewksbury (1997) found frames alter how knowledge is stored in memory as well as how the knowledge is activated. Frames also activate different concepts, ideas, and feelings (Eveland & Seo, 2007).

The mood-maintenance/mood-repair model indicates individuals use information to stay in a positive mood or get out of a negative mood (Schaller & Cialdini, 1990). Gain frames are more persuasive than loss frames (Keller et al., 2003). Individuals in positive moods want to process uplifting messages (Wegener & Petty, 1994). Happy people are more persuaded by gain frames (Wegener, Petty, & Klein, 1994). People in a happy mood will be influenced by information in a loss frame if the information discussed directly impacts them (Isen & Geva, 1987; Isen, Nygren & Ashby, 1988). Mood interacts with message frames. Previous research does not examine mood and episodic/thematic frames. If differences exist for gain/loss frames, there should be differences for stories employing episodic/thematic
frames. This study examines how mood interacts with episodic/thematic frames and individuals’ knowledge networks.

**Associative Networks**

Associative network mechanisms have been widely used within social psychology to explore a variety of topics including recall (e.g., Cohen, 1981; Stangor & McMillan, 1992) and affect (e.g., Bower & Mayer, 1985; Smith, 1998; Singer & Salovey, 1988). The associative network idea has also been examined in mass communication (e.g., Price & Tewksbury, 1997; Shaw et al., 2004).

Associative networks are spider-like structures in individuals’ memory (Collins & Loftus, 1975; Smith, 1998). These structures are made up of nodes connected by links. *Nodes* are the individual concepts by which a single object is represented (Smith, 1998). If an individual encounters a concept not accounted for by a node, a new node will be created (Smith, 1998). The networks are comprised of affective and cognitive nodes (Anderson, 1983; Clore, Schwarz, & Conway, 1994; Fazio, 1986; Smith, 1998; Wyer & Carlston, 1994). The activation of an associative network starts with a target node and spreads to related nodes (Anderson, 1983). The target node activated can be cognitive or affective. The same process occurs for both types of nodes when activated (Bower, 1981).

The links connecting nodes have varying levels of strength that indicate the importance the individual ascribes to the linked nodes. This is known as associative network strength (Smith, 1998; Wyer & Carlston, 1994).

There are several information-processing models (e.g., energy cell models or memory bin models, see Higgins & King, 1981; Wyer & Srull, 1986, 1989) used to examine associative networks. This study employs the spreading activation model (Collins & Loftus, 1975). This model represents knowledge as a collection of networks in which thought and feelings are linked. Exposure to certain stimuli primes related nodes and then expands or spreads along the associate pathways to other elements in the mental network. This mechanism first links all the nodes closely related to the original node and then spreads to more remote nodes, providing a way to access indirectly associated thoughts or feelings.

This study examines how frames and mood impact associative networks. Reading a newspaper story can prime or add nodes to readers’ associative networks. Readers’ knowledge about a topic should be activated when they read a story, or they could add new information to their network. It is unclear how mood or story frame would affect the processing of news stories.

Stories employed in this study have either an episodic or thematic frame (Iyengar, 1991). The dominant frame of a news story should activate (or prime) thoughts and feelings in individuals’ associative networks. For example, a thematic story on Mad Cow Disease can prime cognitive nodes in one’s associative network because of background information
in the story. If a person reads a story with a dominant episodic frame (i.e., a day in the life of a holiday shopper who is altering their Christmas dinner plans), this may prime more affective nodes in the individual’s associative network or bolster the affective network weight. Individuals can alter their associative networks by learning or reading information (Pfau et al., 2005). Because individuals are exposed to new or repetitive information when reading a news story, their associative networks should be altered after reading the story. This study predicts:

H1: Reading news stories enhances the number and associative network weight about content covered in stories.

This study adds to the literature by examining how mood impacts information processing of news stories. Prior research suggests individuals in positive moods process things heuristically while people in negative moods process information systematically (Bless, 2001; Bless, Bohner, Schwarz & Strack, 1990; Chaiken, 1980). When individuals are in a positive mood, they process information heuristically using a top-down approach. They take existing knowledge about a topic and use it to understand the current message (Bless, 2001) and rely on abstract knowledge structures (Bless, & Fiedler, 2006; Forgas, 2006). Individuals in a negative mood will use a bottom-up approach and use message cues to understand the information presented (Bless, 2001). They use concrete, external information (Bless & Fiedler, 2006; Forgas, 2006).

Because people in a positive mood think more quickly by using heuristics, they might process information in episodically framed stories differently than those in a negative mood. Episodic stories tend to elicit more emotion discussing concrete instances without background details (Iyengar, 1991). Thematic stories should appeal more to those in a negative mood because they provide context and background. One could argue thematic stories are processed more systematically than episodic stories because of content. These differences can be examined by looking at individuals’ associative networks. Those in a positive mood reading an episodic story might have a larger affective associative network (number of affective nodes). Those in a negative mood reading thematically framed stories might have a larger cognitive associative network (more cognitive nodes). Also, those in a positive mood might not activate an associative network because they don’t want to process the information or get bogged down in the details compared to those in a negative mood.

Motivation is one factor influencing message processing, but there are additional mechanisms at work as well (Fiedler, 2001). One mechanism might be message frame. The associative network weight may also differ based on moods. The network strength is the importance of the thoughts or feelings to the individual. Those in a positive mood may not have a strong, associative network strength because they are not activating all the thoughts and ideas in the network, whereas those in a negative mood activate all the thoughts and
feelings in the network. Therefore, the strength of the associative network will vary based on an individual’s mood. This study posits:

**H2:** People’s moods affect how a news story frames influence their associative networks.

For people in a positive mood (compared to those in a negative mood), thematic and episodic news frames elicit fewer nodes and weaker network strengths.

Framing effects also depend on how credible the news source is (Druckman, 2001). Druckman’s study examined sources used in the article. The current study explores how perception of credibility changes based on mood and frame. It examines credibility of the news report instead of credibility of the news source. Kiousis (2001) argues that perceived credibility is a function of both source and channel characteristics. However, the channel credibility can drive opinion of source credibility, or the credibility of the source can drive channel credibility (Kiousis, 2001). It is unclear how credibility is impacted by story frame or mood. If individuals in a negative mood process information more systematically, their perceptions of credibility could differ from those in a positive mood. Positive mood individuals might not be concerned with the credibility of the news report because they are processing information heuristically. There is limited research examining the impact that mood and or frame have on perception of credibility (not the source). This study posits:

**H3:** Regardless of story frame, people manifesting negative (as opposed to positive) moods rate news stories more credible.

**METHODOLOGY**

This investigation compares the influence of mood (positive/negative) and frame (episodic/thematic) on associative networks.

**Participants**

Participants were recruited from introductory communication classes at an eastern university. A total of $N = 175$ participants (31 males, 144 females; average age = 20) completed the study in one phase.

**Procedures**

Participants were randomly assigned to one of four conditions (*positive mood episodic condition, positive mood thematic condition, negative mood thematic condition, or negative mood episodic condition*).
After participants had been randomly assigned to conditions, participants completed one pre-concept map for each topic (Terri Schiavo and Mad Cow Disease). After completing the pre-concept maps, students’ moods were manipulated using the Life Event Inventory (Bless et al., 1996; Forgas, 1999). Students were asked to recall a life event that made them feel positively or negatively (depending on condition) and discuss the event in detail. They then answered a few questions asking about their current mood. After the students completed the mood questionnaire, they read two stories with an episodic frame or two stories with a thematic frame (depending on condition). Each participant read a story about Mad Cow Disease and then drew a post-concept map. They then read a story about Terri Schiavo and drew a post-concept map. After reading the stories and drawing the post-concept maps, participants answered demographic information and credibility items.

**Independent Measures**

**Story frame.** A total of eight stories (four thematic and four episodic) were used as a way to control threats to validity (Jackson, 1992). The stories included similar information, but the information was framed differently. Independent coders on two different projects had coded articles as having a thematic or episodic frame (all intercoder reliabilities were above .80). The topics used, Terri Schiavo and Mad Cow Disease, had not been in the news for more than a year. Stories were selected from *The New York Times* or *The Washington Post*. Editing the stories controlled word count. Word count ranged from 780-782 words.

The stories employed had an episodic or thematic frame. Episodic stories about Mad Cow Disease discussed if consumers would purchase beef for their Holiday dinner. The information in each of the episodic stories was similar. Thematic stories about Mad Cow Disease discussed the history of Bovine Spongiform Encephalopathy (BSE) and the system in place to test beef.

Episodic stories about Terri Schiavo discussed a timeline of her last moments with her family prior to being taken off life support. Thematic stories about Terri Schiavo discussed the impact of the court ruling on her case for future euthanasia cases. The stories all had very similar information available to the reader. The differences were found in the frame (episodic or thematic) and not the information presented.

**Mood.** Students’ moods were manipulated using the Life Event Inventory (Bless et al., 1996; Forgas, 1999). Students were asked to recall a life event that made them feel positive or negatively (depending on condition) and discuss the event in detail. They then answered the question “please indicate how you feel right now.” There were two semantic differential scales stating sad/happy and bad mood/good mood (a = .88) asking about their current mood.
A manipulation check was computed to make sure the mood manipulation was successful. A one-way ANOVA was computed for the independent variable experimental condition and the Life Event Inventory (Bless et al., 1996; Forgas, 1999) items. The ANOVA indicated significant differences in mood, $F(3, 172) = 32.33, p < .001, \eta^2 = .37$. Those in the positive mood episodic ($M = 5.62, SD = .94$) and thematic ($M = 5.21, SD = 1.33$) conditions scored higher on the scale indicating they were feeling happy and in a positive mood compared to those in the negative mood episodic ($M = 3.80, SD = 1.12$) or thematic ($M = 3.61, SD = 1.11$) conditions.

**Dependent Measures**

**Associative Networks.** Associative networks were assessed using concept maps. Novak (1990) introduced the concept mapping procedure in 1970. These maps are used to represent mental structures (Jonassen, Beissner, & Yacci, 1993). Maps consist of nodes and links and capture individuals’ interpretation of a topic (Novak, 1990). Concept maps have been shown to be valid and reliable (Jonassen et al., 1993; Pfau et al., 2005). They also provide an easy way to examine the spreading activation model.

After being assigned to the thematic/episodic and positive/negative mood conditions, participants were given instructions on completing a concept map. This study’s procedures were patterned after Pfau et al. (2005). Participants were told these maps were “to understand what people think AND feel about a topic and how they organize information about a topic.” The concept mapping technique was explained, and an example map on the topic of Spring Break was provided. Nodes in an associative network are represented as a circle. Participants were presented with a page that had one target node. The target node read Mad Cow Disease or Terri Schiavo. The respondents then drew and labeled additional nodes, “which are graphical/textual representation of associative networks” (Pfau et al., 2005, p. 424). Participants were then instructed to complete preliminary (before reading stories) concept maps – one map for each topic. Each thought or feeling was placed in a circle (node). A link was drawn between the nodes if the thoughts or feelings were connected.

Concept maps varied in number of nodes depending on the knowledge in an individual’s associative network. After drawing the nodes (circles) and links (lines connecting thoughts and feelings), participants were asked to assess how strongly they felt about each node in their maps by rating each node on a scale of 1 to 7, where 1 indicated “very weak” and 7 meant “very strong.”

The concept maps were scored using a system Pfau et al. (2005) employed, which was devised by Novak and Gowin (1984). The trained coders first counted the number of nodes to come up with the associative network size. Coders then added up the numbers (1 to 7) participants assigned to their nodes (representing strength of thought or feeling). These
ratings were added up and divided by the total number of nodes to come up with an average of the associative network weight. Coders established a high degree of standardization during the training session. They coded 108 maps (15 percent of the sample) resulting in effective intercoder reliabilities. Employing Rosenthal’s (1984; 1987) formula for interval level data resulted in agreement of .97 for the weights of the associative network/affective network/cognitive network. For the nominal level data, Holsti’s formula (1969) was used to assess intercoder reliability (.92) for number of nodes, number of cognitive nodes, and number of affective nodes.

This study expanded on the study completed by Pfau et al. (2005) by examining feelings in addition to thoughts. After the coders had identified the total number of nodes in an associative network and the average weight of the associative network, the coders then went back and reexamined each node as a thought (cognitive node) or a feeling (affective node). A node was deemed cognitive if the idea in the node was a thinking word. A node was deemed affective if the idea in the node was a feeling (scary, sad, happy, etc.). The cognitive, associative-network weight was assessed by taking the weight of each cognitive node and dividing by the total number of cognitive nodes. The same procedure was repeated for affective nodes and affective associative-network weight.

An ANOVA was run to see if there were differences in associative networks based on story topic. There were no differences for the number of Mad Cow Disease nodes compared to the number of Terri Schiavo nodes, $F(3, 174) = 1.57, p = .199, \eta^2 = .01$, or the Mad Cow weight, $F(3, 159) = .91, p = .436, \eta^2 = .00$, compared to the Terri Schiavo weight. Therefore, the total number of nodes from the Mad Cow Disease concept map was added to the total number of nodes represented in the Terri Schiavo concept map. An additive total was also computed for the total number of cognitive and affective nodes. To compute the overall associative network weights, the ratings from 1 to 7 were added up and then divided by the total number of nodes. This procedure was repeated for the cognitive and affective associative network weights. The procedures for counting nodes and assessing associative network weight were employed for pre-story maps and then again for post-story maps.

Credibility

News credibility was measured using the news credibility scale from Gaziano and McGrath (1986). This is the only scale available to measure credibility of news reports rather than the source. This is a 12-item index using five-point semantic differential scales. Adjective pairs included: is fair/unfair; biased/unbiased; tells the whole story/doesn’t tell the whole story; accurate/inaccurate; invades people’s privacy/respects people’s privacy; watches after the reader’s interest/does not watch after the reader’s interest; is concerned about the community’s well-being/is not concerned about the community’s well-being; separates fact and opinion/does not separate fact and opinion; can be trusted/cannot be
RESULTS

Hypotheses Tests

H1 predicted there would be differences in associative networks after reading stories. To assess this prediction, paired sample t-tests compared pre and post scores on the dependent variables. Table 1 depicts the means and standard deviations for the pre-story/post-story associative network variables and experimental conditions.

There were significant differences in the total number of nodes in a network prior to reading a story compared to after reading a story, \( t(174) = -5.70, p < .001, \eta^2 = .12 \). There were also significant differences when comparing the number of pre-story cognitive nodes and post-story cognitive nodes, \( t(174) = -4.78, p < .001, \eta^2 = .11 \); total number of pre-story affective nodes compared to post-story affective nodes \( t(175) = -2.75, p < .001, \eta^2 = .11 \). No differences were found for the cognitive associative network weight or affective associative network weight. Therefore, individuals had more nodes in their networks after reading stories (\( M = 15.67, SD = 4.92 \)) than they had before reading stories (\( M = 13.24, SD = 5.47 \)). Differences were found for the cognitive and affective parts of the network. They had more cognitive nodes present in their networks after (\( M = 14.47, SD = 5.38 \) ) than before (\( M = 12.39, SD = 5.38 \)) as well as more affective nodes (\( M = 1.24, SD = 1.67 \)) post story compared to pre story (\( M = .87, SD = 1.43 \)). Therefore, H1 was partially supported. Networks changed after reading news stories.

To assess H2 and H3, a MANCOVA was conducted with mood and frame as the independent variables. The dependent variables were: change in number of associative network nodes, change in overall associative network weight, change in number of cognitive nodes, change in number of affective nodes, and the change in cognitive and affective associative network weights. Gender was employed as a covariate because of the large percent of women taking part in this study.

The omnibus test did not depict a significant difference for the covariate gender, Wilks’ \( 1F(7, 140) = .96, p = .63 \), partial \( \eta^2 = .04 \); or the independent variable of story frame, Wilks’ \( 1F(7, 140) = .92, p = .09 \), partial \( \eta^2 = .08 \); or the interaction between the independent variables of mood and frame, Wilks’ \( 1F(7, 140) = .95, p = .35 \), partial \( \eta^2 = .05 \). However, it did depict significant differences for the independent variable mood, Wilks’ \( 1F(7, 140) = .91, p = .05 \), partial \( \eta^2 = .10 \).

Subsequent univariate tests revealed significant differences for the independent variable mood on the dependent variable change in affective associative network weight,
The Impact of Mood and Story Frame

Michel M. Haigh et al.

$F(1, 150) = 4.00, p < .05, h^2 = .02$. Those in a negative mood had stronger associative networks than those in a positive mood. There were also significant differences found for the independent variable story frame on the dependent variable credibility, $F(1, 150) = 7.11, p < .05, h^2 = .02$. The univariate tests also depicted significant mood x frame interaction effects on the dependent variable change in affective nodes, $F(1, 150) = 3.95, p < .05, h^2 = .03$. Those in a positive mood had significantly more affective nodes in their associative networks compared to those in a negative mood, regardless of story frame.

H2 predicted individuals’ moods would determine how story frames impacted associative networks. Positive mood individuals would have fewer nodes and a weaker network than those in a negative mood when reading episodic and thematic stories. The change scores (post story – pre story) were used in the MANCOVA, thus the means presented here are the change scores. The pattern of means partially supports H2. Those in a positive mood reading episodic stories had fewer nodes ($M = 1.31, SD = 7.18$) than those

| Table 1 Experimental Condition and Associative Network Variables Pre-Story/Post-Story |
|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| Positive Mood Episodic | Negative Mood Episodic | Positive Mood Thematic | Negative Mood Thematic |
| $n = 39$ | $n = 47$ | $n = 46$ | $n = 43$ |
| Nodes | 14.67 (7.78) | 13.59 (4.68) | 13.44 (4.97) | 12.09 (3.68) |
| Weight | 4.80 (1.20) | 4.73 (.98) | 4.22 (1.39) | 4.51 (1.29) |
| Cognitive Nodes | 13.86 (7.53) | 12.87 (4.47) | 12.84 (4.99) | 11.26 (3.84) |
| Affective Nodes | 4.00 (2.38) | 2.00 (.00) | 3.50 (2.12) | 3.00 (1.73) |
| Cognitive Weight | 4.75 (1.21) | 4.82 (1.30) | 6.64 (1.30) | 4.29 (1.27) |
| Affective Weight | 4.12 (.21) | 3.50 (.00) | 3.43 (.80) | 4.15 (.65) |
| Post Nodes | 15.08 (5.99)** | 16.77 (5.44)** | 15.48 (3.93)** | 14.81 (4.33)** |
| Post Weight | 4.73 (1.41) | 4.98 (1.00) | 4.60 (1.54) | 4.66 (1.21) |
| Post Cognitive Nodes | 13.97 (5.78)** | 15.62 (5.54)** | 14.59 (3.89)** | 14.33 (4.36)** |
| Post Affective Nodes | 3.71 (1.38)** | 3.00 (1.53)** | 4.17 (2.79)** | 4.00 (0.00)** |
| Post Cognitive Weight | 4.73 (1.42) | 4.95 (0.98) | 4.57 (1.55) | 4.59 (1.19) |
| Post Affective Weight | 6.05 (.53) | 6.61 (.46) | 5.85 (.65) | 5.50 (.00) |

Notes: Means and standard deviations (in parenthesis) are shown for the associative networks before and after reading a news story. The number of nodes is computed by counting nodes present on the concept map. The nodes were than deemed cognitive or affective. The associative network weight was computed by having students rate the thoughts and feelings in each node on a scale of 1 (weak) to 7 (strong) adding these numbers up and dividing by total number of nodes in the network. Only cognitive nodes were used to compute cognitive weight, and affective nodes were used to compute affective weight.

** = $p < .001$ comparing time one to time two
in a negative mood reading episodic stories ($M = 3.34, SD = 5.37$). However, there were no significant differences for those in a positive mood reading thematic stories ($M = 2.23, SD = 4.72$) compared to those in a negative mood reading thematic stories ($M = 2.67, SD = 5.27$). The pattern of means depicts partial support for H2. Those in a positive mood reading episodic stories had a weaker change in associative network weight ($M = .06, SD = 1.21$) than those in a negative mood reading episodic stories ($M = .23, SD = .85$). However, the change in associative network weight was greater for people in a positive mood reading thematic stories ($M = .22, SD = 1.31$) compared to those in a negative mood reading thematic stories ($M = .04, SD = .99$). Therefore, H2 was partially supported.

H3 predicted those in a negative mood would perceive the news stories as more credible when compared to those in a positive mood. Participants in the negative mood thematic condition ($M = 3.26, SD = .37$) indicated higher perceptions of story credibility compared to those in the positive mood thematic condition ($M = 3.09, SD = .62$). Those in a negative mood reading episodic stories ($M = 3.08, SD = .45$) also deemed the story more credible than those in a positive mood reading episodic stories ($M = 2.91, SD = .72$). Those in a negative mood deemed the stories more credible than those in a positive mood. The pattern of means supports H3.

**Discussion**

This experiment was designed to examine how mood and story frame would affect individuals’ associative networks. Previous research has examined mood and broadcast stories (Zillmann, 1994; Schweitzer & Zillmann, 1992) and print photos (Zillmann, Knobloch, & Yu, 2001; Gibson & Zillmann, 2000; Zillmann, Gibson, & Sargent, 1999). This study extended existing scholarship by using print stories.

Results of this study indicate the number of nodes in an associative network change. Specifically, the number of cognitive and affective nodes increased after reading the news stories in this study. The overall associative network weight was strengthened. Regardless of mood, individuals’ produced more thoughts (more nodes) and indicated stronger associative network weights. These findings were consistent with previous research. Pfau et al. (2005) suggest new nodes are added to the network. This study extended the literature by looking at cognitive and affective nodes independently instead of lumping them together. It was among the first studies to examine how mood impacts the information garnered for associative networks. It found individuals’ associative networks change after reading print news stories.

This study also predicted individuals in a positive mood would have fewer associative network nodes and a weaker associative network weight. Results indicate those in a positive mood reading episodic stories have fewer nodes in their network and a weaker network weight when compared to those in a negative mood. This pattern of means confirms
previous research findings that people processing information in a positive mood tend to use heuristics (Bless, 2001; Bless et al., 1990; Chaiken, 1980). Mood did not impact the processing of thematic stories. Those in a negative mood and those in a positive mood had similar changes in their associative networks after reading the thematic news stories. Episodic frames impact associative networks. Episodic stories don’t contain as many strong arguments or information as thematic stories. It seems stories with an episodic frame operate the same as previous research examining gain/loss frames. Those in a positive mood prefer the more personal story appearing in an episodic frame, much like they prefer the gain frame. Those in a negative mood did not learn as much from the episodic stories because there were not enough background facts in the story for them to process. They prefer more concrete facts and figures available in the thematic frame. Happy people prefer to process episodic stories, and sad people prefer to process thematic stories. Happy people would bolster their associative network weight by reading thematic stories. Thematic stories make the network stronger. This indicates that happy people may be relying on previous knowledge, whereas the sad people are relying on the knowledge more available in the news report provided. This idea supports previous research (Gasper & Clore, 2002; Bless, 2000).

These findings can also be interpreted by employing the mood-maintenance/mood-repair model (Schaller & Cialdini, 1990). Those in a positive mood processed the news stories using heuristics and information they may already have had available to them (Bless, 2000) to stay in their positive mood. The negative mood people could not repair their negative mood by reading the thematic stories because they were relying on the information provided in the article rather than information gained previously (Bless, 2000). Previous research in this area has examined gain/loss frames (e.g., Keller et al., 2003). This study is the first to examine mood and episodic/thematic frames.

Those in the negative mood were more likely to judge the stories as credible. Druckman (2001) examined framing effects and credibility of the source. This study examines credibility of the actual story. The pattern of means indicates when people are in a negative mood and processing things more systematically they are more likely to deem the story credible. When people process information systematically, they need the details and the background information available in a thematic news story. If someone in a negative mood reads a news story, they are going to process the information appearing in the story more closely than those in a positive mood processing things heuristically. Perceptions of credibility of the news report will be impacted by mood. This study extends the literature in this area.
LIMITATIONS AND FUTURE DIRECTIONS

This study has its limitations. Participants, most of whom were women, were recruited from an introductory advertising class. This class is open to all students, but there are more women enrolled in this class than men. There were additional men in this condition that were not included in the data analysis. Another condition was employed in this study, and then later omitted. Previous research does not indicate men and women process print news stories differently, although the lack of men is a weakness, it does not impact the results.

This study is also limited by the time it takes to fill out and code concept maps. It is time consuming on the part of the respondent as well as the research assistants to employ this procedure. It provides a detailed representation of an associative network, but using a pre/post map technique is hard for the respondent to accomplish in one sitting, as they did here.

The concept map technique is a cognitive exercise asking individuals to think about feelings. It is unclear how to measure affect in this case of associative networks, and individuals write down feeling words primed or associated as part of their network, but this is probably not the most accurate measure of emotion.

These story topics discussed negative issues facing society. It would be beneficial to see how these results differ for topics that are more positive in nature. Regardless of story frame, these two topics would have negative valences associated with them.

Conducting the experiment in one setting is also limiting. If it had been conducted over a couple days, then there would have been a clearer indication if nodes were added to the network instead of being primed. It is unclear if nodes were added or primed. Conducting it over a period of time would have also provided a longitudinal analysis of associative networks and how they change over time.

This research lends itself to be built and expanded upon. One study could examine associative networks for broadcast news stories. The pre/post networks might vary based on processing of broadcast versus print news stories. These same ideas could be applied in the area of online news as well. It is unclear how mood or story frame influences processing of online news stories. It would also be interesting to see how a story is processed differently across the mediums using a similar frame (episodic/thematic, causal/treatment, or gain/loss). Examining associative networks would provide a better understanding of how people process print stories, online stories, and broadcast news stories differently. Also understanding the mood individuals are in when they are processing the stories will provide insight into how mood and story frame impact message processing.

Future research should examine how mood impacts perceptions of source credibility. This study examined credibility of the story as a whole and not the source quoted in the story. Because mood influences perceptions of story credibility, it should also influence perceptions of source credibility. People in a positive mood would probably use heuristics
to process the credibility of the source, whereas those in a negative mood may pay more attention to the source arguments rather than attractiveness or likeability.

This study extends the literature by examining mood/frame influence on processing of news stories. Mood and frame impact associative networks as well as perceptions of credibility.

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HOSTILE IMAGINATION AT WORK: AMERICAN OPINION MAKERS’ PERCEPTIONS OF THE MEDIA ROLE IN STEREOTYPES OF RUSSIANS AND EASTERN EUROPEANS

ELZA IBROSCHEVA AND JYOTIKA RAMAPRASAD

This study looked at the stereotypical beliefs about and attitudes toward Russians and Eastern Europeans held by American opinion makers and the role of the mass media in creating these stereotypes. Using the theoretical framework of social construction of reality and a survey of a systematic sample of members of the American Political Science Association, this study proposed a model of relationships among the following variables: information-transmitting, personality, mass media exposure, nature of trusted media sources, media content, bias, and finally, media effect. The study discovered that beliefs about and attitudes toward Russians and Eastern Europeans are generally positive and considerably favorable. Beliefs were explained by the ideological orientation of a trusted media source, perceived valence and bias of media portrayals. Attitudes were predicted by ethnocentrism and by the ideological orientation and reported origin of the trusted media source.

Keywords: media, foreign policy, stereotypes, Russians and Eastern Europeans, the Cold War

American opinion makers are generally avid consumers of media and possess highly structured knowledge of international and domestic affairs. This, in turn, gives them the ability to direct and influence public opinion, and ultimately, foreign policy decisions.

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Hostile Imagination at Work

Elza Ibrosheva and Jyotika Ramaprasad

determined and affected by the general opinion climate. This study focused on the attitudes and beliefs that reflect the current stereotypes of Russians and Eastern Europeans among American opinion makers, to assess lingering effects of the intense Cold War propaganda conducted by both U.S. and Soviet media outlets in the past. More particularly, this study examined whether the mass media, as potential producers, distributors and disseminators of images and portrayals of Russians and Eastern Europeans, take part in or are associated with the construction of these stereotypes.

Stereotypes are conventional, formulaic and usually oversimplified beliefs about a person, group, event or issue considered to typify the object at hand (Oaks et al., 1994). While they may serve as useful devices for organizing large amounts of information, more often than not, stereotypes are used as mental shortcuts, which hinder communication and oversimplify the complex network of political and cultural disparities and oppositions a social structure embodies (Lippmann, 1965; Pickering, 1995).

Stereotypes are influenced by a number of elements, such as contact with members of outside groups, ethnocentrism, prejudice, and nationalism (Reigrotski & Anderson, 1957; Le Vine & Campell, 1972; O’Driscoll et al., 1983; Ray, 1983; Tan et al., 1997), which, in turn, are determined by our cognitive dispositions. While these cognitive factors are important in predicting the formation and development of stereotypes, other social factors, such as the mass media, have been studied for their potential to provide a venue for the expression and reinforcement of stereotypical representations of outside groups. In the process of stereotyping, the mass media are seen as major sources of easily accessible and widely available information (Boulding, 1956; Ashmore & Del Boca, 1981). As such they are believed to create a lasting impression on the dominant groups’ perceptions of the characteristics of other groups who oppose it (Silverstein & Holt, 1989; Entman, 2004).

There are two fundamental approaches to the study of stereotypes—the cognitive approach and the socio-cultural approach. The cognitive approach examines the nature of stereotypes and their role in the process of individual and group perception (Allport, 1954). Even though the cognitive tradition of studying social perceptions and identity has been criticized for failing to produce a model that incorporates all mental, social and political inclinations that affect opinion formation and decision making about group relations, it is still heavily used in psychology and political science, especially in studies of opinion formation in foreign policy because it allows scholars to determine empirically how subjects would mentally represent a conflict situation, cognitively process its complexities and understand the stimuli (Herrmann & Fischerkeller, 1995).

On the other hand, the socio-cultural approach to the study of stereotype originates in the idea that interaction that takes place both at the individual level as well as at the group level leads to forming identities, which in turn, are heavily influenced and determined by external factors and social institutions. This development attempted to re-center the “social”
in social psychology by arguing that intergroup behavior, rather than individual attitudes, is where social identity is located, advocating a move from intrapersonal cognition to intergroup dynamics as the focus of studying stereotypes in society. As Augoustinos and Walker (1998) put it, “stereotypes cannot be anything but social, since they are shared and are, more or less, universally identifiable by all members of a culture” (p. 632).

The tension between these two approaches has drawn a wedge between understanding the categorizing function of stereotypes and recognizing their even more powerful social manifestation—the power of creating and sustaining ideological control through the use of stereotypes. As Pickering (2004) aptly pointed out, a clear danger exists in “concentrating exclusively on cognitive processes or ‘deep structures’ of psychic development at the expense of the ideological and political dimensions in stereotyping” (p. 99).

Regardless of how we conceptualize stereotypes, either as categorizing cognitive tools or as discursive ideological constructs, stereotypes remain firmly grounded in and oriented toward social reality. Therefore, using the theoretical framework of social construction of reality, we propose studying the contribution of both cognitive measures and socio-cultural ones, namely, mass media related factors, to the formation of stereotypes, recognizing that stereotypes can no longer be viewed solely as an act of cognition but must be examined within the larger cultural and ideological networks of social influences and institutional agency. In doing so, the study built and tested a social construction model of the formation of stereotypes, based on social reality literature from the field of mass communication, political science and social psychology in attempt to follow Pickering’s (2001) recommendation, “to develop alternative forms of analysis that overcome the ideological separation of politics and psychology of the stereotyping process itself” (p. 35). Specifically, the study examined the relative importance of four sets of variables in the formation of stereotypes: background variables: age, gender, and education; information-transmitting variables: contact and international political knowledge; personality-based variables: ethnocentrism and personal ideology; and four distinct media variables: exposure (time spent on news and interest in news, in the case of this study, both refer to international news), nature of trusted media (perceived ideological orientation and reported origin of, in this case, American or foreign origin), content of media portrayals (perceived valence of and bias in coverage, in this case, of foreigners), and media effect (opinions about media stereotypes as mechanism for social oppression, in this case, of foreigners) (see Figure 1).

Because of the strong past political and ideological rivalry between the capitalist West and the socialist East, which generated intense Cold War propaganda by both U.S. and Soviet media outlets, and the current shift in the relationship between the two sides, this study focuses on current Soviet and Eastern European stereotypical beliefs and attitudes among a group of American opinion makers, i.e., members of the political science academic society.
Figure 1. A social construction model of the relationship between social predictors and stereotypes
Political scientists, including international relations specialists, were chosen as representing American opinion makers, because contrary to general beliefs, they are not stuck in their ivory tower. On the contrary, as a recent study by Peterson, Tierney and Malinak (2005) demonstrated, “in the case of American scholars of international relations, they are almost certainly framing foreign-policy debates and training the future policy makers of the world’s only superpower” (p. 58). As the study showed, foreign policy scholars not only engage in conventional academic research, but also moonlight in important parts of numerous foreign-policy making apparatuses serving in a variety of roles, such as consultants to the U.S. government, non-profit organizations, think-tanks, and the private sector.

Cognitive Schema and Stereotypes

Generally, scholars of social cognition believe that people form their opinions based upon cognitive structures called “schemata” (Fiske & Taylor, 1984). These schemas serve the purpose of organizing knowledge, thus creating a consistent and comprehensive worldview about an object such as a foreign policy threat (Hurwitz & Peffley, 1987). A schema can provide a “script,” describing a sequence of events that is expected to unfold in a prototypal case, thus allowing a person “to fill in the gaps” (Abelson, 1981). Moreover, “one of the clear effects of schemata . . . is that people tend to make the data fit the schema, rather than vice versa” (Fiske & Taylor, 1984, p. 177). Schemas, therefore, can be powerful pre-existing notions, which similar to stereotypes, can hinder the acceptance of new traits in the already existing patterns, memorized and adopted by members of a given group (Hurwitz & Peffley, 1990).

In American and Soviet history, the Cold War period was populated with ample illustrations of ideologically driven political and cultural stereotypes as propaganda material. The literature on the psychology of the enemy images of the Soviet Union, predominantly influenced by the literature on prejudice and, from political science, the literature on the roles of cognition and misperception in international politics, is indeed abundant and impressive (e.g. Farrell & Smith, 1967; White, 1970; Jervis, 1976; Jonsson, 1982; Levy, 1983; Stein, 1988; Murray & Cowden, 1999). This literature confirms the presence of schema, their persistence despite the end of the Cold War, and their potential to influence policy. For example, some of this literature hypothesized that both American leaders and the mass public possess cognitive structures stored in their memory about the Soviet Union that influenced how they perceived world events and what policies they advocated (Jervis, 1976; Tetlock, 1983; Tetlock & McGuire, 1986; Koopman et al., 1989,1990), while Murray and Meyers (1999) discovered that respondents who have been highly suspicious of the Soviet
Union before the end of the Cold War were also more likely to view other unfriendly nations with suspicions and distrust. In a similar study Murray and Cowden (1999) demonstrated that despite changes in global politics after the end of the Cold War and the lack of direct transfer of enmity onto a “replacement enemy,” a carryover existed of old ideological divisions into the post-Cold War era (p. 555).

This set of pre-existing and commonly shared beliefs and attitudes about the Soviet Union and communism, i.e., the Soviet schema, finds its way into policymaking. In his examination of foreign policy decisions and their relation to Soviet schema, Hermann (1986) found that political elite members, drawn from various elite fields, including senators, representatives from the State and Defense Departments, the business community, communication fields and educational and foreign policy institutes, seemed to be fundamentally divided on their views of American foreign policy, but views of the Soviet Union were significantly related to many decisions concerning American foreign policy and provided a more reliable predictor of policy preferences than other independent variables. The Soviet schema presented a shared system of beliefs that influenced foreign policy decisions.

**Cognitive Level Predictors of Schemata/Stereotype**

Several cognitive personality traits have been associated with stereotypes. Among those, ethnocentrism, self-esteem, authoritarianism, empathy and others have been studied as important social agencies, which can determine and influence stereotypes of foreign nationals (Reigrotski & Anderson, 1957; O’Driscoll et al., 1983; Silverstein & Flamenbaum, 1989; Stephan & Rosenfield, 1978, 1979; Altemeyer, 1988; Stephan et al., 1993). Furthermore, ethnocentrism—the expression of an overall positive or a negative attitude toward the outgroup without relying on references to specific national, cultural, or ethnic groups—has been commonly associated with stereotypes and widely advanced by Levine and Campbell (1972), who strongly believed that ethnocentrism was important in influencing inter-group dynamics and inter-group relations.

An even more important cognitive variable, which has not been studied in relation to stereotypes, is ideology. The term itself has been so elusive that it has generated a plethora of definitions in social psychology (Eagleton, 1991; Larrain, 1983). In understanding stereotypes, one way to recognize the importance of ideology can be to connect it to social domination theory, which introduces the concept of social dominance orientation—a personality variable which predicts social and political attitudes. Concretized as a measure of an individual’s preference for hierarchy within a social system, is also directly related to expression of personal ideology, as it contributes to what Sidanius and Pratto (2001) called...
“legitimizing myths,” values, attitudes, beliefs, and ideologies, which justify social institutions and practices that support social hierarchical positions, and in turn, social inequality. This can serve as a foundation for understanding stereotypes, for as Pickering pointed out (2001), “stereotyping . . . is a collective process of judgment which feeds upon and reinforces powerful social and national myths” (p. 97).

On the other hand, it can also be argued that stereotypes are connected to ideology because ideology is an expression of personal beliefs that support a certain system of social relations. As Jost and Banaji (1994) argued, stereotypes function in system-serving and justifying ways as they help rationalize existing social relations. Liberalism and conservatism, as measures of personal ideology, also serve to rationalize certain social relations, contributing to “the stock of common-sense knowledge and truth which people draw upon to make sense of the world” (Augustinos & Walker, 1998, p. 639), and often, reflect in the ideological discourse, which justifies the existence of social inequalities (Hall, 1986).

**Knowledge-Based Predictors of Schemata/Stereotypes**

Silverstein and Flamenbaum (1989) have discussed the potential of knowledge as a moderator of enemy images and stereotypes, as they discovered that people who are more positive toward a nation will be more open to information about that nation and will actively seek ways to enlarge their knowledge about this nation. Within the context of stereotypes about nations and foreign nationals, political knowledge, defined as the measure of what people know about politics (in this case, international politics), appears to be a relevant predictor of stereotypes.

Another major factor that has been studied in connection to stereotypes is interpersonal contacts. While some studies have found that interpersonal contact could contribute to increasing favorable views of the outsider groups, other studies have found that changes in stereotypes as a result of contact are not always positive. Many studies (O’Driscoll et al., 1983; Ray, 1983) demonstrated that informal contacts alone do not produce positive stereotypes. And some studies even suggested that geographical proximity and increased contact may encourage and solidify negative stereotypes (Le Vine & Campell, 1972). On the other hand, in a study examining the stereotypes, which the nations of Germany and France held of each other, Reigrotski and Anderson (1957) concluded that increasing foreign contacts led to an increase in favorable opinion of the other group and a more critical examination of the corresponding ingroup.
MEDIA AS CONTRIBUTORS TO THE FORMATION OF SCHEMATA/STEREOTYPES

Much of the body of work done earlier on stereotypes used a variety of social psychological perspectives (Silverstein, 1989; Moscovici, 1981, 1984), but only rarely used the socio-cultural perspective (Pickering, 1995, 2001, 2007; Hinton, 2000). Since stereotypes are firmly grounded in social reality (Augoustinos & Walker, 1998), the socio-cultural approach to studying stereotypes, which includes discussion of the media, appears to fit best within the theory of social construction of reality. However, in their explanation of the theory of social construction of reality, Berger and Luckmann (1967) referred only tangentially to the mass media in analyzing the social processes and structures determining individual interpretations of reality. Mass media, the authors argue, operate in accord with other social agencies to define and organize reality. The mass media play a big role in the formation of cognitive maps among media consumers, it is critical to understanding the function of the media in the formation of social stereotypes. As Augoustinos and Walker (1995) stated, “stereotypes are more than just cognitive schemas . . . They are socially and discursively constructed in the course of everyday communication, and once objectified, assume an independent and sometime prescriptive reality” (p. 222). Within this theoretical perspective, stereotypes are seen not only as simple by-products to simplify reality, but as evolving from “communication within a social group which objectifies and legitimizes the social knowledge of the group” (Hinton, 2000, p. 158).

Particularly in this study, where the focus is on opinion leaders, media-related variables are critical for several reasons. First, political leaders are avid consumers of media (Rivers, 1967; Lazarfeld et al., 1968; Dunn, 1969; Olsen, 1973). Second, opinion leaders (including political elites) are better informed than the general public because of this media exposure (Rogers, 1983). Their higher education equips them to acquire more information than others from the media (Price & Zaller, 1993) and makes them more adept to learning, particularly about political affairs, which they have been socialized to attend to carefully. In a feedback loop, their public affairs knowledge becomes a possible predictor of interest and attention to news.

Recognizing the importance of putting the “social” in social psychology, and specifically, putting “media” in media stereotypes, we offer a socio-cultural perspective to studying stereotypes, which acknowledges the complexity not only of the very concept of stereotypes, but also of media influences themselves. For that purpose, our study incorporates standard measures of quantifying media consumption while at the same time, offers a qualitative dimension to understanding the symbolic and ideological potential of media. Understanding the opinion makers’ perceptions of the valence and bias of media
portrayals can provide an important insight in the process of internalization of stereotypes as ubiquitous cognitive structures, deeply ingrained in the fabric of social and political interactions.

In addition, it must be noted that stereotypes have been among the most widely discussed social constructs, which magnified by the mass media, become tools for legitimizing and institutionalizing social relations between dominant and marginal groups in society (Seiter, 1986). Because of this social functionality of stereotypes, it is important to recognize, as Shohat and Stam (1994) contended that media stereotypes also demonstrate “they are not an error of perception but rather a form of control, intended as what Alice Walker calls ‘prison of image’” (p. 198). In this study, the proposed model included opinions about media stereotypes as tools for social oppression, which is concretized as a way to record and analyze opinion makers’ awareness of the power potential of stereotypes and their highly ideological function within the social structure.

Finally, while most studies conceptualize stereotypes as beliefs, very few studies adopt a multi-dimensional view of stereotypes. This model proposes using Seiter’s (1986) conceptualization of stereotypes as composed of two distinct components—a descriptive and an evaluative component. The descriptive part of stereotypes refers to beliefs and the evaluative part is attitudinal in nature. Stereotypical beliefs about Russians and Eastern Europeans are conceptualized as socially shared beliefs that describe an object in an oversimplified and undifferentiated manner. Beliefs are information-based on facts or opinions a person has about an object, a person, or an issue (Petty & Cacioppo, 1981). In the field of social psychology, attitude is a state of affect felt by the individual toward what is, for that individual, a psychological object. It expresses a negative or a positive feeling toward something or someone (Petty & Cacioppo, 1981). Bar-Tal (1997) argued that the evaluative connotation of stereotypes provides the most important implication of stereotypes for inter-group relations because it reflects the attitude toward the outgroup and is one of the determinants of behavior. On the other hand, studies have also demonstrated that individuals tend to behave consistently with their beliefs and, therefore, the contents of stereotypes they hold determine their behavior on the interpersonal and inter-group level.

A SOCIAL CONSTRUCTIONIST MODEL OF STEREOTYPE FORMATION

This study empirically tested a social construction model of stereotypes (Figure 1), which describes the relationship between the dependent variable stereotypes (both attitudes and beliefs) of opinion makers, and the following independent variables: (a) demographic measures such as age, gender and education as background variables, (b) contact and knowledge as information-transmitting variables, (c) personal ideology and ethnocentrism.
as personality-based variables and (d) mass media related variables. The media related variables include media exposure as time spent on international news and interest in news of a foreign nation/public, nature of trusted media source as perceived ideological orientation and reported national origin of news source, media content as opinions about the valence and bias in media portrayals of a foreign nation/public, and media effect as opinions about stereotypes as tools for social oppression.4

Based upon the postulated model of social construction of stereotypes, this study tested the following hypotheses:

H1 (a): Stereotypical beliefs of Russians and Eastern Europeans will be explained better by media exposure (time spent and interest in international news), nature of trusted media source (perceived ideological orientation and reported national origin), media content (perceived valence and bias) and media effect (opinion about stereotypes) than by background, information-transmitting or personality-based variables.

H1 (b): Stereotypical attitudes toward Russians and Eastern Europeans will be explained better by media exposure (time spent and interest in international news), nature of trusted media source (perceived ideological orientation and reported national origin), media content (perceived valence and bias) and media effect (opinion about stereotypes) than by background, information-transmitting or personality-based variables.

**Method**

This study conducted a cross-sectional online survey, using a systematic sample of members of the American Political Science Association, whose membership base of 14,000 members consisting of political scientists, educational experts and think-tanks constitute an elite population because they “occupy positions which enable them to regularly transmit . . . opinions about any issue to unknown persons outside of their occupational field” (Rosenau, 1961, p. 45, emphasis deleted). This group was selected because perceptions and philosophies of key leaders, such as foreign policy think-tanks, academics, and professional politicians, are the most important factors driving foreign policy decisions, even more important than bureaucratic interests, lobbyists in Congress, or environmental pressures of the international climate (Spiegel, 1982).
Independent Variables

Demographics. The demographic factors included age, gender, and education. The questions used to record respondents’ demographics were adopted directly from the coding book of the 2002 U.S. Population Census.

Contact. Respondents were asked to indicate how much contact they had with Russians and Eastern Europeans through the following six sources: church, friends, travel, high school or college courses, and relatives. The response format was a 5-point Likert-type measure of the degree of contact, ranging from all the time, most of the time, sometimes, rarely, to not at all.

International Political Knowledge about Russians and Eastern Europeans. Respondents were asked to respond to nine “yes” and “no” questions that involved identification of political figures, international institutions, and events specific to Russia and Eastern Europe. The political knowledge scale was created by the author and included declarative statements such as “Russia’s presidential elections are scheduled for 2005,” “The Cold War was a military standoff between the United States and Iceland,” and “NATO led a military attack against Kosovo to liberate Serbia.” The international political knowledge scale was pre-tested for degree of difficulty of the scale items to ensure sufficient variance in this independent variable.

Ethnocentrism. This study adopted seven statements from a scale created by Hood (1998). The response format was a 5-point Likert-scale, including statements such as, “It is wrong for visitors to our country to refuse to adapt to our customs when they come here,” “If everyone did things the American way, the world would be better off,” and “Foreigners coming to live in the US should not give up their foreign ways and adapt to America.” Hood’s original scale of 17 items recorded a Cronbach’s alpha of .82. The original scale was reduced to seven statements to remove references to specific national, cultural, or ethnic groups. The adapted scale of 7-items recorded a Cronbach’s alpha of .70.

Personal Ideology. To measure personal ideology, this study used a conservatism-liberalism scale developed by Mehrabian (1996), which included statements such as, “Communism has been proven to be a failed political ideology” and “I cannot see myself ever voting to elect conservative candidates.” Six of the original seven items were used and the response scale was changed from the original interval format, ranging from +4 to –4, to a 5-point Likert-scale for congruence with other scales in the study. One item was eliminated because it asked respondents to evaluate the performance of the media, a variable
measured in some detail separately in this study. The original scale recorded a Cronbach’s alpha of .86, and the modified scale recorded an alpha of .77.

**Mass Media**

*Media exposure* was measured as time spent on international news and interest in news from Russia and Eastern Europe. *Time spent on international news* was measured by asking respondents to indicate how many hours and minutes they spent reading, watching and listening to international news yesterday. *Interest in Russian and Eastern European news* was measured by a single Likert-type question, asking respondents “How often do you seek news and other information about Russia and Eastern Europe?” with five responses ranging from *not at all, rarely, sometimes, most of the time* to *all the time*.

*Nature of trusted media* had two components, *ideological orientation* and *origin* of media sources. Respondents were asked to rate the media on a 5-point Likert-type scale the media they trusted the most on two separate descriptors: *perceived ideological orientation* ranging from “conservative” to “liberal,” and *reported origin* of media source, ranging from “American news organizations” to “Foreign news organization.”

*Content of media portrayals of Russians and Eastern Europeans.* This variable was measured by two separate components: *perceived valence* of media portrayals and *perceived bias* of media portrayals.

For *valence*, respondents had to circle the appropriate response on a 5-point Likert-type scale, from among the following responses: very positive, positive, neutral, negative, and very negative, to the statement: “The media portrayals of Russians and Eastern Europeans are...”

To measure *bias*, respondents had to respond on a five 5-point Likert-type scale to items that expressed views about the type and quality of media portrayals of Russians and Eastern Europeans, such as “Portrayals of Russians and Eastern Europeans in the media are unbalanced,” “based on fact,” “unrealistic,” “distorted,” and “truthful.” Cronbach’s alpha for the scale was .71.

*Media effect* of stereotypes was measured as *opinions about media stereotypes as mechanisms for social oppression*. This variable was designed to examine the public’s awareness of the potential of stereotypes for social manipulation and ideological control, including five 5-point Likert-scale statements such as “Stereotypes help foreigners make
progress in society,” “Stereotypes in the media enable societal oppression of foreign groups,” and “Stereotypes in the media allow foreigners to gain power.” Cronbach’s alpha for this scale was .75.

Dependent Variables

Stereotypical Beliefs. The following 12 bi-polar adjectives, indicating possible characteristics and attributes of Russians and Eastern Europeans, were used in a 5-point semantic differential scale to measure stereotypical beliefs: hospitable-in hospitable, patient-impatient, strong-weak, hard-working-lazy, evil-good-natured, domineering-submissive, belligerent-peaceful, tolerant-intolerant, secretive-open, passive-active, hostile-friendly, and violent-calm. The variable was calculated as an overall summative measure.

Stereotypical Attitudes. To measure respondents’ attitudes toward Russians and Eastern Europeans, a 5-point semantic differential scale consisting of four bi-polar verbs, expressing either favorable or unfavorable opinions of Russians and Eastern Europeans, was constructed. The attitude verb pairs were as follows: like-dislike, feel positive-feel negative, feel favorable-feel unfavorable, and approve-disapprove.

To test the postulated hypotheses, hierarchical regression was used with blocks of variables. The regression tested whether each set of variables—background (age, gender, education), information (contact and political knowledge) personality (ethnocentrism and personal ideology), and mass media (time spent on international news, interest in news from Russia and Eastern Europe, perceived ideological orientation of news source, reported origin, perceived valence, perceived bias, and opinions about stereotypes)—explained beliefs and attitudes over and above the previous set(s). Demographics were entered first because they are generally used as common predictors across communication studies. Information-transmitting variables were entered next because they are concrete and were shown to predict stereotypical beliefs and attitudes in earlier studies. Personality-based variables based on ideology traits were used next. Mass media variables were entered last because the interest of this study is in seeing whether mass media variables explain over and above other variable sets.

Findings

This study yielded a sample size of 272 respondents and a response rate of 18%. Of the respondents, 66 (24%) were female and 200 (73%) were male. The average age of the respondents was 48.86 years, with the range for age being 25 to 75 years. Two hundred and
fifty four (93.4%) of the respondents were Caucasians, five (1.8%) were African American, two (.7%) were Hispanic, and six (2.2%) identified themselves as “other” race or ethnicity. In addition, 251 (92.3%) of the respondents held a doctoral degree in their respective field, with 13 (4.8%) holding a master’s degree.7

Descriptive Statistics

Table 1 displays the mean values for both the independent and dependent variables. As Table 1 indicates, respondents had relatively low contact with people from Russia or Eastern Europe, but nonetheless, exhibited reasonably high knowledge of the region, were not ethnocentric for the most part, and embraced a personal ideology that leaned liberal. The average time respondents spent with international news was slightly over an hour a day. They trusted a mix of American and foreign news sources, leaning slightly toward trusting predominantly American news organizations, and reported trusting liberal sources slightly more than conservative or neutral news sources.

Despite the significant amount of time reportedly spent on international news, respondents, on average, showed relatively low interest in news from Russia and Eastern Europe. They also perceived the valence of the media portrayals of Russians and Eastern Europeans as mostly negative, as well as media portrayals as unbiased i.e., fair, realistic, and such, and did not perceive stereotypes to have the power to serve as tools of social oppression against foreigners and other nationals, leaning more toward disagreement than agreement or a neutral position on the issue. Finally, respondents had predominantly favorable attitudes toward Russians and Eastern Europeans, and to a slightly smaller degree, held somewhat positive beliefs about them.

In view of the descriptive analysis of the variables, if respondents acknowledge that media portrayals of Russians and Eastern Europeans are valenced somewhat negatively and believe that media portrayals of this same group are not biased, does this suggest that they subscribe to the negative stereotypes to some extent? The data on beliefs and attitudes of respondents suggests not. Part of the explanation for this apparent contradiction between their assessment of media portrayals as somewhat negative but somewhat fair and their own predominantly favorable attitudes and beliefs might be that the means for both media portrayals (negative) and media bias (unbiased) were not very distant from the midpoint. In addition, opinion makers, while clearly informed about Russia and Eastern Europe and reporting that media portrayals of this group are somewhat negative, might not necessarily exhibit a disapproving view of the bias in these portrayals and their potential to harm the image of outgroups, such as former enemy nations. This, in turn, indicates that knowledge of international affairs and acknowledgement of the prevalence of negative portrayals in the
media are not sufficient conditions for recognizing the ideological potential of stereotypes to legitimize social (and political) relations.

It is interesting to examine the degree to which respondents endorsed, on average, beliefs closer (or opposite) to the adjectives characterizing beliefs about Russians and Eastern Europeans. As the reported mean values for stereotypical beliefs shown in Table 2
demonstrate, with a few exceptions, scores on the stereotypical belief adjectives clustered around the mean, slightly on the higher side, indicating somewhat positive beliefs. Respondents rated Russians and Eastern Europeans as somewhat secretive (mean was just below the midpoint), a stereotype, which would be considered a negative trait and which has been heavily played during the Cold War years of ideological propaganda. They considered Russians and Eastern Europeans neither submissive nor domineering and neither hostile nor friendly (means were at midpoint). For all other stereotypes, respondents rated Russians and Eastern Europeans above the midpoint, essentially indicating more positive than negative beliefs. Among these, the lowest score was for the adjective calm and the highest, and only one above the four-point mark, was for the adjective strong. Other adjectives for which

<table>
<thead>
<tr>
<th>Stereotypical Belief</th>
<th>Mean value</th>
<th>Std. Deviation</th>
<th>Tending towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretive (open)**</td>
<td>2.6</td>
<td>0.853</td>
<td>Negative</td>
</tr>
<tr>
<td>Domineering (submissive)**</td>
<td>3</td>
<td>0.682</td>
<td>Neutral</td>
</tr>
<tr>
<td>Hostile (friendly)**</td>
<td>3</td>
<td>0.845</td>
<td>Neutral</td>
</tr>
<tr>
<td>Violent (calm)**</td>
<td>3.26</td>
<td>0.708</td>
<td>Positive</td>
</tr>
<tr>
<td>Impatient (patient)**</td>
<td>3.27</td>
<td>0.883</td>
<td>Positive</td>
</tr>
<tr>
<td>Belligerent</td>
<td>3.36</td>
<td>0.715</td>
<td>Positive</td>
</tr>
<tr>
<td>Passive (active)**</td>
<td>3.39</td>
<td>0.76</td>
<td>Positive</td>
</tr>
<tr>
<td>Intolerant (tolerant)**</td>
<td>3.52</td>
<td>0.749</td>
<td>Positive</td>
</tr>
<tr>
<td>Evil (good-natured)**</td>
<td>3.63</td>
<td>0.929</td>
<td>Positive</td>
</tr>
<tr>
<td>Lazy (hard-hospitable)**</td>
<td>3.66</td>
<td>0.836</td>
<td>Positive</td>
</tr>
<tr>
<td>Weak (strong)**</td>
<td>4.18</td>
<td>1.219</td>
<td>Positive</td>
</tr>
</tbody>
</table>

*A higher number indicates a lower agreement with the stereotype indicated by the first adjective from each group of stereotypical beliefs on a scale from 1 to 5.

**The direction of negativity in this pair of adjectives was determined based upon previous beliefs and stereotype studies in which Russians have been characterized as submissive and passive in an unfavorable light.
Russians and Eastern Europeans received the higher ratings were hospitable and hard working.

Finally, Table 3 indicates that the prevailing attitude toward Russians and Eastern Europeans was consistently more favorable than neutral, with “feeling favorable” reportedly being the strongest expression of positive attitudes toward Russians and Eastern Europeans and “approve” showing the lowest degree of favorable attitudes among respondents, but is still not very different from the rest of the expressed favorable attitudes at a mean value of 3.75.

### Testing Hypotheses

The results of the hierarchical regression for stereotypes reported in Table 4 show that a statistically significant increase was recorded by the addition of the personality-based variables (R² change = .07, p < .05) and the addition of the mass media variables (R² change = .09, p < .05). Hypothesis 1 is, therefore, supported as mass media variables appear to offer the largest contribution to variance explained in beliefs about Russians and Eastern Europeans, over and above background, information-transmitting and personality-based variables. Among the personality-based variables, only ethnocentrism made a significant contribution, indicating that those respondents who were less ethnocentric also had more positive beliefs about Russians and Eastern Europeans. Among the mass media variables, only perceived valence and perceived bias made significant contributions, indicating that those respondents who thought media portrayals of Russians and Eastern Europeans were
### Table 4

Summary of Hierarchical Regression for Variables Predicting Stereotypical Beliefs (N=177)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression 1 (Background)</th>
<th>Regression 2 (Information)</th>
<th>Regression 3 (Personality)</th>
<th>Regression 4 (Mass Media)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE(B)</td>
<td>Beta</td>
<td>B</td>
</tr>
<tr>
<td>Age</td>
<td>1.75E-03</td>
<td>.003</td>
<td>.050</td>
<td>2.43E-03</td>
</tr>
<tr>
<td>Gender</td>
<td>-9.88E-02</td>
<td>.077</td>
<td>-.108</td>
<td>-9.76E-02</td>
</tr>
<tr>
<td>Education</td>
<td>-2.11E-03</td>
<td>.071</td>
<td>-.003</td>
<td>-3.60E-03</td>
</tr>
<tr>
<td>Contact</td>
<td>7.48E-02</td>
<td>.064</td>
<td>.100</td>
<td>6.61E-02</td>
</tr>
<tr>
<td>Political knowledge</td>
<td>-2.98E-02</td>
<td>.031</td>
<td>-.080</td>
<td>-3.23E-02</td>
</tr>
<tr>
<td>Ethnocentrism</td>
<td>.117</td>
<td>.064</td>
<td>.173*</td>
<td>.112</td>
</tr>
<tr>
<td>Personal ideology</td>
<td>7.15E-02</td>
<td>.042</td>
<td>.160</td>
<td>5.48E-02</td>
</tr>
<tr>
<td>Time spent on international news</td>
<td>6.45E-04</td>
<td>.000</td>
<td>.116</td>
<td></td>
</tr>
<tr>
<td>Interest in Russian and Eastern European news</td>
<td>-2.25E-02</td>
<td>.040</td>
<td>-.051</td>
<td></td>
</tr>
<tr>
<td>Perceived ideological orientation</td>
<td>3.06E-02</td>
<td>.052</td>
<td>.066</td>
<td></td>
</tr>
<tr>
<td>Reported origin</td>
<td>-6.34E-02</td>
<td>.035</td>
<td>-.182</td>
<td></td>
</tr>
<tr>
<td>Perceived valence</td>
<td>.150</td>
<td>.063</td>
<td>.252*</td>
<td></td>
</tr>
<tr>
<td>Perceived bias</td>
<td>.182</td>
<td>.059</td>
<td>.343**</td>
<td></td>
</tr>
<tr>
<td>Opinions about the power of stereotypes</td>
<td>-3.30E-02</td>
<td>.084</td>
<td>-.032</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.012</td>
<td>.028</td>
<td>.098</td>
<td></td>
</tr>
<tr>
<td>$R^2$ change</td>
<td>.012</td>
<td>.016</td>
<td>.070</td>
<td></td>
</tr>
</tbody>
</table>
| $F$ for change in $R^2$                       | .570        | 1.156 | 5.344**\
| *$p < .05$, **$p < .01$
Table 5

Summary of Hierarchical Regression for Variables Predicting Stereotypical Attitudes (N=181)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression 1</th>
<th>Regression 2</th>
<th>Regression 3</th>
<th>Regression 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Background)</td>
<td>(Uncontrolled)</td>
<td>(Meas Media)</td>
<td>(News Media)</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.156</td>
<td>-1.36</td>
<td>-.190</td>
<td>-2.894*</td>
</tr>
<tr>
<td>Gender</td>
<td>-.094</td>
<td>-.079</td>
<td>-.015</td>
<td>-.006</td>
</tr>
<tr>
<td>Education</td>
<td>-.380</td>
<td>-.201</td>
<td>-.017</td>
<td>.117</td>
</tr>
<tr>
<td>Political knowledge</td>
<td>-.123</td>
<td>-.011</td>
<td>-.131</td>
<td>-1.349*</td>
</tr>
<tr>
<td>Nationalism</td>
<td>.473*</td>
<td>.290*</td>
<td>.251</td>
<td>-.339</td>
</tr>
<tr>
<td>Perceived ideology</td>
<td>.251</td>
<td>.111</td>
<td>.210*</td>
<td>.239</td>
</tr>
<tr>
<td>Perceived Eastern European</td>
<td>1.399*</td>
<td>.073</td>
<td>.071</td>
<td>1.469*</td>
</tr>
<tr>
<td>Perceived ideological</td>
<td>.597*</td>
<td>.075</td>
<td>.071</td>
<td>1.699*</td>
</tr>
<tr>
<td>Perceived national</td>
<td>.597*</td>
<td>.075</td>
<td>.071</td>
<td>1.699*</td>
</tr>
<tr>
<td>Perceived valence</td>
<td>.077</td>
<td>.111</td>
<td>.233</td>
<td>.283</td>
</tr>
<tr>
<td>Perceived bias</td>
<td>.043</td>
<td>.097</td>
<td>.055</td>
<td>4.319*</td>
</tr>
<tr>
<td>Change in $r^2$</td>
<td>.043</td>
<td>.097</td>
<td>.055</td>
<td>4.319*</td>
</tr>
</tbody>
</table>

Note: $p < .05$ and $* p < .01$
less negative and who also thought that these portrayals were less biased had more positive beliefs about Russians and Eastern Europeans.

The results of the hierarchical regression for attitudes reported in Table 5 indicate that with the entry of personality-based variables, $R^2$ changed significantly ($R^2$ change = .055, $p < .05$) and with the entry of the mass media variables, $R^2$ increased further ($R^2$ change = .07; $p < .05$). Therefore, Hypothesis 2 is also supported as mass media made the largest contribution to variance explained in stereotypical attitudes toward Russians and Eastern Europeans, over and above background, information and personality variables. From the personality-based variables, ethnocentrism made a significant contribution, and from the mass media variables, only perceived ideological orientation of trusted media source explained attitudes. Those respondents who were less ethnocentric and whose trusted media were perceived by them to be ideologically liberal tended to have more favorable attitudes toward Russians and Eastern Europeans.

**DISCUSSION AND CONCLUSIONS**

The purpose of this study was to explore the stereotypical beliefs and attitudes opinion makers hold of Russian and Eastern Europeans and the role of the mass media in influencing these stereotypical beliefs and attitudes. Stereotypes are formed through individual perceptions and group interactions and as Bar-Tal (1997) pointed out, “they serve at the same time as an antecedent and an outcome for analyzing the nature of intergroup relations” (p. 491). The importance of stereotypes as powerful perceptual schemata, which influence how an individual and a group perceive and act toward outside groups, has important implications for public opinion and international relations. From a mass media perspective, stereotypes as beliefs and attitudes which individuals and group members learn and accumulate, may be created, reinforced and sometimes, dispelled, by the channels of mass communications. But more importantly, the ideological potential of stereotypes and their representational nature, has the power to legitimize social relations within what Hall (1997) called a certain “regime of representations” (p. 259).

This study discovered that beliefs about Russians and Eastern Europeans among American opinion makers were mostly positive. Respondents described Russians and Eastern Europeans as strong, hard-working and hospitable people, good-natured, tolerant, and active. These results show a significant change compared to earlier Cold War studies of perceptions of Russians in which Russians were overwhelmingly rated negatively as domineering (indicating why Russians should be considered an enemy) (Belsky & Doble, 1984; Buchanin & Cantril, 1953) and as hostile as part of a “diabolical enemy image” (White, 1984). Moreover, opinion makers recorded considerably favorable attitudes toward
Russians and Eastern Europeans, showing a departure from the stark ideological opposition and feelings of enmity that dominated the U.S.-Soviet relations of the Cold War era. Evidently, with the end of the Cold War and despite political differences, the climate of bilateral relations between the two former ideological foes appears to be warming up. It is important to note that the effect of the nature of inter-group relations on stereotypic content is not limited to periods of intense military and ideological conflict, such as the Cold War period, for example, but also extends to cooperative, friendly and peaceful relations, as was demonstrated by previously described studies by Sherif and associates (1961). Studies have shown that with an end to hostile and conflict-ridden relations between groups and a movement toward cooperation, a change follows in stereotypic contents from perceptions of negative characteristics to perceptions of positive ones (e.g. Karlins et al., 1969).

This study also tested a social-construction model of stereotype formation, based upon the social-cultural approach to stereotypes. In this model, we hypothesized that mass media variables will be better predictors of stereotypes than background, and information-transmitting and personality-based variables. The two hypotheses (for beliefs and attitudes) were supported as mass media variables contributed significantly to explaining variance in both the descriptive and evaluative component of stereotypes. As the hierarchical regression analysis showed, the mass media were the most important contributors among all stipulated social factors to explaining stereotypical beliefs and attitudes.

While not all media variables made significant contributions to explaining stereotypes, certain variables had a significant influence on stereotypical beliefs and attitudes. For instance, ideological orientation of the trusted media source proved to be an important predictor for beliefs, emphasizing the importance of studying the ideological nature of news. The idea that what is often viewed by many in the news business as objective and unbiased news sources is discussed and conceptualized among elite members as subject to ideological bias, either liberal or conservative, is important because it shows that media audiences perceive and feel confident categorizing news sources as belonging to the liberal or conservative ideological camp.

The results of the study further imply that trust in news that appears to lean to the left in its ideological orientation tends to be associated with more favorable stereotypes (beliefs) of Russians and Eastern Europeans. Yet, it is important to emphasize that the opposite is also true, indicating that trust in conservative news sources can be potentially associated with negative images of Russians and Eastern Europeans, contributing to the long-standing images of ideological propaganda.

Perceived valence and bias of media content contributed to explaining beliefs. Because these media measures have not been studied before in relation to stereotypes, this study offered an important contribution in demonstrating the need to examine the nature of media portrayals in addition to the conventional measures of media attention and exposure,
such as time spent with the media and interest in international news. Valence as the measure of negativity of media portrayals and bias as the measure of perception of bias in media portrayals of Russians and Eastern Europeans were two important variables, which contributed to explaining the descriptive aspects of stereotypes. In examining both of these aspects of mass media, this study discovered that opinion makers had rather counterintuitive perceptions of the valence and bias in media portrayals, in that those respondents who showed favorable beliefs about former Soviet nations also thought that the media are less negative and unbiased in their portrayals of Russians and Eastern Europeans.

However, as it became evident from the responses of the opinion makers, while the majority of opinion makers believed media portrayals of Russians and Eastern Europeans were predominantly negative, they also did not express concern that these media portrayals were biased. This could have an unfavorable impact on the perceptions of Russians and Eastern Europeans as it might lead to a dismissal on the part of opinion makers and the media outlets they communicate with of the unfavorable and often biased media portrayals which audiences experience as part of their everyday media consumption patterns.

This study’s results, while illuminating and informative, should be interpreted with caution due to the limitation of the sample size, the data collection procedure, relatively low response rate and low variance in some of the variables. In addition, the socio-psychological definition of beliefs as binary adjectives in and of itself might be seen as forcing respondents to engage in “categorizing” Russians and Eastern Europeans—a process that might inadvertently force one to “stereotype” in the absence of other responses. Also, as a cross-sectional survey, this study provides a one-time glimpse of the complex perceptual concept of stereotypes, and therefore cannot offer any insight concerning the process of long-term consequences, formations and potential change of stereotype content. Nonetheless, the study makes an important contribution by offering a testable model of stereotypes based upon a social constructionist point of view, which strongly supports the idea that mass media are critically important social factors that define our social reality and recognizing its powerful ideological consequences.

As the Cold War fades and dramatic political changes sweep across Europe and the rest of the world, we are faced with an unprecedented opportunity to construct a new world order, which requires new ways of thinking and a clear break away from old enemy stereotypes. However, enemy images are hard to extinguish, particularly when fear and hostility are rampant and further amplified and exploited by the mass media. As Augoustinos and Walker (1998) point out, “the process of rejecting stereotypes is a political and ideological struggle which is fought out on the social-structural and historical realm” (p. 645). There is an opportunity to counteract new exaggerated stereotypical images, whether they are about KGB agents, Eastern European mafia, drug lords, or whomever, before they become deeply embedded and further popularized and magnified by the mass
media. To take advantage of these opportunities, the effort to educate both opinion makers and the public at large about the ill effects of stereotypical images of other nations and the role of the mass media in creating and reinforcing these very same images should be intensified and adopted by audiences, opinion makers and media educators and practitioners alike.

ENDNOTES

1. Although the study at hand looks at all political scientists rather than solely at those in international relations, it is important to note that, as Peterson et al. (2005) found, even professors who specialize in foreign policy admit to having very little regional expertise, indicating that they tend to approach foreign policy from a much broader and general perspective. That in turn, could be true of all political scientists, who teach policy issues, international or otherwise. Other strong evidence exemplifying the link between international relations academics and foreign policy comes from Newsom (1996) who pointed out that the ultimate manifestation of the academy of political science getting heavily involved in foreign policy comes from the fact that five national security advisers since the administration of John Kennedy were professors before assuming their White House appointments. Those include McGeorge Bundy, Walter Rostow, Henry Kissinger, Zbigniew Brezinski, and Anthony Lake, among others. This tradition continues with further examples of more recent administration including also female foreign policy advisers such as Secretary of State Madeleine Albright during the Clinton administration and Secretary of State Condoleezza Rice during the Bush Administration.

2. In this study, personal ideology is defined in the context of politics (but it may be defined in other ways depending on the context of each study of stereotypes). Thus, personal ideology is defined as “the measure of an individual’s liberal or conservative beliefs and attitudes about politics without reliance on specific issues” (Mehrabian, 1996, p. 473).

3. As Holt and Silverstein (1989) acknowledged in their research on enemy images and based upon previous work on the role of gender in psychological theory by Gilligan (1982), it is possible to assume that women and men may react differently to foreign nations. This assumption provides sufficient ground to include demographics as possible predictors of beliefs about and attitudes toward Russians and Eastern Europeans.

4. Media exposure provides the traditional measure of media consumption, which offers the quantitative aspect of information reception from media sources. To make this measure comprehensive, both time spent with international news and interest in international news were included. Nature of trusted media is conceptualized as having two components, ideological orientation and origin of trusted media sources. Although time spent on and interest in international news can present a general idea about the frequency of audience’s interaction with international news, these measures do not necessarily give a detailed view of what type of media content opinion makers trust the most. This study suggests adding qualitative aspects of media consumption, namely the perceived ideological orientation (liberal/conservative) and reported national origin of the mass media sources opinion makers trust as their main source of information about foreign nationals and distant cultures. Additionally, perceptions about media content—content of media portrayals—are deemed essential to understanding the social interaction between the media outlets and opinion makers in the process of constructing reality. Two such measures—perceived valence and bias of media portrayals—are proposed in this study as additional qualitative aspects of the opinion makers’ knowledge and understanding of media that could affect stereotypes. Finally, media effect, which is conceptualized as opinion about media stereotypes as tools for social oppressive is
included to examine opinion makers’ awareness of the ideological function of stereotypes within the social structure.

5. The international political knowledge scale was pre-tested for degree of difficulty of the scale items to ensure sufficient variance in this independent variable. Seventy-one college students participated in the pre-test. The scale recorded an alpha of .50. Item 4, if deleted, was shown to raise the alpha level to .64. Therefore, the item was rewritten to “Slobodan Milosevic is currently prosecuted for crimes against the Serbian people” and the scale was tested again. The alpha after the change was .69.

6. Studies have shown that online surveys with larger sample sizes like the study at hand tend to have markedly lower response rates. To offset this factor, the sample was selected using a systematic sampling technique with a skip interval of 10, selecting every 11th member of the 2004 APSA membership directory. Two thousand and three hundred APSA members were contacted in three mailing attempts, of which a total of 752 e-mails returned undeliverable. The sample size progressively increased with each mailing, recruiting a total of 278 respondents with an initial target sample size of 350. Thus, despite the shortcomings of the sampling technique, the relatively big size of the sample and the attempt to randomly select participants by using a systematic procedure from the sampling frame, allows inferences to be made to opinion makers, albeit with some caution.

7. The demographic characteristics of the sample demonstrate that the gender composition of the sample was very similar to the one of the APSA members, while the ethnicity of APSA members is slightly more diverse than the one reported by this study’s sample. Finally, the educational level of the sample was significantly higher than the educational level of APSA members, leaning heavily toward more Ph.D. degrees than reported by membership data.

REFERENCES


IMPACT OF INFORMATION SUBSIDIES ON STUDENT NEWS WRITERS’ THINKING ABOUT SCIENCE NEWS

WON YONG JANG, EDWARD FREDERICK, AND JACK A. KAPFER

This study examined the influence of information subsidies on news writers’ thinking about science news. Will a news writer who has activated a cognitive frame for a newly encountered issue adopt a new, alternate frame when one is provided through a news release, by a group, which has a vested interest in the issue? The study showed that a news writer will adopt the frame of a news release. It also showed that, contrary to the Stocking and Gross model for journalists’ information processing, subjects were less likely to pursue a “confirmation bias” strategy and adopted an alternate frame from a legitimate source. The study also showed that if the issue was perceived to be a legitimate source, subjects would adopt a non-controversial source’s frame as well.

Keywords: information subsidies, framing, news release, confirmatory strategy, diagnostic strategy

Nearly two decades have passed since Stocking and Gross (1989a) called for more research into the thinking of journalists about information they gather. This study attempts to answer that call by examining the influence of a news release on a news writer’s thinking about a public issue.

THEORETICAL BACKGROUND

Much research has demonstrated the importance of sources in supplying information to the news media. Sources have been described as “external suppliers of raw material” to
Won Yong Jang et al. Impact of Information Subsidies

journalists (Shoemaker & Reese, 1996, p. 127). Gandy (1982) argues that sources are able to influence the production of news because they subsidize the cost of news production by providing press handouts and other public relations materials. He terms such efforts, information subsidies. Others, however, point out that the ability of sources to influence the news through subsidization is tempered by the norms, conventions, and rules to which journalists adhere (Curtin, 1999; McManus, 1995; Sinaga & Wu, 2007).

Research has shown that, although only a small proportion of subsidies are used by journalists (Baxter, 1979; Curtin, 1999), a great deal of news coverage originates with news releases and other public relations efforts (Cameron, Sallot, & Curtin, 1997; Erjavec, 2005; Glick, 1966; Hale, 1978; Harmon & White, 2001; Kaid, 1976; Martin & Singletary, 1981; Morton & Warren, 1992; Rings, 1971; Sachsman, 1976; Tanner, 2004; Turk, 1986b; Walters & Walters, 1992, 1994; Wiegold, 2001).

In recent years, agenda-building scholars have examined the impact of information subsidies on news on the media. Agenda-building scholars borrow the idea from the Agenda-setting literature, which demonstrates that the media sets the public’s agenda for which issues are salient or important enough to focus on (e.g., Kiousis & McCombs, 2004; McCombs, 2004). Agenda-building scholars ask who sets the agenda for the news media. Some scholars use the term Agenda-setting for the phenomena of setting the media’s agenda. For purposes of this study, we differentiate setting of media’s agenda from setting the public’s agenda by referring to the former as Agenda-building. Agenda-building scholars have demonstrated that information subsidies make issues salient to the media by showing that news releases generate news coverage (Evatt & Bell, 1995; Curtin, 1999; Harmon & White, 2001; McKinnon & Tedesco, 1998; Ohl, Pincus, Rimmer & Harrison, 1995; Singa & Wu, 2007; Turk, 1986a).

Recently, a new thread has been added to the fabric of Agenda-building scholarship, Second-level Agenda-building. These scholars have demonstrated that information subsidies influence the media’s frames for issues (e.g., Hester & Gibson, 2003; Kiousis, Mitrook, Wu, & Seltzer, 2006). The Second-level Agenda-building scholars link agenda-building to framing by capitalizing on one of the four functions that text frames perform, that of emphasizing certain attributes of an issue (for a discussion of the functions of frames, see Frederick, 1997, p. 17-18). The Second-level Agenda-setting scholars argue that frames, by emphasizing certain attributes or features of topics or issues and ignoring others, make those attributes more salient (Kiousis, Mitrook, Wu, & Seltzer, 2006). Second-level Agenda-building studies identify which attributes of issues are most prominent in information subsidies then examine news text or the media’s overall news coverage to determine whether the same attributes are equally as prominent. Using this approach, several studies have shown that information subsidies do affect which attributes of issues the media find salient (Ghanem, 1997; Golan & Wanta, 2001; Hester & Gibson, 2003; Kiousis,

Second-level Agenda-building literature examines only the impact of information subsidies on news stories and media coverage frames. The framing literature indicates framing takes place at other levels that could equally as well be examined. Framing scholars have described framing as a multi-level communication process (e.g., Pan & Kosicki, 1993). They argue that frames are a central organizing idea the sum up what an issue is about (Gamson & Lasch, 1983). At the macro-social level, frames are cultural phenomena that help organize the media discourse or coverage. They also argue that each individual text has a frame for its topic and at this level each individual news story contains a frame. Finally, they argue that the individual’s cognitive representation of an issue is organized by a cognitive structure they refer to as a cognitive frame (Pan & Kosicki, 1993). These various frame phenomena are interconnected, as text writers incorporate their cognitive frames in the stories they produce, and the resulting text and cultural frames are seen as communicated to audiences through priming (Pan & Kosicki, 1993; Sniderman, Brody, & Tetlock, 1991). Iyengar (1990, 1996) has demonstrated that television news stories’ use of frames influenced audience members’ about social issues such as poverty and terrorism. He showed that episodic framing of the news made different aspects of issues salient to viewers rather than thematic framing. Similarly, Sniderman, Brody, and Tetlock (1991) showed that the framing of a survey questionnaire item for the rights of individuals with AIDS resulted in differing levels of support for mandatory AIDS testing.

This study takes a different approach than Second-level Agenda-building to examine the influence of information subsidies. Rather than focusing on the news release’s impact on frames in individual news texts or in media discourse, it explores the news release’s impact on news writers’ cognitive frames for an issue.

The First-level and Second-level Agenda-building studies are unable to sufficiently examine explore news writers’ thinking because these studies explore the impact of information subsidy on news stories or overall coverage. But, the texts created by news writers have been affected by the rules, conventions, and practical considerations of news work that affects the ways news writers use subsidies (Singa & Wu, 2007), and therefore, may not precisely reflect the thoughts of a news writer. This study asked student news writers to describe in writing their thoughts about an issue before preparing a story. The written descriptions provided the data for this study, and, unlike the stories news writers create, their thoughts will not be as constrained by the structures of news work.

The focus of this research was spurred on by Stocking and Gross’ (1989a) description of news writers as active processors of the information they encounter and their call for further research into the thinking of news writers. Currently, little literature exists about the effects of journalists’ thinking (Scheufele, 2004, 2006; Stocking & Gross, 1989a, 1989b;
Stocking & LaMarca, 1990) and even less exists into the influence of news releases on journalists’ thinking about issues (Donsbach, 2004). Understanding the patterns and processes of news writers’ thinking is particularly important because they have a multiplying impact. The result, presented to audiences, impacts many individuals’ understandings of issues.

**COGNITIVE FRAME CONCEPT**

To understand the relationship between the frame offered by an information subsidies text and a news writer’s thinking one must first identify the role of the frame in cognitive processing. Framing scholars view the news writer as an active information processor and symbol encoder (Entman, 1993; Gamson & Lasch, 1983; Gamson & Modigliani, 1989; Pan & Kosicki, 1993). The preparation of the news text is seen as a process in which the news writer encounters information for a story and organizes it into an interpretation of the issue or event, and finally encodes that understanding within a story text. In coming to an understanding of an issue or event, the writer builds his or her cognitive interpretation around a guiding central idea or principle that sums up what the issue is about (Entman, 1993; Gamson & Lasch, 1983). This organizing principle, labeled a cognitive frame, is similar to structures identified in schema theory-cognitive schema, which are structures that represent and organize knowledge about a given concept or type of stimulus (Fiske & Taylor, 1984; Wyer & Gordon, 1984).

Stocking and Gross (1989a) offer a model that describes how the applications of these cognitive frames or organizing principles by news writers guide information processing.

According to the Stocking and Gross model (1989a), when a news writer encounters a real-world event, a two-step process occurs. First, he or she categorizes the information in order to interpret it: “[Real-world] stimuli are understood by matching them with stored information that is the same or similar to real-world stimuli” (p. 8). Once a real-world event has been categorized, the journalist can label people, actions, and other phenomena associated with the event. Furthermore, they argue that a news writer is able to draw inferences from and make judgments about the event and its outcomes.

Although Stocking and Gross do not refer to the stored information, they refer it to as cognitive frames or the process as that of framing. However, what they describe is similar to frame scholars’ description of frames and framing. Entman (1993) describes frame-like cognitive schema that serve to categorize new information in order to help make sense out of it. The authors of this study would argue that these categorizing schema are cognitive frames. What others have identified as organizing principles for the cognitive representations, all individuals construct to understand reality (Pan & Kosicki, 1993).
The next step in Stocking and Gross’ model is theory generation. “Journalists, it can be argued, not only categorize people and events, but also seem to develop more complex theories about them and gather information to test these theories” (Stocking and Gross, 1989a, p. 19). Stocking and Gross continue that once news writers have constructed a theory, they test the accuracy of the theory. They argue that based on cognitive research, news writers will test one theory at a time rather than consider multiple explanations for phenomena. They also contend that the evidence suggests that news writers will seek out and use information that tends to confirm their theories. Once information is gathered and selected, it is integrated to make causal links and reconstruct memories as accurate representations of real-world events.

Entman’s framing of issues is similar to Stocking and Gross’ theory testing (Entman, 1993). He indicates that applying a frame to a social issue may define a problem by indicating the root causes of the situation and identifying solutions. The authors of this study would argue that Stocking and Gross’ description of theory testing by news writers is this function of the frame, as identified by Entman.

Stocking and Gross (1989a) summarize their model of the information processing of news writers with the following:

As we have seen, categorization clearly influences the theories that are generated, and existing theories influence questioning and information selection, and subsequently have an effect on the kinds of information retrieved and recalled. How reporters integrate information will be similarly affected by what is encoded at the time of the event and then retrieved and reconstructed at the moment the story is written (p. 55).

This summing up of the model appears to describe a process by which a news writer applies an organizing principle in order to develop a cognitive representation or understanding of an issue, and thus what frame scholars have identified as a cognitive frame (Pan & Kosicki, 1993).

**CONFIRMATORY AND DIAGNOSTIC STRATEGIES**

Cognitive psychology literature describes two information processing strategies individuals use to process information to complete their understandings of issues. First, Confirmatory strategies are defined as the seeking and adopting of information to confirm one’s personal theories. Second, Diagnostic strategies represent the seeking out and adopting of information that disconfirms one’s personal theories (Devine, Hirt, & Gehrke, 1990).
Research on the general population has demonstrated that when an individual encounters an issue for the first time, he or she will actively seek to elaborate his or her understanding by asking questions that elicit information that will confirm his or her initial belief (Donsbach, 2004; Scheufele, 2006). Many experimental studies have shown that research subjects seek or choose information that confirms their pre-existing theories and beliefs (Snyder & Campbell, 1980; Swann & Giuliano, 1987; Synder & Cantor, 1979; Synder & Swann, 1978; Synder & White, 1981). As for journalists, Stocking and LaMarca (1990) explored the impact of journalists’ pre-existing theories on news work. The researchers interviewed 11 reporters about preparing routine, non-breaking news stories and features. They found all the subjects had entertained either implicit or explicit hypotheses in the preparation of stories. They concluded that journalists then tested those hypotheses by looking for and using theory confirming information. They further concluded that at times, journalists discredited disconfirming facts in order to support their theories. However, the subjects did not always limit their selection to confirming information. The research also showed that approximately half of the articles reflecting the journalists’ pre-existing hypotheses also contained specific competing or alternative hypotheses.

Other studies of the general population have demonstrated that individuals use diagnostic strategies. Trope and Bassok (1982) showed in an experimental setting that subjects’ use of confirmation strategies was weak, and that they often used diagnostic strategies. In another series of studies, Trope and his colleagues demonstrated that subjects consistently used diagnostic strategies (Bassok & Trope, 1983; Trope & Bassok, 1982, 1983; Trope, Bassok, & Alon, 1984).

Studies have shown that, under certain conditions, individuals are more likely to use diagnostic strategies. Research indicates that individuals tend to second guess their beliefs and seek and consider disconfirming information when faced with messages about controversial issues (Doelger, Hewes, & Graham, 1986; Hewes, Graham, Doelger, & Pavitt, 1985; Hewes, Graham, Monsour, & Doelger, 1989). Likewise, Swann and Giuliano (1987) found that people tend to use diagnostic strategies when faced with unfamiliar or controversial situations. Lords, Lepper, and Preston (1984) found that individuals can and will ignore pre-existing biases when making social judgments when instructed to consider alternative hypotheses.

Soloski (1989) found that journalists used diagnostic strategies to gather information for stories. Similarly, Ettema and Glasser (1985) found that once information for an investigative news story is assembled, the journalist is more likely to subject it to a moral certainty test in which she or he actively attempts to identify alternative explanations or additional exculpatory evidence to disconfirm the story.
Understanding How News Writers React to Sources Frames

If, as the Stocking and Gross model indicates, individuals match new information against stored cognitive structures in order to categorize it, and if one accepts those structures are frames, then their model suggests that news writers’ cognitive frames guide their interpretation of the information they encounter. Their model further suggests that news writers will develop “theories” about the people, events and issues they encounter in order to create an understanding of reality. Based on the information processing literature, news writers will pursue either a confirmatory or diagnostic strategy to cope with new information. The framing literature indicates that the frames from texts can be communicated to individuals by priming (Pan & Kosicki, 1993). Therefore, when a news writer encounters the text of an information subsidy that contains new information about an issue, one would anticipate that the news writer would add the text’s new frame to his or her own cognitive frame about the issue only if he or she was operating with the diagnostic strategy. If the writer was using a confirmatory strategy and the frame was not consistent with his or her theory (which should reflect his or her cognitive frame), he or she will not add it to his or her thinking. Griffin and Dunwoody (1995) found no evidence that a news release text frame for a science issue was transferred to the media, but studies by Frederick (1997) and Andsager and Smiley (1998) supported the idea.

Given the mixed results of these studies and the literature about the importance of information subsidy, one explanation for the variation in these findings and whether a news text frame is adopted by a news writer may be the level of controversy of the issue. Studies indicate that journalists seek a wider range of sources when an issue is controversial (Berkowitz & Beach, 1993; Simon, Fico, & Lacy, 1989; Tichenor, Donohue, & Olien, 1980). One would argue that if a writer is considering a wider range of sources, he or she is using a diagnostic strategy and would be more susceptible to sources frames. Another factor which may affect whether a news writer adopts an alternative frame to his or her pre-existing cognitive frame is the writer’s perception of the legitimacy of the source of a news release (Entman & Rojecki, 1993; Fico & Soffin, 1994; Gamson, 1992; Gamson & Modigliani, 1989; Tuchman, 1978).

Research Question and Hypothesis

Based on the above discussion, we posed the following research question for the study:
R1: Will subjects exposed to a new, alternative frame for an issue by a news release use a diagnostic strategy and add the frame to their way of thinking about the issue?

The literature on confirmation and diagnostic strategies indicates that subjects are more likely to seek out alternative views on issues from groups that are perceived as legitimate, thus indicating that the perceived legitimacy of a new release’s source could be a factor in the ability of the press release’s frame to influence the cognitions of journalists. In addition, when subjects perceive the issue as controversial, they would adopt alternative views as well. Based on this information, we tested the following hypothesis:

H1: Subjects who view an issue as controversial be will significantly more likely to add an alternative frame to their cognitive frames for that issue when a source is perceived as legitimate.

METHODS

To explore R1 and test H1, the researchers carried out an experiment in which university journalism graduate and undergraduate news writing students were exposed to a simulated Science magazine article about a fictitious pharmaceutical product for use by farmers on hogs, which were patterned after the Bovine Growth Hormone controversy. Students were first asked to read the simulated article to give them a baseline of information and to prime them with a cognitive frame consistent with the text’s frames. Then students were asked to write four brief statements about how they would summarize the central idea surrounding the issue in order to assess their cognitive frames for the issue. Then students were given a simulated news release from a fictitious farm organization that presented its views about the new drug. The news release offered an alternative frame for the issue. Subjects were again asked to write four brief statements about how they would summarize the central idea surrounding the issue to again assess their cognitive frames for the issue and determine if the news release had caused any change in their thinking.

To test whether the legitimacy of a source of a news release influenced the likelihood that a subject would adopt its alternative frame, the fictitious farm group was presented as a legitimate organization to half the subjects and not legitimate to the other half. To explore whether controversy would encourage a subject to add the news release’s alternative frame to his or her cognitions, the issue was presented as controversial to half the subjects and not controversial to the other half. The result was a 2x2 design with four treatment conditions (legitimate source/controversial issue, legitimate source/non-controversial issue, non-legitimate source/controversial issue, and non-legitimate source/non-controversial issue).
A control group received the simulated *Science* magazine and a distractor article about an unrelated issue.

**Subjects**

One-hundred-fifty undergraduate and graduate journalism students from two universities were recruited for the experiment. Thirty were randomly assigned to each of the treatment conditions and the control group. Each group had 12 male subjects and 18 female subjects. Likewise, an equal number of minority students were assigned to each group. Equal numbers of graduate and undergraduates, and the same number of students from each university was assigned to each experimental group.

Of the 150 students who participated, 120 were from a Midwestern university and 30 were from a Southern university; 60 were male, 90 were female. The average age of a subject was 23.6 years. Twenty-five subjects were graduate students. Five were assigned to each treatment condition group and the control group.

**Stimulus Materials**

A *Science* magazine article about Bovine Growth Hormone was used as a model for the stimulus magazine article. The researchers used a desktop publishing program to construct a duplicate of the actual article. The text was changed to describe the new product as a growth hormone for pork production and to change the name of the product described to Porcine Growth Hormone. To the extent possible, the remainder of the text was unchanged.

The news release was created using excerpts from actual news stories about a farm group that was involved with the Bovine Growth Hormone issue. A public relations professional with more than a decade of experience in agricultural public relations used the excerpts to write the simulated news release.

To determine which text frames were present in the article, two graduate student coders read the fictitious *Science* article and the simulated news releases and indicated which of seven common frames for science and technology news were present in the two texts. The seven science and technology frames used have been identified by frame scholars Peters (1993) and Gamson and Modigliani (1989). The frames included the popularization frame (Gamson and Modigliani refer to this as the progress frame), the expertise frame, the devil’s bargain frame, the controversy frame, the public accountability frame, the scandal frame, and the traditional frame (Gamson and Modigliani refer to this as the soft paths frame) (see the Appendix for a description of the frames). After the first coding of the
fictitious magazine article and simulated news release, we added an economic frame item to the coding scheme. The economic frame has been used by scholars who have studied political and health issues (Neuman, Just, & Crigler, 1992). The two coders found that the fictitious article utilized the popularization (progress) frame and the economic frame, and the fictitious news release utilized the traditional frame and economic frame. We, however, did not include the economic frame in this analysis, because it appeared in both the magazine article and the news release, and was not unique to the news release.

To manipulate the legitimacy of the farm organization source, we relied on Shoemaker’s (1982) work on the four dimensions of legitimacy: 1) positive evaluation of a source; 2) legality; 3) viability, and 4) stability. Subjects in the legitimate treatment groups received a simulated newspaper clipping about the farm group that presented it as a positive organization that behaved lawfully, that had ample resources to survive, and that been in existence for years. To heighten the impression that it was viable, the simulated press release was printed on what appeared to be official news release letterhead from the group. Those in the non-legitimate treatment conditions received a fictitious newspaper clipping that describe the group as a negative organization that behaved unlawfully, had few resources and had existed for only a short time. This group’s news release appeared on plain white paper. The subjects also received a memo from a fictitious newspaper editor, which labeled the group as either mainstream or a fringe group, depending on the treatment condition.

To manipulate whether the Porcine Growth Hormone issue was perceived as controversial or not, the farm organization’s news release either expressed the group’s support for the new drug or its opposition. The only difference in the two versions of the release was the group’s position on the drug. All of the other information presented was the same. The fictitious editor’s memo indicated whether the issue was either controversial or not.

**Measurement**

To assess the subjects’ cognitive frames for the Porcine Growth Hormone, we adopted a conceptualization of frames consistent with the view that a frame is a central organizing idea that sums up what the issue is about (Entman, 1993; Gamson & Modigliani, 1989). We defined a frame as a description of how a subject would summarize the issue. We adopted the operationalizations from other studies that had used a similar approach to the concept, that the frame was a point of view for an issue (Ohl, Pincus, Rimmer, & Harrison, 1995) or a perspective on an issue (Liebler & Bendix, 1996). In the first instance, the scholars categorized news stories into which “points of view” were presented. Although the scholars did not identify the concept of a point of view as a frame, it seems consistent with the framing literature’s concept of a central organizing idea that summarizes an issue. One’s
Impact of Information Subsidies

point of view on an issue seems to be how one summarizes what the issue is about. In the latter example, the researchers, in a content analysis of television news stories, coded the reports for whether they included the interview subject’s perspective on the issue. They identify the perspective as part of the framing of the issue by the story.

For this study, we first asked subjects to record their thinking about the fictitious issue by asking them to read the stimulus article and then to respond in writing to four short questions on a questionnaire: 1) How would you summarize the issue?; 2) What is the central organizing idea of the story?; 3) What are the central themes of the story?; and 4) Are there any additional themes? (Time 1). Then subjects in the treatment groups were given the stimulus news release to read. Subjects in the control group were given the distractor to read. Subjects were then asked to respond to the four questions again in writing (Time 2).

Two coders coded the subjects’ written statements as to whether the central organizing idea or summary of a subject’s written statement was consistent with those of the seven science and technology frames (popularization frame, expertise frame, devil’s bargain frame, controversy frame, public accountability frame, scandal frame, and traditional frame). If coders couldn’t match the summary of a statement to one of the seven science and technology frames, they coded it into an “other” category.

As a reliability check, each coder coded 30 of the same cases. We used a Split-Half Reliability Model, which compares the one coder’s coding for all items with the second coder’s responses. Intercoer reliability for both sets of responses (Time 1 & Time 2) between the two coders was better than 98 percent. The result suggested that two coders were significantly correlated (Time 1: Cochran’s Alpha=.99, p<.01; Time 2: Cochran’s Alpha=.98, p<.01). We also compared the two coders’ codings for each of the nine items on the coding scheme individually. Cronbach alphas were calculated for each individual item. The resulting alpha for most cases was over 80 between two coders.

RESULTS

To answer the research question, we subjected the data to a Crosstabulation analysis. This analysis compared the frames used by subjects in the control group who did not receive a news release with the frames used by the subjects in the treatment groups at Time 2 after exposure to the news release. Any evidence of the traditional frame in the control group’s statements would have to be due to some external contamination because they did not receive a news release. We compared each of the four treatment groups’ use of the traditional frame with that of the control group. If significantly more subjects in a treatment group referred to the traditional frame than control subjects, it would indicate that the news releases influenced on the treatment subjects.
### Table 1

*Influence of news release on a news writer’s cognitive frame*

<table>
<thead>
<tr>
<th>Reference to Traditional Frame</th>
<th>CG (n=30)</th>
<th>TG1 (n=30)</th>
<th>TG2 (n=30)</th>
<th>TG3 (n=30)</th>
<th>TG4 (n=30)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mention of Traditional Frame</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Row</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CG vs. TG1</td>
<td>89.7%</td>
<td>10.3%</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>CG vs. TG2</td>
<td>70.3%</td>
<td>29.7%</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>CG vs. TG3</td>
<td>86.7%</td>
<td>13.3%</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>CG vs. TG4</td>
<td>86.7%</td>
<td>13.3%</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Column</td>
<td>86.7%</td>
<td>10.0%</td>
<td>36.7%</td>
<td>13.3%</td>
<td>13.3%</td>
<td></td>
</tr>
<tr>
<td>Mention of Traditional Frame</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CG vs. TG1</td>
<td>12.9%</td>
<td>87.1%</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>CG vs. TG2</td>
<td>17.4%</td>
<td>82.6%</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>CG vs. TG3</td>
<td>13.3%</td>
<td>86.7%</td>
<td></td>
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<td>100%</td>
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<td>90.0%</td>
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<td>100%</td>
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<tr>
<td>$\chi^2$ (1, N=60)</td>
<td>35.36*</td>
<td>15.86*</td>
<td>32.27*</td>
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Note. CG=Control Group; TG1=Controversy & Legitimate Group; TG2=Controversy & Non-Legitimate Group; TG3=Non-Controversy & Legitimate Group; TG4=Non-Controversy & Non-Legitimate Group. *p < .05, two tailed
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<th>TG1 (n=30)</th>
<th>TG2 (n=30)</th>
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<th>TG4 (n=30)</th>
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<td>100%</td>
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<tr>
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<td>5.96*</td>
<td>1.92, ns</td>
<td>8.52*</td>
<td>9.93*</td>
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Note. CG=Control Group; TG1=Controversy & Legitimate Group; TG2=Controversy & Non-Legitimate Group; TG3=Non-Controversy & Legitimate Group; TG4=Non-Controversy & Non-Legitimate Group. *p < .05, two tailed.
Results of the Chi-Square tests indicated that the answer to the research question was affirmative. As Table 1 shows, it appeared that a news release influences news writers’ frames. The treatment subjects receiving the news release were significantly more likely to use the traditional frame than those receiving it [\(\chi^2 (1)=35.36, P<.05\) for Treatment Group one (controversy and legitimate), \(\chi^2 (1)=15.86, P<.05\) for Treatment Group two (controversy and non-legitimate), \(\chi^2 (1)=32.27, P<.05\) for Treatment Group three (non-controversy and legitimate group), \(\chi^2 (1)=32.27, P<.05\) for Treatment Group four (non-controversy and non-legitimate)].

To address H1, we created a new binomial variable which indicated whether or not a subject had mentioned the traditional frame at Time 1. This new “Time 1 mention” variable indicated the presence of a frame. If a subject referred to a frame in a response to any of the four questions, he or she was given a “1” on the binomial. If he or she never mentioned it, he or she received a “0.” Then we created a second variable (“Time 2 mention”) that indicated whether a subject mentioned the traditional frame at Time 2. Next we created yet another new variable “change in frame” by subtracting the “Time 1 mention” variable from “Time 2 mention” variable. The new variable was also a binomial, a “1” indicated subject had changed his or her frame and added the traditional frame to his or her cognition, and a “0” indicated that he or she had not done so.

Then we submitted the “change in frame” variable to a Crosstabulation analysis that compared each treatment group (Controversy and Legitimate group) with the control group to determine if the treatment groups had added the traditional frame to the cognitions more often than those in the control group. Results of the Chi-Square tests supported the hypothesis. As Table 2 shows, after reading a news releases, the treatment group members who were exposed to a news release about a controversial issue when the source of the release was perceived to be legitimate were significantly more likely to add the traditional frame to his or her cognitions than the control group [\(\chi^2 (1)=5.96, P<.05\) for Treatment Group one (controversy and legitimate)]. However, it showed that the non-controversy and non-legitimate groups did make significantly more references to the traditional frame than the control group (\(\chi^2 (1)=9.93, P<.05\) for Treatment Group four). Possible reasons for this are considered in the conclusion section.

**Conclusions**

We examined whether or not a source can influence news writers’ cognitive frames for an issue through a news release. We also asked if sources would have more success influencing news writers’ cognitive frames when an issue is perceived as controversial and a source is perceived as legitimate.
The first and primary pattern of findings across this study lends supports to the arguments of Andsager and Smiley (1998) and Frederick (1997), whose work indicated that a news release’s frame does in fact influence a news writer’s interpretation of the issue. The results of this study showed that the news release encouraged the news writer to adopt the frame of that news release, thereby providing support for the premise that news releases do more than inform news writers but also provide them with alternative interpretations of events.

The second pattern of findings indicated news writers do use diagnostic strategies. It suggests that news writers were open to frames that were contrary to their own preexisting frames for an issue. In other words, they did not discount or ignore that which did not match their viewpoints. It showed that a news writer is more likely to adopt an alternate frame from a legitimate source when the issue is perceived as controversial. In addition, news writers are more likely to adopt the frame of a news release from a source they perceive to be legitimate. Furthermore, it also showed that if the issue was perceived to be a legitimate source, news writers would adopt a non-controversial source’s frame as well.

The data showed that even under conditions in which the issue was not controversial and the source not legitimate, news writers still adopted the news release frame. This may be the result of the practices of balance and objectivity. Subjects felt that it was necessary to give some space to the alternative source’s interpretation. However, being legitimate allowed a source to garner more use of its interpretation. And when things appeared controversial, the subject was apparently more hesitant to leave out the alternative view. This shows that if a source can make itself appear legitimate, it can gain better access for its interpretation. And, if a source cannot present itself as legitimate, it can still gain more access for its interpretation by presenting the issue as more controversial.

The results of this study, while limited in generalizability, nevertheless have important implications for the field of journalism. For one thing, these findings serve to extend our knowledge of the extent and nature of the influence of news writers’ reactions to news sources. First, these findings are consistent with the results of several previous studies, that news release frames influence the framing of news stories (Andsager & Smiley, 1998; Frederick, 1997). These results suggest that public relations professionals should strive to make their organizations appear more legitimate if they want to increase their chances of influencing news writers’ interpretations of events. The present study does support that such a strategy is particularly helpful. Furthermore, public relations professionals sometimes consider making their issues controversial in order to capture the attention of the media. These results showed that the more the subjects perceived an issue as controversial when a source was perceived legitimate, the more they tended to seek alternative news release frames. Social activist groups that wish to put their perspectives forward may benefit by generating some controversy around their issue.
Results of this study must be qualified by the following limitations; First, this study was based on data obtained from journalism students, not from working professional news writers. The cognitive processes that lead to issue framing are likely to be fundamental parts of the mental processing by which humans interpret and construct interpretations of reality. As this research tests subjects’ interpretations of the event described by the stimulus material and not merely the selection and use of facts, statements, data or portions of test from the materials, it is reasonable to argue that the influence of materials on less-experienced news writers will be similar to their more-experienced counterparts. In addition, the news writers’ criteria for assessing the legitimacy of sources and valuing of controversy as news are concepts that journalism students learn thoroughly in their programs. Therefore, it is not unreasonable to argue that students would be as influenced by those factors in a manner similar to that of more-experienced news writers. However, one may argue that the journalistic conventions of balance and objectivity may make more-experienced journalists’ more susceptible to alternative frames offered by alternative sources. Further research of these issues using full-time professional journalists would be valuable to explore this argument.

Second, this study was performed in an experimental setting. In a real-world setting with organizational pressures involved and a wider variety of sources available, journalists may react differently. However, the results within the experiment showed support for the hypothesis and research.

Future studies might expand this work to investigate journalists’ thought processes prior to the actual writing of the story. At what point does a journalist decide which frame to use, and what happens subsequently? Why? What happens if, following a controversial and highly newsworthy event, a subsequent event follows; does the journalist use diagnostic strategies in such circumstances, or merely employ confirmation strategies and use the same frame employed in the previous story?

ENDNOTES

1. Journalism student subjects were deemed to be appropriate for the research because the concept being examined, cognitive frames are fundamental components of human information processing and, therefore, that journalists’ reaction to stimulus materials would not be significantly different than that of journalism student or the general population. In addition, others have successful used journalism student to examine news work (Griffith & Chance, 1976; Kerrick, Anderson, & Swales, 1964; Lynch & Kays, 1967; McElreath, 1980; Urycki & Wearden, 1998).

2. Mass communication researchers frequently report intercoder reliability using percent agreement, which is used most widely as an overly liberal index because of simplicity. Neuendorf (2002) said percent agreement is particularly appropriate and one of the most popular coefficients to measures for nominal-level
variables. She used one research article that found that “65% of the reported reliability coefficients in their sample of marketing research articles were simple percentage agreement” (p. 149). There are different ways to identify measures and indices of intercoder reliability (for examples, 39 different “agreement indices for coding nominal categories, See also Popping, 1988). In addition, we used a second index that explains intercoder reliability for each individual item on the coding scheme for each of the question because percent agreement might mislead an overestimated measure at least for nominal-level variables (Lombard, Snyder-Duch, & Bracken, 2002).

**REFERENCES**


Impact of Information Subsidies


Impact of Information Subsidies


APPENDIX

CODING SCHEME

Read each statement, record each reference to any of the ideas summarized in the coding scheme’s descriptions of the various frames. You are not coding specific elements of the manifest content of the written statements. Rather, you are coding for references made by the subjects to “specific ideas” in their statements. Record any and all ideas you feel are expressed by the subjects’ summary statements. If you don’t find a specific statement in the coding to match an idea in subjects’ summary, mark “other.”

Popularization (Science/Progress) Frame

Popularization frame has shown that stories with this frame present innovation as a scientific wonder and an achievement. The scientist is depicted as a researcher, a seeker of knowledge. The worst consequence of science would be a faulty report. Research has shown that PWR is effect at increasing pork production. It presents science and research as capable of determining if PWR is safe or effect and that PWR is a positive advancement (i.e., no discussion of risks, costs, or drawbacks).
Expertise Frame
Expertise frame showed that the dramatic structure of these stories suggests that a problem exists and that the scientist can resolve the problem for the lay person. The stories focus on cause, consequences, and explaining necessary background. The scientist is described as an expert who interprets the situation and suggests solutions for coping with the problem. The worst consequence is science being unable to resolve the problem. PWR is an innovation that solves the pork industry’s and Hog farmer’s (generally) problem.

Economic Frame
The adoption of PWR which brings the economic advantage to pork industry and hog farming.

Devil’s Bargain Frame
Devil’s Bargain frame defined innovation as one of progress at a price. The adoption of PWR is not only beneficent but also maleficent to the pork industry and hog farmer. Therefore, PWR is an innovation that gives benefits to hog farmers, but they have to pay for entertaining them.

Controversy Frame
It presents scientific innovations as political controversies with opposing scientific arguments pitted against one another. The scientist is viewed as an advocate for a particular position on the controversy. The worst consequence is seen as scientist losing their credibility as they become advocates. PWR is controversial issues among publics, policy makers, and scientists, and then all parties do not agree that PWR is a positive advancement.

Public Accountability Frame
It incorporated an “anticorporate” theme. A frame that refers to the innovation as something that must be kept under public scrutiny for the good of society. PWR use is the issue as one of struggle for control between the corporate and the publics as society’s regulators.

Scandal Frame
Stories with these frames have a structure similar to a detective drama. The story presents some negative consequence of science that has just been exposed. There are victim and a culprit, who has caused the negative situations. Scientists are presented either as advocates for the victim or the culprit. PWR is beneficial for big business and big farmers and will damage small farmers and farming or PWR is beneficial for small farmers and will save small farmers. Small farmers are depicted as victims of corporate farming, big farmers, and big business.

Traditional (Soft Path and Self Reliance) Frame
Frame that refers the issue as one of social choices and impact on ecology and as more skeptical of, or even hostile to, technology. PWR is a threat or protection natural, tradition life style of the small farmers.
ARTICLES

126 Bradley M. Waite, Laura E. Levine and Laura L. Bowman
Instant Messaging, Multitasking and Media Use of College Youth:
Connections to Impulsiveness and Distractibility

147 Srividya Ramasubramanian and Meghan S. Sanders
The Good, the Bad, and the Ugly: Exploring the Role of Emotions in
Understanding the Appeal of Video Game Characters

169 Joel Turner
I Hear What You're Saying, I Just Don't Believe You: Counterarguing and
Dissonant Media Sources

189 Clay Warren
Subliminal Stimuli, Perception, and Influence: A Review of Important Studies and
Conclusions

211 Guo-Ming Chen and Tong Yu
The Impact of TV Viewing Motivations on Psychological and Socio-cultural
Adjustment: A Pilot Study
INSTANT MESSAGING, MULTITASKING AND MEDIA USE OF COLLEGE YOUTH: CONNECTIONS TO IMPULSIVENESS AND DISTRACTIBILITY

BRADLEY M. WAITE, LAURA E. LEVINE AND LAURA L. BOWMAN

This study examined relations between college students’ media use and academic distractibility, impulsiveness, and mental restlessness. We hypothesized that the use of instant messaging (IMing), with its interruptive nature and related multitasking demands and opportunities (e.g., IMing simultaneously with multiple people, IMing while involved in concomitant activities), would relate to greater distractibility, impulsiveness, and mental restlessness. We hypothesized that more time spent in traditional reading, which requires more focused attention, would relate to less distractibility. College students reported their media use and were administered tests of academic distractibility, impulsiveness and mental restlessness. Our hypotheses regarding IM use and reading were confirmed with respect to academic distractibility and impulsiveness. No overall relation was found with mental restlessness. However the relation with internal distractibility, a dimension of mental restlessness, was partially supported. Future experimental and longitudinal evidence will be necessary to clarify the nature of these relationships and to determine whether the long term experience of media multitasking causes a change in young people’s cognitive function that results in increased distractibility or if distractible students are more attracted to media multitasking.

Keywords: instant message; multitasking; media use; impulsiveness; distractibility

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The “common wisdom” found in publications from The New York Times to the University Wire, is that the use of interruptive communications technology, such as e-mail or instant messaging, affects focus and comprehension of activities that require cognitive engagement such as reading textbooks or studying for an exam. As people use more and more electronic media, they are increasingly multitasking and engaging in “continuous partial attention;” that is, paying attention to several things at the same time. In an article that appeared in the University Wire (Ahmad, 2005), college students who were interviewed claimed that they were easily distracted from schoolwork by e-mails and instant messages (IMs) and felt compelled to respond immediately. In survey research at one university, Kubey, Lavin and Barrows (2001) found that college students who were heavier users of a variety of synchronous communication applications reported impaired academic performance. Indeed, some university professors have banned the use of laptop computers, cell phones, and other technology during classes because students were observed to be instant messaging friends, shopping online, visiting websites, etc., ostensibly while taking notes, an example of multitasking with continuous partial attention. One professor’s anecdotal observation was that students’ attention became more focused in class and their performance on exams increased after such a ban (Bugeja, 2007). Such anecdotes suggest the need to understand systematically the possibility of associations among media use, attention, and distractibility.

Although there is little empirical research on the direct connection between focused attention, distractibility, and media use, national surveys have shown that activities that require division of attention, such as instant messaging are increasing while activities that require intense, focused attention, such as reading novels, have generally decreased across the last twenty-plus years (Lenhart, Rainie, & Lewis, 2001; National Endowment for the Arts, 2004, 2007). Although the National Endowment for the Arts (NEA) in their most recent report on reading in America suggested an uptick in this reading trend (NEA, 2009), it should be noted that for the first time, they included online reading sources in their measures. They report that the rate of actual book reading continued to decline from 2002-2008. Differences in the experience and demands of online reading and traditional book reading are not fully understood, nor are the potential impacts of such on cognitive or brain development. However, it is clear that multitasking, which involves pursuing multiple goals simultaneously, is increasing in young people’s media use (Lieberman & Rosenthal, 2001; Roberts, Foehr, & Rideout, 2005). It is not at all uncommon for adolescents to do homework while instant messaging, watching television, and listening to music. A media use report of the Kaiser Family Foundation (Foehr, 2006) indicated that 61% of teens used other media some or most of the time when doing homework. Furthermore, as reported in both scientific (Lenhart et al., 2001; Roberts et al., 2005) and popular sources (Dahl, 2006; The Associated
Press, 2006; Wallis, Cole, Steptoe, & Dale, 2006), students believe that they can successfully engage in all these activities at the same time, perpetuating a “master multitasker mystique” (Wallis et al., 2006).

**INSTANT MESSAGING**

Teens and young adults are frequent users of IM, with more time reportedly spent IMing than other common computer uses such as e-mail, surfing the web, or downloading music (Boneva, Quinn, Kraut, Kiesler, & Shklovski, 2006). IM is becoming a more important technology for maintaining friendships among young adults, reportedly surpassing even the use of telephones for this purpose (Cummings, Lee, & Kraut, 2006). In 2002, college students were found to be twice as likely (26%) as other Internet users to have used instant messaging on the previous day (Jones & Madden, 2002). Recently, 90% of college students reported that they had used IM within the previous week (Levine, Waite, & Bowman, 2007). Young people are most likely to use multiple forms of media at the same time when instant messaging and surfing the Internet, activities that increase in later adolescence and early adulthood (Roberts et al., 2005). Roberts et al. (2005) found that heavy electronic media users are more than twice as likely to multitask as light users. Foehr (2006) describes the computer as the gateway to multitasking because of its many different functions that can be carried out simultaneously; for example, e-mailing while waiting for IM responses. She states, “instant messaging is particularly interesting, because with its pop-up windows, it actively interrupts any other computer activity, making it hard to ignore. It is not surprising that 3/4 of IM time is shared with other media activities” (Foehr, 2006, p. 15).

There is some evidence that all of this multitasking directly affects the efficiency of performing a single, focal task, such as schoolwork, although the impact on learning is less clear. In two similar studies, college students who were distracted by IMs while reading academic material did equally well on a test of comprehension as those who were not interrupted (Bowman, Levine, Waite, & Gendron, 2010; Fox, Rosen, & Crawford, 2009). However, Fox et al. (2009) found that those students who reported higher levels of daily IM use had lower comprehension and lower reported GPAs. In both studies, participants who were interrupted by IMs took significantly longer to read the material. In the study by Bowman et al. (2010), this difference did not include the time taken for IMing itself, while Fox et al. (2009) do not make it clear whether the increased reading time was exclusive of the IMing time for those who were interrupted by IMs. Research that has examined the direct effects of instant messaging has pointed to its disruptiveness. Nagata and TNO Human Factors (2003) found that when adult participants were engaged in a web-based task, instant messaging was more disruptive than phone or intercom interruptions because of the
similarities in platform. Cutrell, Czerwinski, and Horvitz (2001) found that instant messaging slows time to complete an online search task and can result in forgetting of the target activity. The issue of the interruptive nature of instant messaging and other computer-based notification systems has also been of concern in the context of the work world (Cummings, 2004; Cutrell et al., 2001; Dabbish & Kraut, 2004; McFarlane & Latorella, 2002; Nardi, Whittaker & Bradner, 2000).

The evidence above points to the distractive nature of instant messaging. The question remains whether involvement in electronic multitasking is related to a habitual way of approaching activities in which concentration on a single task becomes increasingly difficult. In other words, is greater use of electronic multitasking related to greater distractibility?

**RESEARCH ON MEDIA USE AND DISTRACTIBILITY**

*Longitudinal and experimental studies of television use.* While there is still little research on the question of whether extensive experience with instant messaging is related to inattention, impulsivity, or distractibility, there is increasing evidence that other media use, specifically television viewing, is connected to difficulties with focused attention and impulsivity, although the direction of causation is highly controversial. In longitudinal studies it has been found that television viewing may precede difficulties with attention. For example, in four longitudinal studies (Christakis, Zimmerman, DiGiuseppe & McCarty, 2004; Johnson, Cohen, Kasen & Brook, 2007; Landhuis, Poulton, Welch & Hancox, 2007; Zimmerman & Christakis, 2007), the amount of television viewed earlier in life was related to attention problems later on. Christakis et al. (2004) found that the more television one- and three-year-olds watched, the more likely they were to have attention problems at age seven. In subsequent research Zimmerman and Christakis (2007) examined the type of television programming young children were watching. They confirmed their earlier findings for children who watched more commercial television, but they found that watching educational TV was not related to later attention problems. Landhuis et al. (2007) found that television viewing in middle childhood was related to attention problems in adolescence. This relationship was independent of the child’s attention problems in early childhood and of concurrent television viewing in adolescence. Johnson et al. (2007) found that adolescents who watched more than three hours of television per day were more likely to have attention problems by age 22. They argued that there was little statistical evidence for bidirectionality of these relationships because television viewing predicted attention and academic difficulties, but attention problems predicted very little about television viewing.
In an experimental study, Geist and Gibson (2000) found that preschoolers were more likely to jump from one play object to the next following exposure to commercial television rather than exposure to educational TV or no TV. Using structural equation modeling (SEM), Shin (2004) found that amount of television viewed by school-aged children was predictive of poor school performance, and that this relationship was mediated in part by impulsive behavior.

Conducting additional experimental studies to determine directionality of effects would be useful. Geist and Gibson (2000) provided experimental evidence of short-term effects of TV exposure. Acevedo-Polakovich, Lorch, and Milich (2005) have observed rightly that long-term experimental studies requiring children to watch large amounts of television would be highly unethical, complicating the search for clarity on directionality. However, although there is no final consensus on this issue, there appears to be emerging evidence from the longitudinal studies and SEM models described above that television viewing is likely impacting attention.

Correlational research on electronic media use. Although neither longitudinal nor experimental studies have yet addressed other types of electronic media use, several correlational studies have found a relationship with impulsivity and inattention. In one study, Chinese high school students who were identified as “Internet addicts” scored significantly higher than those who were not so identified on impulsiveness as measured by the self-report Barratt Impulsiveness Scale (BIS-11) and on the performance based GoStop Impulsivity Paradigm measure (Cao, Su, Liu, & Gao, 2007). Other correlational studies have also found relations between pathological use of the Internet and attention difficulties (Ko, Yen, Chen, Chen, & Yen, 2008; Shaw & Black, 2008; Yen, Ko, Yen, Wu, & Yang, 2007). Yoo et al. (2004) made the argument that attention difficulties are a risk factor for developing “Internet addiction.”

Use of video games has also been linked with attention difficulties. In one study, adolescents who played more than one hour of videogames per day were found to have higher scores on the inattention and ADHD measures of the Conners’ Parent Rating Scale (Chan & Rabinowitz, 2006). Lin and Lepper (1987) found that teachers rated children who played more videogames as higher in impulsiveness and lower in academic achievement. Using a national sample, Gentile (2009) found that youth who showed pathological levels of videogame use were significantly more likely to have difficulty paying attention in the classroom and were twice as likely to have been diagnosed with attention deficit disorder.

Study Objectives

Our research question is focused on whether increased use of electronic media is connected with distractibility, impulsivity, and inattention. Previous research showed that the amount of time that college students spent instant messaging was related to more distractibility for academic tasks, while the amount of time spent reading books was related
to less distractibility (Levine et al., 2007). The objective of the present study is to extend past research on electronic media use, reading and distractibility by employing widely used measures of general impulsiveness and mental restlessness in addition to a measure of distractibility for academic tasks used in prior research. We predicted that greater IM use and multitasking behavior would relate to more impulsiveness, mental restlessness, and academic distractibility, while more time spent in traditional reading would relate to less difficulty with these aspects of attention. In addition, we examined the relation between other forms of electronic media use, including television, Internet use, video gaming, and listening to music, and attention difficulties.

**METHOD**

**Participants**

One hundred forty-five college students between 17 and 22 years of age ($M = 19.04$ years, $SD = 1.15$; 59% female; 80% first- or second-year; 78% white/non-Hispanic; 13% African-American, 4% Latino-Latina/Hispanic, 2%, Asian-American, 3% other/no report) enrolled in general psychology classes at a regional comprehensive public university in the Northeast United States participated and received course credit. Eighty-nine percent reported owning their own computer; all had daily access to computers across various campus locations (e.g., dorms, campus computer labs, etc.).

**Measures and Procedure**

Five self-report measures were administered in order to assess general media use, instant messaging and multitasking, distractibility, impulsiveness and mental restlessness.

*Media use.* Each student completed a 22-item questionnaire designed to measure electronic media use and traditional (non-electronic) reading. Students reported amount of electronic media use and reading as well as details about instant messaging designed to assess the degree of multitasking in which they took part. Electronic media use was reported on 7-point Likert type scales for amount of television viewing, video/computer game playing, listening to music, Internet use, and instant messaging. These forms of media were chosen as recent research has demonstrated that they are among the most popular forms of electronic media use for young persons (Foehr, 2006; Roberts et al., 2005). Response choices were given *in hours* for ease of participants’ understanding, but were designed to be interval-scaled, such that non-zero choices encompassed seven hour ranges, the
arithmetic mid-points of each were spaced equally. Therefore, we treated these data as interval-scaled for analytic purposes. For example, we asked students “During a typical week how many hours do you watch television?”; “During a typical week how many hours do you play video games?” Response choices in hours were: “0, 1-7, 8-14, 15-21, 22-28, 29-35, 36 or more”. Responses were coded for data entry as 1 to 7, respectively. Similarly, the amount of time students spent reading books for pleasure, reading newspapers, and reading magazines were made on scales with response choices in hours for ease of use. Students had eight choices: “0, < 1, 1-2, 3-5, 6-9, 10-13, 14-17, 18 or more” hours. Responses were coded for data entry as 1 to 8, respectively, as per prior description, and treated as interval scaled. Response choices for reading differed from those for electronic media use based on the desire to create measures approximating interval scales and mindful of prior research demonstrating lower overall rates of reading than electronic media use (e.g., National Endowment for the Arts, 2004; Rideout, Roberts, & Foehr, 2005). We created one total score for reading by adding together the three individual reading scores. Reading online sources was excluded from these measures as we wanted a measure of traditional print reading unmediated by the computer or other electronic device.

**Instant message use and multitasking.** We considered IM use to be a special form of multitasking based on prior research indicating that, while IMing, young people tend to engage in a number of other activities (academic and non-academic) and tend to be engaged with multiple IM partners (Levine et al., 2007; Rideout et al., 2005); further, while using the computer for academic work, most students report responding “right away” when they receive an IM (Levine et al., 2007). We used seven questions to assess multitasking including: (a) time spent IMing in a typical week (scored on the 7-point scale for media use); (b) number of people typically IMed with simultaneously (open ended); (c) the immediacy of response to instant messages (scored on a five-point-scale where 1 = never respond immediately, 2 = rarely respond immediately , 3 = sometimes respond immediately , 4 = often respond immediately , 5 = always respond immediately); (d) frequency of IMing during the regular school semester (five point scale where 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often IM during the regular school semester); and (e) IM is on whenever their computer is turned on (five-point-scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often my IM is on when my computer is on). We also asked students to think about the last time they had IMed and to report, to the best of their recollection: (f) all other activities in which they were engaged while instant messaging (e.g., studying, writing papers, doing homework, going to class, playing games, watching television, using Facebook, listening to music, etc.) which we coded as the total number of additional activities listed; (g) the length of that most recent IM session (open ended; prompted for hours and/or minutes; coded as minutes). We asked about the most recent
session to access detail on a specific session, which should be “typical” when distributed across all participants. As with any data asking for people to remember specifics, the issue of accuracy of recall can be questioned. However, the memory of the specific IM session was recent for the great majority of students. For example, 67% of students reported that they often or very often IM daily and 59% reported that the session they were referencing had occurred the very day that they were reporting, over 85% said this most recent IM session had been “today” or “this week” and 95% reported that it had taken place today, this week, or last week. Thus, we believe data gathered through this procedure, across participants, fairly represent typical IM sessions.

**Distractibility for academic reading.** Students completed seven items on 5-point Likert type scales (strongly agree [5] to strongly disagree [1]) designed by Levine et al. (2007), to measure academic focus, distractibility and skill self-appraisal (e.g., “I get distracted easily when reading class assignments”, “I feel impatient when I read my textbooks”). One item, “I find it easy to focus on assigned readings” was reverse scored. Higher scores indicate greater distractibility. For data reduction purposes and in order to account for the most variance, and to reduce error variance, we conducted a principal components analysis (PCA) on the seven items. One component was extracted. It had an eigenvalue of 2.49 and explained 35.6% of the variance. The four items that loaded above .6 on this factor were identical to those found in prior and subsequent research using the Distractibility for Academic Reading (DAR) scale, with very similar factor loadings (cf. Levine et al., 2007; Waite, Bowman & Levine, 2009a). The items (and factor loadings) were, “I find it easy to focus on assigned readings” (reverse scored) (.669), “I feel impatient when I read my textbooks” (.760), “I get distracted easily when reading class assignments” (.756), and “I rarely do the assigned readings for my classes” (.643). We labeled the factor as “distractibility for academic reading (DAR)” and retained the factor for use in further analyses.

To examine the content validity of the DAR scale, we adapted a procedure described by Lawshe (1975). We distributed a content validity questionnaire that included the seven items from the DAR as well as the definitions of the “distractibility for academic reading” construct to a separate sample of 118 student participants (Waite, Bowman & Levine, 2009b). Students rated on a four-point scale (1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree) how strongly “the answer to this question would give a clear indication of a person’s tendency to be attentive and focused or inattentive and distractible when involved with academic tasks.” Ratings of strongly agree and agree were coded as indicating the item contained essential content. Using the formula: \[CVR = \frac{n_s - N/2}{N/2}\], where CVR= content validity ratio, \(n_s\)= number of participants rating strongly agree or agree, \(N\)= total number of participants, five items were significant \((p < .05; CVR \text{ range } = .32 \text{ to } .71;\)
$M = .58$). Significant items were: “I get distracted easily when reading class assignments,” “I feel impatient when I read my textbooks,” “I find it easy to focus on assigned readings,” “I rarely do the assigned readings for my classes,” “I get absorbed in reading books for pleasure.” Other items were non-significant ($p > .05$). Although one item (absorbed in reading books for pleasure) had a significant CVR, it was not designed as a core item focusing on academic distractibility and it has not achieved a retention level factor loading on the present or any other PCA of the DAR scale with various samples of college students (Levine et al., 2007; Waite et al., 2009a).

Including the present study, analyses have been conducted using DAR scale data collected from three separate college samples to examine the internal consistency of the scale (Levine et al., 2007; Waite, et al., 2009a). All have indicated acceptable internal consistency of the four retained academic distractibility items (range of Cronbach’s $\alpha = .73$ to .79). Intercorrelations between the individual items on the present sample range from $r = .43$ to .56, with a mean $r$ of .49, indicating significant ($p < .001$) moderate correlations. To examine the test-retest reliability of our measure, we administered our academic distractibility scale two times to a separate sample of 143 college students (Waite et al., 2009a). Data were collected three weeks apart. A principal components analysis similar to that described above was conducted on the Time 1 data for this sample, with similar results to our main study sample. The same four items loaded above .6 on this factor (eigenvalue of 2.73, 39.05% of variance explained). The test-retest reliability was established by calculating a Pearson correlation coefficient between the Time 1 and Time 2 DAR scale factor scores. The test-retest $r$ was .74 indicating reasonable stability over time.

**Impulsiveness.** The Barratt Impulsiveness Scale (BIS-11; Barratt, 1994; Patton, Stanford, & Barratt, 1995) is a 34-item self-report scale that we used to measure impulsiveness, with individual items such as “I buy things on impulse” and “I say things without thinking,” and includes 11 reverse scored items such as “I plan tasks carefully.” Participants respond on 4-point scales (rarely/never =1, occasionally = 2, often =3, almost always/always = 4) to each item. The scale yields a total impulsiveness score that can range from 34 to 136. Internal consistency for the scale has been reported as acceptable with Cronbach’s $\alpha$ ranging from .79 to .83 across different samples and has been demonstrated to distinguish between persons who “lack impulse control” such as substance abusers and prisoners from others (Patton et al., 1995). Cronbach’s $\alpha$ was .74 in our sample. Six primary factors measuring attention, motor impulsiveness, self-control, cognitive complexity (e.g., problem solving), perseverance, and cognitive instability (e.g., racing thoughts) derived from unique combinations of individual items on the scale have been identified by Barratt and his associates when examining the factor structure of the BIS-11. There is no overlap of individual items between factors. Individual factors loaded on from three to seven items.
Cronbach’s alpha (and number of items loading) for factors in our sample were: attention $\alpha = .71$ (5); motor impulsiveness $\alpha = .65$ (7); self-control $\alpha = .64$ (6); cognitive complexity $\alpha = .46$ (5); perseverance $\alpha = .05$ (4); and cognitive instability $\alpha = .48$ (3). We used the total scale score as our main measure of impulsiveness. Perseverance, cognitive complexity, and cognitive instability scales were not used in further analyses due to poor internal consistency. We used the remaining three primary factors (attention, motor impulsiveness, and self-control) for some analyses in which we wanted to examine specific dimensions of impulsiveness.

Mental restlessness. The Internal Restlessness Scale (IRS; Weyandt et al., 2003) is a 24 item self-report instrument used to measure internal restlessness, which is considered by the scale authors to be a “mental” component of the hyperactivity dimension of Attention Deficit Hyperactivity Disorder (ADHD). Participants respond on 7-point Likert type scales to items such as “unrelated thoughts seem to pop into my head” and “I am distracted by visual stimuli.” Three of the items are reverse scored, such as “I feel mentally calm.” Scores can range from 24 to 168. We decided to employ the IRS because of prior research and hypotheses suggesting a link between media use and attention deficit/hyperactivity (Acevedo-Polakovich, Lorch, & Milich, 2007; Chan & Rabinowitz, 2006), because our primary measure of distractibility (DAR) focused on academic tasks and our measure of impulsiveness (BIS-11) included significant numbers of items assessing self-reported behavioral domains (e.g., buying on impulse, acting on impulse, talking on impulse). Weyandt et al. (2003) note that hyperactivity in adolescence and adulthood does not have to be behavioral, per se. They cite DSM-IV criteria indicating that hyperactivity features may be “limited to subjective feelings of restlessness” in these age groups (p. 385). Thus, having an instrument that focuses exclusively on mental restlessness allows us to measure this dimension of the hypothesized link between media use and a “hyperactive” cognitive style. Weyandt et al., (2003) found that persons diagnosed with ADHD consistently scored significantly higher than others on the IRS. They reported that test-retest reliability ranged from .80 to .89. Internal consistency in our sample was found to be good (Cronbach’s $\alpha = .91$). Construct validity of the scale has been empirically supported (Weyandt, Hays & Scheppman, 2005). Four primary factors from the IRS were reported by Weyandt et al. (2003): measuring internal distractibility (e.g., being easily distracted by sounds, visual stimuli, or unrelated thoughts), internal restlessness (e.g., difficulties relaxing or sleeping because of recurring thoughts), internal impulsivity (e.g., losing one’s train of thought when conversing or feeling compelled to interrupt others), and internal disorganization (e.g., feeling disorganized). There is no overlap of individual items between factors. Individual factors loaded on from 3 to 8 items. Cronbach’s alpha (and number of items loading) for factors were: Internal Distractibility $\alpha = .91$ (8); Internal Restlessness $\alpha = .82$ (5); Internal...
Impulsivity $\alpha = .67$ (3); Internal Disorganization $\alpha = .72$ (3). We used the IRS total scale score as our main measure of mental restlessness. We used the four primary factors for some analyses in which we wanted to examine specific dimensions of mental restlessness.

**RESULTS**

The great majority of students (92.4%) reported that they IM. Of those, all reported that they began IMing between the ages of 9 – 18 years old, with 79% starting between ages 10 – 14 years ($M = 12.94$, $SD = 1.98$). Average amount of IM use per week was estimated at 13.52 hours ($SD = 1.19$). Eighty-two percent of typical IM sessions were reported to last between 5 minutes and 2 hours ($M = 47.62$ minutes, $SD = 61.70$) with a total of 2.97 different people ($SD = 1.22$). Patterns of instant messaging and the ecological context in which instant messaging took place, IM use and context variables are presented in Tables 1 and 2. In general, findings indicate that most students have IM on when the computer is on, that peak times of IM use are during the academic semester, particularly in the evenings.
and late at night, and that more than half respond “right away” when IMed. Most students report doing other activities, frequently academic work, while also IMing with friends.

**PCA for IM Use and Multitasking**

For data reduction purposes and in order to account for the most variance and to reduce error variance, we conducted a principal components analysis on the items that we designed to measure IM use and multitasking. Two components were extracted. The first had an

---

Table 2

*Most Recent IM Session Context*

<table>
<thead>
<tr>
<th>IM Context Variables</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When was most recent IM?</strong></td>
<td></td>
</tr>
<tr>
<td>Today</td>
<td>59</td>
</tr>
<tr>
<td>This week</td>
<td>26</td>
</tr>
<tr>
<td>Last week</td>
<td>10</td>
</tr>
<tr>
<td>&gt; Last week</td>
<td>5</td>
</tr>
<tr>
<td><strong>What else doing during IMing?</strong></td>
<td></td>
</tr>
<tr>
<td>Nothing else</td>
<td>9</td>
</tr>
<tr>
<td>1 or 2 other activities</td>
<td>73</td>
</tr>
<tr>
<td>3 or more other activities</td>
<td>18</td>
</tr>
<tr>
<td>Other activities included academic work(^a)</td>
<td>30</td>
</tr>
<tr>
<td><strong>Who IMing with? (One or more...)(^b)</strong></td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td>92</td>
</tr>
<tr>
<td>Family members</td>
<td>42</td>
</tr>
<tr>
<td>New “in-person” friend</td>
<td>22</td>
</tr>
<tr>
<td>“On-line only” friend</td>
<td>12</td>
</tr>
<tr>
<td>New “on-line” friend</td>
<td>8</td>
</tr>
<tr>
<td>Co-worker</td>
<td>8</td>
</tr>
</tbody>
</table>

\(^a\) Item is percent of the 91% who did other activities while IMing. \(^b\) Students reported IMing a mean of 4.12 different people (SD = 4.08).
eigenvalue of 2.58 and explained 36.8% of the variance. Four items loaded on this factor. The items (and factor loadings) were “amount of time spent instant messaging” (.861), “frequency of IMing during the regular school semester” (.853), “IM is on whenever computer is on” (.818), and “number of people typically IMed with at the same time” (.500). We labeled the factor as “IM Use/Multitasking” (Factor 1) and retained it for use in further analyses. The second component had an eigenvalue of 1.03 and explained 14.72% of the variance. Only one item loaded on this factor. The item (and factor loading) was “number of other activities engaged in while instant messaging” (.852). Although factors with only one item loading must be viewed with caution, this item represents a feature often considered central to the concept of multitasking (i.e., doing multiple activities

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distractibility (DAR)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Impulsiveness (BIS Total Score)</td>
<td>64.55</td>
<td>8.93</td>
</tr>
<tr>
<td>Mental restlessness (IRS Total Score)</td>
<td>79.44</td>
<td>20.85</td>
</tr>
<tr>
<td>IM Use/Multitasking (Factor 1)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Activity Multitasking (Factor 2)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Reading Total</td>
<td>6.58</td>
<td>2.26</td>
</tr>
<tr>
<td>Television Viewing</td>
<td>2.75</td>
<td>1.06</td>
</tr>
<tr>
<td>Video/Computer Gaming</td>
<td>1.74</td>
<td>1.12</td>
</tr>
<tr>
<td>Music Listening</td>
<td>4.48</td>
<td>1.78</td>
</tr>
<tr>
<td>Internet Use</td>
<td>3.94</td>
<td>1.57</td>
</tr>
<tr>
<td>Sexa</td>
<td>1.59</td>
<td>0.49</td>
</tr>
</tbody>
</table>

Note 1. Reading total is combined amount of reading print media (books, magazines, newspapers). Print media responses choices in hours were: “0, < 1, 1-2, 3-5, 6-9, 10-13, 14-17, 18 or more”; coded 1 to 8, respectively.

Note 2. IM Use/Multitasking and Activity Multitasking are factors retained from the PCA of the IM Use and Multitasking measures; Distractibility is the factor retained from the PCA of the DAR items. aSex was coded male = 1, female = 2.
simultaneously). Therefore, we labeled it “Activity Multitasking” (Factor 2) and retained it for use in further analyses. Conceptually, Factor 1 represents the amount of instant messaging students did, including the multitasking social dimension (number of people simultaneously IMing), whereas Factor 2 represents multitasking as defined by the number of concurrent activities while IMing.

**Multiple Regression Analyses Predicting Distractibility, Impulsiveness, and Mental Restlessness Variables using Media Use Variables**

Means and standard deviations of main media use, distractibility, and impulsiveness variables are presented in Table 3. We conducted a series of multiple regression analyses predicting Distractibility for Academic Reading, Impulsiveness (BIS–11), and Mental Restlessness (IRS) using electronic and non-electronic media use variables, including IM Use/Multitasking (Factor 1), activity multitasking (Factor 2), reading (traditional), television viewing, video/computer game playing, listening to music, and Internet use, with sex included as a control variable.

The regression predicting Distractibility for Academic Reading was significant, \(F(8, 136) = 5.64, p = .000, R^2 = .249\). Distractibility was significantly positively predicted by IM Use/Multitasking (Factor 1) (\(\beta = .330, p = .001\)) and negatively by the amount of traditional reading (\(\beta = -.318, p = .019\)). The regression predicting impulsiveness (BIS – 11 Total Score) was significant, \(F(8, 136) = 2.44, p = .017, R^2 = .126\). Impulsiveness was significantly positively predicted by IM Use/Multitasking (Factor 1) (\(\beta = .200, p < .05\)) and negatively by the amount of traditional reading (\(\beta = -.180, p = .033\)). We decided to explore further the relations between our media variables and impulsiveness. To this end, we conducted additional multiple regression analyses, one for each of the three BIS – 11 primary factors with acceptable internal consistencies using the same predictors as above.

The regression predicting motor impulsiveness (BIS Factor 2) was significant, \(F(8, 136) = 2.68, p = .009, R^2 = .136\). Motor Impulsiveness was significantly positively predicted by IM Use/Multitasking (Factor 1) (\(\beta = .283, p = .006\)) and Activity Multitasking (Factor 2) (\(\beta = .237, p = .004\)). The regression predicting attention (BIS Factor 1) was marginally significant, \(F(8, 136) = 1.99, p = .052, R^2 = .105\). Attention (scored as inattention, i.e., lower scores indicate better attention) was significantly predicted by the amount of traditional reading (\(\beta = -.182, p = .033\)) and marginally by IM Use/Multitasking (Factor 1) (\(\beta = .202, p = .053\)). The regression predicting self-control (BIS Factor 3) was not significant.

The regression predicting mental restlessness (IRS Total Score) was not significant, \(F(8, 136) = 1.68, p = .109, R^2 = .090\). However, we decided to explore further the relations between our media variables and mental restlessness. To this end, we conducted additional
multiple regression analyses, one for each of the four IRS primary factors using the same predictors as above. The regression predicting internal distractibility (IRS Factor 1) was significant, $F(8, 136) = 2.79, p = .007, R^2 = .141$. Internal distractibility was significantly negatively predicted by the amount of traditional reading ($\beta = -.207, p = .014$) and positively by music listening ($\beta = .296, p = .002$). Activity Multitasking (Factor 2) was a marginally significant positive predictor of internal distractibility ($\beta = .159, p = .052$). The regression predicting internal disorganization (IRS Factor 4) was significant, $F(8, 136) = 2.76, p = .007, R^2 = .140$. Internal disorganization was significantly positively predicted by one variable only, the amount of video gaming ($\beta = .285, p = .008$). Regressions for the remaining two IRS primary factors (internal restlessness, and internal impulsivity) were not significant.

**DISCUSSION**

We found partial confirmation for our hypothesis that IM use and the tendency toward multitasking would be related to distractibility, while reading would be related to more focused attention. Similar to Levine et al. (2007), we found that greater IM use and multitasking behavior related to more distractibility for academic reading, while more time spent in traditional reading predicted less distractibility for academic reading. In addition, IM use and multitasking were related to general impulsiveness as measured by the Barratt Impulsiveness Scale, and reading was related to less impulsiveness. Neither IM Use/Multitasking nor reading was related to mental restlessness (IRS total score). However, internal distractibility, a dimension of mental restlessness, was lower for those who read more, higher for those reporting more music listening and marginally higher for those reporting more activity multitasking while IMing.

Students who were more involved with IM Use/Multitasking had higher motor impulsiveness scores (e.g., acting on the spur of the moment) and, marginally, lower attention scores (e.g., focusing on the task at hand) (cf. Patton et al., 1995, p. 770). Students who did more traditional reading scored higher on focused attention. Students who reported doing more activities while simultaneously IMing showed more motor impulsiveness and marginally greater internal distractibility (e.g., racing thoughts and distractibility by sights and sounds).

In the present study we found that college students used IM extensively and used it in a way that would promote interruption and distraction. For example, about half the students reported that they responded right away to an IM message, often interrupting another ongoing activity. Most of the students were doing one or more tasks, often including academic work, while IMing. Even if they were only IMing, they were still likely to be
multitasking, as students were holding three or four different IM “conversations” at the same time.

Other Media Use and Distractibility

We found that the amount of time that students spent listening to music predicted internal distractibility. Prior research focused on the relation between music and academic task performance has shown mixed results. Some have shown that music interferes with concentration and performance of academic tasks (Flowers & O’Neill, 2005; Fogelson, 1973; Parente, 1976), while others have shown no effect (Pool, Koolstra, & van der Voort, 2003). The relation might also be explained by a finding that students who experience racing thoughts may be more likely to turn to music either to help soothe and focus them or to block out these intrusive thoughts (Doak, 2003; Saarikallio & Erkkila, 2007). The type of music may affect these results, as Hallam, Price, and Katsarou (2002) found that soothing music promoted academic performance, while arousing and unpleasant music interfered with performance.

Video gaming was related only to internal disorganization (which includes items from the IRS reflecting inability to focus on tasks and plan ahead). This result is consistent with research findings linking video gaming with attention difficulties (Chan & Rabinowitz, 2006; Gentile, 2009; Lin & Lepper, 1987). The finding that television viewing did not predict attentional variables stands in contrast to previous research with fourth and fifth grade children (Levine & Waite, 2000). However, with these college students, the amount of Internet, IM, and music use was greater than use of TV. Comstock and Scharrer (2001) report that the amount of television viewed peaks at around age 12 and declines thereafter. Consequently, television may not wield as much influence as the newer media for today’s college students.

Our findings are correlational and therefore we cannot be certain that multitasking is creating attention difficulties. It is possible that individuals with more difficulty focusing attention turn to media that parallel their cognitive style. The KFF study of 2006, for example, found that sensation seekers, who are more likely to look for stimulation, were more likely than other teens to multitask with media (Foehr, 2006). However, this, too, is a correlational finding. It is possible in the current study that a third factor could influence both IM use and distractibility. Our findings demonstrate a relation between electronic multitasking and attention but the direction of effects needs further exploration.

One limitation of the current study is the use of retrospective self-reports of media use. This type of assessment can be subject to recall problems and issues of social desirability (Jordan et al., 2007). When compared with other forms of media use assessments, self-reports tend to produce higher estimates of use (Greenberg et al., 2005; Jordan, Trentacoste,
Henderson, Manganello, & Fishbein, 2007). However, self-report measures generally correlate significantly with other measures, such as daily diaries (Greenberg et al., 2005). As our goal was to examine correlates of differential media use rather than absolute amounts, self-report measures appear to be an appropriate form of assessment. However, future studies using concurrent recording, such as diaries or other daily sampling strategies (e.g., the Experience Sampling Method) or using the direct electronic capture and measurement of media use can add to the validity of our findings by minimizing potential difficulties in remembering and estimating activities.

Future studies examining links among media use, impulsiveness, and distractibility could be enhanced through the use of performance based measures of attention. The self-report measures used in the current study reflect an individual’s assessment of impulsiveness, and mental restlessness as traits and may be related to personality factors, such as neuroticism (Paulhus, Aks, & Coren, 2001). However, these self-report measures, such as the Barratt Impulsiveness Scale have been found to relate to performance-based tasks assessing relevant behavior (e.g., impulsiveness) (Enticott, Ogloff, & Bradshaw, 2006; Keilp, Sackeim, & Mann, 2005).

It would be useful in future studies to include measures that reflect ability in areas of interest that may be affected by distractibility and impulsiveness, such as academic achievement. Evidence exists that greater amounts of entertainment-based media use are linked with decreased academic achievement. In one study, this difference appeared to be mediated by impulsiveness (Shin, 2004). Research examining this possible pathway should be continued.

Future research can further clarify the relationships found in this study between media multitasking and distractibility. Experimental research is needed to examine immediate effects of media multitasking and to determine causality. Longitudinal studies are also necessary to examine potential effects of long-term exposure to media such as IMing. Such research may enable us to determine whether those individuals who are highly distractible are attracted to media multitasking, or whether intense use of interruptive media and media multitasking makes individuals increasingly distractible.

REFERENCES


SRIVIDYA RAMASUBRAMANIAN AND MEGHAN S. SANDERS

This exploratory study proposes the Mixed Emotions and Character Appeal (MECA) Model to understand the role of emotions in evaluations of fictional video game characters. This model seeks to integrate the Stereotype Content Model (SCM) and the Perceiving and Experiencing Fictional Characters (PEFiC) framework by suggesting that character morality, competence, and aesthetics influence individuals’ emotional responses to characters, which in turn determine the level of interest in playing the character. Specifically, participants (N=95), in a 2 (Character Ethics) x 2 (Character Competence) x 2 (Character Aesthetics) within-participants experiment viewed eight characters in a video game trailer. Dependent measures were self-reported feelings (admiration, pity, envy, and contempt) and perceptions of character appeal. Results suggest that character competence was the leading factor, followed by aesthetics, and then by morality in determining character appeal. Implications for Affective Disposition Theory (ADT), SCM, and PEFiC are discussed.

Keywords: video games, emotion, characters, experiment, MECA model

“The good guys are usually really boring. They never seem to have as much depth to them. They’re so predictable, always doing ‘the right thing.’ Bad guys just do what they like; it’s much more interesting.”

-Daisy (retrieved from an online gaming chat room)
Playing videogames no longer means staring at a low-resolution, two-dimensional screen to get to the next level of difficulty. Games today have compelling narratives set in three-dimensional spaces, featuring complex characters. For media psychologists, the addition of narrative structures to digital games opens up several new avenues of study. Preliminary research shows that the presence of a storyline in videogames increases involvement, immersion into the game from the character/avatar perspective, and enjoyment of games (Schneider, Lang, Shin, Bradley, 2004). Recent research shows that engaging video game storylines allow players to immerse themselves into the narrative world from the perspective of their assumed character or avatar (Green, Brock, & Kaufman, 2004; Schneider et al., 2004).

Many questions regarding character involvement, narrative engagement, and emotional responses are yet to be adequately explored in the context of gamers’ relationships with video game characters. How and why do gamers make their character selections? What types of emotional bonds do they form with the characters they embody within a game? What character traits are most highly valued when deciding what character to choose to play? This exploratory study seeks to integrate and apply existing theories such as the Affective Disposition Theory (ADT), the Stereotype Content Model (SCM), and the Perceiving and Experiencing Fictional Characters (PEFiC) model to digital game play in order to examine the key character traits that influence feelings towards and appeal of game characters.

THEORETICAL FRAMEWORK

Affective Disposition Theory: Morality of Fictional Characters

A key theory within traditional media entertainment that helps explain the role of characters in the enjoyment of entertainment is the Affective Disposition Theory (ADT) (Raney, 2003; Raney & Bryant, 2002; Zillmann, 1980, 1996). ADT explains appreciation of fiction, especially drama and humor, by focusing on viewers’ moral evaluations of and affective bonds with media characters.

ADT posits that people evaluate media characters’ roles and actions on the basis of moral appropriateness. Based on this evaluation, viewers develop an emotional connection with characters that extends to their enjoyment of the overall viewing experience. Viewers will more closely connect with those characters perceived as possessing appropriate morality, and less so with those characters who appear to be immoral. In other words, viewers will have positive affective dispositions towards characters that they judge as admirable or heroic and negative dispositions toward characters perceived as villainous.
Exploring the Role of Emotions
Sridiya Ramasubramanian and Meghan S. Sanders

These dispositions relate to enjoyment in that positive outcomes for admirable characters and unfortunate outcomes for despicable characters become enjoyable, while unfortunate outcomes for admirable characters and positive outcomes for villains are not enjoyed.

ADT has found support empirically in several contexts including mirth and news (Zillmann, 2000; Zillmann, Taylor, & Lewis, 1998). However, this theory has not been studied in the context of interactive new media such as video games (Klimmt & Vorderer, 2003; Vorderer, Bryant, Pieper, & Weber, 2006). Interactive and non-linear aspects of video games help players explore a variety of spaces and identities across time through imaginative play. Players are able to experience negative emotions such as fear and anger within the safe arena of the virtual world as they explore the evil, the grotesque, and the exotic (Nell, 2002).

Recent extensions of ADT (Raney, 2003; Raney & Bryant, 2002) integrated viewers’ cognitive moral judgments and affective identification in an effort to understand their enjoyment of drama. However, this research maintains that, in line with dual-processing theories, viewers might not always have the cognitive resources or the motivation to constantly monitor the moral actions of characters (Chaiken, 1987; Chen, Duckworth, & Chaiken, 1999). Instead, character assessments, made quite early in the narrative, have their bases in schematic knowledge of character archetypes. This is especially true if the primary reason for audiences to seek fictional game narratives is to escape current reality (Green et al., 2004).

Viewers go through an “appraisal phase” during which they quickly infer characters’ personalities based on salient cues. Applying the sufficiency principle, the expectation is that viewers will use as little information as needed to judge the main characters in the narrative (Chen et al., 1999). Trailers, previews, and initial character introductions play an important role during this assessment phase. Therefore, this experimental study focuses on how character information in game trailers influences anticipated enjoyment derived from adopting a character’s persona in the game’s scenario.

The present investigation expands the scope of ADT in three ways. First, it extends ADT beyond the “good guys-bad guys” dichotomy by considering character traits, other than morality, such as competence and aesthetics, both of which may influence viewers’ perceptions of the fictional characters. Second, the study examines how character traits elicit specific emotions such as admiration, pity, envy, and contempt toward characters. Finally, it uniquely applies ADT to interactive digital media by exploring the importance of character traits on anticipated character selection in video games. By linking cognitive appraisals to affective responses and behavioral intentions in this fashion, the expectation is to better understand apparent oddities such as attraction to evil characters and a desire to vicariously adopt the personas of grotesque characters in video games.
The Stereotype Content Model: Competence of Fictional Characters

Whereas ADT has focused entirely on character morality, person perception literature suggests that there could be other relevant character traits that influence individuals’ perceptions and emotions. Of particular interest is the Stereotype Content Model (SCM) proposed by Fiske and colleagues (Fiske, Cuddy, Glick, & Xu, 2002; Fiske, Xu, Cuddy, & Glick, 1999). It argues that perceived competence and morality (also referred to as warmth) are the two most important criteria used to make judgments about people.

SCM posits that allies and in-group members are recognized as both competent and good-natured. They are given high status and are non-competitors. In contrast, people who are perceived as lacking in competence and morality will be judged as competitive subordinates who are seen as parasitic and exploitative. Groups assessed as having mixed stereotypes in terms of competence and morality will evoke ambivalent feelings that are neither fully positive nor fully negative. Specifically, people seen as incompetent but good-natured will be perceived as compliant, non-threatening subordinates. People who are perceived to be highly competent but immoral are seen as competitive threats.

Applying SCM’s notions in the present study’s context, the expectation is that characters such as Superman and Lara Croft acquire perceptions of talent, physical attractiveness, and moral superiority resulting in assignment of the highest status that draws the admiration and respect of viewers. In contrast, dim-witted, evil, ugly henchmen become the perceived parasitic freeloaders who deserve to be treated with contempt. A character such as Hannibal Lecter, who might be seen as purely evil but also highly intelligent, will be perceived to be a competitive threat. A good-natured character such as a loyal sidekick who provides comic relief to the narrative will be sympathized with although not really respected.

Admiration. According to SCM, in-group members, people considered to be similar to the perceiving individual, are thought to be good-natured and competent. Such people are admired and respected (Fiske et al., 1999). Clearly, therefore, gamers would express positive feelings of pride and admiration toward characters perceived to reflect similarity, and as perceived similarity increases, greater identification with the character ensues (Hoffner, 1996). Translating this to admiration of fictional characters, characters judged to be competent, good-natured, and attractive are likely to evoke feelings of pride, admiration, and respect from viewers. Not surprisingly, such characters typically occupy the central roles in narratives as protagonists. As explained by ADT, audience members become greatly pleased when such characters experience positive outcomes; they are seen as richly deserving. As a corollary, viewers experience dysphoria when such admired characters lose challenges (Zillmann, 1994, 1996).
Pity. Feelings of pity are often manifestations of mixed evaluations of people who on the one hand appear to be naive and incompetent, and on the other hand simultaneously good-natured and warm (Fiske, et al., 2002; Ramasubramanian & Oliver, 2007). The present context expects that fictional characters appraised as being good-natured and morally acceptable but also as lacking intelligence, talent, and heroic strengths, will elicit pity. Such characters typically play supporting roles within narratives as the hero’s sidekick or as a comedian. These characters evoke positively-valenced feelings of liking and empathy. However, they do not elicit admiration or respect as does the protagonist such that attraction to playing a game as such a character may be hindered.

Envy. Why would anyone ever be appreciative of an evil character? The idea is actually not so far-fetched. Admiring positive traits within the in-group does not completely eliminate the possibility of appreciation of out-group members. That is, individuals can appreciate characters even without identification or empathy. Traits to which one aspires, but reality disallows because of, perhaps, personal inability or legalities can be particularly attractive. Characters appraised as being talented, creative, and confident while also being immoral and self-centered will evoke feelings of envy from viewers. One has to only look at examples such as Team Rocket in Pokémon, Captain Hook in Peter Pan, and Coyote in Road Runner to see that even mean-natured characters are often appreciated by audiences, especially in comedic genres. The most memorable villains are often those who exhibit positive qualities such as intelligence, strength, and diligence. Audience members who highly value these positive qualities may envy characters that embody them, primarily because the character uses these traits without fear of barriers or repercussions (Alsford, 2006).

Contempt. Feelings of contempt that emphasize a purely negatively-valenced orientation toward villains are similar to the proposals of traditional ADT. According to stereotyping literature, contemptuous prejudice includes feelings of dislike, uneasiness, anger, disgust, and hatred based on group affiliations (Stangor, 2000). Applying these notions to the world of fiction, such feelings of disdain are the expected expressions toward fictional characters that apparently lack competence, morality, and aesthetics.

The current study makes a contribution to Entertainment Theory by applying SCM to the realm of fictional characters and by considering viewers’ emotional responses towards game characters. Specifically, this paper applies these ideas to understand how characters’ traits help predict discrete emotions such as admiration, pity, envy, and contempt toward game personas.
Perceiving and Experiencing Fictional Characters (PEFiC) Model: Aesthetic Appeal of Fictional Characters

The Perceiving and Experiencing Fictional Characters (PEFiC) model (Hoorn & Konijn, 2003; Konijn & Hoorn, 2005) was a major step towards understanding the so-called paradoxes of attraction to wicked and ugly characters. This model provides a complex framework for mixed evaluations of television and movie characters, suggesting that engagement with media characters is achieved through an optimal balance of distance from and involvement with characters. Specifically, it explores how character ethics, aesthetics, and epistemics influence perceived similarity, valence, and relevance of characters, which in turn influence engagement with characters.

One of the unique contributions of the PEFiC model is its emphasis on aesthetic appeal, which is not discussed in either SCM or ADT. The physical attractiveness stereotype has been tested across a variety of contexts such as dating preferences, doctor-patient relationships, and consumer behavior where studies find that attractive people have been judged as being more sociable, successful, and cooperative (Dion, Berscheid, & Walster, 1972; Eagly, Ashmore, Makhijani & Longo, 1991; Jones & Adams, 1982; Larose, Tracy & McKelvie, 1993). Applying these principles to media entertainment, the PEFiC model suggests that beauty can add to character involvement whereas ugliness could distance viewers from characters. This framework allows for the possibility that grotesque characters could sometimes be seen as tragic (e.g., Frankenstein) or amiable (e.g., Shrek). In line with PEFiC, we believe that aesthetics play a significant role in character judgments, especially in the early evaluation phase of character selection within video games.

Recent extensions of PEFiC include the Interactive Perceiving and Experiencing Fictional Characters (I-PEFiC) Model (van Vugt et al, 2007). Here the I-PEFiC model has been applied to computer-based communication where users’ responses to various types of computer system interface characters were studied. Additionally, I-PEFiC-model has also been developed and tested with SIMS characters (van Vugt et al, 2006). Apart from ethics, aesthetics, and realism, another factor called “affordances” played a significant role in influencing task performance and user satisfaction. Whereas affordances relates to specific aids and obstacles that come in the path of the character, the current study focuses on competences, which was operationalized as perceived physical strength and intelligence of game characters.

While PEFiC mainly focused on distance and involvement, the present paper is interested in the discrete emotions that fictional characters, especially bad ones, elicit. Instead of using appreciation (which was measured as great versus boring in PEFiC) as a generic measure of emotional responses to characters, we have further broken down
appreciation into more specific emotions such as admiration, pity, envy, and contempt in accordance with SCM.

In testing PEFiC, Konijn and Hoorn (2005) created a 2x2x2 experimental design where 20 minutes of edited clips from feature films were picked to represent each condition (e.g., movies such as Edward Scissorhands, Gandhi, Cruella de Vil). In the present study, however, the characters included were all from within one single game to avoid any confounding variables such as genre, storyline, and artistic rendition. Given that all of the characters were somewhat equally realistic or unrealistic in this fantasy action-adventure game, it was not possible to manipulate realism. Instead, our experiment focused on the effects of character morality, competence, and aesthetics.

Character Appeal in Digital Game Contexts

Gameplay is not simply a mechanical control of hardware components but the immersive, interactive, entertaining aspect of playing a video game. One of the primary motivations for play has been recognized as entertainment. Therefore, words such as fun, enjoyable, interesting, pleasurable, and entertaining are the terms of evaluation for gauging the appeal of video games. Factors such as interactivity, aesthetics of presentation, control, rewards, and novelty influence game playability (Baranowski et al., 2008). The reasons why a game appeals to players are different from why particular characters might be appealing to play within a given game.

Several user-related and narrative-related factors influence character appeal. Performance issues (Vorderer, Hartmann & Klimmt, 2006), flow (Sherry, 2004), gender role identity (Jansz, 2005), self-representation (Bessiere, Seay, & Keisler, 2007), and character traits are all factors of game enjoyment that directly link to the choice when adopting a character. The current study examines the role of character traits such as morality, aesthetics, and competence in influencing the character appeal during the initial phase of the game where character selection often occurs right after viewing a brief trailer of the game.

Character appeal could be influenced by viewers’ identification with the character due to perceived homophily (similarity) between the viewer and the character (Maccoby & Wilson, 1957). Viewers can also form strong emotional bonds with characters that they admire as role models because the characters possess attractive qualities that the viewers lack (Hoffner, 1996; Konijn et al., 2007). A player can identify and empathize with a character but still not consider the character appealing to play if the character does not have the skills to compete successfully in the game. On the contrary, a highly “playable” character may not evoke admiration and respect as would a character that evokes empathy.
We define character appeal as the subjective anticipated enjoyment and immersive engagement that gamers’ expect from playing (vicariously representing) as that character in a given video game. Unlike traditional media, video game users fully immerse in the gaming environment by becoming embodied in the characters that they play (Fantone, 2003). Rather than being an observer of the action, players often have some control over the action, such as deciding what type of character they choose to play from an array of possibilities. A player’s identification with a character goes beyond emotional connections with the character because the user has to actively control the entity and play the game from that character’s perspective (Konijn et al., 2007). Judgments relating to a character’s perceived entertainment value often occur at the initial phase of the game with the introduction of main characters when the player decides which of the available characters to select to play. In other words, it is during this assessment phase that gamers also determine each character’s appeal.

**Mixed Emotions and Character Appeal (MECA) Model**

As illustrated in Figure 1, the Mixed Emotions and Character Appeal (MECA) model proposes that perceived character traits influence emotional responses toward characters, which in turn influence engagement with characters. Specifically, the MECA model...
examines how three specific dimensions of character traits—morality, competence, and aesthetics—influence viewers’ emotional responses of admiration, pity, envy, and contempt that then influence viewers’ level of engagement in terms of character appeal.

According to the MECA model, we expected that good-natured, competent, and beautiful characters will be the most admired and also highly appealing. Kind-hearted, less competent, ugly characters will be pitied, but their lack of competence and physical attractiveness will make them undesirable in terms of appeal. Highly competent yet immoral and good-looking characters will be envied from a distance for their positive traits, and such characters will be perceived to be regarded as rather highly appealing. Those characters perceived to be ruthless, incompetent, and ugly will be the most despised and have a low degree of character appeal.

Figure 2 explains the specific predictions of the MECA model in terms of how exactly different types of character types will influence emotional responses and character appeal. Morality and competence are on the X and Y axes respectively. The inner box represents beautiful characters and the outer box stands for ugly characters. The top left quadrant
represents feelings of admiration for characters judged as both moral and competent. Within this admiration quadrant, attractive characters are likely to be more admired than unattractive characters. The top right quadrant stands for mixed feelings of envy expressed toward competent but immoral characters. Attractive characters will be envied more than unattractive ones. The bottom left quadrant denotes mixed feelings of pity toward moral but incompetent characters. Ugly characters will be pitied more than beautiful characters. Finally, the lower right quadrant symbolizes contemptuous feelings toward characters evaluated as incompetent and immoral. Greater contempt will be expressed toward unattractive rather than attractive characters.

In terms of character appeal, we expect that the characters that elicit admiration and envy will be seen as much more appealing than those that elicit pity and contempt. Aesthetics would have a moderating effect such that more attractive characters will be seen as more appealing than less attractive characters. That is, competence will play an important role in determining character appeal, followed by aesthetics, and then by morality.

The following sections delineate the methods used to test the proposed model in the context of an action-adventure game trailer with characters varying in morality, competence, and aesthetics in order to gauge participants’ mixed affective dispositions and their perceptions of characters’ appeal.

**METHOD**

**Participants**

Ninety-five undergraduate students enrolled in communication courses participated in this 2 (Character Morality) x 2 (Character Competence) x 2 (Character Aesthetics) within-participants factorial experiment. Data were collected from a large southern university in US in exchange for course credit. Participants varied in age from 18 to 30 years old (M=20.72, SD= 1.47). Although the majority (83.2%) of them were female, no significant gender effects emerged in the analyses.

**Design and Procedures**

All participants were exposed to a video game trailer, after which they received more detailed descriptions of the eight featured characters. Character descriptions were manipulated to vary the characters’ moralities (good or evil), competencies (competent or incompetent), and aesthetics (beautiful or ugly). The dependent measures were self-reported feelings toward the character (admiration, envy, pity, contempt) and character appeal.
The study session, which took place in a computer lab, lasted 30-45 minutes. Participants were seated before a large video projection screen onto which both the trailer and character descriptions were projected. Each character description appeared on the screen for about 3 minutes. Immediately after exposure to each character, participants completed the relevant section of a paper-and-pencil questionnaire relating to their feelings toward and their perceptions about the appeal of the character. For each character, several questions relating to the perceived morality, aesthetics, and competence of the characters verified the effectiveness of the manipulated information. In order to avoid order effects, the order of the character descriptions were varied across study sessions.

**Stimulus Materials**

After carefully surveying a variety of video games, Evil Genius (2004) was selected as most appropriate for this study. The presence of a variety of interesting and appealing characters varying in talent, aesthetics, and ethics was the primary reason for choosing this game. This video game is an action-adventure game loosely based on a James Bond theme. An action-adventure game was chosen for this experiment because, unlike other game genres such as racing or puzzle games, action games allow for a greater degree of role-playing and a larger range of characters. The main characteristic of this genre is that the player identifies with a protagonist who has to overcome a series of obstacles, typically the invention of antagonists, before reaching a definitive objective (Smith, 2006). Whereas the player controls the protagonist around whom the narrative revolves, other non-player-controlled characters could be neutral, hostile, or helpful to the protagonist (Fabricatore et al., 2002).

Similar to the study by Konijn and Hoorn (2005) that tested the PEFiC framework, participants in the current experiment were exposed to edited clips rather than the actual media content. However, unlike the study of Konijn and Hoorn, all characters in the present experiment were from the same video game in order to avoid any incidental confusion due to genre-based and narrative-specific variations, game genre, and graphic elements.

The selected video game features strong interesting villains and powerful, attractive special agents vying with each other on missions such as conquering the Eiffel Tower and stealing priceless art treasures. Powerful super-weapons, tricky traps, loyal minions, crazy scientists, headstrong henchmen, attractive spies, and corrupt diplomats help the “good guys” (the special agents) or the “bad guys” (the notorious villains) in achieving their
objectives. The game is technically well-executed and is filled with humorous snippets, making it a potentially engaging and entertaining narrative.

The game’s trailer gave the basic premise of the game and included video clips of actual gameplay. The character descriptions that followed included a picture of the character along with a written description (see sample character description in Table 1). The graphic rendition of the character descriptions was kept consistent across all characters in terms of color schemes and size to avoid any possible arbitrary or unintentional influences. The pictures and typed descriptions were adapted from the Evil Genius game website.

### Manipulation Check

Manipulation checks were conducted using a 9-point Likert-type scale (ranging from 1 = “not at all” to 9 = “very much”). Participants responded to the questionnaire item: “Please use the check boxes to indicate how well the following adjectives describe your perceptions of this character in this video game.” To check the character’s morality manipulation, participants rated their agreement on adjectives such as: immoral, ruthless, and evil (Cronbach’s α = .95). These items stemmed from prior research on the moral-warmth dimension of personal perceptions by Fiske and colleagues (Fiske et al., 2002, 1999). In
terms of morality, those characters manipulated to be evil (M=6.62, SD=1.01) were seen as much more immoral, as intended, when compared to good characters (M=3.02, SD=1.02); t=21.70, df=94, p<.001).

To test the efficacy of the character competence manipulation, responses to character descriptors such as, intelligent, talented, and confident were compiled into a single index (Cronbach’s α = .77). These terms were modeled according to scales used to measure competence in prior research (Fiske et al., 1999, 2002). As expected, smart characters (M=6.54, SD=2.08) were perceived to be significantly more competent as compared to dull characters (M=4.38, SD=1.96); t=5.57, df=94, p<.001).

Finally, to test the manipulation of the aesthetic appeal of the game characters, participants’ responses to adjectives such as good-looking and good physique were combined (Cronbach’s α = .75). As expected, character aesthetics were manipulated effectively such that good-looking characters (M=7.12, SD=1.20) were perceived to be significantly more aesthetically pleasing than ugly characters (M=3.93, SD=.94); t=21.81, df=94, p<.001). In sum, all three independent variables were manipulated successfully.

**Dependent Measures**

Emotional responses. Emotional responses toward the characters was grouped into four distinct types—admiration, pity, envy, and contempt (Cuddy, Fiske, & Glick, 2007; Fiske et al., 2002, 1999). After viewing each character description, respondents were asked to rate their feelings toward each character on a 9-point Likert-type scale (1 = “not at all” to 9 = “very much”).

Prior research provided direction for creating all the emotion-related indices. The admiration index used the following anchors: admiring, respectful, inspired, and fond (Cronbach’s α = .94). The contempt index contained four feeling descriptors: hateful, angry, repulsive, and disgusted (Cronbach’s α = .89). The envy scale had two items, envious and jealous (Cronbach’s α = .90). Finally, the sympathy index combined responses to sympathetic and compassionate feelings toward the character (Cronbach’s α = .85).

**Character Appeal.** This created index contained four items that measured character appeal. Participants responded on a 9-point Likert-type scale (ranging from 1 = “not at all” to 9 = “very much”). The four statements were: “Playing as this character would be interesting,” “Playing as this character would be exciting,” “Playing as this character would be enjoyable,” and “Playing as this character would be boring” (reverse-coded). These items yielding a reliable index (Cronbach’s α = .88).
RESULTS

A doubly-multivariate repeated measures analysis of variance was performed on the five dependent variables: Admiration, Pity, Envy, Contempt, and Character Appeal along the three independent variables: Character Morality, Competence, and Aesthetics. Since each participant repeatedly rated eight characters according to dependent variables measured on the same scale, this type of repeated measures multivariate analysis of variance was appropriate. The cell means and standard deviations for the five DVs across the eight different character types appear in Table 2.

The multivariate results show main effects for all character traits, although significant interaction effects superseded the main effects. The three-way interactions between Competence, Morality, and Aesthetics were significant for admiration, pity, and envy; F(admiration)= 40.77, p<.001; F(pity)=11.33, p<.001; F(envy)=6.83, p<.05 (see Table 2). In terms of admiration, among competent characters, good-natured ones were admired more than evil ones regardless of their aesthetic appeal. However, among incompetent characters, aesthetics did not make a difference for good-natured characters, but evil characters that were aesthetically pleasing were admired to a significantly greater extent than aesthetically unpleasant characters.

With regard to the three-way interaction effect on feelings of pity, among competent characters, aesthetics did not make a difference in judgments of evil characters, but for good-natured characters, greater pity was reported for unaesthetic rather than aesthetic characters. In contrast, among incompetent characters, unattractive, good-natured characters were pitied more than good-looking, good-natured characters, but good-looking, evil characters were pitied more than unattractive, good-natured characters.

Finally, turning to the three-way interaction effects relating to envy, among competent characters, aesthetically pleasing, good-natured characters were envied more than attractive, good-natured characters, but little difference arose among evil characters based on character aesthetics. The reverse was true for incompetent characters for which aesthetics did not significantly affect feelings of envy for good-natured characters, but for evil characters greater envy was reported for attractive rather than unattractive characters.

The two-way interaction between competence and aesthetics was significant only for admiration and pity; F(admiration)=4.88, p<.05, F(pity)=7.44, p<.05 (see Table 2). Character aesthetics did not affect admiration of competent characters, but among incompetent characters, attractive ones were admired more than their opposites. In terms of pity, aesthetically pleasing, competent characters were pitied more than attractive, competent characters; whereas character aesthetics did not influence pity expressed toward incompetent characters.
The two-way Morality x Aesthetics interaction was significant for all measures except envy; F(pity)=72.95, p<.001, F(admiration)=23.96, p<.00; F(contempt)=6.67, p<.05), and F(character appeal)=9.05, p<.005 (see Table 2). That is, character aesthetics did not affect perceptions of good-natured characters. However, attractive, evil characters were admired more, pitied more, and hated less than unattractive, evil characters. However, in terms of

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Note: Numbers in parentheses represent standard deviations.
character appeal, among good characters, aesthetically pleasing characters were seen as much more appealing than the opposite types of characters; whereas among evil characters, unattractive ones were seen as only slightly more appealing than the attractive ones.

Similarly, the interaction between Morality and Competence was significant for admiration, pity, and contempt, but not for envy and character appeal; F(admiration)=57.29, F(pity)=41.26, F(contempt)=34.05; all ps<.001 (see Table 2). Competent, good characters were admired more, pitied more, and hated less than incompetent, evil characters. However, competent evil characters were admired less, pitied less, and hated more than incompetent evil characters.

Examining the univariate analyses revealed notable results (for all F, df =1, 93). In general, good characters evoked more admiration, pity, and envy, and less contempt than evil characters although they did not differ in character appeal; F(admiration)=284.77, F(pity)=158.45, F(contempt)=88.98, F(envy)=15.79 (all p<.001) (see Table 2). Competent characters were seen as much more appealing (F=23.10, p<.001), less pitiable (F=19.11, p<.001), more enviable (F=5.67, p<.05), and surprisingly, more despicable (F=5.87, p<.05) than incompetent characters but no differences were observed in terms of admiration. Aesthetically pleasing characters elicited greater character appeal (F=55.48, p<.001), admiration (F=40.59, p<.001), envy (F=24.08, p<.001), and contempt (F=7.71, p<.05) but not pity, as compared to unaesthetic characters.

**DISCUSSION**

The present investigation contributed to existing research on enjoyment of fictional media characters in at least three ways. First, it proposed the Mixed Emotion and Character Appeal (MECA) model to understand the role of character morality, competence, and aesthetics on emotional responses to and engagement with characters. Additionally, the study applies the Stereotype Content Model (SCM) of intergroup emotions to fictional characters by considering mixed affective responses such as pity and envy, beyond the traditional positive feelings of admiration and negative feelings of contempt, toward fictional characters. Finally, the research examines how specific character traits that evoke discrete emotions determine varying levels of interest in playing a given character in a video game.

The overall results of this experiment suggest that character descriptions play a key role in influencing audiences’ expectations of narrative enjoyment. Specifically, morality, competence, and aesthetics influenced viewers’ emotional responses to and perceived appeal of video game characters. These findings contribute to the existing literature on the Stereotype Content Model (SCM) and the Perceiving and Experiencing Fictional Characters
(PEFiC) model by offering compelling evidence that character appeal is influenced by emotional feelings generated by the dimensions against which characters are evaluated. This gives credence to the idea that character traits such as perceived competence and aesthetics are strong tools in evaluating impressions of character, especially in digital, interactive environments, as compared to merely categorizing characters as “good guys/bad guys,” as suggested by the Affective Disposition Theory (ADT). Moreover, the findings also suggest the usefulness of such models in studying a variety of mixed-valenced emotions such as pity and envy beyond traditional classifications of affective orientations of purely positive or purely negative types.

In examining the particular psychological effects manifested upon viewing specific character descriptions in the game trailer, the current study reveals, as expected, good characters were liked more than evil ones, competent characters were liked more than incompetent ones, and aesthetically pleasing characters were enjoyed more than aesthetically displeasing ones. However, more interesting results arise when strong, evil, aesthetically pleasing, and competent character contrast with less talented, less aesthetically pleasing, good characters. Competent, evil characters were perceived to be much more appealing as compared to incompetent good characters. That is, tough, smart, and talented villains seemed to be preferred over good characters that lack talent.

Interestingly, although viewers indicated high levels of contempt and low levels of admiration for intelligent “bad guys,” people still preferred these characters to good, untalented, incompetent characters. They were attracted to playing evil characters despite negative dispositions toward these characters. This seemingly paradoxical finding is easily explained when noting that character appeal is different from vicarious empathy. Players need not empathize with or like a character in order to appreciate the character. That is, character appreciation is different from character identification or liking. Even evil, aesthetically unattractive characters can be appreciated and can be seen as highly appealing even though gamers intensely “love to hate” such characters. Character appeal should be further explicated in future research such that its distinction from related concepts such as engagement, enjoyment, and appreciation is clarified.

Character competence appears to be the most important determinant of character appeal as compared to even character morality or character aesthetics. In order to advance to new levels of the game, and ultimately win the game, gamers ascribe significant importance to selecting a character that has the necessary skills to advance and be triumphant. This finding lends support to the I-PEFiC model that suggests that affordances (whether character helps or obstructs progress towards goals) play a role in influencing engagement. This result is particularly significant because traditional entertainment research has largely focused on character morality as the primary character trait that influences enjoyment of narrative fiction. A more aesthetically pleasing, competent character is even better.
Results further suggest that for a given competent character, if players had to choose between aesthetics and morality, they actually picked the former. That is, the findings suggest that for gamers, importance accrues to the appealing character that is aesthetically pleasing, not necessarily to the one who is good-natured. This fits with other recent research on new media use that suggests that aesthetics play an important role in avatar selection. Overall, the findings can be interpreted to mean that greater competence is what makes villains attractive to play. Being an evil character does not seem to greatly harm the perceived character appeal, although being an unattractive character does seem to hurt character appeal. An incompetent avatar becomes less appealing, regardless of aesthetics and moral standing.

With regard to participants’ discrete affective responses to the characters, results suggest that participants reported contempt for evil characters and admiration for morally appropriate characters. Beyond this, with the other emotions more variability appeared. Participants reported higher enjoyment levels, more anticipated involvement, and exhibited more variability in their emotional reactions to game characters when mixed evaluations were present, further providing support for the PEFIC model (Konijn & Hoorn’s, 2005; van Vugt et al., 2006, 2007). Also consistent with this model was appreciation for evil characters as exhibited by the higher levels of enjoyment, involvement, admiration, and pity for immoral characters that were aesthetic and/or competent. Distance was exhibited through feelings of contempt for incompetent, aesthetically pleasing heroes.

The findings from this study provide mixed support for the Fiske and colleagues’ Stereotype Content Model (Fiske et al. 2002, 1999). Contrary to expectations regarding higher levels of envy for evil, talented, and aesthetically pleasing characters, the current study found that scores for envy were rather low for all types of characters. Villains’ specific abilities to behave according to their own wills and not society’s standards were not particularly envied. This could be because in action-adventure games such as the one used in this study, players can experience freedom from social norms by being able to shoot, steal, and deceive while playing the villain, as well as the hero. Additionally, envy as an emotion appears to be difficult to evoke by simply reading character descriptions without really engaging in actual game play behaviors within a particular game context.

Limitations and Directions for Future Research

The study is currently limited to participants just reading character descriptions from a single action-adventure game without having the opportunity to actually play the game. Future studies could include actual game play where researchers record participants’ game play and then observe to see the types of characters they chose to play and the emotions that these characters elicited in them.
The current study measures only four types of discrete emotions-pride, pity, contempt, and envy. Other, finer classifications of emotions such as fear, guilt, amusement, etc. may exist and provide avenues of interest for future scholars. However, the rationale for the choice of these four types of emotions for this study was based on the classification scheme provided by Fiske and colleagues’ Stereotype Content Model.

Other character features such as funniness, gender, age, ethnicity, occupation, social class, etc. could serve as cues for determining perceptions of the character, and his/her appeal. Future studies can examine the psychological impact of these and other character traits that could affect impressions of the characters, and therefore, potential involvement with the narrative.

Although this study did not explicitly test character impression formation processes, theorization of the existence of dual processes should be considered while studying affective dispositions toward characters. Future studies should conduct empirical tests to determine the presence of two routes to character judgments—a more effortful character evaluation versus a less effortful stereotypical character impression route.

The majority of the participants in this sample were female. This was not surprising considering that they were recruited from an undergraduate communication course in the U.S that has a large female student population. In order to add to the generalizability of the study, future researchers should include equal numbers of male and female research participants.

Concluding Remarks

This exploratory research provides a reasonable first empirical step toward understanding game character appeal as a function of character traits and emotional responses. This study attempts to expand the scope of the Stereotype Content Model (SCM) to media psychology by applying these ideas in the context of emotional bonds formed with game characters. It proposes the Mixed Emotions and Character Appeal (MECA) Model that includes audiences’ discrete emotions such as admiration, pity, envy, and contempt in response to character traits such as morality, competence, and aesthetics.

Previous research has almost entirely focused on the role of characters’ morality in influencing narrative enjoyment of drama and humor. However, the present study, like the PEFiC model, suggests that character morality may not play as significant a role in dispositions toward game characters. Instead, perceived competence and aesthetics of the characters emerge as more important traits that determine affective dispositions toward, and more importantly, the appeal of the game character. We see the MECA model as an exciting and productive addition to the research literature that will help us understand why gamers
are often attracted to playing grotesque and evil characters even though such characters might appear to be ones to whom extending empathy is difficult.

REFERENCES


I HEAR WHAT YOU’RE SAYING, I JUST DON’T BELIEVE YOU: COUNTERARGUING AND DISSONANT MEDIA SOURCES

JOEL TURNER

Contrary to conventional wisdom, viewers acquire and recall more information from news content presented by an ideologically dissonant news source than from news content presented by an ideologically consonant news source (Turner 2007a). This finding raises the question of why exposure to a dissonant media source results in greater levels of success with this endeavor. One potential explanation is that respondents are formulating counterarguments to the news content presented by ideologically dissonant sources. Utilizing an experimental research design, this study demonstrates that, irrespective of content, individuals do formulate significantly more counterarguments to news content presented by what they perceive to be an ideologically dissonant news source.

Keywords: media, counterarguing, consonance, dissonance, news

One of the most important topics with regard to the news media’s role as the disseminator of political information is the extent to which individuals learn from information presented on television news broadcasts. Previous research examining Fox News Channel (FNC) and CNN has demonstrated that individuals are better able to acquire and retain information presented to them by a network they believe to be ideologically dissonant from their political beliefs (Turner, 2007a). This raises the question of why individuals are more successful at acquiring and retaining information from ideologically dissonant news sources. One possibility is that individuals are formulating counterarguments to news content presented to them by a network they believe to be ideologically dissonant from their

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political beliefs. Specifically, viewers may be able to acquire and recall more information from news content presented by sources they perceive to be dissonant from their political position because they are formulating counterarguments to the information with which they are predisposed to disagree. Answering the question posed above regarding information retention should provide insight into the cognitive motivation underlying individuals’ processing of television news.

This study examines the impact of the ideological consonance or dissonance of a television news source on an individual’s propensity to formulate counterarguments. It begins with a review of the existing literature, which has examined the influence of consonant and dissonant information sources. That will be followed by a discussion of the experimental design and measurement techniques utilized for the undertaking. Finally, the study reports the results of my hypothesis tests, and concludes with a discussion of the theoretical and practical implications of these findings.

**Theoretical Background**

This study builds upon the findings of two related studies. The initial study (Turner, 2007b) demonstrated that strongly liberal and strongly conservative viewers perceive FNC and CNN, respectively, as being ideologically dissonant from their political position, regardless of the content presented by these networks. The second (Turner, 2007a), which more directly influences this study, examined the implications of these perceptions of ideological bias as it relates to information acquisition and recall. By employing an experimental design, Turner (2007a) was able to illustrate that strong ideologues are better able to acquire and retain news content presented to them by the dissonant media source. This was a surprising finding, given that most Americans can best be described as cognitive misers whom we would expect to dismiss information presented by an ideologically dissonant news source (Festinger, 1957; Fiske & Taylor, 1991; Heider, 1946; Newcomb, 1953; Peffley & Hurwitz, 1997), and raises the question of why exposure to a dissonant media source results in greater levels of success with this endeavor. One potential explanation is that respondents are formulating counterarguments to the news content the ideologically dissonant source presents.

A rich theoretical underpinning exists to support this expectation regarding the propensity to counter dissonance by counterarguing. Proponents of balance theory (Heider, 1946; Newcomb, 1953) suggest that individuals are more apt to counterargue information presented to them by what they perceive to be a dissonant media source. Balance theory is a motivational theory of attitude formation wherein the drive toward consistency is the motive for psychological balance. Because psychological balance is most easily achieved
by resisting dissonant information, this theory predicts that perceived dissonance positively influences the propensity to counterargue. In addition, research on cognitive dissonance (Festinger, 1957) supports the notion that individuals are more likely to counterargue information presented by what they perceive to be dissonant media sources. Cognitive dissonance refers to the mental tension resulting from individuals holding contradictory thoughts. This tension motivates individuals to reduce the amount of dissonance between cognitions, and this reduction is most readily achieved by either dismissing or ignoring the dissonant information, or by formulating reasons to explain why the dissonance is incorrect. As a result, it is plausible that, in order to limit mental tension, viewers will indeed formulate counterarguments to information presented by dissonant networks. McGuire’s (1964) inoculation theory also lends support to these expectations. This theory states that individuals attempt to prevent persuasion by taking steps to strengthen preexisting attitudes, beliefs, and opinions. Therefore, when exposed to what they perceive to be dissonant information, individuals take steps to refute that message. Put on the defensive, the receivers of dissonant information become more apt to create counterarguments to oppose it.

In addition, perceptions of source credibility exert a great deal of influence on the decision to counterargue. A credible source is defined as one that possesses a willingness to communicate correct information in an unbiased manner (Hass, 1981). Early work in this area demonstrated that respondents were likely to adopt the position or attitude advocated by a credible source but not the position or attitude advocated by a source perceived to be lacking in credibility (Kelman, 1961). These findings are supported by the work of Baron and Miller (1969), which demonstrates that subjects generated more counterarguments in response to a message attributed to a low-credibility source than to a message attributed to a high-credibility source. Applying these findings to the question at hand leads to the prediction that strong liberals and strong conservatives are more likely to formulate counterarguments to news content presented to them by a network they perceive to be ideologically dissonant from its political position because they perceive that network as lacking in credibility.

Other scholars have found that those who are more committed to their political beliefs demonstrate a greater propensity to counterargue. According to Brock (1967) and Haas (1972), individuals who are strongly committed to their political positions, such as self-identified strong ideologues, are much less tolerant of opposing political viewpoints. As a result, these individuals will often take an argumentative stance, in the process mustering counterarguments in order to resist the persuasive intent or content of a message. The work of Eagly and Chaiken (1995), Johnson and Eagly (1989), and Zuwerink and Devine (1996) supports these early findings. Therefore, we would expect strong liberals and strong conservatives to be more apt to take argumentative stances toward what they perceive to be
ideologically dissonant news content, and to formulate counterarguments to the news content presented by the dissonant network.

Research on message forewarning also supports the notion that respondents are more likely to formulate counterarguments to news content presented to them by a dissonant media source (Papageorgis, 1968). A number of experimental studies have demonstrated that respondents who are forewarned of the forthcoming content of an ideologically dissonant message are significantly more likely to formulate counterarguments to resist a persuasive attempt (Allyn & Festinger, 1961; Hass & Grady, 1975; Petty & Cacioppo, 1986; for an alternative perspective, see Cooper & Jones, 1970 and Mills & Aronson, 1965). In addition, respondents forewarned of the persuasive intent of a forthcoming message are very likely to formulate counterarguments to the information presented (Fukada, 1986; Hass & Grady 1975; although Petty & Cacioppo (1986) demonstrate that counterarguments increased only for issues of high salience). Also, Allyn and Festinger (1961) demonstrated that those who receive warnings regarding the persuasive intent of a forthcoming message are very likely to formulate counterarguments to the message than are those who receive neither warning.

Although these studies on message forewarning actually gave a warning to respondents beforehand, I argue that their results are relevant in this case because many contemporary consumers of television news already possess forewarnings regarding the ideological nature of the media outlets under study. Many citizens have preconceived notions regarding the content presented by certain news networks, as well as the persuasive intent of their broadcasts. As a result, because strong ideologues are perpetually “forewarned” regarding the nature and intent of the messages presented by specific news networks, these strong ideologues are most likely to counterargue news content presented by what they perceive to be a dissonant news network.

The use of source cues also supports the notion that respondents should be more likely to counterargue news content presented by a dissonant news source (Carmines & Kuklinski, 1990; Mondak, 1993a, 1993b; Zaller, 1992). Early work in this area dealt with respondent identification with a source (Kelman, 1961; also see McGuire, 1969; Osgood & Tannenbaum, 1955). Respondents used their level of identification with a source as a gauge for which viewpoints to accommodate and which to reject. Simply put, individuals were found less likely to counterargue information when they perceived it as coming from a source with viewpoints they thought were similar to their own. These sentiments were echoed by scholars who found that individuals who held negative preconceived notions regarding a source of information were more likely to counterargue its points (Hass & Grady, 1975; Kiesler & Kiesler, 1964). In addition, Kuklinski and Hurley (1994) found that respondents were more likely to oppose government programs proposed by individuals with whom the respondents did not agree politically. Because strong liberals and strong conservatives tend to have negative preconceived notions regarding the ideological
predispositions of certain networks, it is very likely that each group will formulate counterarguments to information presented by the dissonant news networks.

Additional research indicates that the process of viewers acquiring information from news networks in order to formulate counterarguments is exactly how the system should work. In their daily lives, individuals tend to choose politically homogenous discussion partners (Bennet, Fisher & Resnick, 1994; Mutz, 2006; Ulbig & Funk, 1999, although Huckfeldt et al. [2004] argue that some disagreement persists among political discussion partners). However, this political homogeneity does not appear to be as prevalent with regard to citizens’ choice of media sources, as citizens may be more willing to turn to a dissonant news media source either to challenge or to reinforce (or perhaps to challenge and to reinforce) their political views (Mutz, 2002; Mutz & Martin, 2001). Therefore, it stands to reason that these individuals will be more likely to formulate counterarguments to news content provided by a dissonant media source as a result of their potential desire to reinforce their pre-existing political beliefs.

Finally, research by Chaiken et al. (1989) and Zimmerman and Chaiken (1998), which specifically focused on the processing of incongruent information, has demonstrated that respondents acquire and retain more incongruent information than congruent information in order to formulate counterarguments to the incongruent information. This is supported by the work of Edwards and Smith (1996), as well as that of Eagly et al. (1999), which found that information that was not congenial evoked more thoughts, and most importantly more counterarguments, than did congenial information. If these empirical findings hold, we would expect that strong conservatives and strong liberals should acquire and retain more of the news content presented by dissonant news networks because they are formulating counterarguments to content presented by the network they perceive to be ideologically dissonant from their political position.

**HYPOTHESES**

The existing literature suggests that respondents will devise more counterarguments to news content presented to them by what they believe to be an ideologically dissonant news source. As a result, the first hypothesis for this examination is:

H1: Respondents will formulate significantly more counterarguments to news content presented by a dissonant media source than to content presented by a consonant media source or a media source given no attribution.
Furthermore, strong liberals and strong conservatives will devise more counterarguments to those sources they find to be furthest from their political position than will ideological moderates. This should occur because the most dissonant position for strong ideologues is further away from them politically than is the most dissonant position for moderates and, as a result, strong ideologues should be more highly motivated to counterargue.

H2: Strong ideologues will formulate more counterarguments to information presented by sources they perceive to be dissonant than will moderates.

**Methodology**

An experimental design was implemented to examine these hypotheses. In this case, an experiment was conducted in order to establish causality and to disentangle the myriad of potential causal influences that occur in the real world (Iyengar, Peters, & Kinder 1982). The experiment involved exposing respondents to content attributed to news sources whose ideological reputation ranged from consonant with to dissonant from the political ideology held by the subject. After being exposed to the news content, the respondents were asked to detail any “thoughts, reactions, or feelings” about the news stories with which they were presented.

To conduct this experiment, I selected five stories from FNC and CNN, and then created replications of the stories wherein the content remained constant but the network attribution was manipulated. The core of the experimental design is a two by two factorial, which resulted in the creation of four treatment groups. There are four treatment groups because the actual news content came from either CNN or FNC, and the content was attributed to either CNN or FNC. The first stage of this process involved deciding which stories from FNC and CNN to present to the research participants. I recorded several hours of news footage from CNN and FNC over a three-day period in January 2004. I then reviewed the videotaped footage and selected five stories from each network. It was first necessary to eliminate stories that would not work within the confines of this experiment. Two methods were used to eliminate stories. First, stories that featured “commentary” were eliminated because the individuals featured in these stories are hired to offer provocative, ideologically driven opinions, whereas my concern here is how people respond to hard news stories aired by CNN and FNC. Second, stories that contained a substantial amount of back-and-forth banter between the reporter and anchor were not chosen because of the logistical difficulties of replicating the anchor/reporter interaction.

The final selection of stories came from those which remained after the initial elimination process. This was admittedly a subjective decision, as there were stories not
chosen that could have easily been substituted for those that were. Those ultimately chosen closely mimicked the coverage one would see on a broadcast during the period in which this study was conducted (stories that cover domestic politics, foreign affairs, health concerns, human interest, etc.). The five CNN stories chosen were about the war in Iraq, nuclear inspections in North Korea, a female suicide bomber in Israel, a newly proposed “support of marriage” initiative, and Saddam Hussein. The five FNC stories chosen were about the war in Iraq, nuclear inspections in Libya, mad cow disease, illegal aliens, and Saddam Hussein.

The next stage in this process involved the creation of believable broadcast replications. These broadcasts were created at a professional television studio with the assistance of an experienced anchor. This gave the broadcasts a more authentic appearance, which was key in my effort to minimize artificiality and thus maximize generalizability. The anchor read transcripts from the original broadcasts in order to duplicate language, and the manipulations were achieved by the broadcaster verbally identifying his network affiliation at the beginning and end of the broadcast, as well as within the broadcast. Ultimately, one of four sets of stories was shown to each of the study’s participants. Participants either saw a version of the CNN stories, wherein the anchor identified himself as being affiliated with CNN, or as being affiliated with FNC, or saw a version of the FNC stories, wherein the anchor identified himself as being affiliated with CNN or with FNC.

The next stage involved conducting the experiment and collecting the data. A sample of 158 undergraduates enrolled in introductory and upper-level political science courses at a large flagship state university participated in this experiment. When recruited, participants were simply told they would be participating in a news media focus group. Subjects were offered extra credit in the course in which they were enrolled as an incentive to participate. Volunteers had the ability to opt out of the study by either not showing up for their assigned time or refusing to complete their participation; however, those who opted out did not receive extra credit. Actual participants were randomly assigned to one of the aforementioned experimental conditions.

Participants viewed the news stories and then completed a survey. The questions contained on this instrument served several purposes. Most importantly, they provided measures of the dependent variables under examination. The survey also provided useful background information regarding the socio-demographic characteristics of the participants. The survey was administered after the subjects had viewed the broadcast so respondents could devote their full attention to the videotapes and also to avoid signaling to the respondents what they should look for in the videotapes in order to answer the questions.

The survey served two valuable purposes in addition to providing measures of the variables of interest. First, the survey helped mask the actual purpose of the study. If you recall, participants were told they were participating in a media focus group. By including
a variety of media-related questions, I was able to conceal the actual purpose of the study within a broad survey instrument. Only after completing the experiments were respondents alerted to the more specific goals of the study. Also, as a check to ensure respondents were not keying in to what the study was actually about, the survey concluded by asking them to make a guess as to the project’s specific purpose. None of the guesses put forth by the respondents were correct. Upon completion of the survey, respondents were debriefed and thanked for their participation.

**Overview of Variables and Model**

The dependent variable for this analysis is the number of counterarguments presented by respondents. Therefore, it is essential to have a clear definition of what constitutes a counterargument, as well as a sound method to measure the concept. For the purposes of this examination, a counterargument is defined as any statement(s) given by a respondent that presented a reasoned disagreement with the information presented on the news broadcast. This is a strict definition, which should lead to a higher threshold for hypothesis testing and ultimately to stronger results. In this case, a statement of simple disagreement, such as, “I think the reporters are wrong,” wherein the respondent did not present some sort of rebuttal or counter to the information, was not classified as a counterargument. However, a statement of disagreement that included a rebuttal, such as “I think the reporters are wrong because they failed to consider X, Y, and Z” would be classified as a counterargument. Therefore, counterarguments required both a direct statement of disagreement and an explanation for that disagreement. In order to measure the concept, respondents were asked to detail “any thoughts, reactions, or feelings” about the news stories with which they were presented (Iyengar, Peters & Kinder, 1982). Their responses were coded in order to gauge how many different counterarguments each subject presented. The total counterarguments variable simply presents a tally of how many counterarguments each respondent put forth. This variable ranged from zero, which signified those who chose not to counterargue, to eight, which signified the greatest number of counterarguments presented by an individual respondent. Because the dependent variable is a count, I estimated a Poisson regression model to investigate my hypotheses.

With regard to the independent variables of interest, it was first necessary to determine what constitutes a consonant and a dissonant source. To achieve this, respondents ranked both themselves and the networks they were watching with regard to their perceived ideology, and I used those rankings to determine source consonance and dissonance. Respondents were asked to rank themselves on the traditional seven-point ideological scale, coded from 1 to 7, with 1 signifying a strong liberal, 4 signifying a moderate, and 7
signifying a strong conservative. This was recoded to range from 0-1, with 0 signifying a strong liberal and 1 signifying a strong conservative. Respondents were also asked to rank various networks on a 0-10 scale, with 0 signifying that a network was perceived to lean to the left, 10 signifying that a network was perceived to lean to the right, and 5 signifying that a network was neutral in its views. This was also recoded to range from 0-1, with 0 signifying a network perceived to be liberal and 1 signifying a network perceived to be conservative. The network ratings were then subtracted from the ideological measure. The absolute value of this difference provides an interval measure, ranging from 0-1, of consonance and dissonance. The closer the value of this variable to zero, the more consonant the viewer perceives that network to be with his or her own views. For instance, a respondent with an ideology of 1, who gave a network rating coded as 0, would be watching a fully consonant network. However, a respondent with an ideology of 1 who gave a network rating of 1 would be watching a completely dissonant network. A value approaching 1 signifies that the viewer perceives the network he or she is watching to be ideologically dissonant from his or her political position. This variable is referred to as “dissonance” in the text.

It was also necessary to control for the original source of the story to make sure one network’s content was not more objectionable than that of the other network. This was accomplished via a dichotomous variable coded 0 if the original source of the content was FNC and 1 if the original source of the content was CNN. Because I am also interested in any differences in how ideologues process information presented by ideologically consonant and dissonant networks, an interaction term was created by multiplying political ideology and the dissonance variable. Finally, interactions between the content variable and the dissonance variable, as well as between the content variable and the political ideology variable, were created in order to complete the model specification.

RESULTS

The model in Table 1 tests whether respondents formulate more counterarguments when presented with information from a dissonant news media source than when presented with information from a consonant media source.

The results demonstrate that perceived ideological dissonance has a strong positive influence on the propensity to counterargue. The significant positive coefficient operating on dissonance indicates that, when ideology and content are held at zero, viewers make
significantly more counterarguments when they perceive that the political position held by a news network is ideologically dissonant from the position they themselves hold. The coefficient for the content variable is not statistically significant. This is important because it illustrates that, when ideology and dissonance are both zero, the network of origin of the news content shown to the experimental subjects exerts no significant influence on the number of counterarguments made by this ideological group. Substantively, this illustrates that viewers are responding to the perception of consonance or dissonance they have about the networks and not responding to the hard news content presented by the networks. Political ideology also fails to achieve statistical significance, which demonstrates that, when dissonance and content are both zero, individual ideology does not motivate respondents to formulate counterarguments to information presented on news broadcasts. The coefficient for the interaction between political ideology and original source of the news content is not statistically significant, which demonstrates that network of origin does not condition the influence of ideology, and that ideology does not condition the influence of network of origin. Finally, the interaction between the dissonance variable and the original source of the news content is small and not statistically significant, which also indicates no conditional relationship between these two variables.

Table 1  Total Number of Counterarguments by Ideology and Network Attribution

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>.158</td>
<td>.209</td>
</tr>
<tr>
<td>Content</td>
<td>-.007</td>
<td>.325</td>
</tr>
<tr>
<td>Ideology</td>
<td>-.041</td>
<td>.328</td>
</tr>
<tr>
<td>Dissonance</td>
<td>1.594</td>
<td>.218*</td>
</tr>
<tr>
<td>Ideology X Content</td>
<td>.440</td>
<td>.443</td>
</tr>
<tr>
<td>Dissonance X Content</td>
<td>-.727</td>
<td>.518</td>
</tr>
</tbody>
</table>

N =158  
LR Chi2 = 75.11  
Prob>Chi2 =.00  
Pseudo  R²=.117  
*p<.05; standard errors in parentheses
Poisson regression coefficients are informative in regard to the direction of, and the statistical significance of, the effect of independent variables. However, they are difficult to interpret and provide little information regarding substantive impact. Therefore, predicted counts were calculated in order to highlight the actual difference in the number of counterarguments formulated by strong liberals, ideological moderates, and strong conservatives.

As Figure 1 above illustrates, viewers’ perception that a news network is ideologically dissonant or consonant exerts a significant influence on the number of counterarguments they formulate in response to the content presented. Liberals watching a news network they perceive to be consonant with their political beliefs formulate an average of roughly 1.17 counterarguments. When the same content is attributed to a source they perceive to be the furthest away from their political position, the number of counterarguments increases to
5.76, which is an increase of roughly four and a half counterarguments. The effect among conservatives is also impressive. Conservative viewers watching content attributed to a news source they perceive to be consonant with their political beliefs formulate an average of 1.12 counterarguments. When the same news content is attributed to a news source that conservatives perceive to be furthest from their political position, the number of counterarguments increases significantly, rising to 5.14, again an increase of more than four counterarguments. The effect of perceived news network dissonance is not lost on moderates, as the number of counterarguments formulated increases from roughly 1.15 when watching what they perceive to be a consonant news source, to roughly 1.71 when watching what they perceive to be a highly dissonant news source. It is important to reiterate that these changes are in response to the perceived dissonance of the source only, as content remains constant. This demonstrates that the perceived dissonance of a news source has a strong positive influence on the number of counterarguments formulated by participants.

**CONCLUSION AND IMPLICATIONS**

Examining the influence of media source consonance and dissonance on respondent propensity to counterargue has allowed me to demonstrate that respondents who are exposed to an ideologically dissonant media source are more likely to formulate counterarguments than are those exposed to an ideologically consonant media source. Holding news content constant, while providing ideologically dissonant and ideologically consonant network attribution, demonstrates that the perceived consonance or dissonance of a news source is significant with regard to respondent propensity to counterargue. Strong liberals and strong conservatives formulate significantly more counterarguments when watching FNC and CNN, respectively, than when watching the network they believe to be more consistent with their ideological predispositions. In addition, moderate viewers were more likely to formulate counterarguments to news content from a network removed from their ideological predisposition.

What are the potential implications of these findings? From a theoretical perspective, these results extend the findings of previous scholars who have examined the impact of dissonant information. Inoculation theory (McGuire, 1964), dissonance theory (Festinger, 1957), and balance theory (Heider, 1946; Newcomb, 1953) all predict that viewers take steps to counter dissonant information. This study illustrates that the information itself does not have to be dissonant, it just has to be perceived to be dissonant. In this case, the perception of dissonance is driven by viewer opinion regarding the messenger. Liberals, conservatives, and moderates responded differently to the same information based upon the
provider of that information, therefore supporting the notion that these theories apply to a dissonant messenger, as well as a dissonant message.

In addition, these results clearly support the notion that respondent perceptions of source credibility, especially with regard to the perceived willingness of a source to communicate information in an unbiased manner, exert a strong influence on the decision to counterargue (Baron & Miller, 1969; Hass, 1961; Kelman, 1961). As the perceived dissonance of a news network increases, it becomes more likely that viewers will have doubts about the ability of that network to present unbiased news content. This is important because it results in viewers being much more likely to formulate counterarguments to this content than to content presented by a consonant news source.

These results reinforce the problem that a reliance on cognitive heuristics presents to viewers when they evaluate news content (Kuklinski & Hurley, 1994; Lau & Redlawsk, 1997; Mondak, 1994; Tversky & Kahneman, 1974). The results of this experiment clearly show that many respondents rely on cues transmitted from network attribution when evaluating the nature of the news content presented. This illustrates that these respondents are not necessarily counterarguing ideologically biased information; rather, they are making judgments about the nature of the news content based on their preconceived notions regarding the political leanings of the source. Essentially, regardless of content, the messenger appears to be dictating the nature of the message to viewers, and as a result is also dictating the nature of their response to the message.

These results also support the belief that “forewarning” about the ideological predisposition of certain news network has become ingrained in society. These respondents were given no information regarding the nature of the news content presented by these networks or the persuasive intent of their broadcasts. However, the results of this study suggest that many viewers have preconceived notions regarding the nature of news content presented by CNN and FNC. Therefore, they are perpetually “forewarned” regarding the nature and intent of the messages presented by CNN and FNC, and, as a result, some respondents are likely to counterargue any news content presented by these news networks.

Although these results are provocative, they are by no means definitive, largely due to the study’s reliance upon a homogenous student sample. The most important follow-up would assess viewers in the real world. These respondents clearly took an argumentative stance toward an ideologically dissonant media source, but it is possible this was due to their participation in the experiment. Those who casually watch networks they perceive to be ideologically dissonant are perhaps less likely to be on guard. In addition, work that further explores the psychological processes underlying the formation of counterarguments in response to dissonant media sources would be a welcome addition to this area of research.
ENDNOTES

1. The State of the News Media 2004 study, the results of which can be accessed at www.journalism.org, confirmed that foreign policy stories were a major part of cable news broadcasts when this study was conducted, as this type of story constituted 24% and 21% of the broadcast time on CNN and Fox News Channel, respectively.

2. In this study the stories were balanced for length. The CNN and FNC stories presented were roughly 10 minutes in length. In addition, the content was pretested for objectivity and deemed to be ideologically neutral.

3. Individual professors had control over the manner and amount of extra credit that was awarded. As a result, participants were rewarded for their participation in different manners, and at varying degrees, depending upon what class they were enrolled in. However, I have no reason to believe that the participants were aware of this fact, and I also do not believe that this had any influence on the responses they provided in the experiment.

4. In this instance, randomization was successful, as the experimental conditions in this analysis were roughly equal with regard to the gender, party identification, and political ideology of the respondents. This randomization process also ensured that the size of each experimental cell was roughly the same.

5. Responses were independently coded by two researchers. Average inter-coder correlation across the stories analyzed was .82.

6. Tests for dispersion indicated that a Poisson regression was appropriate for this examination.

7. Political ideology was recoded by subtracting 1 from the scale, and then dividing the scale by 6.

8. Dissonance was recoded by dividing the scale by 10.

9. Additional models that included interactions between content and ideology, as well as three-way interactions among content, ideology, and attribution, were also investigated. However, these variables made no significant contribution to the model, and thus are not reported.

10. In order to predict the number of counterarguments generated by liberals watching a consonant source, ideology and dissonance were both set at 0. For liberals watching a dissonant source, ideology was set at 0 while dissonance was set at 1. In order to predict the number of counterarguments generated by conservatives watching a consonant source, ideology was set at 1 and dissonance was set at 0. For conservatives watching a dissonant source, both variables were set at 1. To predict the number of counterarguments generated by moderates watching a consonant source, ideology was set at .5 and dissonance was set at 0. For moderates watching a dissonant source, ideology was set at .5 and dissonance was set at .25. The remaining variables were held constant at 0.

REFERENCES


Iraqi Fighting
Topping our news this evening a U.S. Army scout helicopter was brought down by enemy fire Friday, killing one pilot, wounding the other, then a sneak attack by insurgents masquerading as news reporters, according to the U.S. military.

According to military officials, five enemy personnel pulled up to the crash site driving black and dark blue Mercedes. They were wearing black press jackets with press clearly written in English. The enemy personnel fired upon U.S. forces with small arms and rocket-propelled grenades.

No U.S. troops were hit. And later, four suspects were detained. It was a one-two-punch tactic that was also employed in an earlier attack on a U.S. convoy. A 5,000-gallon fuel truck was set ablaze by RPG and small-arms fire after, first, a roadside bomb stopped the convoy.

Overall, the number of attacks against U.S. troops is down, from about 50 a day two months ago to about 20 a day now. But the enemies of the U.S. continue to refine their methods.

One military source was quoted as saying that “We are seeing a small uptick in the capability of the enemy. They are getting a little more complex. And for what reason, we don’t know. But they are getting a little more sophisticated of late.”

There’s no letup in the U.S. counterinsurgency operations. In the last 24 hours, the U.S. conducted more than 1,500 patrols, launched 28 offensive operations, and captured 88 anti-coalition suspects.

North Korean Inspection
A door appears to be opening up in North Korea. According to South Korean officials, there’s going to be a U.S. delegation that is going over and visit one of the nuclear sites there. What makes this significant is that it would be the first time that you would have foreigners to actually visit that nuclear site since inspectors were kicked out about a year ago.

But what is important to note as well is that U.S. government officials say, look, this is a private adventure, that this is not something that is sanctioned by the government.

However, they do acknowledge that there is some interest in what happens, will they get to that country, will they be allowed to that site, all those things they are going to be keeping a close eye on, because U.S. officials, while they say they are focused on the six-party talks involving other nations to get North Korea to disarm, they say those talks have stalled.

Female Suicide Bomber
It was bloody and shocking, a suicide bombing at the Erez Crossing between Gaza and Israel carried out by a young mother of two. A scene of devastation where the Palestinian suicide bomber struck. The attack on Israeli troops at Gaza’s main crossing into Israel is a grim return to bloodshed.

According to Brig. Gen. Shammi of the Israeli Defense Forces, “A woman suicide bomber came into the worker's pass in Erez industrial site, and exploded herself, killing four soldiers, three soldiers and one civilian, and wounding other people.”

Among the injured, Palestinian workers caught in the blast. Thousands pass through the Israeli security post every day to work in Israeli factories or gain access to Israeli services that impoverished Gaza simply doesn't offer.

According to the Israeli Army, the suicide bomber, who was a woman, had said she needed a permit to get into Israel because she needed urgent medical attention. But, as she was waiting to be processed and searched by a female Israeli soldier, she dropped to her knees, burst into tears, and detonated.

The suicide bomber has been identified as a 22-year-old from Gaza City, married with two children. Hamas says it's the first time they've used a woman to kill. The Al Aqsa Martyrs Brigade, which claims joint responsibility, has used female bombers before. Her attack, they say, was in response to Israeli military incursions and the construction of what Israel calls a security barrier in the West Bank.

An Israeli governmental spokesman characterized the attack of this morning as particularly shocking, because, as a gesture of goodwill, Israel allows Palestinian workers to come into Israel. And the Palestinian terrorist organization took this opportunity in order to kill as many people as possible.

For its part, the Palestinian Authority has called for a mutual cease-fire to make room for peace talks. But this latest bombing and the possible Israeli response may only deepen the mistrust.

Marriage Proposal
The White House is also considering another major new initiative, this one to promote and to sustain marriage in this country. The initiative would be supported by $1.5 billion of taxpayer money.

With a million of the two million yearly marriages ending in divorce court, love and marriage may go together like a horse and carriage. But happiness isn't assured. According to Courtney Knowles of the Equality in Marriage Institute: “We like to sometimes call the marriage aisle today the aisle of assumptions, because we think a lot of people are walking down it thinking they know their partner, thinking they understand what life is going to be like together, but not really wanting to kind of burst that bubble of the warm, fuzzy feelings.”

One of the more interesting things about marriage and divorce is that, for a nation so concerned about such things, we don’t keep good records. There's no official national data on divorce collected.

Budget cuts put an end to that in the mid-1990s. Among the things we do know, we are getting married at an older age now than we were in the 1950s. And we also know that divorce rates rose.
after World War II, when soldiers returned home, and they rose again in the 60s, with the advent of no-fault divorce laws. But perhaps the most shocking statistic is the one not about marriage. One-third of all children born today will be born out of wedlock and into a single-parent home.

According to Theodora Oomes of the Center for Law and Social Policy: “A lot of the problems we see in society today that have to do with the fact that children are being raised in single-parent or broken homes or homes where there is a lot of instability. Children are much more poor for that reason. They don’t do as well in school. They are much more likely to have children out of wedlock themselves.”

And that logic alone in the minds of many is enough for the government to get involved.

Saddam Directives
And finally tonight, did Saddam Hussein really want to keep al Qaeda at arm’s length?

According to U.S. officials, as well as to a document found with Saddam Hussein when he was captured. Hussein warned supporters to be wary of cooperating with what were described as “foreign jihadists coming into Iraq to fight Americans.” Some in the Bush administration have contended there was close cooperation between Saddam’s government and al Qaeda.

Officials say the document appears to have been written after Saddam lost power.

TEXT OF ORIGINAL FOX NEWS CHANNEL STORIES

Iraqi Attack
In Iraq today US authorities define well-coordinated attacks as being carried out by “an enemy that does not respect any values.” Three targets were hit in Karbala with devastating results today. Two coalition army bases were hit along with the town council building in Karbala.

Attackers used four suicide car bombs as well as machine gun and mortar fire. The car bombers were shot before they could get all the way into the bases which limited the number of casualties. At least six soldiers were injured, four from Bulgaria and 2 from Thailand, and another two dozen were wounded. We’re told that several American soldiers received minor injuries.

As in most of these cases the majority of those injured or killed were Iraqis. More than a half dozen died and more than 80 were injured.

US officials describe the operations performed by Iraqi and foreign fighters as low-intensity and being carried out by those trying to turn back the hands of time in Iraq.

Libyan Inspection
Nuclear weapons inspectors from the United Nations arrived in Libya today. Inspectors traveled from Italy to Libya to begin their initial investigation into the extent of Libya’s efforts to build nuclear weapons.

Libyan leader Mornar Khadafi announced just last week that his country would scrap its weapons of mass destruction program. The International Atomic Energy Agency says this first trip will demonstrate just how cooperative Khadafi will be in dismantling Libya’s uranium enrichment facilities.

The agency will also investigate a suspected connection between the nuclear weapons programs in Libya and Iran.

Mad Cow Fears
It took just one cow with mad cow disease for the department of Agriculture to launch a massive investigation. Investigators are focusing on where that cow came from, what it was fed, and what happened to its meat as some of it might have landed on store shelves.

Investigators said today that they have made progress in finding out more about where this cow came from. Officials say they believe it was imported to the U.S. in August of 2001 from Alberta, Canada. It came in with 73 other cows.

Now determining exactly where this cow came from is crucial to this investigation. What they want to know is what’s called the “birth herd”, which may lead them to other cows who ate the same feed and may also have been exposed to mad cow.
Inspectors are also still pulling meat from the shelves that may have come from the infected cow. Parts may have ended up in Oregon, Washington State, California, and Nevada.

This first ever mad cow case in the U.S. has agriculture officials considering new regulations. Most agree changes will be coming. One option is more testing for mad cow. Last year just over twenty thousand out of three million cows were tested, which is low compared to Western Europe who tested ten million and Japan who tested one million.

Still, experts say the danger to consumers from the meat is almost nil. Mad cow effects the brain and nervous system presumably leaving the muscle safe to eat. That, however, is not recommended.

Illegal Alien Story
A major question for President Bush is whether his immigration policy will put teeth into the current law. Right now a business that hires an illegal immigrant is subject to a ten thousand dollar fine. It sounds pretty tough but the reality is business has little to worry about.

The General Accounting Office says that there are an estimated two hundred thousand business employing illegal immigrants. In 1992, 1,000 businesses were fined; by 2000 that number dropped to 13.

Last year President Bush spent 791 million trying to keep illegal immigrants from crossing the border, on top of the money spent on fences and other technology. However, he spent only 20 million trying to catch those who did cross illegally.

There have been some high profile busts such as Wal-Mart and Tyson, but investigators say it is very difficult to prove these businesses knew they were hiring illegal help because as lawyers point out the documents are pretty good and businesses are often caught between a rock and a hard place as employers have a duty not to discriminate against those who do have lawful documents.

Others say this is hogwash because companies know who works for them but need the cheap labor so they won’t seek these people out. They say it is almost a don’t ask, don’t tell.

Immigration reform advocates say the “the technology is out the but we don’t use it because we choose not to know. Employers want to go on hiring these people with the excuse that “the documents looked good to me.”

Truly it is part of the national ambivalence that says on one hand we need cheap labor but on the other hand these people are breaking the law and should be punished. But if the federal government was intent on rounding these people up they could go to any home improvement store in Southern California and do so.

They don’t, so clearly the want is not there.

Saddam Directives
U.S. officials confirm that among the documents obtained from Saddam Hussein at the time of his capture was a directive from Hussein to his loyal followers for them not to join forces with foreign Arab fighters which may be coming across the border to fight coalition forces in Iraq.

This directive appears to be authentic according to officials. It was essentially a strict warning from Hussein to his loyalists not to get too close to Islamic Jihadists entering Iraq. With this document and other evidence officials have essentially determined Hussein believed foreign Arab fighters were eager for a holy war against the west while his Baath party was eager to return to power.

Critics are saying this document shows how thin the relationship between Hussein and Al Qaeda really was. Officials stand by their earlier characterization of that relationship due to the meetings they have logged between the two groups. They do concede that the document appears to show Al Qaeda fighters were not the means by which Hussein wanted to fight the coalition.

U.S. Commanders have told Fox that they believe very few foreign fighters are behind recent attacks in Iraq and that this document supports this fact. The numbers vary but officials suspect only a few hundred foreigners are in Iraq fighting the coalition. Commanders think suicide bombers may be foreigners because Iraq’s don’t want that job.

The tie between the two groups as far as planning is still unclear this document does show that Hussein didn’t want radical Islamics running the show. Senior Defense Officials point out that this document may not have even made it out of Hussein’s hole; it just shows that he wanted some control over the regime’s attacks against the coalition.
### Experimental Cell Demographics

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SUBLIMINAL STIMULI, PERCEPTION, AND INFLUENCE: A REVIEW OF IMPORTANT STUDIES AND CONCLUSIONS

Clay Warren

A thorough review of laboratory-type research on subliminal stimuli, perception, and influence — an area still enmeshed in controversy — suggests four conservative conclusions: (1) Subliminal perception exists, (2) subliminal stimuli can influence cognition, demonstrated in particular by the link between mere exposure and liking in social influence research, especially when the stimulus is subliminal, (3) subliminal stimuli can influence behavior both indirectly and directly, at least in some situations, and (4) as is the case with other forms of influence, including those such as persuasion that intend to offer conscious choice, subliminal influence works best when it resonates with an individual’s consciously or subconsciously held predispositions. Much remains unknown, however, including the generalizability of these effects. Although field research is more tentative, with definitional and control problems that need to be solved, a sufficient body of evidence points to the following position: Advertising can affect a consumer’s attitudes and behavior without the individual’s conscious processing of the ad.

Keywords: subliminal stimuli, subliminal influence, persuasion

When the occasional trade book is published on subliminal influence, some reviewers inevitably treat the subject as contemporary voodoo. For example, a critic of Bullock’s The Secret Sales Pitch: An Overview of Subliminal Advertising (2004) contended it is simply another of those paranoid subliminal books that come out every twenty or so years.

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Although Bullock’s book has definitional and theoretical flaws, and does not cover historically the range or depth of subliminal research, it does not qualify as a paranoid account.

Textbooks also tend to lightly treat the topic. The 11th edition of a leading persuasion text—Larson’s *Persuasion: Reception and Responsibility* (2007)—barely mentions the subliminal influence arena, rather offhandedly offering a summary comment stating, more or less, that if this kind of process exists, then the author is certain that some advertisers are trying to use it. On the other hand, in the past decade or so, the existence of subliminal (often termed unconscious) influence appears to have become well established in mainstream psychology. Despite such outcome, no recent review articles offer an account of this progression.

Thus, the purpose of this article is to review evidence regarding the nature and impact of subliminal stimuli, with the end goal of identifying legitimate conclusions in this area. Because the use of subliminal stimuli for influence purposes mostly plays out in the commercial world, the review must extend into research on subliminal advertising and marketing. Space constraints mandate a focus on subliminal categories that have received significant research attention historically, as well as recent research that offers innovative approaches to the domain.

**Early Research**

Research in subliminal influence extends back to the 19th century. Suslowa (1863) investigated subjects’ ability to distinguish between thresholds following electrical stimulation. He found that such stimulation reduced subjects’ discriminatory ability, even when the electrical stimulus could not be consciously perceived. Peirce and Jastrow (1884) also sought to determine whether subjects could perceive data presented below the threshold of conscious awareness and found they were able to detect consciously imperceptible weight differences at confidence levels significantly beyond chance, although they had “zero confidence” about their judgments. Three decades later, Pötzl (1917) asked subjects to make drawings of what they saw in pictures containing “hidden” figures (via a tachistoscope)—the conscious data bank—as well as drawings of their dream content after viewing these pictures—the subconscious data bank. He found that participants’ drawings of their dream content contained the tachistoscopic images, while the “conscious” drawings did not. Pötzl concluded that a person’s dream life tends to exclude consciously perceived data and to include subconsciously perceived data.

This early research suggested that a “subconscious” does exist and is able to detect subliminally presented information. Since then, studies of subliminal stimuli, perception,
and influence have proceeded perhaps slowly, but steadily, constrained by definitional and focal problems, secretive processes in industrial “motivational labs,” and methods largely deductive in nature.

**DEFINITIONS**

Definitions of terms related to subliminal stimuli, perception, and influence vary throughout the research literature. In fact, definitional variance is one of the issues that complicate a review undertaking. For example, recent psychology preferences suggest that the term “subconscious” should not be used, preferring the term “unconscious” influence. Nevertheless, many studies (through 2009) use subconscious or some variant other than unconscious in their terminology. Similarly, “subliminal persuasion” shows up in psychology and marketing literature, whereas communication studies maintain such a term is an oxymoron because all commonly used definitions of persuasion state or imply that this type of influence constrains the sender to offer some degree of conscious choice to a receiver. Not least, especially when reviewing studies outside a laboratory setting (e.g., in commercial advertising), the case of implicit processing arises—a term used by some current scholars to focus on episodes of repeated exposures, incidental processing, characteristics of backgrounds of presentation, recall intention, memory status, and so on. For those who prefer a sharply defined definition of subliminal stimuli as those elements in which presentation is weak in intensity, short in duration, or masked so that the stimuli are beyond the limits of the receiver’s sensory capacity, a more inclusive definition of subliminal stimuli (such as that offered by Theus, below) is problematic. To proceed with a review of this domain, it is obvious that decisions must be made that will not please all.

Regardless of definitional variations, researchers historically have been interested in two main areas of subliminal messages: subliminal stimuli and perception, and subliminal influence. Although subliminal stimuli have been defined in a number of ways, all definitions revolve around the notion that they are processed below the level of conscious awareness—in other words, by the subconscious or unconscious (see Theus, 1994).

Pratkanis and Greenwald’s (1988) definition of the term is representative of this notion, and states that subliminal stimuli refer to that which is presented below the threshold of conscious awareness. They identified four subliminal types: sub-threshold stimuli (presented at levels too weak to be consciously detected), masked stimuli (hidden from receivers by overriding stimuli), unattended stimuli (presented so that receivers will not consciously decode the symbols or their meaning), and figurally transformed stimuli (words or pictures distorted to a point of conscious unrecognizability). This orientation reflects Silverman’s (1976) definition of subliminal as “the absence of evidence that the individual is aware of the impinging stimulus before its effect is felt,” suggesting that “any stimulus can be
subliminal if the observer is not attending to it consciously” (Theus, 1994, p. 272). In a review of studies on automatic influences on consumer behavior, Bargh (2002) essentially supports Theus’ definition, although he differentiates subliminal from supraliminal influence (influence in “plain sight”). (Some scholars refer to this latter type of influence as “subtle” or “nonrational” rather than supraliminal.) He affirms “what is critical is that people not be aware of how the primes might affect them” (p. 283) and labels both types of influence as a nonconscious process.

Although accepting Theus’ definition raises the issue of to what extent a researcher knows whether a subject consciously sensed a stimulus, it has the advantage of including the direction of current advertising that seems to rely on implicit processing as much as on hidden embeds; on both hidden and plain-view stimuli that operate subconsciously/unconsciously. The goal of this kind of advertising clearly is for the sender to offer little, if any, choice to a receiver; thus, in terms of practice and outcomes, it might be a mistake to use a definition of subliminal stimuli that excludes any type of influence designed to remove conscious choice from a receiver.

Subliminal perception, a related term, refers to the ability of a receiver’s subconscious or unconscious to “discriminate” the subliminal stimuli presented (Pratkanis & Greenwald, 1988). Subliminal influence, on the other hand, refers to “the use of subliminally presented stimuli that are intended to influence [a receiver’s] attitudes, choices, or actions” (Epley, Savitsky, & Kachelski, 1999, p. 41). In short, subliminal stimuli refer to the data received below the threshold of conscious awareness, whereas subliminal influence refers to the process by which one’s cognitions and behaviors are intentionally manipulated through the use of subliminal stimuli.

**Subliminal Perception**

The early work of Suslowa (1863), Peirce and Jastrow (1884), and Pötzl (1917), which supported the idea that the human brain could perceive subliminal stimuli, sparked an interest in the area of subliminal perception. Various experimenters have sought to replicate and extend the findings of these studies. For instance, Baker (1937) confirmed Peirce and Jastrow’s initial findings through a study testing subliminal perception on both visual and auditory levels. Specifically, subjects were able to discriminate between diagonal and vertical lines and between dash-dot and dot-dash auditory patterns presented below the threshold of awareness. Miller (1939) was interested in determining the impact of various intensities of illumination on subliminal stimuli, and exposed participants to five geometric figures at four different intensities. The results indicated that participants clearly could
Subliminal Stimuli, Perception, and Influence

Clay Warren

discriminate intensities below the threshold of awareness, although their discriminatory ability increased as the stimulus intensity increased.

McConnell, Cutler, and McNeil (1958), reviewing the literature through the first half of the 20th century, concluded that the studies “indicate that discrimination without awareness may occur” (p. 231). Experiments testing subconscious perception continued throughout the second half of the century. A comprehensive review of research prior to 1970 supports the previous proposition (Dixon, 1971), and a recent review concludes that perception of subliminal stimuli is a real and important function of the mind (Epley, Savitsky, & Kachelski, 1999). Throughout this period, the question of whether perceived subliminal stimuli can modify cognition and behavior became increasingly important.

Some would argue that subliminal messaging motivates individuals to feel or behave in ways that they would not in the absence of such messaging. Others, however, have found that subconscious influence merely triggers or activates an individual’s pre-existing goals, which may be either conscious or unconscious.

In a review of subliminal influences on consumer motivation, judgment, and behavior, Bargh (2002) demonstrated that technology capable of nonconsciously activating individuals’ goals exists. Many studies today demonstrate such activation of goals by examining the effects of “priming” participants to feel a certain way and having participants make “choices.” Findings show that primed participants will respond consistently with the primes to which they were exposed (Strahan, Spencer, & Zanna, 2002; Winkielman, Berridge, & Wilbarger, 2005). Schlaghecken and Eimer (2004) found support for the triggering perspective, in that their study’s subliminal priming stimuli altered an individual’s “free” choice only if the primes were consistent with an individual’s natural intent.

The review to follow cannot mention every study with a relationship to subliminal processing, but will focus on areas such as priming that have become well established over the years, as well as on innovative inquiries that have the potential to expand subliminal knowledge in interesting and promising ways. Further, to qualify for review inclusion, recent laboratory studies must have sound methodological design, whether they report positive or negative results. And, in general, contemporary studies do have such design, avoiding the problems of early studies that too often used no controls or improper control conditions, biased or inappropriately small samples, single rather than multiple presentations of a subliminal prime, and sentences needing parsing rather than single words, to name some of the problems. Therefore, method critiques and research limitations mostly will be reserved for the section on field studies, which have design problems above those experienced in a lab setting. The following section, then, examines the effects of subliminal influence on individuals’ behavior and attitudes, tracing a path from the distant past to the foreseeable future with an eye toward arriving at stipulated conclusions from well-established lines of inquiry that can be made with confidence.
Subliminal Influence

Effect on Behavior

The benchmark year for research in subliminal influence on behavior is 1933, when Newhall and Sears sought to determine whether participants’ behaviors could be influenced subconsciously. They exposed participants to a subliminally presented light paired with electrical shock. When the shock was removed, participants continued to demonstrate a reaction to the light—a conditioned, albeit weak and unreliable, response. In a reverse vein, McCleary and Lazarus (1949) conditioned subjects consciously by pairing electric shock with various nonsense syllables. When these same syllables were presented tachistoscopically (and without shock), participants displayed greater psychogalvanic reactions; thus, conscious conditioning affected participants on a subconscious level.

During the 1950s and 1960s researchers continued to test the relationship between conscious conditioning and subconscious effect. For example, Lacey, Smith, and Green (1955) investigated the relationship between conditioning and subconscious emotional reactions. Participants were asked, at 15-second intervals, to recite single-word associations for 40 words. When words associated with cow or paper were administered, some received an electric shock. Findings indicated that although these participants were not consciously aware of the relationship between word and electric shock, they developed a subconsciously anxious anticipation of the shock.

By 1970, Silverman had introduced “subliminal psychodynamic activation” (SPA) to the literature. He hypothesized that “for drive-related stimuli to exert significant effects on behavior, two criteria must be met: (1) the content of the stimulus must activate or gratify unconscious conflicts related to the behavior or symptom in question; and (2) the stimulus must be presented subliminally, so that the message contained in the stimulus bypasses ego defenses” (Bornstein, 1990, p. 201). In a study representative of this area, Silverman and Goldweber (1966) subliminally presented individuals with either neutral or drive-related stimuli, and found that subliminally presented drive-related stimuli had the strongest effect.

Recent research provides even stronger evidence that subliminal perception can directly influence behavior. Testing whether the subliminal exposure of white subjects to verbal stereotypes of African-Americans could induce hostile reactions, Bargh, Chen, and Burrows (1996) required subjects to work at a computer while being subliminally exposed to black-or white-face photographs. After lengthy effort on this tedious task, subjects received an “error message” that a failure had occurred, with no data saved, and they would have to start over. Judgments of their physical reactions, videotaped by a concealed camera, showed that those who had been subliminally exposed to black faces responded with more frustration and
hostility than the subjects who had been subliminally exposed to white faces. Extensions of this research (e.g., Chen & Bargh, 1997) produced similar results.

New refinements in brain mapping also have fueled recent experiments. For instance, the team of Dehaene, Naccache, Le Clec’H, Koechlin, Mueller, Dehaene-Lambertz, van de Moortele, and Le Bihan (1998) masked words and showed them beneath the visual threshold of awareness to study the effects of these masked primes on the processing of subsequently presented related words. Subjects then engaged in tasks of word comparison with target numerals that were visible, while measures of covert motor activity checked for unconscious application of task instructions to unseen masked material. The results showed that “a stream of perceptual, semantic, and motor processes can … occur without awareness” (p. 597).

Similarly, Marcel (1998) conducted several experiments examining subliminal perception of various letters and words in individuals’ blind fields. He found that when subjects were presented with single upper-case letters in their blind field, and then asked to choose among six upper-case letter alternatives in the sighted field, the matching letter was selected more times than chance would explain. In another experiment, subjects were presented with a word in their blind field, and then asked to choose which of two words in their sighted field was semantically closer to it. Results were in the hypothesized direction, but no significant or consistent effects were found. While participants improved over three trials, choosing the correct word more frequently, they did not choose the correct word often enough to be considered beyond chance level. Finally, participants were presented with two words, one word in the blind field, and a semantically ambiguous word in the sighted field, and were asked to provide a meaning of the word in the sighted field. Results showed that the meanings participants provided for the semantically ambiguous word were reliably biased by the meaning of the word presented in the blind field.

Pessoa’s (2005) observation that processing of emotional information is prioritized by the brain, and does not require emotional information to be the focus of conscious attention, resonates with research such as that of Whalen, Rauch, Etcoff, McInerney, Lee, and Jenike (1998), which observed a larger magnitude of brain response to fearful than happy faces, although subjects did not recall seeing any emotionally-expressive faces.

Recent research also has examined the effects of priming on behavior. Winkielman, Berridge, and Wilbarger (2005) found subliminal exposure effects on the evaluation and consumption of a beverage. Presentation of happy faces resulted in thirsty participants pouring and consuming more drink, with higher willingness to pay for the drink, whereas presentation of angry faces resulted in lesser pouring and consumption levels, and less willingness to pay by thirsty participants. It is important to note, however, that priming only affected those with a concurrent motivational state (i.e. thirsty, not non-thirsty, participants). This study appears to be the first using a non-clinical sample to demonstrate that “affective
reactions can be subliminally triggered and can change behavior yet still remain inaccessible to introspection” (p. 132). While it is acknowledged that negative results are not conclusive, and mood changes may have occurred without being detected, the affective reactions nevertheless were strong enough to alter participants’ willingness to pour and drink.

Strahan, Spencer, and Zanna (2002) also found that priming thirstiness resulted in greater beverage consumption. Thirst-related subliminal primes in comparison to neutral primes resulted in more frequent selection of a prime-consistent, thirst-quenching beverage. Furthermore, thirstiness-primed participants were more likely to give the prime-consistent beverage higher and more positive ratings than the alternative beverage; and, when given the opportunity to take coupons, they selected more coupons for the prime-consistent beverage than the alternative. Again, thirstiness priming was only effective on participants that were already thirsty.

In addition to priming, the Strahan et al. study demonstrated the interaction effects of priming and situational context on behavior. In an experiment examining the effects of affective primes on music choice, sadness primes resulted in preference for mood-restoring music rather than music thought to be more musically creative when participants expected to be interacting with others, than when participants expected to be alone.

In short, the literature suggests subliminal priming is not only operative but can be powerful. Studies with findings contrary to this conclusion almost invariably have not tested the ability of subliminal stimuli to prime goal-relevant cognitions or behavior (Strahan, Spencer, & Zanna, 2002).

Contemporary studies also have extended the mere exposure line of inquiry (discussed in depth in the next section) to behavioral as well as attitude change. For a number of years, Gorn (1982) remained the only researcher to mount a significant study demonstrating actual choice effects. His research, however, had replication problems and was criticized for failing to use appropriate conditioning (McSweeney & Bierley, 1984). Because much of the behavior extensions of mere exposure have been carried out in the consumer behavior arena, it will be discussed in that section.

**Effect on Attitudes**

In addition to behavior change research, related studies have addressed the impact of subliminal influence on attitudes. For example, Bach and Klein (1957) tested the effects of prolonged subliminal exposures of words. Subjects viewed a neutral face “20 times in one minute exposures” that was subliminally accompanied by the word “happy” or the word “angry.” Results showed that the happy-face pairing was judged to be pleasant, while the angry-face pairing was thought to be unpleasant and startled.
Supporting Silverman’s SPA paradigm, Zajonc’s (1968) seminal hypothesis of mere exposure effect states “mere repeated exposure of the individual to a stimulus is a sufficient condition for the enhancement of [one’s] attitude toward it” (p. 1). Many studies have confirmed this theory, including those that have found the phenomenon to work subconsciously as well as consciously (e.g., Barchas & Perlaki, 1986; Seamon, Marsh, & Brody, 1984). For instance, one such study (Wilson & Zajonc, 1980) presented subjects with 10 irregular polygons five times for one millisecond at a time. When presented with polygon pairs for conscious judgment—one previously seen and one new—subjects were not able to identify which they had seen; nevertheless, they demonstrated more liking for the subliminally flashed figures.

A meta-analysis by Bornstein (1989) reviewed the exposure-affect relationship among studies examining the mere exposure effect between 1968 and 1987. He found that the exposure effect is enhanced when using brief presentations of the stimuli in a heterogeneous exposure sequence. Furthermore, the strength of the effect reaches a peak after 10-to-20 stimuli are presented. In addition, using unrecognizable stimuli as well as more complex stimuli has a greater effect on attitude than presentation of recognizable stimuli for longer periods of time. In regard to when the effects are strongest, he also found that a delay between presentation of stimuli and participants’ ratings can in fact enhance the mere exposure effect, up to a two-week period, which supports the stronger effects found in studies conducted in real life situations rather than laboratories. It is proposed that a period of time between exposure and ratings allows for stimuli to be encoded into long-term memory. Finally, it was observed that stimuli such as paintings and drawings did not produce as strong an effect as other stimuli such as photographs, and nonsense words were not found to produce stronger effects than real words. This finding is contrary to previous research by Strong (1974) suggesting that photos would have comparable/weaker effects than paintings/drawings and nonsense words should produce greater effects than real words.

In addition to the characteristics and methods of exposure, Bornstein (1989) found several factors to inhibit the effects of mere exposure on attitude enhancement, particularly age and boredom. Younger individuals generally are not affected by typical exposure effects as adults are, in that they prefer more novel stimuli to familiar stimuli. It is suspected that they may become bored more easily, resulting in less robust exposure effects, since boredom has been found to limit mere exposure effects. By limiting the likelihood of boredom through fewer brief exposures that are interspersed among other stimuli, much stronger effects on affect occur.

More recent research (e.g., Baldwin, Carrel, & Lopez, 1991) has confirmed the phenomenon of subliminal conditioning of attitudes. For example, Krosnick, Betz, Jussim, and Lynn (1992) presented participants with nine slides of individuals carrying out everyday activities. Immediately before each slide was shown, participants were subliminally exposed
to a positive or negative affect-arousing photograph. Results indicated that the subliminal stimulus affected participants’ reaction to the target person, and did not depend on recognition of the antecedents of these attitudes.

In another study, Ayelsworth, Goodstein, and Kalra (1999) investigated the effect of subliminal cues by embedding sexually suggestive subliminal words in advertisements in order to gauge their effects on participants’ attitudes. Although operating under study limitations of using a classroom of marketing students who were exposed to only four identical advertisements (two with embeds and two without), participants reported more upbeat and more negative feelings (two of the three tested categories) toward the advertisements containing embeds. These feelings significantly affected participants’ attitudes toward ads and brands; however, they did not affect individuals’ cognitively based judgments. Further, findings differed by gender. In particular, the level of upbeat feelings evoked in men was much higher than for women and women’s level of upbeat feelings did not differ between ads. Overall, their findings suggested that subliminal embeds do influence feelings.

Twenty-first century research (e.g., Monahan, Murphy, & Zajonc, 2000) on the mere exposure effect supports and furthers the conclusions drawn by Bornstein (1989). Several scholars have attempted to explain the positive relationship between exposure frequency and liking. Lee (2001) found that repeated exposure to stimuli decreases an individual’s unfamiliarity with the stimuli, resulting in more favorable evaluations. However, she also found this relationship to be dependent upon one’s confidence in recognition. Individuals who were sure they did not recognize the stimuli and those who were sure they did recognize the stimuli evaluated the stimuli more favorably than those that were half sure and those that were completely unsure.

In addition to commonly used visual stimuli, studies have also demonstrated and attempted to explain mere exposure effects using auditory stimuli. Spuznar, Schellenberg, and Pliner (2004) examined the differences in the effects of exposure frequency on recognition and liking, as well as the differences in these relationships between focused and incidental listeners and for the ecological validity of stimuli—in this case, similarity to real music. Findings showed that for focused listeners, greater exposure to simple auditory stimuli resulted in greater recognition but no differences in liking; however, for more ecologically valid stimuli, while recognition again increased with increased exposure frequency, liking first increased but later decreased (i.e., the satiation effect). For incidental listeners, on the other hand, greater exposure resulted in increased liking and no increase in recognition for both simple and more complex stimuli.

Wang and Chang (2004) conducted a different kind of study to examine the various effects of exposure to stimuli on affective judgments for recollective and subjective states. They found that recallable melodies were preferred over melodies that were merely
considered to be familiar. Furthermore, melodies judged as old were preferred over those judged to be new. In fact, the mere exposure effect only resulted when stimuli were judged to be old, and not when stimuli were judged to be new.

Finally, in addition to confirming the mere exposure effect, contemporary research has begun to demonstrate its applicability across cultures. Ishii (2005), for example, found the mere exposure effect to occur in both the USA and Japanese subjects when using novel auditory stimuli. Exposure frequency was found as a significant predictor of liking in both cultures. Stimuli repeatedly presented eight times were liked more than stimuli presented twice, which were liked more than stimuli not presented at all.

To be sure, there still are some contemporary studies that show results at odds with the mere exposure effect. The controversy tends to revolve around not the main effect, itself, but around explanations for it (e.g., the misattribution view vs. the two-factor model; for a discussion of these views, see Lee (2001)) or sub-tenets of it. For example, one line of inquiry maintains there is insufficient direct empirical evidence to support the claim of some studies that subliminal mere exposure effects are larger than supraliminal effects (e.g., Monahan, Murphy, & Zajonc, 2000). To explore this position, Newell and Shanks (2007) tested the correction hypothesis employing both optimal (supraliminal) and suboptimal (subliminal) stimuli. They found no evidence that liking increases as recognition decreases. However, their study used 32 undergraduates who were required to make both recognition and liking judgments for each pair of stimuli during the same trial. Thus, this fairly small sample may have been unable to fluently reprocess the stimuli. At present, the preponderance of research evidence from over 200 related experiments employing a diverse range of stimuli and sound experimental design supports the general proposition of the mere exposure effect, with the phenomenon operating both subconsciously as well as consciously.

It should be noted that priming through repetition (usually categorized as an implicit memory phenomenon) and mere exposure studies have developed virtually independently. Although there has been a tendency among some to describe mere exposure as a type of implicit memory, Butler and Berry (2004) reviewed a large body of evidence of the two techniques and concluded that there are five key differences between the two and even modified frameworks cannot accommodate these differences. This circumstance is another example of the definitional and categorical issues that are problematic for studying subliminal influence.
Effect on Consumer Behavior

There is a burgeoning interest in investigating subliminal theories in the application context of one of the biggest businesses in the United States—advertising—a business that is continually expanding in terms of available mass media outlets that offer advertisers a variety of opportunities to influence their receivers subliminally. Useful meta-analysis reviews of this line can be found in Theus (1994) and in Trappey (1996). Trappey, for example, found small effects on choice behavior among a simple majority of reviewed research articles exhibiting at least one effect. Weighing in on both sides of the question, using tools ranging from self-report questionnaires to galvanic skin response measurements, sometimes employing designs flawed by methodological weaknesses, have been Key (1972), Bagley and Dunlap (1980), Kilbourne, Painton, and Ridley (1985), and Rosen and Singh (1992), among others. In the 20th century, as summarized by Theus (1994), “there have been relatively few controlled studies of the effectiveness of subliminal stimuli on preference or choice, and the results have been contradictory” (p. 279).

In response to Packard’s path-breaking book on secret influence practices, Hidden Persuaders (1957), and its criticisms often given by cognitive psychologists, Goode (2007) discussed the means by which consumers retrieve, store, and recall information from advertisements. Focusing on a case study with Virgin Trains, Goode confirmed the hypothesis that information stored in explicit memory will be consciously recalled and attributed to the ad; however, information stored in implicit memory (subconsciously or unconsciously) when presented will appear familiar but will not be attributed to the ad itself, and therefore be falsely considered a global truth. Goode’s work supports the ability of ads to affect consumers on the subliminal level through implicit memory.

More specifically, theories associated with subliminal influence, including affective conditioning/priming, mere exposure effects, and the information-processing model have been incorporated into consumer research. Studies have examined the effects of mere exposure and priming on consumer attitude, product evaluation/judgment, and product choice, taking into consideration various factors that are likely to influence consumers.

Baker (1999) compared the effects of affective conditioning and mere exposure on brand choice, manipulating conditions of brand familiarity, perceived quality differences, and motivation to deliberate at time of brand choice. He found that both affective conditioning and mere exposure demonstrate to be equally effective means of influential advertising. In particular, these means of advertising were most effective when competitor brands were equivalent in brand familiarity and perceived quality (i.e., performance). However, when competitor brands were more familiar or when consumers were motivated to deliberate at time of brand choice, neither affective conditioning nor mere exposure was significantly influential of brand choice. A key limitation of the study is key findings were
observed among competitors with equivalent and low levels of familiarity. The more
difficult task for future research, still not resolved, is to generalize results across competitors
with equivalent and high levels of familiarity.

In an attempt to provide reasoning as to the positive effects of these advertising
strategies on consumers, studies have tested various explanations. For example, Cox and
Cox (2002) examined the effects of stimuli complexity (in this case fashion design) and
individuals’ perceived complexity on the relationship between repeated exposure and
product liking. Repeated exposure resulted in greater product liking for complex designs,
however less liking for simple designs. Additionally, they found that product liking is at its
peak when there is moderate perceived complexity. In testing the combination of these two
results, they found that for both complex and simple designs, repeated exposure resulted in
a decrease of perceived complexity. Decrease in perceived complexity with complex
designs, however, moved towards the optimal (moderate) perceived complexity, whereas
with simple designs, such a decrease diverged from the optimal level.

Several studies have also demonstrated the effectiveness of nonconscious stimuli in
choice behavior, and identified under what conditions it is more or less effective. Mandel
and Johnson (2002) examined the interactive effects of priming embedded in an
advertisement’s background and level of expertise on individuals’ choice behavior and
search for additional product information. Background priming was found to result in prime-
consistent product choice and information search. Money-primes resulted in selection of a
cheaper product, comfort-primes a more comfortable product, and safety-primes a safer
product. Likewise, participants accessed website links providing prime-consistent
information more so than alternative links. However, the effect of priming on product choice
information search differed according to a participant’s level of expertise. Novices looked
for prime-consistent information for longer periods of time, whereas experts spent equal
amounts of time viewing prime-consistent and non-consistent product information.
Nevertheless, visual primes can effect choice changes even for experts. A limitation of the
study is that the choices were hypothetical rather than real, and thus without any perceived
consequences for subjects. Further, the study was more of an implicit processing study; it
did not compare subliminal and supraliminal stimuli.

A similar study attempting to align models of mere exposure and repetition effects found
that a familiar background (one viewed previously) accompanying an advertisement for an
unfamiliar product increased product liking and intent to purchase (Nordhølm, 2002).
Findings differed between individuals who processed the ad in a more shallow (searching
for a subliminal logo that was a 25% reduction of the logo appearing on the product package
and then lightened by 50%) than a deeper fashion (e.g., considering the benefits of the
brand). For individuals using shallow processing, repeated exposure resulted in more
positive affect and greater likelihood of product choice. For individuals utilizing deeper
processing, net positive thoughts regarding the product initially increased with repeated exposure, but then decreased. The study design left important questions unexplored, however, including whether certain types of stimuli (including their potential symbolic meaning) lend themselves to deeper rather than shallower processing, how time affects processing issues, and how emotional responses to the stimuli impact cognitive and affective response.

Olson and Thjømøe (2003) also examined subliminal influence on consumer behavior, comparing the central and peripheral routes of information processing to the mere exposure effect (the first study to do so). It was hypothesized that information provided in addition to a brand name will influence brand preference since most consumers assume the information provided for a brand will be positive. Findings suggest that a greater preference toward products will occur for participants who fully process the information (using the central route). Many participants use only peripheral routes of processing, however; hence, advertisers can increase consumers’ brand preference simply by repeated exposure of their brand name (i.e., the mere exposure effect). Limitations of this study are two-fold: Low involvement products (real and fictional soap and toothpaste brands) were used as stimuli, and the ads used words only in an effort to reduce impact of attitudes. However, the central processing route by definition does not intersect with low involvement, and real-world advertising is not designed to limit attitudinal involvement with a product.

In addition to level of processing, studies have examined the processing fluency model as it applies to consumers. For example, Lee and Labroo (2004) examined both perceptual and conceptual fluency on evaluation favorability in a well-controlled study using four experiments to test for interaction among variables. In general, they found that presenting the target product in a predictive context (e.g., storyboards of a picnic and man grilling hamburgers prior to the ketchup bottle product), or priming the target product with a related construct (e.g., mayonnaise jar prior to the ketchup bottle) leads to more favorable attitudes. When consumers are presented with a brand that is easy to process, their positive experiences associated with processing fluency are transferred to more favorable evaluations of the product. Vice-versa, constructs triggering negative affect, if exposed to consumers prior to the target product, can result in less favorable evaluations of the target product. In sum, when consumers are exposed to constructs prior to the target product, the constructs become part of their associated network and consequently influence future affective judgments.

Processing fluency appears to be a major reason for why likings increase with repetition, and processing fluency works automatically (unconsciously) at cognitive and evaluative dimensions. It is beyond the scope of this review to provided an extended discussion of this process, however, because to do so would entail an excavation of the substantial body of memory research literature.
Brain studies also are beginning to target advertising strategies using subliminal influence and their effects on consumer behavior. For instance, Steffen, Rockstroh, and Jansma (2009) employed a variation of emotion priming to test affective modulation of cognitive decisions. Happy/unhappy faces were embedded to prime subjects prior to making apartment rental decisions. Using fMRI scanning to measure reaction times and peak amplitudes, they found that facial primes accelerated decisions regardless of affect type. However, subjects were more certain of the correctness of their decisions after viewing happy rather than sad faces. A weakness of the study lies in the common problem of control factors: no prime control as well as weak control of neutral stimuli (mainly due to the problem of finding truly neutral expressions).

An innovative study (Ohme, Reykowska, Wiener, & Choromanska, 2009) investigated differences in two versions of a television ad (with the only difference contained in a single scene in which the female model added a gesture—she touched her face, then delicately touched her stomach) using electroencephalography (EEG), electromyography (EMG), and skin conductance monitoring (SC). With significant differences found in the EEG and EMG results, and a trend resulting from the SC test, the authors concluded that the single gesture enhanced the effectiveness of the ad although subjects were not able consciously to note the difference in ads. The single-shot nature of the study makes it difficult to generalize results.

Morris, Klahr, Shen, Villegas, Wright, He, and Liu (2008) examined brain activation while subjects watched television ads during fMRI scanning and then had them rate these ads along pleasure/displeasure, arousal/calm, and dominance/submissiveness dimensions. They discovered that bilateral activations in the inferior frontal and middle temporal gyri were significantly correlated with differences along the pleasure dimension while the dimension of arousal influenced activation in the right superior temporal and right middle frontal gyri. Morris et al. concluded that differing emotional reactions to viewing ads may be related to underlying neurobiological processes. It remains to be seen whether their Advertisement Self-Assessment Mannikin (AdSAM) scale, a nonverbal rather than word-based measurement of affect, stands up under replication efforts. Further, some of their design claims were problematic. For instance, their assurance that the study’s five commercials were broadcast more than 10 years prior to their experiment to avoid the likelihood of having been seen by subjects was faulty. At least one commercial was shown as recently as 2003, and another is so famous as to be repeatedly aired on outlets such as YouTube.

Cook, Warren, Pajot, Schairer, and Leuchter (2009) came to a similar conclusion using different stimuli and hypotheses in a study using non-manipulated real-world print advertising. Investigating whether different types of messages (“logical persuasion” [LP] vs. “non-rational influence” [NI]) might affect brain function differently, Cook et al. found that LP stimuli were associated with significantly higher activity levels in orbital frontal,
anterior cingulated, amygdala, and hippocampus regions than NI images. They concluded that advertising images related to LP and NI elements are able to evoke different levels in regional brain activity, even if subjects have no conscious recall of differences in the information presented. In addition, they noted that field research of this type poses additional challenges for researchers due to the problems associated with control variables. For example, their study was not designed to identify the image components driving the differences in brain activation. The only way to accomplish such identification would be design of non-real-world stimuli—synthetic images—to test hypotheses about how the brain evaluates information presented without engaging logical awareness, or images with varying degrees of emotional charge. In addition, data were not elicited on recall of, or attitudes toward, advertised products; thus, the study was unable to draw conclusions about merits of different kinds of advertising strategy.

What does research tell us about the application context of subliminal influence? Although, for years, marketers, starting as early as the 1930s, have used subliminal techniques in advertising, they have recently recognized the substantial problems involved in measuring the subconscious/unconscious and purely emotional aspects of marketing methods (beyond the index of return on their dollar, which has been the deductive standard of measurement in advertising) (Kenning, Plassmann, & Ahlert, 2007). Nevertheless, as Bargh (2002) noted, subliminal effects on product evaluation and consumption consistently are being found by contemporary researchers. This new consistency, compared to the results of researchers in the 1970s/1980s, has been achieved by using techniques that consistently work, such as multiple presentations rather than one exposure of the subliminal prime.

A number of scholars have concluded that exploration of consumer emotions, including attention/memory/subliminal processing, must extend to the human brain (e.g., Zaltman, 2003). Plassmann, Ambler, Braeutigam, and Kenning (2007) noted that neuroscience research techniques remain in an infant stage, particularly with respect to their application to marketing techniques. A surge in brain research applied to consumer decision making in recent years, however, leads some researchers to suggest that “neurophysiological measures soon will be widely acknowledged and used as a [complementary] model in classical marketing research (Ohme, et al., 2009). Certainly, it seems appropriate to conclude that advertising can affect individuals’ affect, judgment, and product/brand choice without their awareness of exposure to the ad or the ad’s influence on them, and more particularly their conscious processing of the ad (a conclusion supported by the mapping of Johar, Maheswaran, & Peracchio, 2006).
SUMMARY

Overall, what does a review of the available evidence suggest? After reviewing several hundred academic papers and a number of mass media pieces covering a broad range of subliminal process studies and essays (mostly prior to the 1990s), Pratkanis and Aronson (1992) arrived at a broad position that there was insufficient evidence to state unequivocally that subliminal messages influence attitudes or behavior. The studies reporting no effects were outweighed by the studies reporting largely consistent effects, and there also was a group of reports with indeterminate results.

On the other hand, positive positions on subliminal efficacy arrived at by meta-analysis studies of twenty years ago (e.g., Bornstein [1989] on mere exposure), as well as through extensive literature reviews of individual pieces of research, have been strengthened by recent studies with more refined research methods in conditioning and priming, SPA, mere exposure, and processing fluency, to name some of the more important programmatic investigations. Studies reporting consistent effects in these well-established lines of inquiry dominate the contemporary domain.

Four conservative, delimited conclusions seem reasonable at this point: (1) Subliminal perception exists, (2) subliminal stimuli can influence cognition, demonstrated in particular by the broad link between mere exposure and liking, especially evidenced when the stimulus is subliminal, (3) subliminal stimuli can influence behavior both indirectly and directly, at least in some situations, and (4) as is the case with other forms of influence, including those such as persuasion that intend to offer conscious choice, subliminal influence works best when it resonates with an individual’s consciously or unconsciously held predispositions. Much remains unknown, however, including the generalizability of these effects.

Field research on the use of subliminal stimuli in advertising is more tentative. Because variables carefully controlled in the laboratory are difficult to control in the field, the criticism of the Krishnan and Trappey (1999) review remains relevant: There need to be more controlled studies of the effectiveness of subliminal stimuli on consumer preference and buying behavior. In addition, definitional complexities appear to have increased rather than declined, with explicit/implicit processing and subliminal/supraliminal-subtle-nonrational stimuli representing two demarcated areas that have emerged within the scope of not-conscious processes, as well as a problematic tendency among some disciplines to use subliminal and persuasion types of influence as synonymous.

To accomplish increased control of subliminal studies, attention may need to be paid to sorting out the definitional ambiguities and to separating subliminal and implicit processing—a substantial challenge because advertisements are best used as they are, with one important focus on sender intent and with highly variable content and process variables,
and with another important focus on what receivers actually, consciously viewed or heard, or, in some cases, smelled or touched. Nevertheless, the balance of evidence supports the following position: Advertising can affect a consumer’s attitudes and behavior without the individual’s conscious processing of the ad.

The use of subliminal stimuli (broadly defined) to affect consumer behavior, as well as the employment of negative images and embeds, appears to be on the rise (Warren, 2009). Venues for subliminal influence (such as the Internet) continue to expand. Thus, despite the challenges of field research, this line of inquiry should persevere, and textbooks focusing on the process of human influence need to have better coverage of subliminal matters. A systematic program of study assessing the ethical implications of subliminal practices is long overdue.

Finally, but not least importantly, the mechanisms responsible for the phenomena of subliminal perception and influence remain mostly a mystery. Research from various disciplines, especially the brain studies area, increasingly needs to be, and will be, conducted in the years ahead (see Hassin, Uleman, & Bargh [2005] for a platform of reasons to continue investigating subliminal phenomena), as current research suggests that advertising images related to different types of influence are able to evoke significantly different levels in regional brain activity.

REFERENCES


The Impact of TV Viewing Motivations on Psychological and Socio-cultural Adjustment: A Pilot Study

Guo-Ming Chen and Tong Yu

This study examines the impact of TV viewing motivations on Asian students’ (N = 126) psychological and socio-cultural adjustment. TV viewing motivation is measured by Rubin’s (1978) TV Viewing Motivations Scale; psychological adjustment is measured by Zung’s (1965) Self Rating Depression Scale, Russell, Replau, and Cutrona’s (1980) Loneliness Scale; and Rohrlich and Martin’s (1991) Satisfaction Scale. Socio-cultural adjustment is measured by Furnham and Bochner’s (1982) Social Difficulty Scale. Results from Pearson Product-moment correlations and stepwise multiple regression analyses show relationships between TV viewing motivations and psychological and socio-cultural adjustment.

Keywords: TV viewing motivation, psychological adjustment, socio-cultural adjustment, intercultural adjustment, social difficulty

Over the last two decades research on the role that mass communication plays in the process of intercultural adjustment has been growing. Gordon (1974), for example, indicated that media affects an individual’s value system, image and stereotype of environment, and the choice of priority concern. The mass communication experiences in the host culture usually fill the interpersonal communication gaps between sojourners and host nationals. Mass communication broadens sojourners’ perspective of the host culture by providing information about the host culture (Kim, 1988, 1995; Walker, 1999). Most research in this area focuses on the influence of the use of mass media on the adjustment process of sojourners in the host culture. However, few of them deal with the relationship between motivation of media use and cross-cultural adjustment. This study aims to explore this area.

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by examining the influence of TV viewing motivation on sojourners’ cross-cultural adjustment.

Cross-cultural adjustment refers to the degree of fitness or compatibility of sojourners in a new cultural environment (Chen & Starosta, 2005). According to Ruben and Kealey (1979), the concept of cross-cultural adjustment consists of three dimensions: cultural shock, psychological adaptation, and interactional effectiveness. Cultural shock relates to the dynamics of cross-cultural adjustment. Research in this area has found that the extent, direction, magnitude, and duration of cultural shock has a significant effect on a person’s life during the early stage of sojourning in a new environment (Brislin & Pederson, 1976; Furnham, 1986, 1987; Furnham & Bochner, 1982, 1986; Gullahorn & Gullahorn, 1963).

Psychological adaptation relates to the psychological process of acclimating to a new culture. Studies have shown that this process is related to psychological well-being, contention, comfort, and self-satisfaction within a new environment after the stage of culture shock has passed (An, 2009; Berry, Kim, & Boski, 1988; Church, 1982; David, 1972; Dinge & Lieberman, 1989; Ruben & Kealey, 1979; Taft, 1977, 1988). Finally, interactional effectiveness refers to a behavioral perspective which concerns sojourners’ social or communication skills to interact with host nationals. Studies have indicated that these communication skills include the ability to impart one’s knowledge in order to understand another, the ability to establish interpersonal relationships with host nationals, and other skills like empathy and interaction management (Abe & Wiseman, 1983; Barna, 1979; Chen, 1989, 2007; Hammer, 1984; Hammer, Gudykunst, & Wiseman, 1978; Kim, 1988, 1989; Martin & Hammer, 1989; Ruben, 1976; Ruben & Kealey, 1979).

Numerous studies on cross-cultural adjustment have been done since Lysgaard (1955), based on the study of 200 Norwegian Fulbright scholars in the United States, found that cross-cultural adjustment is moving like a U-curve rather than a straight line. Most studies confirmed this U-shaped movement of intercultural adjustment, which generally includes the four stages of honeymoon, crisis, gradual adjustment, and biculturalism (e.g., Chang, 1973; Deutsch & Won, 1963; Morris, 1960; Oberg, 1960; Smalley, 1963). More recent studies also attempted to examine the concept from different perspectives. For example, Anderson (1994) used a dialectic model to indicate that cross-cultural adjustment is a cyclical and recursive process, in which sojourners try to solve problems caused by the host culture through interaction. Thus, the drive and motivation are the forces for sojourners to overcome the barriers of cross-cultural adjustment and reach intercultural communication competence.

Taylor (1994) proposed the Transformative Learning Model to argue that living in a new culture as a sojourner will inevitably experience a transformation of intercultural adjustment through learning. This process of learning to convert oneself through interaction with the host nationals is the basis of gaining the ability of understanding, appreciating, and
respecting cultural differences. As Kim and Ruben (1988) pointed out, the transformative process of cross-cultural adjustment reflects the need for sojourners to regain the internal balance by coping with the cultural difficulties caused by the host culture. The efforts to make this kind of psychological adjustment become the precondition for sojourners to successfully reach transformation and growth in the process of cross-cultural adjustment.

Moreover, Berry (1997, 2003) examined cross-cultural adjustment from the perspective of strategic acculturation. Berry indicated that the attitudes and behaviors of sojourners or immigrants in a host culture could be posited in the continuum of cultural maintenance at one end and host-group relationship at the other end. More specifically, the continuum of the strategic acculturation of intercultural adjustment is comprised of four categories, including assimilation, integration, separation, and marginalization.

Nevertheless, although much research has been devoted to cross-cultural adjustment studies, this expanding field still suffers from a variety of difficulties. Searle and Ward (1990) pointed out two major problems regarding the study of the subject. First, the field lacks consensus on the theoretical frameworks for investigation and lacks an agreement on definition of key concepts. Second, the field lacks clarity about components that constitute “adjustment.” Through a thorough literature review from clinical perspectives, social learning models, and social cognitive approaches to the study of cross-cultural adjustment, Searle and Ward (1990, 1991) integrated the construct of cross-cultural adjustment into two categories: psychological dimension and socio-cultural component. Psychological dimension refers to feelings of well-being and satisfaction in the host culture, while the socio-cultural component refers to the ability to “fit in,” to adapt to the interactional aspects of the host culture.

Empirical studies supported the distinction of psychological and socio-cultural adjustment (Searle & Ward, 1990; Ward, 1996; Ward & Kennedy, 1993). It was suggested that psychological adjustment can be best perceived in the framework of a stress and coping model based on clinical and social learning perspectives, and that socio-cultural adjustment can be more effectively analyzed in a social learning framework. Psychological adjustment is related to sojourners’ personality, life changes, coping styles and social support variables, while socio-cultural adjustment is affected by expectations and perceived cultural distance, cultural knowledge, and cultural identity. The distinction of psychological and socio-cultural adjustment was adopted for the purpose of this study.

The study of TV viewing motivation is based on the uses and gratifications theory, which attempts to explain why and how people use media. The theory includes five assumptions: (1) people actively seek out media to satisfy their needs, (2) people use media to fulfill expectations, (3) people actively choose media and media content, (4) people know and can state their own motivations for using media, and (5) understanding the underlying motives of media use is the key to the explanation of the cultural significance of media.
content (Infante, Rancer, & Womack, 2003). TV viewing not only provides sojourners information about the host culture, but also helps sojourners in the process of adjustment. Gordon (1964), for example, indicated that the media exert a powerful influence on immigrant’s acculturation to the host culture. Shibutani and Kwan (1965) mentioned that the degree of acculturation for members of a minority group is dependent on the extent of their media exposure. Zohoori (1988) conducted a comparative study in television watching between immigrant children in the U.S. and local children from 6 to 12 years of age. The findings showed that immigrant children used television as an important source of gaining education and information about their new society. Other studies by Greenberg, Mastro, and Brand (2002), Kim (1977, 1978), and Stilling (1997) also supported the adaptive function of host media to sojourners. In addition, Reece and Palmgreen’s study (2000) discovered that as a person’s need for acculturation increased, his/her television viewing motives also increased.

Why do people watch TV? Scholars have identified many reasons, such as loneliness, shyness, relaxation, procrastination, excitement, diversion, or simply because there is nothing better to do (Greenberg, 1974; Johnsson-Smaragi, 1983). Anderson (1982) concluded that most people watch TV programs to drive away boredom, to kill time, or to entertain themselves. However, according to Finn and Gorr (1988), there are two different sources of TV viewing motivations based on certain needs: mood management viewing and social compensation viewing. Mood management viewing includes the motivations of relaxation, entertainment, arousal, and information. Social compensation viewing includes the motivations of companionship, passing time, habit, and escape. All of these motivations were mirrored in Rubin’s (1979, 1983, 1985) studies, which also identified various reasons for why people watch television.

Rubin (1984) further identified two types of television viewers. First, there are viewers who are time-consuming information seekers and watch television for a ritualized purpose. People of this type view television more frequently and have a high regard for television. The second type of viewer is a non-habitual entertainment-information seeker who watches television for an instrumental purpose. People of this group watch television primarily for receiving information, and they are more selective and goal oriented. Although the two types of TV viewers are different, TV viewing motivations for viewers of the two groups function similarly with one another to produce certain patterns of media gratifications, and can further predict watching patterns, behaviors and attitudes, and consequences of TV use (Rubin, 1983).

Applying to a cross-cultural setting, we predicted that the TV viewing motivations of the sojourners would affect their adjustment process in the host culture. The present study examined a range of TV viewing motivations of sojourners in relationship to psychological and socio-cultural adjustment. It was hypothesized that TV viewing motivations including
learning, passing time, companionship, forget or escape, excitement or arousal, and relaxation would predict psychological adjustment as assessed by a sojourner’s feelings of well-being and satisfaction in the host culture. It was also hypothesized that these TV viewing motivations would predict socio-cultural adjustment as assessed by a sojourner’s ability to adapt to interactive aspects of the host culture.

METHOD

Participants and Procedures

One hundred and twenty-six Asian students enrolling in a midsize university in the New England area participated in the study. Two hundred questionnaires were distributed to the students. Of the 200 questionnaires, 132 (66%) were returned to the researcher. Six questionnaires were not completed; therefore, 126 subjects were included in the present study. Of the sample, 93 were males and 33 were females. The average age of the subjects was 27.10. The length of their stay in the United States ranged from six months to seven years. Most of the participants were from Far Eastern areas. Approximately 85% of them were Chinese descendants from China, Hong Kong, and Taiwan, and others were from different countries in south Asia.

Measurement

In order to measure TV viewing motivations Rubin’s (1979) TV viewing motivation scales were used in this study. The instrument consisted of eight categories: relaxation, companionship, habit, pass time, learning things, learning for myself, arousal, and escape. The coefficients of Cronbach’s alpha for these categories ranged from .67 to .84.

As indicated in the literature review, psychological adjustment refers to the feelings of well-being and satisfaction in intercultural interaction. Thus, the concept was operationally defined by three measures that were used to measure sojourners’ ability to cope with the psychological stress in the host culture. The three measures include: Zung’s (1965) Self-Rating Depression Scale; Russell, Peplau, and Cutrona’s (1980) Loneliness Scale; and Rohrlich and Martin’s (1991) Satisfaction Scale. These scales have been found reliable by these authors. The alpha coefficients of these scales in this study were .79 for the Self-Rating Depression Scale, .93 for the Loneliness Scale, and .78 for the Satisfaction Scale.

Finally, socio-cultural adjustment was measured by Furhnam and Bocher’s (1982) 10-item scale which contains ten of the most difficult situations sojourners have encountered when communicating with the host nationals. The scale was validated for use with
international students (Chen, 1992, 1993). The alpha coefficient of the scale in this study was .80.

**RESULTS**

The primary objective of this study was to examine the influence of TV viewing motivations on psychological and socio-cultural adjustment. Pearson Product correlation and multiple regressions were performed to fulfill this purpose. Table 1 reports the correlations of the variables. The results indicate that depression was significantly correlated with companionship ($r = .28$), habit ($r = -.27$), and learning things ($r = -.23$); loneliness was significantly correlated with companionship ($r = .41$), habit ($r = -.31$), learning things ($r = .18$), and escape ($r = .22$); satisfaction was significantly correlated with habit ($r = .35$); and social difficulty was significantly correlated with arousal ($r = .22$), and escape ($r = -.18$). The probabilities for all these correlations were lower than the .05 level.

To find out which of the components of TV viewing motivation best predicted various dimensions of psychological and social adjustment, stepwise multiple regression analyses

<table>
<thead>
<tr>
<th>Variables</th>
<th>Depression</th>
<th>Loneliness</th>
<th>Satisfaction</th>
<th>Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxation</td>
<td>-0.12</td>
<td>-0.07</td>
<td>0.06</td>
<td>0.01</td>
</tr>
<tr>
<td>Companionship</td>
<td>0.28*</td>
<td>0.41*</td>
<td>-0.13</td>
<td>-0.01</td>
</tr>
<tr>
<td>Habit</td>
<td>-0.27*</td>
<td>-0.31*</td>
<td>0.35*</td>
<td>0.04</td>
</tr>
<tr>
<td>Pass Time</td>
<td>-0.01</td>
<td>0.16</td>
<td>0.09</td>
<td>-0.09</td>
</tr>
<tr>
<td>Learning Things</td>
<td>-0.23*</td>
<td>0.18*</td>
<td>0.1</td>
<td>0.11</td>
</tr>
<tr>
<td>Learning Myself</td>
<td>-0.08</td>
<td>-0.20*</td>
<td>0.08</td>
<td>0.07</td>
</tr>
<tr>
<td>Arousal</td>
<td>-0.08</td>
<td>-0.06</td>
<td>0.17</td>
<td>0.22*</td>
</tr>
<tr>
<td>Escape</td>
<td>0.15</td>
<td>0.22*</td>
<td>0.06</td>
<td>-0.18*</td>
</tr>
</tbody>
</table>

Note. $N = 126$. * $p < .05$. 
were conducted. Each of the four dimensions of psychological and socio-cultural adjustment was regressed onto the dimensions of TV viewing motivation. As Efroymson (1960), indicated stepwise multiple regression analysis is an automatic procedure for statistical model selection for a large number of potential explanatory variables. In this study multiple regression was used in a stepwise procedure to determine the ability of the eight measures of TV viewing motivation to predict the components of psychological and socio-cultural adjustment. The results are summarized in Table 2.

The results show that depression was best predicted by companionship, habit, and learning things. Loneliness was best predicted by companionship, habit, “learning myself,” and escape. Satisfaction was best predicted by habit. Social difficulty was best predicted by arousal and escape.

**DISCUSSION**

The present study assessed the influence of TV viewing motivations on psychological and socio-cultural adjustment. Viewing for companionship had a positive effect on depression, referring to that those who felt depressed in the process of cross-cultural adjustment tended to watch TV for the purpose of looking for a friend, while viewing for habit and for learning things had a negative effect on depression. Viewing for companionship and for escape had a positive effect while viewing for habit and for “learning myself” had a negative effect on loneliness. Viewing for habit also had a positive effect on satisfaction. Lastly, viewing for arousal had a positive effect while viewing for escape had a negative effect on social difficulty. Overall, the results showed that those who watched TV for the need of companionship and escape were more likely to have psychological adjustment problems. As for social-cultural adjustment, those who watched TV for the purpose of arousal tended to encounter more difficulties. However, it was interesting to find that a positive relationship exists between watching TV for escape and social-cultural adjustment. The plausible explanation is that watching TV for the purpose of escape might be a means sojourners use to avoid facing the real life problems in the host culture, and that led them to overlook the influence of those social difficulties specified in the instrument.

Previous research has shown the important role media plays in the process of cultural adjustment. The present study further examined the impact of TV viewing motivation and discovered its impact on the process of cultural adjustment. The results of this study may shed light on the uses and gratifications theory. Moreover, the rapid development of new media in recent years may demand further studies to investigate whether there are significant differences for viewing or using motivation between TV and new media on cross-cultural adjustment.
Finally, three concerns about this study should be noted. First, although the response rate (66%) is moderately high, the design of this study was one-shot survey research. For the examination of cultural adjustment, the longitudinal research is strongly recommended, as it allows for future research, which allows for observation of the adjustment process over time. Second, the composition of the participants was diverse in this study, but most of them
were from the Far East in this study. People from different cultures may show various ways in the process of cultural adjustment, and this will likely affect the validity and reliability of the measuring instruments used in the study. Although instruments used in this study showed acceptable level of reliability coefficients, future research can employ a culture specific approach to further challenge the reliability of the instruments and results found in this study. Lastly, participants in this study were limited in the category of students. Future research on cross-cultural adjustment should extend to include samples of business people, diplomats, volunteers, and their spouses.

REFERENCES


