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A Matter of Interpretation: The Role of Audience Interpretations in Predicting

Outcomes of Exposure to Television Depictions of Illicit Drug Use

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Communication

by

Kimberly Walsh McDermott

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September 2016

The dissertation of Kimberly Walsh McDermott is approved.

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August 2016

A Matter of Interpretation: The Role of Audience Interpretations in Predicting

Outcomes of Exposure to Television Depictions of Illicit Drug Use

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ABSTRACT

A Matter of Interpretation: The Role of Audience Interpretations in Predicting

Outcomes of Exposure to Television Depictions of Illicit Drug Use

by

Kimberly Walsh McDermott

This dissertation aims to highlight the theoretical importance and predictive power of audience interpretations within media effects research through an experiment comparing four variable sets – message features, audience attributes, audience states, and audience interpretations – in terms of their contribution to three commonly assessed outcomes of media exposure: attitudes, beliefs, and behavioral intentions. Within this study, interpretations refer to the meanings that audiences construct from media content (e.g., perceptions and evaluations of characters and behaviors). In other words, interpretations make up the "effective stimulus" within a viewer's mind. According to this definition, interpretation variables are conceptually distinct from message features (inherent elements within a media message), audience attributes (demographics and stable traits), and audience states (temporary conditions experienced during media exposure). The predictive power of these four variable sets was tested in the context of television depictions of cocaine use. As such, the specific outcomes of interest included attitudes about cocaine, cocaine effect expectancies, and intentions to use cocaine.

A total of 311 undergraduate students were randomly assigned to view one of three televisions episodes (*The Wire, Girls,* or *Entourage*) in which main characters were shown using cocaine. The episodes were chosen because they depict diverse portrayals of cocaine use in terms of key variables such as consequences, character status, and humor. Considering their differences in terms of message features, the treatment conditions represented the message variable set within the study. Variables for the other three sets were assessed via pre-test and post-test questionnaires. The specific factors included in each set were selected based on past findings suggesting that they were likely to influence the outcomes of focus.

The study's results revealed that interpretation variables were overwhelmingly and consistently the strongest predictors of all three outcome variables. Perhaps most notably, audience interpretations explained between 10% and 23% more variance than the treatment conditions to which participants were assigned. The other types of variables also were found to be useful predictors of the three outcomes. Findings related to these variable sets aligned with the existing media effects literature, which pointed to particular attributes (e.g., sensation seeking personality), states (e.g., emotional reactions), and message features (e.g., character status) likely to predict viewers' responses to television depictions of drug use. For example, findings related to the effect of the treatment condition reinforced the relevance of the message features of consequences, humor, and character status, and supported the premise of social cognitive theory. The three outcome measures varied across treatment conditions in expected ways – with statistically significant differences observed for attitude and belief outcomes. Specifically, participants who viewed the *Girls* episode (featuring relatable characters, humor, and positive outcomes) reported more positive attitudes about

cocaine and more positive effect expectancies than participants who viewed *The Wire* episode (featuring criminal characters, no humor, and extremely negative consequences).

By illustrating how distinct variable sets contribute to different types of media outcomes, this dissertation lays the groundwork for a new "phase" of media effects experiments that accounts for audience interpretations in addition to message features, audience attributes, and audience states. Importantly, research conducted during this interpretation phase would involve (1) more comprehensive applications of prominent media theories (e.g., social cognitive theory and priming), (2) experimental designs that account for participant interpretations, and (3) receiver-oriented approaches to content analysis. Based on the findings reported here and elsewhere in the literature, it is expected that such research would result in stronger predictive power, larger effect sizes, and most importantly, a more complex and complete understanding of the process of media influence.

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I.   Introduction

For nearly a century, researchers have designed empirical studies with the goal of explaining and predicting the effects of exposure to media content. Accordingly, our understanding of media effects has developed substantially since early experiments designed under the assumptions that (1) the locus of meaning is in the media message and (2) media messages have a similar effect on all people. Over time, researchers have gradually and cumulatively improved upon this design. A first step in this progression involved accounting for the idea that media messages have distinct effects on different types of people and in turn, testing the role of stable audience traits (e.g., age and need for cognition) in predicting effects. A second step involved acknowledging that individuals experience media messages in unique ways. In line with this notion, researchers began to measure the influence of audience states during exposure (e.g., arousal and emotional reactions).

Notwithstanding these advances, meta-analyses continue to establish average effect sizes in the range of only 2-10% of variance explained for even the most highly researched topics, such as violence, sex, and advertising (see reviews in Preiss, Gayle, Burrell, Allen, & Bryant, 2007). These trends suggest that more work is needed to move the field of media effects toward the realm of stronger prediction. As this dissertation seeks to demonstrate, an important step in this direction would involve experimental research that accounts for the role of audience interpretations of media content (i.e., the constructed meanings that audiences assign to media content). In addition to acknowledging the differential effects of media exposure, this research would also be designed under the assumption that the meaning

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of a media message primarily lies not in the media stimulus itself, but in the "effective stimulus" created in the mind of each individual audience member (Früh & Wirth, 1992).

To summarize the progression of media effects research leading up to this next turning point, past media studies can be categorized into three phases of development: the message phase, the attribute phase, and the state phase. With each new phase, researchers began to emphasize and incorporate a new set of variables, and by doing so, add predictive power to experimental studies. *Admittedly, the advancement of media effects research is not as linear or as straightforward as these phases might suggest.* However, this organization by phase is useful in its ability to illustrate the fact that over time, scholars have (1) developed a richer and more complex understanding of the media process and (2) incorporated this understanding into the development of experimental designs.

The first phase in the series is the message phase. With its roots in experimental psychology, this phase involved studies focused on the manipulation of a media stimulus. Experimenters would show participants one of several media messages and then assess which stimulus had the greatest effect on key outcome variables like aggressive thoughts and prosocial behaviors (e.g., Berkowitz & Rawlings, 1963; Friedrich & Stein, 1973; Janis & Feshbach, 1953). Within these types of experiments, the media stimulus/treatment was the independent variable of focus.

To illustrate this trend, a researcher studying media violence within the message phase might manipulate a given media message so that one version (shown in condition 1) featured violence shown as justified (according to the researcher) and a second version (shown in condition 2) featured unjustified violence. The researcher would assign participants to one of the two conditions and then assess differences between these conditions in terms of

aggressive outcomes. The results of this research might suggest that the presence of justification within a violent media message increases the likelihood of aggressive outcomes.

During the next phase, the attribute phase, researchers began to incorporate the notion that a single media stimulus could have unique effects on different people. Largely influenced by cognitive psychology, a growing number of researchers accounted for differences across demographic groups (e.g., males vs. females) as well as differences across participants with distinct personality traits (e.g., self-efficacy and aggressiveness). Within these experiments, audience attributes were included as independent variables or moderator variables – in addition to the treatment variable (e.g., Bushman, 1995; Johnson, Adams, Ashburn, & Reed, 1995).

As an example of the attribute phase, consider again a media violence researcher interested in studying the impact of justified violence. In addition to manipulating the stimulus to include more or less justification, a researcher representing the attribute phase might also measure participants' trait aggressiveness and biological sex as variables within the study. Such a study might find that justified violence has a greater effect on male audiences than female audiences or that individuals with lower levels of trait aggression are more affected by justified violence than those with higher levels of trait aggression.

During a third phase in media effects research, the state phase, scholars began to measure not only stable traits of media consumers, but also consumers' processing of media content. Emphasizing the role of information processing (e.g., Lang, 2000) and emotional experiences (e.g., Nabi, 2003; Zillmann, 2003), these researchers looked beyond "the what" (the message) and "the who" (audience attributes) to examine *how* audiences consumed

media content. They measured variables such as arousal, attention, and discrete emotions (e.g., Krcmar & Lachlan, 2009; Mazzoco, Green, Sasota, & Jones, 2010; Murphy, Frank, Moran, & Patnoe-Woodley, 2011). Within these studies, audience states during media exposure were included as additional predictor variables or as mediators of the effects of exposure to media content.

An example of the state phase can be demonstrated using the same topic of justified violence. In this case, a researcher representing the audience state phase might not only account for the message feature of justification and the attributes of participants, but also measure participants' level of arousal while watching the violent content. The addition of this variable might reveal that the stronger effects among males and non-aggressive individuals can be explained by the fact that these viewers tend to be more aroused by justified violence than other viewers.

This dissertation proposes that in order to further increase the predictive power of media effects research, the next phase of experimental design should emphasize the role of audience interpretations in explaining variance in outcome measures. Within the interpretation phase, researchers would emphasize the unique meanings that audiences construct from media content, and in turn, measure variables such as audience evaluations of and perceptions of characters and events. Applying this notion to the aforementioned media violence example, a researcher representing the interpretation phase would, in addition to measuring message, attribute, and state variables, account for participants' interpretations of the violence (i.e., their perceptions of how justified the violence was). This type of study might reveal that males, non-aggressive individuals, and/or viewers highly aroused by violent content tend to interpret violence as more justified. Along these lines, the study

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might demonstrate that participants' interpretations of violence more strongly predict aggressive outcomes following exposure than the treatment condition, participants' biological sex, or participants' level of trait aggression.

At first, it might seem that measuring participants' interpretations of media content is no different from running manipulation checks. However, it is much more than this. With manipulation checks (common in the message phase), researchers are simply checking to see if their manipulation was successful in promoting the intended interpretation (or range of interpretations) among participants (e.g., checking that participants in the "justified" condition interpreted the violence as more justified than those in the "unjustified" condition). In other words, a manipulation check resulting in high variation among participants would indicate a failure of the manipulation to deliver the meaning it was designed to deliver. Faced with these results, researchers in the message phase would need to design a "better" manipulation that could deliver this intended meaning. In contrast, interpretation phase researchers would *expect* to generate variance in meaning. Furthermore, they would use variables representing the unique meaning assigned to media content (i.e., interpretation variables) as additional predictors of media effects – taking the position that understanding the *received* meaning of participants is at least as important as understanding the *assumed* meaning in messages.

To further clarify, within this study, interpretations refer to the meanings that audiences construct from media content (e.g., perceptions and evaluations of media content). In other words, interpretations make up the "effective stimulus" within a viewer's mind. According to this definition, interpretation variables are conceptually distinct from audience attributes (demographics and stable traits) and audience states (temporary conditions experienced

during media exposure). Undoubtedly, an individual's attributes (e.g., ethnicity and need for cognition) and states (e.g., emotional response and attentional level) contribute to his or her interpretations of media content. However, it is these resulting interpretations that are likely to ultimately influence outcomes like attitudes, beliefs, and behaviors. As such, when researchers measure attributes and states as predictors of media outcomes, they are often measuring "surrogates" of interpretation variables (Potter, 1999), and as a result, limiting the predictive power of their studies. For instance, in the aforementioned media violence example, if males and females interpret violent content differently or individuals more aroused by violence interpret the content differently, these distinct interpretations, rather than the related attributes or states, are actually explaining the variance in outcomes. In this circumstance, then, interpretation variables should be the stronger predictors of outcome variables.

In line with this argument, several media effects researchers have emphasized the importance of audience interpretations of media content (e.g., Duncan & Nelson, 1985; Farrar, Krcmar, & Nowak, 2006; Gunter, 1994; Potter & Tomasello, 2003; Sander, 1997). Accordingly, a number of studies have accounted for interpretation variables, including perceived realism (e.g., Weiss & Wilson, 1998), perceived humor (e.g., Duncan & Nelson, 1985), perceived character regret (e.g., Nabi & Clark, 2008), and moral judgments of characters (e.g., Eyal & Kunkel, 2008). However, very few studies have compared the predictive power of interpretation variables with that of other variable types representative of the phases reviewed above (i.e., treatment variables, audience attributes, and audience states). The only studies to make these direct comparisons assessed the role of different types of variables – typically interpretation variables and just one other variable type – in

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predicting *stimulus-specific* "outcomes," such as viewer affect while playing a video game (Farrar et al., 2006) or judgments of violence in television clips (Potter & Tomasello, 2003; Sander, 1997). Seemingly, researchers have yet to design an experiment with the intention of examining the influence of audience interpretations (compared to treatment condition, audience attributes, and audience states) on outcome variables *non-specific to a media stimulus* (e.g., real-world behaviors or attitudes toward real-world people).

In light of the aforementioned trends, the major contribution of this dissertation is to demonstrate the importance of interpretation variables in predicting the outcomes of media exposure – particularly in comparison to more commonly measured variable categories (i.e., stimulus treatments, audience attributes, and audience states). Of course, a single study cannot account for the vast universe of potential predictor variables and treatments. However, by illustrating how different groups of conceptually distinct variables contribute to various types of media outcomes, this study can lay the groundwork for a new "phase" of media effects experiments that accounts for audience interpretations and adds predictive power to experimental designs.

Notably, the relative contributions of these variable sets could be tested in a number of media contexts. However, this dissertation focuses on a single topic that requires more scholarly attention than it has received: media portrayals of illicit drug use. Specifically, the present study examines the influence of multiple sets of variables on three outcomes of exposure to television depictions of cocaine use: attitudes toward cocaine, beliefs about the effects of using cocaine, and intentions to use cocaine. Although the effects of media portrayals of drug use are understudied, content analyses indicate reason for concern, revealing that popular films tend to show drug use positively and without negative

consequences (Gunasekera, Chapman, & Campbell, 2005; Stern & Morr, 2013). With

reported recent drug use at the highest rate in more than a decade (Center for Behavioral

Health Statistics and Quality, 2015) and drug overdose deaths on a steady rise (Kounang,

2015), understanding the potential influence of such content seems warranted.

II.   The Phases of Experimental Media Effects Research

This chapter reviews in greater detail the trajectory of media effects research described above. First, it summarizes the empirical evidence and theoretical frameworks representative of the message phase, attribute phase, and state phase. Then, it points to several prior studies and theoretical perspectives that provide justification for a subsequent phase of media effects research: the interpretation phase. The final section of this chapter summarizes evidence from the existing literature to suggest the relative influence of the four variable sets.

Importantly, within the present investigation, "outcome" variables refer to measures (attitudes, beliefs, behaviors, etc.) that represent what viewers *take away from* the media experience and apply to the world *beyond the media stimulus.* Indeed, many media studies treat variables such as enjoyment of a media narrative, emotional responses to a media text, and perceptions of elements within a media message as outcomes in and of themselves. However, within the present study, these types of variables are instead considered states or interpretations, and potential predictors of broader "outcomes" that are *nonspecific to the media stimulus* (in this case, viewers' attitudes towards, beliefs about, and behavioral intentions related to cocaine).

Of note, Table 1 provides a summary of effect sizes reported in prior media effects studies that tested the influence of one or more variable types on media outcomes. An extensive review of the literature was conducted to find studies that both (1) tested the direct effect of a message feature/treatment, attribute, state, or interpretation on an outcome variable (as defined above) *and* (2) explicitly reported an effect size for this relationship. Various Boolean search strings were applied within multiple databases (e.g., Google

Scholar, Communication Abstracts, and PsychInfo) in an effort to systematically identify relevant articles. However, this process proved to be futile – particularly because the term "effect size" is rarely spelled out within the text when effect sizes are reported alongside significance tests. A less systematic but more fruitful process involved using established review articles and textbooks (e.g., Bryant & Oliver, 2009; Nabi & Oliver, 2009; Potter, 2012; Preiss et al., 2007) to locate widely cited studies, and then using the reference lists within those studies to point to additional relevant research. Although this process revealed hundreds of studies testing the effects of numerous types of variables, most articles failed to explicitly report effect sizes. As such, the information in Table 1 represents effect sizes reported within the *subset* of the extant literature identified through the search process described.

A. The Message Phase: Meaning in the Manipulation

As noted above, the initial phase of experimental design within media effects research was the message phase. Within this phase, researchers focused on how the features of a media message (manipulated across conditions) influenced outcomes of media exposure. For example, psychologists Mussen and Rutherford (1961) studied the influence of aggressive cartoons on children's playtime behavior. To test the effects of cartoon aggression, they randomly assigned children to one of three conditions – watching an aggressive cartoon, watching a nonaggressive cartoon, or watching no cartoon – and then measured participants' aggressive tendencies during a play session immediately following exposure. The researchers observed a main effect for the treatment variable, concluding that participants exposed to the aggressive cartoon expressed more aggressive impulses during subsequent

play than those exposed to the nonaggressive cartoon or no cartoon at all. Accordingly, the takeaway of the study was that exposure to aggressive cartoon content can lead to aggression in children.

1. Theoretical Basis

One theory representative of the message phase is Berkowitz's (1984) cognitive neoassociationistic model of priming. This theory conceptualizes human memory as a network of nodes that represent pieces of information (e.g., thoughts, feelings, concepts, and behaviors). These nodes are linked through associative pathways that vary in strength depending on proximity, similarity, and semantic relatedness (Jo & Berkowitz, 1994). When a person encounters or experiences a stimulus, this event "primes" or activates related images and ideas within his or her network, rendering these thoughts temporarily more accessible or "top of mind." The theory also proposes that repeated or frequent activation of a given construct makes it "chronically" or more permanently accessible (Bushman, 1998). Chronically accessible constructs have lower activation thresholds, and as such, are used more frequently to guide thoughts, responses, and actions. Specific to media effects, the priming model posits that media images can serve as primes. Thus, exposure to media images can activate related thoughts in the minds of viewers, and repeated exposure to these images can make those thoughts more readily accessible.

In addition to emphasizing the importance of primes or cues within media content, the priming model also acknowledges the role of audience attributes and interpretations in predicting media outcomes. For example, according to the theory, which associative networks are activated by a given stimulus is a function of a viewer's interaction with the

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media content and the meanings he or she attributes to it (e.g., how violent or scary it is). Despite the fact that the model incorporates variables other than message features, studies based on priming theory (even those designed in more recent years) tend to focus on the meaning *within* message messages. These studies manipulate the presence of a particular prime in a media message – such as a reward, punishment, justification, or stereotypical portrayal (e.g., Carnagey & Anderson, 2005; Hansen & Hansen, 1998) – and measure its effect on audiences. Unsurprisingly, as priming was developed as a media violence theory, most priming studies are focused on the effects of violent primes or cues (Berkowitz & Powers, 1979; Berkowitz & Rawlings, 1963; Geen & Stonner, 1973; Hoyt, 1970). Notably, the priming model also has been applied within research on the effects of stereotypical media portrayals. Studies in this realm have shown that the presence of negative racial imagery in media content can adversely affect viewers' subsequent evaluations of minorities (e.g., Ford, 1997; Pan & Kosicki, 1996; Rada, 2000).

2. Empirical Findings

Unsurprisingly, throughout the history of media effects research (during the message phase and beyond), the manipulation of message features has remained central to experimental research. Researchers have examined the influence of hundreds of message elements, such as genre (e.g., Holbert, Shah, & Kwak, 2003; Kim & Vishak, 2008), frames (e.g. McLeod & Detenber, 1999; Richardson, 2005), emotional appeals (e.g., Hitchon & Thorson, 1995; Newhagen, 1998), repetition (Aubrey, 2006; Gibbons, Lukowski & Walker, 2005), humor (e.g., Duncan & Nelson, 1985; Moyer-Gusé, Mahood, & Brookes, 2011), and exemplars (Perry & Gonzenbach, 1977; Zillmann, 2002). These studies have focused on the

impact of individual message features on various outcomes measures, ranging from aggressive behavior (e.g., Bandura, 1965) to advertisement recall (e.g., Cline & Kellaris, 2007), and in diverse mediated contexts, ranging from news content (e.g., Yaros, 2006) to public service announcements (Lang, Schwarz, Chung, & Lee, 2004).

Although studies published during the message phase did not frequently report effect sizes for treatment variables, later studies more commonly reported effect sizes attributed to the manipulation of message features in addition to reporting the effects of other variables (e.g., attributes or states). When specified in these studies, effect sizes for message manipulations were generally very weak (see Table 1), with the presence of a given message feature typically explaining less than five percent of variance in outcome variables.

B. *The Attribute Phase: Acknowledging the Audience*

During a second phase of media effects research, the attribute phase, more scholars began to acknowledge and test the role of audiences' stable traits and demographics in predicting media outcomes. As an example, Zhang (1996) accounted for the stable trait of need for cognition (NFC) in his study of the effects of humor in advertising. Within this experiment, Zhang examined the influence of two message features: presence of humor and argument strength. Participants were randomly assigned to view one of four advertisements: a humorous ad featuring a strong argument, a humorous ad featuring a weak argument, a non-humorous ad featuring a strong argument, or a non-humorous ad featuring a weak argument. In addition, Zhang accounted for a theoretically relevant audience attribute by measuring participants' need for cognition. The results of this study demonstrated that participants' NFC moderated the effects of humor and argument strength on participants'

purchase intentions following message exposure. Specifically, high NFC participants were less persuaded by humor and more persuaded by argument strength, whereas low NFC participants were more influenced by humor than by argument strength. Based on these findings, Zhang confirmed that both argument strength and presence of humor are influential message features, but concluded that low NFC and high NFC audiences process these message elements in distinct ways.

1. Theoretical Basis

One theory representative of the attribute phase is Bandura's (1986) social cognitive theory (SCT). Within this theory, vicarious learning refers to the process through which individuals develop rules for behavior by observing others. As applied to media effects, the model proposes that audiences can learn by observing the behavior of media characters. Bandura explains that four sub-functions govern this process: *attention,* determined by complexity of the behavior, characteristics of the model, and cognitive capacity of the viewer; *retention*, or the transforming of information into codes and engagement in cognitive rehearsal; *production*, or the translating of conceptions into actions through guided enactment and corrective adjustment; and *motivation* in the form of vicarious, direct, or self-produced incentives or deterrents. Importantly, Bandura argues that a behavior is only enacted if an individual feels self-efficacious in his or her ability to perform it.

The various facets of SCT highlight the important role of message features, audience attributes, audience states, and audience interpretations in predicting outcomes of media exposure. Emphasizing the influence of *message features*, the theory prescribes that observers are more likely to imitate behaviors depicted in certain contexts (e.g., performed

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by attractive people and lacking punishment, remorse, or consequences.). Regarding audience variables, SCT posits that the extent to which audience members can effectively learn and enact behaviors is determined by their stable *attributes* (e.g., skills, knowledge, and self-efficacy) and *states* during exposure (e.g., levels of attention, cognitive capacity, and motivations). In terms of audience interpretations, the theory's focus on retention (i.e., the transforming of information into codes) suggests that the meaning audiences assign to media content is a crucial factor in the learning process.

Likely due to the breadth and complexity of SCT, empirical research has yet to rigorously test *all* of the theory's components and processes in media contexts (see Pajares, Prestin, Chen, & Nabi, 2009). Representative of the attribute phase, the majority of experimental studies grounded in SCT have demonstrated support for aspects of the theory related to (1) inherent message elements and (2) audience attributes. The results of this research have pointed to message features, such as attractive characters (e.g., Bandura, 1986) and behavior modeling (e.g., Maibach & Flora, 1993), as well as audience attributes such as body image disturbance (e.g., Heinberg & Thompson, 1995) and religiousness (e.g., Slone, 2000), that are influential in predicting outcomes of media exposure.

2. Empirical Findings

During the attribute phase of media research and thereafter, media studies have examined the influence of audience attributes on outcomes of media exposure. Over time, such research has demonstrated the role of demographic variables such as audience gender (e.g., Eastin, 2006; Grabe & Kamhawi, 2006) and race or ethnicity (e.g., Appiah, 2002; Oliver & Fonash, 2002), as well as traits such as the ability to engage in reflection (Hwang,

Gotlieb, Nah, & McLeod, 2007) and moral reasoning skills (Krcmar & Cooke, 2001). As with message variables, audience attributes have been studied as predictors of a variety of outcomes, including apprehension (Berger, 2005), hostility (Tamborini et al., 2004), and genre-consistent beliefs (Bilandzic & Busselle, 2008). Some common contexts in which these variables have been studied include news coverage and media violence.

Similar to message factors, effect size estimates for audience attributes are more commonly reported in recent research. Within these studies, audience attributes are typically shown to have relatively weak effects on media outcomes, rarely accounting for more than 10% of variance explained (see Table 1). However, it could be the case that if more studies treated these variables as predictors as opposed to controls, stronger effects might be uncovered.

C. The State Phase: The Experience of Exposure

Moving into the third phase of media effects research, the state phase, scholars began to account for how audiences experience and process media messages. In addition to examining elements of messages and enduring audience attributes, this research also measured audiences' temporary conditions during media exposure (e.g., motivations, arousal, and emotions; see Potter, 2012). As an example, Bilandzic and Busselle (2008) studied the influence of various media genres such as romance and science fiction (a message variable) on genre-consistent attitudes. Within their study, the researchers also measured the role of biological sex (an audience attribute), transportability (an audience attribute), and transportation into the narrative (an audience state) in predicting genre-consistent beliefs following exposure. They found no sex differences in terms of

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transportation levels or attitudinal outcomes, but expectedly found that level of transportability was a strong predictor of transportation during exposure. They also observed that higher levels of transportation during exposure related to more genre-consistent attitudes following exposure – for all genres except science fiction. A key takeaway, then, was that the state variable of transportation during exposure was a strong predictor of attitudinal outcomes, but only for some media genres.

1. Theoretical Basis

As noted, the audience state phase reflects the growing emphasis in media effects research on information processing (e.g., Lang, 2000, 2006) and emotional experiences (e.g., Nabi, 2003; Zillmann, 2003) in recent years. Interestingly, within this phase, no single theory has had a reach or impact as substantial as the aforementioned priming and social cognitive theories. Rather, researchers studying audience states have drawn from a multitude of perspectives that highlight the importance of particular states (e.g., attention) or groups of states (e.g., emotional responses).

As an example, Lang's limited capacity model of motivated mediated message processing (LC4MP; Lang, 2000, 2006) underlines the role of audiences' emotional responses, arousal, and motivations during media exposure. LC4MP rests on the premise that humans possess a limited amount of cognitive resources. During media exposure, audiences engage in three main information-processing tasks: encoding (selecting information and forming a mental representation), storage (creating a long-term mental representation of encoded information), and retrieval (activating previously stored information). According to LC4MP, specific message features (e.g., emotional valence and

arousing content), in interaction with an individual's goals and motivations, trigger the activation of one of two motivational systems: the aversive system (associated with negative emotional experiences) and the appetitive system (associated with positive emotional experiences). Which of the two systems is activated and the intensity of its activation (again, dependent on the message features and motivational relevance to the media recipient) determine the relative allocation of resources to encoding, storage, and retrieval. As these three cognitive processes are theorized to underlie the effects of media messages, LC4MP suggests that variables related to audiences' emotional responses and arousal levels during media exposure (i.e., audience states) should be strongly related to outcomes of exposure. In support of this notion, multiple studies grounded in this theory have found that emotional reactions to media content (e.g., Leshner, Bolls, & Thomas, 2009) and arousal during media exposure (e.g., Jeong & Biocca, 2012) have an impact on outcomes such as learning and memory.

Another important theoretical construct, different from affect or arousal, is involvement or engagement with a narrative and/or character. Transportation (Green & Brock, 2000) is one type of engagement commonly measured during the audience state phase. Conceptually similar to the notions of flow, presence, and absorption, transportation distinctively pertains to an individual's involvement with narrative content. Specifically, it describes the state in which a viewer or reader is so involved in a story that he or she becomes lost in the narrative world and unaware of his or her surroundings. Notably, in developing the multidimensional construct of narrative engagement, Busselle and Bilandzic (2009) conceptualized transportation (which they called "narrative presence") as one of four related but distinct dimensions. The other three dimensions included narrative understanding (i.e.,

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comprehension of a story), emotional engagement (i.e., empathy or sympathy for

characters), and attentional focus (i.e., level of distraction or concentration). These scholars

proposed that these various sub-dimensions – all audience states – are important predictors

of media outcomes, such as audiences' attitudes and beliefs about the real world. Indeed, a

recent meta-analysis of the persuasive effects of involvement with media entertainment

concluded that engagement variables such as narrative transportation and empathetic

identification with characters had moderate to large effects on persuasive outcomes

(Tukachinsky & Tokunaga, 2013).

2. Empirical Findings

Particularly in recent years, abundant research has demonstrated that audience states,

such as emotional responses (e.g., Holbert & Hansen, 2008; Hwang, Pan, & Sun, 2008;

Mazzoco et al., 2010), character or narrative involvement (e.g., Murphy, Frank, Moran, &

Patnoe-Woodley, 2011; Nicovich, 2005), and arousal (e.g., Krcmar & Lachlan; Peter &

Valkenburg, 2008), mediate the effects of media exposure. These state variables have been

studied as predictors of various outcomes, including perceived vulnerability (Moyer-Gusé &

Nabi, 2010), motivations to donate (Morgan, Movius, & Cody, 2009), attitudes toward

immigration (Iguarta, 2010), and aggressive behavior (Farrar et al., 2006).

Notably, audience states have been examined in a variety of contexts, including romantic

comedies (Bilandzic & Busselle, 2008), radio commercials (Duncan & Nelson, 1985), and

dramatic film (Iguarta, 2010). These variables often have been measured as key factors

within studies of health promotion and entertainment education. In contrast to the message

and attribute variables summarized above, state variables have demonstrated a large range of

effect sizes, accounting for as low as 3% and as high as 25% of explained variance in outcome variables (see Table 1).

D. *The Next Phase: The Influence of Interpretations*

This dissertation proposes that a logical next phase of media effects experimental research would be an interpretation phase— comprising studies that acknowledge the importance of the meanings audiences construct from media content. Interpretations refer to audiences' perceptions and evaluations of all aspects of media content (e.g., characters, events, and overall narratives). In this sense, the combination of an individual's interpretations of a given media message comprise the "effective stimulus" to which he or she is exposed when consuming that message (Früh & Wirth, 1992). The notion of the effective stimulus assumes that no two individuals consume the exact same media message. Individuals have unique motivations, experiences, and knowledge. They pay attention to different elements within a narrative, identify with different characters, experience distinct emotional responses, and make varying connections. All of these individual differences and countless others contribute to unique interpretations of media content that influence the outcomes of exposure for each individual consumer.

To date, empirical research has yet to examine in a single study how message variables, audience attributes, audience states, *and* audience interpretations predict outcomes of exposure – though the aforementioned study conducted by Sander (1997) came close. Sander's study accounted for all four types of variables as predictors of audience judgments of the violence *within* the media messages shown in the experiment, but did not assess their effects on outcome variables (as defined in the present study). Specifically, Sander measured

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four groups of variables: (1) contextual dimensions of message content determined via content analysis of 30 film clips (message variables), (2) viewer demographics and personality dispositions (attribute variables), (3) viewers' emotional reactions (state variables), and (4) viewer perceptions of the contextual dimensions (interpretation variables). She observed that perceptions of violence varied not only across the different TV programs but also for the same TV programs—supporting the notion that viewers can interpret the same content in meaningfully different ways. Findings also revealed that demographics and personality traits were weak predictors of judgments of violence. Interestingly, although content variables were strong predictors of viewer judgments of violence, emotions and perceptions accounted for a significant amount of variance (12%) beyond that accounted for by content variables alone. Furthermore, the amount of variance explained by message elements was reduced by 29% when perceptions and emotions were controlled. As a large portion of the influence of content variables was explained by viewer emotions and perceptions, Sander concluded that these types of variables should be studied in future research on the media effects process.

1. Theoretical Basis

The Sander (1997) study and several other studies that measured audience interpretations have drawn from various theories to highlight the importance of these variables. Potter and Tomasello (2003) referred to schema theory; Farrar and colleagues (2006) cited the mental models approach; and Sander (1997) applied a dynamic-transactional approach.

Schema theory (Fiske & Taylor, 1991) presents one potential explanation for why viewers vary in their perceptions of and reactions to media content. This theory posits that

individuals use schema to organize and guide their perceptions of the environment. Fisk and Taylor (1991) defined interpretive schema as "cognitive structures that represent knowledge about a concept or type of stimulus, including its attributes and the relationship among the attributes" (p. 139). When activated, these mental templates shape what individuals look for in their experiences with various events and objects, and in turn, provide the information upon which they base evaluations and understand their social worlds (Graber, 1988; Hunt, 1999). Schemas vary across individuals, based on their unique experiences, cognitive styles, emotional reactions, and perceptual abilities. According to this perspective, people do not use all relevant cognitive networks to guide their information processing. Instead, they tend to rely on the most accessible schemas (Higgins & King, 1981). When an object or stimulus is familiar, applicable schemas are highly accessible. When a stimulus or event is new, contextual cues can activate applicable templates to guide interpretations, reactions, and evaluations (Tourangeau & Rasinski 1988; Zaller 1992; Zaller & Feldman 1992).

As applied to media effects, schema theory suggests that different viewers, when exposed to the same stimulus, will interpret and react to that stimulus using accessible and activated cognitive networks. Which networks are activated, and the information contained in these networks are unique to each individual, based on his or her previous experiences. Multiple media scholars have applied schema theory in their experimental research. For example, in the context of body image, Hargraeves and Tiggemann (2002) demonstrated that schema activation partially mediated the negative effects of TV commercial viewing on girls' body dissatisfaction.

In the context of television violence, Potter and Tomasello (2003) argued that viewers' individual schemas "are one explanation for why individuals vary widely in their

perceptions of violence" (p. 316). To account for viewers' distinctive schemas, Potter and Tomasello measured the following interpretation variables within their experiment: reward or punishment for violence, identification with villains or heroes, amount of harm from violence, general impression of villains or heroes, realistic portrayal of violence, and reactions to the way villains' or heroes' violence was portrayed (e.g., level of graphicness or humor). They also assigned participants to three treatment conditions in which the number of violent acts was manipulated (i.e., low, medium, or high). Lending support to the premise of schema theory, the researchers found that whereas the treatment variable accounted for only 7% of the variance in judgments of violence, a subset of interpretation factors explained nearly 50% of variance. (Notably, according to definitions set within the present study, judgment of violence would be considered a viewer experience variable, rather than an outcome variable.)

Related to schema theory is the mental models approach. Mental models are cognitive mechanisms through which individuals construct dynamic and unique knowledge structures, integrating objective and subjective components into a single psychological representation (Johnson-Laird, 1983; Radavansky & Zacks, 1997; van Dijk, 1998; Zwann & Radvansky, 1998). Mental models are flexible in that they can be influenced by new information as well as mapped onto new situations in order to guide interpretations (Roskos-Ewoldson, Davies, & Roskos-Ewoldson, 2004).

Whereas schema are conceptualized as representations of a general phenomenon (e.g., violence or drugs), mental models represent contextualized (less abstract) knowledge about specific events, objects, and situations (e.g., TV depictions of drug use), such as information about space, time, motivations, cause and effect, and characters (Roskos-Ewoldson et al.,

2004; Zwaan & Radvansky, 1998). Related specifically to television, Wyer and Radvansky (1999) suggested that in most situations, viewers do not carefully evaluate media images; rather, they somewhat thoughtlessly process new content by constructing mental models based on information about related situations (such as previously consumed media content) stored in and recalled from memory. Along these lines, media scholars have proposed that individuals' prior experiences with related media content and/or real-world situations influence the mental models they construct while viewing a media stimulus (i.e., their interpretations of the stimulus; Roskos-Ewoldson, Roskos-Ewoldon, & Dillman Carpentier, 2002). Moreover, individuals' mental models are affected by the media messages they consume (more specifically, their interpretation of this content), and their resulting, altered mental representations are used in subsequent judgments and evaluations (Krcmar & Curtis, 2003).

In terms of empirical evidence, several studies have supported the notion of mental models. For example, in a correlational study, Mastro, Behm-Morawitz, and Ortiz (2007) observed that existing cognitions about representations of Latinos in the media interacted with amount of television exposure in predicting real-world perceptions of Latinos. Moreover, Krcmar and Curtis (2003) observed support for mental models through an experiment in which they showed children one of two versions of an action cartoon: one with a violent conflict resolution, and the other with a non-violent resolution. Interestingly, the researchers reported the unexpected finding that the two treatment conditions *did not differ* in terms of their influence on children's subsequent moral judgments. In both cases, children's judgments were more permissive following exposure to the cartoon. In interpreting these results, the authors highlighted that the mental models activated during

exposure were based not just on cues within the message, but on children's previous experiences. As such, for some children (whose prior experiences caused them to construct mental models about action cartoons that involved violence), watching a non-violent action cartoon activated the same permissive moral models that would have been activated by watching a violent action cartoon.

A third theoretical perspective emphasizing the importance of viewer interpretations is the dynamic-transactional approach (DTA; Früh & Wirth, 1992). Integrating the traditional stimulus-response model of media effects and the uses and gratifications perspective, DTA posits that neither the media stimulus nor media consumers determine completely the experience or outcomes of media exposure. According to the perspective, both viewers and stimuli have passive and active properties (Anderson & Burns, 1991). In the case of viewers, individuals are active in the sense that they interpret or "recreate the stimulus in their individual way according to momentary cognitive and emotional states, cognitive abilities, cognitive and emotional dispositions, and circumstantial influences" (Sander, 1997, p. 51). On the other hand, viewers are passive in the sense that some stimulus elements leave little room for unique interpretation; all viewers are likely to perceive these elements in similar ways because of shared socialization, symbolic environments, and physiological/ psychological properties, as well as habitual media use. In terms of media content, stimuli are active in that certain elements (e.g., a loud noise or widely shared symbol) force viewers to react in a certain way, but passive in that they are acted upon by individuals' attention, selection, and interpretations (Sander, 1997).

Accordingly, the DTA conceptualizes viewers and media stimuli as interdependent phenomena that *transact*. A transaction is a simultaneous interaction in which cause and

effect cannot be separated. Importantly, the notion of transaction prescribes that viewer

perceptions are central to the DTA model—mediating most effects. Along these lines,

Sander (1997) described the central role of perceptions as they pertain to media violence:

Unless subconscious processes are assumed, an effect can only occur if a property of the

program's content also becomes part of the viewer's perception. Where viewers fail to

perceive violence, there is no effective violence stimulus. The 'violence' only exists in

the head of the researcher. According to the DTA, the *perception* of the stimulus content

becomes the *effective stimulus* for subsequent effects. It is not usually the TV stimulus

itself that directly stimulates an effect because the DTA assumes that the stimulus is first

interpreted and, therefore, not usually the same for all viewers. (p. 51)

Another central aspect of the DTA is system orientation or holism. The perspective

dictates that factors within a system should be studied as meaningful units as opposed to

examined in isolation. In line with this notion, Sander (1997) simultaneously studied the

influence of four groups of variables on viewers' perceptions of violent television content.

Her findings (reviewed above), by pointing to the predictive power of viewer emotions and

perceptions beyond that of content variables, provided at least partial support for the DTA

model.

2. Empirical Findings

Although media effects research has not yet entered an interpretation phase, several

empirical studies over the years have accounted for the role of interpretation variables in

predicting outcomes of media exposure. Researchers have studied the effects of

interpretations on diverse outcomes – including emotions (Weiss & Wilson, 1998), opinions

(Duncan & Nelson, 1985), and behaviors (Meyer, 1972). The contexts of these studies are relatively limited, with the majority of research focusing on television content and media violence (e.g., Huesmann, Lagerspetz, & Eron, 1984; Potter & Tomasello, 2003). As with state variables, interpretation variables have demonstrated a wide range of effect sizes (see Table 1), with several studies concluding that audience interpretations explained upwards of 25% of variance in media outcomes (e.g., Duncan & Nelson, 1985; Meyer, 1972).

E. Summary

Taken together, several established theoretical frameworks highlight the role of predictor variables representative of all four phases: message features, audience attributes, audience states, and interpretations. Lending credence to the conceptual importance of these factors, empirical studies have reported significant effects for these variable categories – with a wide range of effect sizes (see Table 1). However, as these individual studies were conducted in distinct contexts using different measures and outcome variables, a comparison of effect size trends across the literature cannot accurately determine the relative importance of each variable set. Rather, these variables must be measured in the same study. Indeed, several researchers have examined variables from more than one category within a single study – providing some insight on this matter. These studies will be reviewed in the Rationale chapter.

III.   Media Depictions of Substance Use

Focusing on the variables of focus in the four phases identified above, this dissertation tests the relative influence of interpretations, states, attributes, and message features/treatment in the context of media depictions of illicit drug use. In addition to the dearth of research on this topic, real-world patterns of increasing drug use among youth as well as evolving public opinion about drugs offer convincing reasons to study drug depictions. For example, the latest Monitoring the Future survey revealed the highest rate of daily marijuana use observed among college students since 1981, with the authors concluding, "Unfortunately, a second relapse phase in America's youth epidemic of drug use may now be beginning" (Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2015, p. 37). Alongside increased usage, public attitudes toward and perceptions of illicit drugs are shifting. For instance, public support for the legalization of marijuana has reached an all-time high of 54%, and 67% of Americans are in favor of easing penalties for the use of hard drugs such as heroine and cocaine (Pew Research Center, 2014). Moreover, youth perceptions of the risks associated with drugs like marijuana and ecstasy have declined over the past several years (Johnston et al., 2015).

This chapter reviews the extant literature related to the highly relevant but largely understudied topic of media portrayals of drug use. The first section summarizes the results of recent content analyses of drug portrayals as well as correlational research on the topic. As experimental research on the effects of drug portrayals is scant, the second section reviews the results of studies focused on the effects of media depictions of two other types of substance use: cigarette smoking and alcohol consumption. Based on this body of

research, variables of particular relevance to the present investigation (in terms of predictors, outcomes, and controls) are identified.

A. Media Portrayals of Drug Use

Although empirical studies about media portrayals of illicit drug use are relatively sparse, multiple content analyses have been conducted on the topic. In terms of television, the most recent analysis found that illicit drugs were rarely portrayed, with the exception of a few specific programs such as Showtime's *Weeds* and FOX's *That 70's Show* (Christenson, Henriksen, & Roberts, 2000; Long, O'Connor, Gerbner, & Concato, 2002). Since the time of that research, several TV series with a strong emphasis on drugs have gained wide popularity, including AMC's *Breaking Bad,* USA's *Mr. Robot,* Netflix's *Orange is the New Black,* HBO's *The Wire,* and Showtime's *Nurse Jackie*.

In terms of film depictions, existing research suggests that drug scenes are more common in movies than on television (appearing in 22% of films), and that in most cases, drug use is shown positively and without negative consequences (Gunasekera et al., 2005; Roberts & Christenson, 2000; Stern & Morr, 2013). Interestingly, the past decade has seen a surge of movies popular among young audiences in which marijuana is a central focus, including *The Harold and Kumar* series, *Totally Baked, Pineapple Express, The Hangover Part II*, *Your Highness, Kid Cannabis, Grandma's House* and most recently, *The Night Before.*

Although experimental research on the effects of media depictions of drug use is seemingly non-existent, correlational data has pointed to the potential for negative outcomes of exposure. For instance, research has shown that teens with TV sets in their bedrooms are

more likely to engage in risky behaviors such as smoking marijuana (Gruber, Wang, Christensen, Grube, & Fisher, 2005) and that exposure to R-rated films is associated with a higher risk of experimenting with marijuana (National Center on Addiction and Substance Abuse, 2005).

B. *The Effects of Substance Use Portrayals: Key Variables*

As stated, empirical work surrounding the effects of media portrayals of drug use is limited. However, the literatures on two related topics – portrayals of cigarette smoking and portrayals of alcohol – are more developed. As cigarettes and alcohol are risky, addictive, and illegal (to buy, use, or both) for minors, they share key similarities with illicit drugs. As such, it is expected that outcomes related to adolescent exposure to media depictions of these substances will also be related to exposure to portrayals of drug use, and that important factors of influence in the effects of these portrayals will also play a role in outcomes of drug use portrayals.

The outcomes of exposure to media depictions of tobacco and alcohol use (most often studied through correlational and longitudinal research) generally fall into one of three categories: beliefs, attitudes, and behaviors/behavioral intentions. In terms of beliefs, researchers have linked exposure to media portrayals of alcohol use to the development of positive drinking expectancies (i.e., beliefs about the outcomes of drinking) by young audiences (Austin & Knaus, 2000; Austin, Pinkleton, & Fujioka, 2000; Chen & Grube, 2002). Similarly, studies have revealed that exposure to tobacco smoking in films enhanced viewers' perceptions of the social status/public image of smokers (Dal Cin, Fong, Gibson, & Zanna, 2003; Gibson & Maurer, 2000; Pechmann & Shih, 1999).

In terms of attitudes, research has shown that for some groups, exposure to smoking or drinking advertisements and entertainment media portrayals of smoking or drinking influenced viewers' attitudes toward smoking and smokers (e.g., Dixon, 2005; Pechmann & Shih, 1999; Turco, 1997) and drinking and drinkers (e.g., Bahk, 1997; Kean & Albada, 2002), respectively. Still, the most prominent effects reported in these literatures as outcomes of media exposure include behaviors such as smoking/drinking initiation or frequency (e.g., Sargent, Wills, Stoolmiller, Gibson, & Gibbons, 2006; Song, Ling, Neilands, & Glantz, 2007), or in the case of underage participants, intentions to drink or smoke (e.g., Dal Cin, Gibson, Zanna, Shumate, & Fong, 2007; Thomsen & Rekve, 2006).

In addition to highlighting relevant outcome variables, the tobacco and alcohol literatures also provide some guidance in terms of message features, audience attributes, audience states, and interpretations (variables representing the four phases described above) that are likely to play a role in the effects of drug portrayals. As such, the subsequent sections review findings related to these four variable types, as well as an additional variable of importance: prior substance use. (Although the findings presented here reflect variable categories associated with *all four* phases of research, the cited studies were published within a similar timeframe (1994-2008), during which the topics of tobacco and alcohol depictions were a popular topic of study.)

1. Message Features/Treatment

In terms of inherent elements of a media message, prior experimental work has highlighted the role of *character status* in the outcomes of exposure to smoking depictions. For instance, Dixon (2005) found that adolescents who viewed clips featuring high-status

smokers reported more favorable attitudes toward smoking and higher smoking susceptibility than those who viewed low-status characters smoking. Additional research has suggested that the *consequences* of substance use shown are influential. For instance, Pechmann, Zhao, Goldberg, and Reibling (2003) found that exposure to messages emphasizing the risk of social disapproval associated with smoking decreased viewers' smoking intentions.

2. Audience Attributes

Prior research in the areas of tobacco and alcohol depictions also points to several audience attributes that play a role in predicting outcomes of media exposure. In terms of personality traits, Sargent and colleagues (2007) found that viewers low in sensation seeking were more responsive to movie images of smoking than those high in sensation seeking. Regarding demographics, results related to biological sex have been mixed, with some studies finding that on-screen smoking more strongly affected females (e.g., Distefan, Pierce, & Gilpin, 2004; Dixon, 2005) and other studies reporting no significant sex differences (e.g., Sargent et al., 2005; Tickle, Sargent, Dalton, Beach, & Heatherton, 2000). Interestingly, in another cross-sectional study, McCool, Cameron, and Petrie (2004) noted an association between demographics (particularly age and sex) and viewers' appraisals of smokers as they were portrayed in films (e.g., how sexy, stressed, bored, and depressed they were). In turn, they found that these appraisals predicted viewers' smoking susceptibility.

3. Audience States

A substantial amount of research in the alcohol and tobacco literatures focuses on how audience states during exposure influence the effects of substance use portrayals. For

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instance, several correlational studies have revealed that identification with characters in alcohol portrayals positively predicts dangerous expectancies toward alcohol use (e.g., Austin & Knaus, 2000; Austin & Meili, 1994; Austin et al., 2000). Existing experimental evidence also points to a causal relationship between identification with a smoking protagonist and increased intention to smoke among ever-smokers (Dal Cin et al., 2007).

Underlining the importance of another state variable, multiple studies have examined the role of positive affect in predicting outcomes of exposure to alcohol portrayals. Notably, multiple studies have concluded that positive affective responses to images of alcohol use are associated with increased perceptions of social approval for drinking, positive expectancies about drinking, greater intentions to drink (Chen & Grube, 2002) and current and future alcohol use (Casswell & Zhang, 1998).

Although empirical findings on the topic are limited, attention is another audience state variable that has been studied within the tobacco portrayal literature. For example, Turco (1997) observed that smokers paid more attention to smoking imagery within advertisements, and in turn, were more influenced by smoking advertisements than non-smokers.

4. Interpretations

Although rare, a small number of studies have focused on youth perceptions of media depictions of alcohol and cigarette use. For example, in a cross-sectional study, McCool, Cameron, and Petrie (2005) found that young viewers' general perceptions of film depictions of smoking (i.e., perceptions of imagery pervasiveness, perceptions of stereotypes associated with smoking characters, and nonchalance toward smoking depictions) predicted

their judgments about smoking and smoking expectancies. Although these general perception measures (not specific to a particular stimulus) might not translate to the present experimental study, the results highlight the importance of audience interpretations in predicting outcomes of exposure to substance use depictions.

5. Prior Experiences

Notably, prior media effects research also has pointed to the significance of audiences' real-world experiences with substance use. For example, within the smoking portrayal literature, researchers have demonstrated how "ever-smokers" and "never-smokers" interpret, experience, and are affected by media portrayals differently. Studies have shown that compared to never-smokers, ever-smokers perceive characters who smoke to be more positive and attractive (Dal Cin et al., 2007; Hanewinkel, 2009) and pay more attention to tobacco advertising (Turco, 1997). Moreover, longitudinal studies have found that adolescents with low exposure to parent smoking are more responsive to the effects of film portrayals of smoking than those with high exposure (Dalton et al., 2003; Hanewinkel & Sargent, 2008). Although prior drug experience does not fall into one of the aforementioned variable sets, these findings suggest that it is a particularly important variable to consider when studying the outcomes of media depictions of substance use.

C. Summary

In sum, the extant literature highlights several message features, audience attributes, audience states, audience interpretations, and outcome variables that are relevant to research focused on media portrayals of substance use. For instance, past studies have shown that exposure to substance use depictions can influence viewers' attitudes toward (e.g., Bahk,

1997; Kean & Albada, 2002), beliefs about (e.g., Austin & Knaus, 2000; Chen & Grube, 2002), and intentions to use (e.g., Dal Cin et al., 2007; Thomsen & Rekve, 2006) various substances. Additional research has suggested that message features such as character status and consequences of substance use (Dixon, 2005; Pechmann et al., 2003); audience attributes such as sex and sensation seeking personality (e.g., Distefan et al., 2004; Sargent et al., 2007); states such as character involvement, positive affect, and attention (e.g., Austin & Meili, 1994; Casswell & Zhang, 1998; Turco, 1997); and interpretations such as perceptions of stereotypical characters (McCool et al., 2005) play an important role in predicting outcomes of exposure to media portrayals of substance use.

IV.   Rationale

The goal of this dissertation is to determine the relative power of four variable sets (message features, audience attributes, audience states, and audience interpretations) in predicting three outcomes of media exposure (beliefs, attitudes, and behavioral intentions). Specifically, these relationships are examined within the context of television depictions of cocaine use. Within this chapter, all variable categories are reviewed, and then related hypotheses and research questions are presented.

A.   Variable Categories

This study assesses the predictive power of variables representing each of the four previously described phases of media effects research: the message phase, the attribute phase, the state phase, and the interpretation phase. Acknowledging that the relationships between these predictor variables and outcome variables likely vary depending on the *type* of media outcome measured, this study accounts for three distinct outcomes commonly measured within media effects research: attitudes, beliefs, and behavioral intentions. The specific variables included within each category were determined based on findings reported in related literatures (i.e., studies about the effects of tobacco and alcohol depictions) and in consideration of each variable's relevance to the specific stimulus content. (See Table 2 for a summary of all variable measures.)

1. Outcomes of Exposure

Before deciding which predictor variables to measure, it was necessary to establish the outcomes of interest for the study. One consideration was the importance of including

multiple types of variables in order to maximize the generalizability and impact of the findings. Within the media effects literature, the most common effect types include cognitions, beliefs, attitudes, physiological responses, and behaviors (see Potter, 2012). Of course, which of these outcome types are most likely to occur largely depends on the specific media content presented. As such, a second consideration was selecting outcomes that were most likely to be influenced by exposure to media depictions of illicit drug use.

As outlined in the preceding chapter, the tobacco and alcohol literatures point to three commonly examined effect categories: beliefs, attitudes, and behaviors/behavioral intentions. For example, research has demonstrated that exposure to alcohol portrayals is associated with more positive beliefs about the effects of drinking (also called expectancies; Austin et al., 2000; Austin & Knaus, 2000; Chen & Grube, 2002), and exposure to tobacco portrayals is associated with more positive beliefs about the social status of smokers (Dal Cin et al., 2003; Gibson & Maurer, 2000; Pechmann & Shih, 1999).

Related to attitudinal effects, studies have shown that media images of smoking or drinking can affect consumers' attitudes toward smoking and smokers (e.g., Dixon, 2005; Pechmann & Shih, 1999; Turco, 1997) and drinking and drinkers (e.g., Bahk, 1997; Kean & Albada, 2002), respectively. Highlighting the potential for behavioral outcomes, researchers have also found that exposure to substance use depictions can influence smoking/drinking initiation, frequency, or intentions (e.g., Dal Cin et al., 2007; Sargent et al., 2006; Song et al. 2007; Thomsen & Rekve, 2006).

Considering the literature pointing to the potential for substance use depictions to influence attitudes, beliefs, and behaviors, this study focuses on these three effects as they relate to illicit drug use (particularly, cocaine, as this was the drug category depicted in the

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stimuli). Accordingly, the following outcomes are examined: attitudes toward cocaine use, expectancies (i.e., beliefs) about the effects of cocaine use, and intentions to use cocaine. Behavioral intentions were measured rather than self-reported past or present behavior both for ethical reasons and to minimize the likelihood of social desirability response bias.

2. Message Elements

As with most studies conducted during the message phase of media effects research, message variables were represented by the varying stimuli (i.e., treatment conditions) to which participants were randomly assigned. As will be discussed in detail in the following chapter, the treatment conditions consisted of episodes from three television series – *Entourage*, *Girls*, and *The Wire* – all of which showcase the main characters involved in cocaine use. As variation in audience interpretations was crucial to testing the hypotheses presented in this study, three episodes in their original form (edited only for length) were selected as stimuli. (A concern was that manipulating a single episode to create three different versions would result in a limited spectrum of audience interpretations.)

The particular episodes were chosen because they represent media messages that *without being manipulated* depict diverse portrayals of cocaine use in terms of key variables such as consequences, character status, and humor. (As will be explained in the next chapter, these distinctions were confirmed via a pilot test of the stimuli.) The *Girls* episode depicts cocaine use in a humorous context, shows relatable and likable characters using cocaine, and emphasizes positive outcomes associated with cocaine use. In contrast, *The Wire* portrays cocaine use in a serious and disturbing context, shows drug dealers and strippers using the drug, and emphasizes the negative outcomes of cocaine use. Falling somewhere in between

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the two extremes, *Entourage* shows cocaine use in the context of the Hollywood lifestyle, shows glamorous and attractive characters using the drugs, and more subtly portrays the outcomes of cocaine use.

The focus on the message elements of consequences, character status, and humor was based on prior empirical findings. For example, past studies on the effects of tobacco depictions highlighted the importance of consequences and character status. As reviewed in the previous section, Dixon (2005) demonstrated that portrayals of high-status smokers resulted in more positive attitudes towards smoking and higher smoking susceptibility, and Pechmann and colleagues (2003) found that messages emphasizing the negative consequences of smoking decreased consumers' intentions to smoke following exposure. In terms of humor, several media effects studies have revealed that mixing humor with dangerous behaviors (e.g., violence) increases the risk of imitation (e.g., Berkowitz, 1970; Mueller & Donnerstein, 1977) and decreases perceptions of severity (Gunter, 1985; Sander, 1997). Taken together, the extant literature suggests that humorous or lighthearted drug portrayals, portrayals downplaying the negative consequences of drug use and/or emphasizing the positive effects, and portrayals showing high status characters taking drugs would be most likely to encourage negative outcomes: more positive attitudes towards drug use, more positive beliefs about the effects of drug use, and greater intentions to use drugs.

3. Audience Attributes

Moving to variables representative of the attribute phase, this study also accounts for viewer demographics and personality traits. Although media scholars have studied a multitude of audience attributes as predictors of media outcomes, the attributes of focus in

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this dissertation reflect variables that have been shown in prior research to be (1) influential in the effects of substance use portrayals and/or (2) predictive of the outcomes to be measured (i.e., attitudes, beliefs, and behaviors related to substance use).

As reviewed in the previous section, research has revealed sex differences and age differences (e.g., Distefan et al., 2004; Dixon, 2005; McCool et al., 2004) in viewers' perceptions of smoking portrayals and in the outcomes of exposure to these portrayals. Substance abuse research also has reported sex differences in actual drug use – with males more likely than females to use cocaine (Jaffe & Archer, 1987). For these reasons, participants' biological sex and year in school were included as attribute variables in the present study. (Year in school was used instead of age in years, as the amount of time spent in college was expected to have a greater impact on students' experiences with and opinions of drug use than age in years). The attribute variable of family income was also measured, as multiple scholars have observed a relationship between socioeconomic background and cocaine use during adolescence and young adulthood (Crum, Lillie-Blanton, & Anthony, 1996; Newcomb & Bentler, 1986). Although these literatures also highlight race as an important attribute variable, this study did not account for participants' race due to ethical concerns expressed by the Institutional Review Board. (Because of the lack of racial diversity at the university where this research was conducted, a concern was that the anonymity of responses would be threatened if students specified their race within the questionnaires.)

In addition to these demographics, the personality trait of sensation seeking was also measured. As stated, media effects research has demonstrated that this attribute plays a role in the effects of exposure to substance use depictions, with low sensation seeking viewers

more affected than high sensation seekers (Sargent et al., 2007). Moreover, findings in the substance abuse literature suggest that the sensation-seeking scale is a strong predictor of drug use in college (Jaffe & Archer, 1987).

4. Audience States

The next set of variables represents the state phase of media effects research, during which scholars began to focus on the temporary conditions and experiences of media consumers *during exposure*. As reviewed, the research on tobacco and alcohol depictions sheds some light on potentially relevant audience states. Specifically, research has demonstrated that identification with characters shown smoking cigarettes or drinking alcohol positively predicts dangerous beliefs about alcohol (e.g., Austin et al., 2000; Austin & Knauss, 2000; Austin & Meili, 1994) and increased intentions to smoke (e.g., Dal Cin et al., 2007). Other studies on alcohol depictions found that positive emotional responses to these portrayals are associated with more positive beliefs about drinking, greater intentions to drink alcohol, and current and future drinking behavior (e.g., Casswell & Zhang, 1998; Chen & Grube, 2002). Considering these findings, both character identification and emotional reactions were measured within the present study.

Notably, past research in the realm of tobacco portrayals also has revealed that audiences' level of attention during exposure has an impact on outcomes (e.g., Turco, 1997). As such, a measure of narrative engagement was included in this study. The construct of narrative engagement includes viewer attention as well as other viewer states (e.g., narrative presence and emotional engagement) deemed influential in past media effects research (e.g., Mazzocco et al., 2010; Nicovich, 2005).

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5. Audience Interpretations

The final set of predictor variables represents what could be the next step in experimental media effects research: the interpretation phase. The selected interpretation variables were intended to capture participants' perceptions of and evaluations of the content presented within each media stimulus. Confirming the importance of accounting for these types of variables, related research has suggested that viewers' perceptions of media portrayals of substance use are associated with their subsequent judgments of those substances and the people who use them (e.g., McCool et al., 2005).

In terms of the specific interpretations measured in this study, variables were chosen based on existing theory and empirical evidence related to the learning of negative behaviors (e.g., violence) through media exposure. For example, in line with prior research demonstrating that viewers are more likely to be influenced by behaviors depicted as having a clear motive (Berkowitz & Powers, 1979; Geen, 1981) and/or as justified (Berkowitz & Powers, 1979; Berkowitz & Rawlings, 1963; Geen & Stonner, 1973; Hoyt, 1970), the study accounts for participants' perceptions of characters' motivations or reasons for using cocaine. Moreover, as social cognitive theory (Bandura, 2009) posits that the rewards and punishments associated with a behavior influence the likelihood of viewers learning from that behavior, and other research has suggested that the consequences of substance use portrayed in a media message influence the outcomes of exposure (e.g., Pechmann et al., 2003), this study also measured participants' perceptions of the positive and negative outcomes of cocaine use shown in the stimuli and characters' level of regret (a form of self-punishment). Likewise, character status (based on ratings of attractiveness, good nature, popularity, etc.) was included as a predictor variable based on the theoretical premise that

observers are more likely to learn from behaviors performed by an attractive model (Bandura, 2009) and research demonstrating that audiences are influenced by the substance use behaviors of high-status characters (Dixon, 2005).

In addition to these variables, this study also measured participants' perceptions of how realistic, preachy, intense, humorous, boring, and serious the drug depictions were. This list of adjectives was based on message qualities determined in prior research to be influential (e.g., Duncan & Nelson, 1985; Moyer-Gusé, Mahood, & Brookes, 2011; Oliver & Bartsch, 2010; Potter & Tomasello, 2003; Sander, 1997) and adapted to fit the topic of drug use and the particular stimuli.

B. Hypotheses and Research Questions

The hypotheses and research questions posed below perform two different functions. The first group of hypotheses (H1-H4) predicts that the variable sets described above will be related to all three outcomes of focus: attitudes, beliefs, and behavioral intentions. Support for these hypotheses would represent confirmation that each conceptually distinct set of variables (message features, attribute, states, and interpretations) plays a role in the media effects process. In essence, these hypotheses function to establish the credibility of the procedures and measures of this study. The second group of hypotheses and research questions (H5-H7, RQ1) breaks new ground by addressing the *comparative* influence of each variable set on the three outcome measures.

1. Messages, States, Attributes, and Interpretations as Predictor Variables

The first set of hypotheses comprises predictions representative of the message phase of media effects research. These hypotheses focus on the variance accounted for by inherent

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features of media messages. As reviewed above, prior research in the realm of substance use depictions has demonstrated that portraying these risky behaviors as performed by high-status characters (Dixon, 2005) or as having minimal or no consequences (Pechmann et al., 2003) increases the likelihood of negative outcomes including favorable attitudes toward substance use and increased substance use intentions. Moreover, other media effects studies have suggested that mixing humor with dangerous behaviors (e.g., violence) increases the risk of imitation (e.g., Berkowitz, 1970; Mueller & Donnerstein, 1977) and decreases perceptions of severity (Gunter, 1985; Sander, 1997). Accordingly, based on the aforementioned content patterns within the treatment stimuli, the *Girls* episode would be considered most "high risk" in terms of negative outcomes, *The Wire* would be considered least "high risk," and *Entourage* would fall somewhere in the middle. As such, it is predicted that the treatment conditions (representing the "meaning in the message") will predict the outcome variables in the following manner:

H1: Participants in the three treatments conditions will exhibit differences in group means on each of the outcome variables (attitudes, beliefs, and behavioral intentions), such that those exposed to *Girls* will report the most "pro-cocaine" outcomes, those exposed to *The Wire* will report the most "anti-cocaine" outcomes, and those exposed to *Entourage* will demonstrate outcomes falling somewhere in between.

H1a: Participants in the three treatments conditions will exhibit differences in group means on attitudes toward cocaine, such that those exposed to *Girls* will report the most favorable attitudes, those exposed to *The Wire* will report the least favorable attitudes, and those exposed to *Entourage* will report attitudes falling somewhere in between.

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H1b: Participants in the three treatments conditions will exhibit differences in group means on beliefs about the effects of cocaine, such that those exposed to *Girls* will report the most positive expectancies, those exposed to *The Wire* will report the most negative expectancies, and those exposed to *Entourage* will report expectancies falling somewhere in between.

H1c: Participants in the three treatments conditions will exhibit differences in group means on intentions to use cocaine, such that those exposed to *Girls* will report the highest levels of intention to use cocaine in the future, those exposed to *The Wire* will report the lowest levels of intention to use cocaine in the future, and those exposed to *Entourage* will report levels of intention somewhere in between.

The next set of hypotheses addresses variables representative of the audience attribute phase – proposing that in addition to message features, demographics and traits will also account for variance in the outcome variables. As stated, research from relevant literatures suggests that the demographic variables of biological sex, year in school, and family income (e.g., Crum et al., 1996; Distefan et al., 2004; Dixon, 2005; Jaffe & Archer, 1987; McCool et al., 2004; Newcomb & Bentler, 1986), as well as the personality trait of sensation seeking (Jaffe & Archer, 1987; Sargent et al., 2007), should be associated with the three outcomes of focus. Considering these trends, the following hypotheses are posed:

H2: As a set, the audience attribute variables will be related to each of the three outcome variables (attitudes, beliefs, and behavioral intentions).

H2a: As a set, the audience attribute variables will be related to attitudes toward cocaine.

H2b: As a set, the audience attribute variables will be related to outcome

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expectancies about cocaine.

H2c: As a set, the audience attribute variables will be related to intentions to use cocaine.

The third set of hypotheses represents the premise underlying the state phase of media effects research – predicting that audience states during exposure will contribute to variance in the outcome variables. As previously described, past findings suggest that the state variables of identification with characters (e.g., Austin et al., 2000; Austin & Knauss, 2000; Austin & Meili, 1994; Dal Cin et al., 2007), emotional responses (e.g., Casswell & Zhang, 1998; Chen & Grube, 2002), and narrative engagement (e.g., Mazzocco et al., 2010; Nicovich, 2005; Turco, 1997) are important predictors of attitudes, beliefs, and behaviors. In line with this, the following predictions are posed:

H3: As a set, the audience state variables will be related to each of the three outcome variables (attitudes, beliefs, and behavioral intentions).

H3a: As a set, the audience state variables will be related to attitudes toward cocaine.

H3b: As a set, the audience state variables will be related to outcome expectancies about cocaine.

H3c: As a set, the audience state variables will be related to intentions to use cocaine.

A fourth set of hypotheses reflects the proposed fourth phase of media effects research: the interpretation phase – representing the notion that the meanings audiences attribute to the media stimuli will account for variance in the outcomes of exposure. As discussed above, both established theories and empirical evidence suggest that audience interpretations of

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character status (e.g., Dixon, 2005), character motivations (e.g., Berkowitz & Powers, 1979; Berkowitz & Rawlings, 1963; Geen, 1981), and the rewards and consequences associated with behaviors (e.g., Bandura, 2009; Pechmann et al., 2003) play an important role in predicting the outcomes of focus in this study. The literature also suggests that interpretations of realism, preachiness, intensity, humor, boringness, and seriousness can be influential in these effects processes (e.g., Duncan & Nelson, 1985; Moyer-Gusé et al., 2011; Oliver & Bartsch, 2010; Potter & Tomasello, 2003; Sander, 1997). Accordingly, the following predictions are posed:

> **H4:** As a set, the interpretation variables will be related to each of the three outcome variables (attitudes, beliefs, and behavioral intentions).
>
>> **H4a:** As a set, the interpretation variables will be related to attitudes toward cocaine.
>>
>> **H4b**: As a set, the interpretation variables will be related to outcome expectancies about cocaine.
>>
>> **H4c:** As a set, the interpretation variables will be related to intentions to use cocaine.

2. The Relative Influence of Variable Sets

As detailed in the previous sections, media effects research increasingly has accounted for the complexity of the media effects process and the crucial roles of different types of variables. Although this conceptual development is essential, the underlying goal of empirical research is to maximize predictive power. As such, a crucial next step in the progression of media effects research is to leverage and calibrate prior findings to determine which variable sets are most powerful in predicting media outcomes. As noted, the extant media effects research does not clearly indicate the relative importance of message factors,

attributes, states, and interpretations in the process of media influence. However, general trends across the literature and studies that have incorporated multiple variable types provide some guidance on the matter. As will be detailed below, effect size trends as well as individual studies comparing the predictive power of interpretation and message variables (Potter & Tomasello, 2003; Sander, 1997), interpretation and state variables (Jensen, Bernat, Wilson, & Goonewardene, 2011; Moyer Gusé & Nabi, 2010), message and state variables (Farrar et al., 2006), and message and attribute variables (Sander, 1997) provide evidence suggesting that *interpretations and states are the strongest predictors of outcomes, followed by message elements/treatment, and then finally, attributes.*

In terms of a comparison between the influence of message variables and interpretation variables, several studies have directly compared the roles of these variables – with mixed results. For example, Sander (1997) found that content variables (e.g., humor, realism, and intention), as assessed through content analysis, had a greater effect on viewers' perceptions of violence than viewers' interpretations of those same variables. In contrast, Potter and Tomasello (2003) observed that interpretative variables were stronger predictors of viewers' judgments about violence than a message treatment variable – number of violent acts.

Importantly, the Sander (1997) and Potter and Tomasello (2003) studies were "not concerned with the effects of TV violence themselves but with the viewers' perceptions of violent TV" (Sander, 1997, p. 82). In other words, they analyzed message factors and interpretation factors as predictors of *other* interpretation factors (perceptions of media content) as opposed to subsequent media outcomes. Because of this distinction, in establishing predictions related to these two variable sets, more weight was given to the effect size trends reported in the literature (see Table 1), which suggest that audience

interpretations are generally stronger predictors than message factors/treatment variables:

H5: The set of interpretation variables will explain more variance in all outcomes than the treatment condition.

H5a: The set of interpretation variables will explain more variance in attitudes toward cocaine than the treatment condition.

H5b: The set of interpretation variables will explain more variance in outcome expectancies about cocaine than the treatment condition.

H5c: The set of interpretation variables will explain more variance in intentions to use cocaine than the treatment condition.

Similarly, effect size patterns across the literature suggest that state variables are stronger predictors than message variables (see Table 1). Moreover, empirical research examining the relative predictive strength of message features and audience states has demonstrated that state variables are stronger predictors. For example, Farrar et al. (2006) reported stronger effects for state factors than for message factors. These researchers both manipulated player point of view during video game play (a message variable) and measured players' self-reported level of immersion in the game (a state variable). They observed a significant main effect for level of immersion on both hostile affect and physically aggressive intentions, but found no significant effects for the manipulation. In light of this evidence, the following hypotheses are posed:

H6: The set of state variables will explain more variance in all outcomes than the treatment condition.

H6a: The set of state variables will explain more variance in attitudes toward cocaine than the treatment condition.

H6b: The set of state variables will explain more variance in outcome expectancies about cocaine than the treatment condition.

H6c: The set of state variables will explain more variance in intentions to use cocaine than the treatment condition.

Another comparison involves the variable sets of message features and audience attributes. Effect size trends across the literature strongly suggest that these two variable sets are weaker predictors than both states and interpretations (see Table 1), but the relative importance of message variables and attributes is less clear. The previously discussed study by Sander (1997) provides some insight on this comparison. Although the "outcome" of focus was technically an interpretation, Sander's study captured the influence of demographics (attributes), personality traits (attributes), and content variables (message factors). Her findings indicated that both demographics and traits were weaker predictors than content variables, suggesting that message factors may have a stronger influence than audience attributes. As such, the following hypotheses are proposed:

H7: The treatment condition will explain more variance in all outcomes than the set of attribute variables.

H7a: The treatment condition will explain more variance in attitudes toward cocaine than the set of attribute variables.

H7b: The treatment condition will explain more variance in outcome expectancies about cocaine than the set of attribute variables.

H7c: The treatment variable will explain more variance in intentions to use cocaine than the set of attribute variables.

Based solely on the trends reported in Table 1, effect sizes for both interpretations and states fall in a similar range. However, additional insights can be drawn from empirical studies that have directly compared factors belonging to both sets. For instance, Jensen and colleagues (2011) observed that viewers' perceptions of the reality of media content (an interpretation) had a stronger effect on viewers' endorsement of false beliefs than their degree of transportation into a media narrative (a state). Similarly, Moyer-Gusé and Nabi (2010) found that viewers' perceptions of the persuasive intent of a media message (an interpretation) significantly predicted their feelings of vulnerability and reactance to an entertainment education health message, whereas degree of transportation into the narrative (a state) was not a significant predictor of either outcome. These findings suggest that interpretations *may* be stronger predictors than states. However, the results could be specific to the individual variables being tested – as only one interpretation and one state were compared in each instance. In other words, it is possible that the weak predictive value of transportation (the viewer state tested in both of these studies) is not representative of other state variables.

Supporting the opposing notion that state variables are stronger predictors than interpretation variables, Sander (1997) found that viewers' emotions (e.g., anxiety and arousal) were better than their interpretations of contextual factors (e.g., perceptions of realism and humor) at predicting their perceptions of TV violence. However, as noted above, Sander was measuring the influence of these variables on *perceptions* of the stimulus itself, rather than on "outcomes" as they are defined in the present study.

Conceptually, it could be argued that states only influence outcomes through their effect on audience interpretations (see Potter & Tomasello, 2003). Along these lines, one might

expect that the interpretations should be the stronger predictors. However, it could also be

argued that the way media content is interpreted and perceived influences audience states,

such as emotions and engagement. Considering these uncertainties, the following research

questions are asked:

RQ1: Will interpretations or states explain more variance in outcomes?

RQ1a: Will interpretations or states explain more variance in attitudes toward

cocaine?

RQ1b: Will interpretations or states explain more variance in outcome expectancies

about cocaine?

RQ1c: Will interpretations or states explain more variance in intentions to use

cocaine?

V.   Methods

This chapter provides a detailed overview of the study's design: the participants involved, the stimulus materials, the experimental procedure, and the measures included in the pre-test and post-test instruments. It also includes a summary of the data cleaning process completed prior to analysis.

A. Participants

Participants included 311 undergraduates at a large research university. (See Table 3 for a summary of descriptive statistics.) College students were considered an appropriate target population for this investigation, as research has demonstrated that the college environment promotes experimentation with drugs by normalizing and encouraging substance use and abuse (Lanier & Farley, 2011; Perkins, Meilman, Leihliter, Cashin, & Presley, 1999; Quintero, Peterson, & Young, 2006).

B. Stimuli

Each stimulus video (one per condition) featured an episode of one of three popular HBO television series: *Girls, Entourage,* and *The Wire.* All episodes portrayed the main characters involved in cocaine use. In all three cases, cocaine use was central to the plot. Each clip was 19-20 minutes in length. To create comparable clips across conditions, episodes were edited only for length; cuts were limited to scenes that were unrelated to the cocaine plotline. The specific episodes were selected as stimuli because they represent drastically different television depictions of cocaine use – in terms of key variables such as the type of characters involved, the seriousness of the depiction, and the consequences of

drug use shown. Indeed, a pilot test of the stimuli (N= 27) confirmed that college participants perceived key distinctions across the conditions. Specifically, ratings of consequences, humor, and character identification differed significantly across conditions, with means varying in the expected directions (see Table 4).

As noted, The *Girls* episode depicts cocaine use in a humorous context, shows relatable and likable characters using cocaine, and emphasizes positive outcomes associated with cocaine use. Within the episode, the main character, Hannah (an aspiring young writer living in New York City) agrees to write a freelance article about her first experience with cocaine. After procuring some cocaine, Hannah and her friend Elijah take the drug and experience a wild and fun night on the town.

Conversely, *The Wire* episode depicts cocaine use in a serious and disturbing context, shows drug dealers and strippers using the drug, and emphasizes the negative outcomes of cocaine use. Throughout the episode, members of a drug dealing gang (including the main character, Wee-bey) are shown engaging in deadly gun violence. Between these violent encounters, the gang members are shown at a house party using cocaine with a group of female strippers. After the party is over, one of the strippers, Keisha, is shown lying naked on a bed, dead. In a later scene, the police inform Shardene (Keisha's best friend and coworker) that Keisha died of a drug overdose and that Wee-Bey and his friends callously rolled up her body in a rug and threw her in the trash.

In a portrayal falling somewhere in between the two extremes of *Girls* and *The Wire,* the *Entourage* episode depicts cocaine use in the context of the Hollywood lifestyle, shows glamorous and attractive characters using the drugs, and more subtly portrays the outcomes of cocaine use. In the episode, the main character, Vincent Chase (an up-and-coming movie

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star) throws an after-party at his mansion. During the party, he and his girlfriend Sasha (a famous pornography actress) are shown using cocaine and partying with friends. The next morning, Vince is shown struggling to make an important meeting with his manager. The meeting does not go well, and the director later expresses his reservations to Vince's agent, telling the agent that he thinks Vince was "on coke" during the meeting. Vince's agent is livid that Vince made such a negative impression during the meeting. This outcome doesn't seem to faze Vince; at the end of the episode, he's shown reassuring his manager that everything will be fine and driving off into the sunset with Sasha.

C. Procedure

Subjects reported to an on-campus computer lab where they were asked to provide written informed consent before participating in the study. Subjects received course credit for their participation. Consenting participants were randomly assigned to one of the three conditions (i.e., to watch *Girls, Entourage,* or *The Wire.*) Participants across all conditions completed the same pre-test questionnaire measuring sensation seeking and prior experience with drug use. (See Appendix A for complete questionnaire.) To provide some context for the stimuli, participants were instructed to read a short written summary introducing the TV series and specific episode they were about to view. The summaries included photos of all characters who were crucial to the featured plotlines. (See Appendix B for full summaries.) Next, participants viewed one of the three 20-minute videos.

Following the video, participants were asked to complete a post-test questionnaire. (See Appendix A for sample post-test questionnaire.) This instrument contained items representing all remaining attribute variables, as well as all state variables, interpretation

variables, and outcome variables. Additionally, the instrument contained items related to participants' prior exposure to the series and episode.

After participants completed the post-test questionnaire, they received a debriefing form. This form outlined the goals of the study, detailed the major risks associated with recreational drug use, and highlighted existing campus resources for students who had questions/concerns about substance abuse or who sought assistance with a substance abuse issue.

D. Measures

With the treatment conditions representing the message phase of media effects research, the pre-test and post-test questionnaires comprised measures representing the other three phases (i.e., attribute variables, state variables, and interpretation variables), as well as items measuring the three outcome variables. In addition, the questionnaires assessed participants' prior experience with various categories of drugs and prior exposure to the series and specific episode presented within each condition. As it was expected that these "prior experience" variables could strongly influence the magnitude of effects on participants, they were used to check for balance across the randomly assigned conditions. Measures are also summarized in Table 2.

1. Audience Attribute Measures

As outlined in the previous chapter, the set of attribute variables included sensation seeking (a personality trait) and the demographic variables of biological sex, year in school, and family income. Sensation seeking refers to the personality trait associated with a need for physiological arousal and novel experiences (Bardo & Mueller, 1991; Zuckerman,

1994). In the present study, sensation seeking was measured within the pre-test questionnaire using the Brief Sensation Scale (BSSS; Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002). This scale is anchored by "strongly disagree" and "strongly agree" and includes eight items: two items representing each of four subscales in the original Sensation Seeking Scale-V (SSS-V; Zuckerman, Eysenck, & Eysenck, 1978). Items include: "I would like to explore strange places" and "I would like to take off on a trip with no pre-planned routes or timetables" (Experience Seeking); "I like to do frightening things" and "I would like to try bungee jumping" (Thrill and Adventure Seeking); "I like new and exciting experiences, even if I have to break the rules" and "I like wild parties" (Disinhibition); as well as "I prefer friends who are unpredictable" and "I get restless when I spend too much time at home" (Boredom Susceptibility). Although the original authors used a five-point scale, this study used a seven-point scale to maintain consistency throughout the instrument and reduce participant confusion and fatigue.

Multiple studies have established acceptable reliability and validity for the BSSS. In terms of internal consistency, Hoyle and colleagues (2002) reported a Cronbach's alpha coefficient of .76 for the eight items. Moreover, test-retest reliability in a sample of children was found to be .71 (Jensen, Weaver, Ivic, & Imboden, 2011). In terms of discriminant, convergent, and predictive validity, Hoyle et al. (2002) found that the measure positively correlated with other risk factors for problem behavior, such as deviance (.34) and perceived drug use among peers (.40), and negatively correlated with protective factors, such as law abidance (-.41) and perceived sanctions against drug use (-.39). Within the same study, BSSS scores also predicted in expected ways a variety of drug-related outcomes, including use of and attitudes toward tobacco, alcohol, and drugs.

The three demographic items were included on the final page of the post-test questionnaire. These questions asked participants to report their biological sex (male or female), year in school (freshman, sophomore, junior, or senior), and household income (Less than $24,999; $25,000 - $49,999; $50,000 to $99,999; or $100,000 or more).

2. Audience State Measures

The set of audience state variables, all assessed within the post-test questionnaire, included identification with characters, narrative engagement, and emotional responses. A total of ten items measured participants' identification with the primary character (five items) and secondary character (five items) involved in cocaine use. Character identification (sometimes referred to as character involvement) involves a viewer taking the position of a character (i.e. putting himself or herself in the character's shoes; Cohen, 2001). Cohen (2001) developed a widely used scale measuring identification, which he conceptualized as encompassing four dimensions: empathy (sharing a character's feelings), perspective taking (understanding a character and his or her behavior), motivation (internalizing a character's goals) and absorption (the loss of self-awareness). In order to make the overall length of the questionnaire more manageable, the present study used a slightly shortened version of this scale, comprising five 7-point Likert scale items (strongly disagree to strongly agree) to measure participants' identification with the primary character and secondary character shown in each stimulus. Example items included "I tended to understand the reasons Hannah did what she did" and "While viewing the video, I could feel the emotions Vince portrayed." At first glance, some of these items might appear to reflect audience perceptions of a character, and in turn, fall into the interpretation variable category. However, within this

study, character identification was categorized as a state variable. Conceptually, character identification is an audience state because the construct encompasses temporary conditions that an audience member experiences during exposure (e.g., empathy, absorption, motivation). Operationally, the items measuring character identification are distinct from interpretation items because they asked participants to report the extent to which they *experienced* the narrative through a character's perspective. In contrast, interpretation items focused on characters (e.g., character status) asked participants to report their *perceptions* or *evaluations* of a character.

Numerous studies, including one focused on media depictions of alcohol, have found variations of this scale to have high reliability, with alphas ranging from .82 to .90 (Koordeman, Anschutz, van Baaren, & Engels, 2011; McQueen, Kreuter, Kalesan, & Alcaraz, 2011; Moyer-Gusé, Chung, & Jain, 2011; Tsay & Krakowiak, 2011). Pointing to the convergent and discriminant validity of the scale, researchers have reported that it correlates strongly and positively with related concepts such as perceived similarity with a character, acceptance of a character's behavior (Tsay & Krakowiak, 2011), and self-efficacy about performing the same behaviors as a character (Moyer-Gusé et al., 2011). It also has been shown to correlate negatively with counter-arguing (McQueen et al., 2011; Moyer Gusé et al., 2011).

The second state variable in the set, narrative engagement, was measured using a truncated version of the narrative engagement scale developed by Busselle and Bilandzic (2009). These authors conceptualized narrative engagement as comprising four related but unique dimensions: attentional focus (i.e., concentration on or distraction from the message); narrative presence (i.e., transitioning from the real world to the story world); narrative

understanding (i.e., ease in comprehending the message); and emotional engagement (i.e., feeling for or with characters). The original scale contained three items for each subscale, totaling 12 items. For the present study, two items from each subscale were utilized, totaling eight items. Sample items included: "At times, I had a hard time making sense of what was going on in the video" (reverse coded; narrative understanding); "While watching the video, I was feeling the same emotions as some of the characters were feeling" (emotional engagement); "I found my mind wandering while the video was playing" (reverse coded; attentional focus); and "At times during the video, the story world was closer to me than the real world" (narrative presence).

Notably, Busselle and Bilandiz (2009) validated their scale through exploratory and confirmatory factor analyses, using both film and television stimuli, various viewing situations, and participants from two different countries. In terms of predictive validity, the scale was successful in predicting both enjoyment and story-consistent attitudes across various programs. Across testing conditions, Cronbach's alpha reliability estimates for the scale exceeded .80.

In order to gauge the final state variable of emotional responses, the questionnaire also included a shortened and adapted version of a scale developed by Dillard and Peck (2001) that has been widely applied in health communication and persuasion research – particularly in studies surrounding substance use messages (e.g., Cho & Choi, 2010; Shen, 2010). The original scale consists of a series of 19 five-point response items asking participants' the extent to which they felt a discrete emotion ("none of this feeling" to "a great deal of this feeling") while consuming media content. Prior research utilizing the full scale has averaged

participants' ratings of multiple discrete emotions (e.g., surprised, startled, and astonished) to determine a composite score for a single emotion (e.g., surprise).

In order to eliminate redundancy and reduce participant fatigue, the present study focused on the six crucial "composite" emotions (i.e., surprise, disgust, fear, sadness, happiness, and anger) to assess participants' affective responses to the stimulus. Notably, the wording of these nine items (two each for disgust, fear, and surprise; and one each for sadness, happiness, and anger) was tailored to address participants' responses to specific elements within the episodes. For example, one item measuring disgust in *The Wire* condition was: "I was disgusted to hear what Wee-bey and D'Angelo did with Keisha's body." An item measuring sadness in the *Girls* condition was: "I was fearful about what would happen to Hannah after she snorted cocaine." In order to maintain consistency with the other measures, these items were also structured using seven-point Likert scales (strongly disagree to strongly agree).

3. Audience Interpretation Measures

The final set of predictor variables, interpretation variables, accounted for participants' interpretations of character status, character regret, character motives, consequences and rewards associated with cocaine use, as well as ratings of realism, preachiness, intensity, humor, boringness, and seriousness.

In terms of the status of primary and secondary characters involved with cocaine use, five 7-point Likert scale items (strongly disagree to strongly agree) asked participants to what extent they agreed with the statements that each character was popular, attractive, a good person, immature (reverse coded), and in control of his/her own fate. These particular

descriptors were chosen in an attempt to capture a variety of dimensions (applicable to the specific stimuli materials) that might contribute to participants' overall impressions of a given character's status.

Three additional seven-point Likert items (strongly disagree to strongly agree) were included to measure participants' perceptions of the characters' motivations and reasons for using cocaine. One item asked participants the extent to which they agreed with the following statement: "The characters' motivations for using drugs were clear to me." The other two items asked participants to what extent they thought each of the two characters (primary and secondary) had a "good reason" to use cocaine.

Related to rewards and punishments or consequences, the questionnaire accounted for participants' perceptions of the positive and negative outcomes of cocaine use (as shown in the television clip). Two 7-point Likert scale items (strongly disagree to strongly agree) asked participants the extent to which they agreed with the following statements: "The video clearly demonstrated the negative consequences associated with drug use" and "The video emphasized the positive outcomes associated with drug use." Moreover, to gauge participants' perceptions of the internal struggles (or self-punishment) experienced by the characters, two additional items asked to what extent the participants thought that each of two characters (primary and secondary) regretted his or her decision to use cocaine (again, using a seven-point Likert scale).

The remaining interpretation variables were measured using single seven-point Likert scale items (strongly disagree to strongly agree) asking participants to rate their level of agreement with statements that the video clip was realistic, preachy, intense, humorous, serious, and boring. Notably, participants' evaluations of the humorous or boring nature of

the stimuli might seem to overlap with audience states such as level of narrative engagement or positive affect. Indeed, there is likely a relationship between these measures. However, the distinction between the measures is that the interpretation items asked participants to rate a characteristic of the *stimulus,* whereas the state measures asked participants to rate their personal *experience* while watching that stimulus.

4. Outcome Measures

Of course, the post-test questionnaire was also designed to measure the three outcomes variables: attitudes toward cocaine, expectancies about the effects of cocaine use, and intention to use cocaine.

Participants' attitudes toward cocaine were measured using items based on a four-item global attitude scale, which has been validated across diverse attitude objects (Crites, Febrigar, & Petty, 1994). The original scale includes a four-item, nine-point semantic differential scale with the following anchors: positive/negative, like/dislike, good/bad, and desirable/undesirable. In prior research, these anchors have demonstrated strong reliability for attitude objects including marijuana (Cronbach's alpha = .97) and alcohol (Cronbach's alpha = .92; Simons & Carey, 2000). Pointing to its convergent validity, this scale (when alcohol was the attitude object) has been shown to have a significant positive relationship with alcohol use (Simons & Carey, 1998; 2000). In order to maintain consistency with other questionnaire items, the present study used four Likert-type items (strongly disagree to strongly agree) based on the aforementioned anchors. These items asked participants to rate their agreement with the following statements: "Cocaine use is a negative thing" (reverse

coded), "People who use cocaine are likable," Using cocaine is desirable," and "People who use cocaine are bad" (reverse coded).

Drug use effect expectancies refer to "beliefs regarding the anticipated consequences of drug use, a common vulnerability factor for substance abuse" (Leventhal & Schmitz, 2006, p. 2039). Along these lines, participants' beliefs about the effects of cocaine were measured using an adapted version of the Cocaine Effect Expectancy Questionnaire (CEEQ: Schafer & Brown, 1991). The CEEQ accounts for five expectancy dimensions: global positive effects, global negative effects, generalized arousal, relaxation (tension reduction), and anxiety. For the present study, this scale was altered from its original version in three major ways. First, for the purposes of length, only a subset (14 items total) of the original 71 items was included. Example items were: "If I were to use cocaine, it would likely make me feel powerful, like I could do anything" (global positive); "If I were to use cocaine, it would likely impair my judgment" (global negative); "If I were to use cocaine, it would likely make me feel more focused and alert" (generalized arousal); "If I were to use cocaine, it would likely make me feel more relaxed and mellow" (relaxation); and "If I were to use cocaine, it would likely make me feel nervous and/or paranoid" (anxiety). Second, items were changed from the present tense (e.g., "Parties are more enjoyable when I'm on cocaine") to the subjunctive voice (e.g., "If I were to use cocaine, I would have a better time at parties, clubs, bars, etc."). Third, to maintain consistency with the remainder of the instrument, a 7-point Likert scale (strongly disagree to strongly agree) replaced the original 10-point scale.

Notably, in a validation study, Schafer and Brown (1991) found that the CEEQ scale effectively distinguished between patterns of nonuse and varying degrees of use for cocaine.

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For example, non-use of cocaine was correlated with greater negative expectancies, and the most frequent use of cocaine was correlated with greater positive expectancies. In subsequent research, temporal stability and discriminant and convergent validity of the scale were supported in a sample of adolescents and young adults, and the subscales were found to range in internal consistency from moderate to high (KR-20 coefficients from .66 to .82) – with the exception of the relaxation and tension subscale (.43; Aarons, Brown, Stice, & Coe, 2001).

To measure the final outcome variable, the questionnaire also contained two 7-point Likert scale items (strongly disagree to strongly agree) designed to assess participants' intentions to use cocaine. The first addressed intentions to use cocaine in the near future: "I am likely to try/use cocaine in the next three months;" and the second addressed intentions to use cocaine at any point in the future: "I am likely to try/use cocaine at some point in the future."

5. Other Measures

The final items in the instruments measured participants' prior experience with drugs and prior exposure to the stimulus materials. Within the pre-test questionnaire, 12 items were used to assess past use of 12 distinct substance categories included in the National Survey on Drug Use and Health – an extensive questionnaire administered annually by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2015). Items asked participants about their *recreational* use of alcohol, tobacco, marijuana, inhalants, hallucinogens, cocaine, methamphetamine, heroin, and four types of prescription drugs (tranquilizers, stimulants, pain relievers, and sedatives). Specifically, participants were

asked which of three statements best reflected their "ever use" of (i.e., lifetime experience with) each substance category: "I have never used [substance name]," "I have used [substance name] at least once but fewer than five times," or "I have used [substance name] five or more times." These questions were designed to assess the breadth of participants' drug experience (i.e., number of different types of drugs used) and the extent of their experience with each drug type (i.e., number of times used). Examples of substances belonging to each of the 12 categories (the same examples provided in the SAMHSA survey) were provided to participants within the questionnaire to ensure that they understood what each item was asking. Notably, similar items requesting student participants to specify in even greater detail their frequency and recency of drug use have demonstrated high test-retest reliability (.88) and multiple indications of convergent validity (see Smart et al., 1980).

The last two items assessed participants' familiarity with the television clips. Specifically, participants were asked to select their familiarity with *The Wire, Girls,* or *Entourage* series (never watched it before nor heard of it, heard of it but never watched it, watched it one time, or watched it more than once) and indicate whether they had previously viewed the specific episode (yes or no).

E. Data Cleaning

A total of 318 students participated in the study. In sum, the pre-test and post-test questionnaires contained 96 items. This created a total of 30,528 possible data points. In cleaning the dataset, 74 missing values were identified. Twenty of these missing values were attributed to one participant who did not answer any of the outcome measures. Another 10

of the missing responses stemmed from one participant not answering any questions related

to the secondary character. An additional 25 missing values were attributed to five different

respondents who did not fill out the final page of the questionnaire, which included

demographic items and items related to experience with the stimulus. These seven cases

with multiple missing data points were eliminated from subsequent analyses. After

removing these cases, only 19 values were missing – all of which appeared to be missing at

random. The final sample used in the analyses included 311 participants: 105 in both the

Entourage and *The Wire* conditions, and 101 in the *Girls* condition.

F. Analytical Approach

Multiple statistical analyses were conducted in order to test the hypotheses and research

questions posed in the preceding chapter. To test H1 (related to the differences across

treatment groups), a MANOVA including all three outcomes as dependent variables was

run, followed by three univariate ANOVAs to test differences across treatment groups for

each outcome. To test H2 (related to the relationship between audience attributes and the

outcome variables), multiple linear regressions (one for each outcome variable) were

conducted, with all attribute variables entered simultaneously as a set of independent

variables. Testing H3 and H4, the same process was repeated with the sets of state variables

and interpretation variables. (Additionally, in order to produce comparable results across

variable sets, dummy codes were created for the treatment conditions and entered into linear

regressions.)

Subsequently, in order to test H5, H6, H7, and RQ1 (related to the relative predictive

power of the four variables sets), four additional multiple regressions were run to examine

the *unique* variance accounted for by each set of variables beyond that already accounted for by the other three sets. In these multiple regressions, all variables except for the set of focus were entered in the first block, and the variable set of focus was entered in the second block. As such, the R square change from these analyses represented the unique variance for a given variable set.

VIII. Results

This chapter reviews the results of statistical analyses performed to (1) construct scales from individual items, (2) summarize the overall composition of the sample, (3) check for balance across the conditions, (4) check for key differences across conditions (i.e., a "manipulation check"), and (5) test all hypotheses.

A. Scaling

Although many of the study's variables were based on established and previously validated items and scales, several original measures were created to reflect the stimuli and respond to the study's specific goals. As such, some initial analyses were required to determine the extent to which multiple items tapped into the same construct and relatedly, whether similar items should be combined into a scale. The items of focus included those related to prior experience with drug use, character status, emotional reactions to the narrative, and intentions to use cocaine. Scaling processes for these variables are outlined below.

Notably, inter-correlations were run on all interpretation items not belonging to an established scale (e.g., perceptions of realism, intensity, and humor). The resulting inter-correlational matrix demonstrated that none of these items were both moderately correlated ($r > .30$) and conceptually related. These results confirmed that the items were measuring distinct interpretations. As such, they were treated as distinct variables in subsequent analyses.

1. Prior Drug Use

In terms of prior substance use, the distinction between never use, infrequent use, and frequent use was maintained only for cocaine (the drug of focus in the stimuli and outcome measures). In order to represent participants' drug experiences in a useful and manageable way, responses for all substances (including cocaine) were recoded into a dichotomous variable: had used before or had not used before. These recoded responses were used to categorize participants according to whether or not they had ever used (1) alcohol (2) tobacco, (3) marijuana, (4) prescription drugs (recreationally) and (5) "hard drugs" (illicit drugs other than marijuana). These categorizations were chosen based on an abundance of research surrounding the progression of substance use and abuse that determined these milestones and categories to be meaningful and valid indicators of variation in drug use experience (see Mackesy-Amiti, Fendrich, & Goldstein, 1997 for review).

2. Character Variables

To determine scaling decisions related to participants' impressions of the characters, both the set of five identification items *and* the set of five character status items were included in an inter-correlation matrix. Similar patterns emerged for items related to primary characters and items related to secondary characters. Bivariate correlations confirmed strong relationships between the five identification items. Indeed, the scale created from these five items had an acceptable Cronbach's alpha of .88 for primary characters and .89 for secondary characters. As such, it was decided to maintain these five items as an identification scale.

In terms of the remaining five character status items, the only two items with correlations greater than .30 for both characters were the items pertaining to evaluations of character popularity and attractiveness (r = .70 for primary characters; r = .42 for secondary characters). Based on these results, it was decided that the character status variable would comprise the average of these two items.

3. Emotional Reactions

In terms of participants' emotional responses to the stimuli, the questionnaire contained two items for each of three emotions (surprise, disgust, and fear) and one item for three other emotions (happiness, sadness, and anger). The bivariate correlations between the two surprise items, two disgust items, and two fear items all exceeded .30. As such, the item pairs were averaged to compute a single score for each emotion. After a single score representing each emotion was calculated, the inter-correlations across the six scores (three individual and three composite) were examined. As nearly all emotions were significantly correlated with one another (with the exceptions of happy/fearful and surprised/disgusted), it appeared that participants' emotional responses were unidimensional; that is, if a participant felt one emotion strongly while watching the stimulus, he or she was likely to feel other emotions strongly as well. Confirming this notion, a reliability analysis of the six emotion scores resulted in an acceptable Cronbach's alpha of .78. Based on this result, the six emotion scores were averaged to yield a single "emotional response" score – representing the overall strength of a participant's emotional experience while viewing the stimulus.

4. Intentions to use Cocaine

As noted, two items asked participants about their intentions to use cocaine. One asked about intentions to use in the next three months and the other asked about intentions to use at any point in the future. These items were highly correlated ($r = .88$). As such, they were combined to yield one "intent to use cocaine" score.

B. Overview of Sample

1. Antecedent Variables

As reviewed, in addition to accounting for variables relating to the four research phases (message, attribute, state, and interpretation), the instrument also assessed two important antecedent variables that could likely play a role in participants' responses to the stimuli: familiarity with the series/episode featured in the stimulus, and past substance use. Response frequencies for these variables (both sample wide and within each condition) are reported in Table 3 (stimuli familiarity) and Table 5 (past substance use). Notably, the majority of participants had not heard of or seen the series represented in their treatment condition prior to the experiment (83.9%), and the vast majority had never seen the specific episode before (94.2%).

In terms of prior experiences with cocaine, nearly three quarters of the sample had never used cocaine, roughly one sixth had used it between one and four times, and slightly more than one tenth had used it more than five times. Slightly less than half of the participants reported having used at least one type of hard drug. Recreational use of prescription drugs was more common, with more than one third of the participants reporting prior use. Unsurprisingly, tobacco, alcohol, and marijuana were the substances with which the

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majority of participants had experience; nearly all participants had drunk alcohol, three

quarters had used marijuana, and approximately half had used tobacco.

2. Attribute Variables

Audience attribute variables included demographics (sex, year in school, and family

income) and sensation-seeking personality. Response frequencies for these variables are

reported in Table 3 (demographics) and Table 6 (sensation seeking). Across conditions,

participants were predominantly female, non-seniors, with household incomes greater than

$50,000. In terms of sensation seeking, the mean score across conditions was 4.88 (on a

scale of 1 to 7).

3. State Variables

The three audience state variables measured included character identification (primary

and secondary characters), narrative engagement, and emotional reaction. All items

contributing to these variables were measured on seven-point Likert scales. As such, in the

following summaries, mean scores less than 3.00 will be labeled as "low," mean scores

ranging from 3.00 to 5.00 will be labeled as "moderate," and mean scores greater than 5.00

will be labeled as "high." Response frequencies for all of these variables (both sample wide

and within each condition) are reported in Table 6.

Across the sample, participants reported moderate levels of identification with

characters. Specifically, the average primary character identification score was 3.54 ($SD =$

1.36), and the average secondary character identification score was 3.89 ($SD = 1.36$).

Additionally, participants on average reported moderate engagement with the narrative ($M =$

4.53, *SD* = .90) and a moderate level of affective response to the stimulus (*M* = 4.03, *SD* = 1.16).

4. Audience Interpretations

The remaining predictor variables assessed participants' interpretations of the stimuli. Again, all items were measured on seven-point Likert scales. Response frequencies for all of these variables (both sample wide and within each condition) are reported in Table 6.

A total of seven variables focused on participants' interpretations of the primary character and secondary character in a given stimulus: character status (primary and secondary), perception of character regret about using cocaine (primary and secondary), perception of character justification for using cocaine (primary and secondary), and clarity of character motivations for using cocaine. Across the sample, participants reported moderate interpretations of character status. Specifically, the mean status score was 3.96 (*SD* = .85) for primary characters and 4.55 (*SD* = .79) for secondary characters. In terms of motivations behind cocaine use, participants on average reported that characters' motivations were made moderately clear to them while viewing the episode (*M* = 4.17, *SD* = 1.82). However, they tended not to find the characters' reasons for using cocaine to be good/justified (*M* = 2.49, *SD* = 1.50 for primary characters; *M* = 2.16, *SD* = 1.33 for secondary characters). Additionally, participants on average did not perceive that the characters strongly regretted their use of cocaine (*M* = 3.10, *SD* = 1.72 for primary characters; *M* = 2.76, *SD* = 1.64 for secondary characters).

An additional six variables measured how realistic, intense, humorous, serious, boring, and preachy participants perceived the drug depictions to be. Across the sample, participants

reported low average ratings on the characteristics of intense ($M = 2.21$, $SD = 1.80$), boring ($M = 2.48$, $SD = 1.44$), and preachy ($M = 2.29$, $SD = 1.28$); and moderate ratings on the characteristics of serious ($M = 3.36$, $SD = 1.80$), humorous ($M = 3.00$, $SD = 1.82$), and realistic ($M = 4.14$, $SD = 1.40$).

An additional two variables pertained to participants' interpretations of the positive outcomes of cocaine use shown as well as the negative consequences of cocaine use shown. Across the sample, participants on average reported a low level of positive outcomes ($M = 2.25$, $SD = 1.48$) and a moderate level of negative consequences ($M = 4.26$, $SD = 1.92$).

5. Outcome Variables

As noted, the three outcome measures examined participants' attitudes about cocaine, expectancies about the outcomes of cocaine, and intentions to use cocaine in the future. Across the sample, participants reported moderate attitudes toward cocaine ($M = 3.33$, $SD = 1.06$), moderate expectancies (neither extremely positive nor extremely negative) about the outcomes of cocaine use ($M = 3.68$, $SD = 1.02$), and low levels of intention to use cocaine in the future ($M = 2.33$, $SD = 1.86$). (See Table 7 for descriptive statistics).

C. Checking for Balance of Participants Across Conditions

Several checks were conducted to ensure that conditions were balanced in terms of key antecedent variables that might influence viewer experiences and outcome measures: biological sex, familiarity with the stimulus, prior experience with drugs (and with cocaine specifically), and sensation seeking personality. Importantly, descriptive analyses revealed similar patterns across conditions for all of these variables (see Tables 3, 5, and 6). Confirming the similarity of these patterns, chi-square cross-tabulations demonstrated that

the differences across conditions were not significant in terms of biological sex (χ^2 (2, $N =$ 310) = .60, *ns*); familiarity with episode (χ^2 (2, $N =$ 311) = 2.38, *ns*); and experience with cocaine (χ^2 (4, $N =$ 310) = 7.01, *ns*), alcohol (χ^2 (2, $N =$ 311) = 1.55, *ns*), tobacco (χ^2 (2, $N =$ 311) = .93, *ns*), marijuana (χ^2 (2, $N =$ 311) = .25, *ns*), prescription drugs (χ^2 (2, $N =$ 311) = 1.18, *ns*), and "hard" drugs (χ^2 (2, $N =$ 311) = .28, *ns*). Additionally, a one-way ANOVA demonstrated no significant differences in sensation-seeking personality across conditions (F (2, 307) = .59, *ns*). Taken together, these results suggest that the random assignment was successful in establishing balanced groups.

D. "Manipulation" Check

As noted, the three stimuli were selected because they were believed to represent drastically different television depictions of cocaine use – in terms of types of characters using cocaine, the seriousness of the depiction, and the consequences of drug use shown. To ensure that the participants perceived these key distinctions, checks were run on the following viewer experience variables: primary and secondary character identification, negative consequences, positive outcomes, seriousness of portrayal, and level of humor in portrayal. Indeed, ANOVAs confirmed significant differences across conditions for all of these variables (see Table 8).

E. Hypotheses Tests

1. Foundational Hypotheses

The first four hypothesis sets were tested in order to lay the foundation for the study – to establish the credibility of the study procedures and confirm the applicability of the measures to the topic of drug depictions.

Hypothesis 1 predicted that participants in the three experimental treatments conditions (exposure to *Entourage, Girls,* or *The Wire*) would exhibit differences in group means on each of the outcome variables: attitudes (H1a), expectancies (H1b), and behavioral intentions (H1c). More specifically, the set of hypotheses predicted: *Girls* viewers would report the most positive attitudes toward cocaine, the most positive expectancies about cocaine use, and the highest levels of intention to use cocaine; *The Wire* viewers would report the most negative attitudes toward cocaine, the most negative expectancies about cocaine use, and the lowest levels of intention to use cocaine; and *Entourage* viewers would report attitudes, expectancies, and intentions falling somewhere in between the other two groups.

Moderately strong correlations (r= .65-.71) between the three dependent variables suggested that a one-way MANOVA was an appropriate test for H1. As Box's test was not significant (p > .001), Wilks' Lamba criteria were used. The MANOVA revealed a significant effect of treatment condition on the group of three outcome variables, F (6, 608) = 3.37, p < .01; Wilk's Λ = .94, partial η^2 = .03. In light of this significant result, the univariate ANOVA results were analyzed to test H1a, H1b, and H1c.

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Consistent with the literature, the test of H1a revealed that attitudes about cocaine as an outcome of exposure varied to a small degree across the three treatment conditions, F (2, 306) = 4.04, p = .018, partial η2 = .03. As predicted, *Girls* viewers reported the most positive attitudes, followed by *Entourage* viewers, and then *The Wire* viewers. A post-hoc Tukey's test revealed that the mean difference between the *Girls* condition (*M* = 3.51, *SD* = 1.10) and *The Wire* condition (*M* = 3.10, *SD* = 1.03) was statistically significant. However, the differences between the mean scores for *Entourage* and the other two conditions were not statistically significant.

Also in line with the literature, the test of H1b demonstrated that expectancies about cocaine as an outcome of exposure varied across the three treatment conditions (F (2, 306) = 8.86, *p* < .001, partial η^2 = .06.) Again, these differences were weak but in the predicted directions. A post-hoc Tukey's test revealed that the mean differences between *The Wire* treatment group (*M* = 3.36, *SD* = 1.05) and both the *Girls* (*M* = 3.94, *SD* = .98) and *Entourage* groups (*M* = 3.75, *SD* = .96) were statistically significant. However, the differences between the mean score for *Entourage* and the mean score for *Girls* were not.

In contrast, the test for H1c did not demonstrate any statistically significant differences across conditions in terms of intentions to use cocaine (F (2, 306) = 1.28, *ns,* partial η^2 = .01).

In sum, the results of the first set of hypothesis tests aligned with the literature in most cases. Consistent with effect size trends reported in Table 1, the treatment explained a small proportion of explained variance in all outcome variables (partial η^2 = .01-.06). Additionally, differences across treatment groups were in the direction predicted by prior research on the

effects of message features such as humor, character status, and consequences (e.g., Berkowitz, 1970; Dixon, 2005; Pechmann et al., 2003).

Of note, in order to compute effect sizes directly comparable across variable sets (i.e., R squared values), dummy codes representing the treatment variable were entered into multiple regressions predicting the three outcome variables. These results are reported in Table 9.

Hypothesis 2 predicted that the set of audience attribute variables would be related to each of the three outcome variables: attitudes (H2a), beliefs (H2b), and behavioral intentions (H2c). Multiple regressions were conducted in order to test these hypotheses. All three hypotheses were supported; as a set, the attribute variables were moderate predictors of all outcome variables. (See Table 9.) The tests of H2a, H2b, and H2c revealed that the set of audience attribute variables (sex, family income, year, and sensation seeking) predicted attitudes toward cocaine, ($F (4, 302) = 12.97, p < .001$, adjusted $R^2 = .14$), cocaine effect expectancies ($F (4, 300) = 19.67, p < .001$, adjusted $R^2 = .20$), and intentions to use cocaine ($F (4, 302) = 11.84, p < .001$, adjusted $R^2 = .12$).

Taken together, then, these results are consistent with the extent literature. As expected, the attributes of focus were shown to predict attitudes, beliefs, and intentions. Notably, however, the predictive power of this set was slightly stronger than expected. As exhibited by Table 1, the existing media effects literature suggests that audience attributes typically have small to moderate effect sizes ($\eta^2 = .03-.12$). Contrastingly, in the present study, attributes predicted more than 10% and upwards of 20% of variance across outcome variables.

Hypothesis 3 predicted that the set of audience state variables would be related to each of the three outcome variables: attitudes (H3a), beliefs (H3b), and behavioral intentions (H3c). Overall, hypothesis 3 was supported; the set of state variables was related to all outcome variables (see Table 9). Multiple regressions conducted to test H3a, H3b, and H3c revealed that the set of state variables (narrative engagement, primary character identification, secondary character identification, and emotional reaction) moderately predicted attitudes toward cocaine (F (4, 303) = 11.45, $p < .001$, adjusted $R^2 = .12$), cocaine effect expectancies (F (4, 301) = 16.55, $p < .001$, adjusted $R^2 = .17$), and intentions to use cocaine (F (4, 303) = 9.11, $p < .001$, adjusted $R^2 = .10$). Notably, the proportion of variance explained by this set of variables aligned with the effect size trends reported in the literature, which ranged from very weak (e.g., $R^2 = .02$) to moderate (e.g., $R^2 = .25$).

Hypothesis 4 predicted that the set of interpretation variables would be related to each of the three outcome variables: attitudes (H4a), expectancies (H4b), and behavioral intentions (H4c). Interpretation variables included perceptions of primary and secondary character status, primary and secondary character justification for using cocaine, primary and secondary character regret about using cocaine, clear motivations for using cocaine, positive outcomes of cocaine shown, negative consequences of cocaine shown, as well as evaluations of how realistic, preachy, intense, humorous, boring, and serious the stimulus was.

Overall, hypothesis 4 was supported; the set of interpretation variables was related to all outcome variables (see Table 9). The multiple regression analyses testing H4a, H4b, and H4c demonstrated that the set of interpretation variables was a fairly strong predictor of attitudes toward cocaine (F (15, 292) = 7.83, $p < .001$, adjusted $R^2 = .25$) and cocaine effect expectancies (F (15, 290) = 7.83, $p < .001$, adjusted $R^2 = .25$), as well as a moderate

predictor of intentions to use cocaine (F (15, 292) = 4.92, p < .001, adjusted R^2 = .16). Again, these effect sizes were in line with those reported in the extant media effects literature – falling on the high end of the expected range (R^2 = .01-25).

In sum, then, results related to the first four hypothesis sets were largely consistent with the existing media effects literature. Variables representing all four categories predicted at least two if not all three outcomes, confirming the relevance and predictive power of message features, audience attributes, audience states, and audience interpretations in the context of television portrayals of drug use.

2. Comparison Hypotheses and Research Questions

Having confirmed the credibility of the study procedure and the applicability of the measures, additional analyses were conducted to test the remaining hypotheses and research questions. These predictions and questions pertained to the *relative* predictive power of the different variable sets. Indeed, the multiple regressions summarized above (and in Table 9) provided one basis for responding to these Hs and RQs by demonstrating the predictive power of the variable sets independent of the other sets. Although these results are meaningful, it is also important to examine the *unique* variance accounted for by each set of variables *beyond that already accounted for by the other three sets.* In order to capture this information, supplementary multiple regressions were run with all variables except for the set of focus entered in the first block, and the variable set of focus entered in the second block. As such, the R square change from these analyses represented the unique variance for a given variable set.

Hypothesis 5 predicted that the set of interpretation variables would explain more variance than the treatment condition for all outcome measures: attitudes (H5a), expectancies (H5b), and behavioral intentions (H5c). Based on the multiple regression results reported for tests of H1 and H4, hypothesis 5 was supported. Whereas the variance explained by the treatment variables ranged from 0-5%, variance explained by the interpretation variable set ranged from 16-25% (See Table 9.) The regressions testing unique variance demonstrated a similar pattern; the unique variance explained by the set of interpretation variables ranged from 11-16%, whereas the unique variance explained by the treatment condition ranged from 0-3% (see Table 10).

Hypothesis 6 predicted that the set of state variables would explain more variance than the treatment condition for all outcome measures: attitudes (H6a), expectancies (H6b), and behavioral intentions (H6c). Based on the multiple regression results reported for tests related to H1 and H3, hypothesis 6 was supported. Whereas the treatment variables explained 0-5% of variance in the outcomes, the set of state variables explained 10-17% (see Table 9.) Interestingly, however, the regressions testing unique variance revealed that much of the variance explained by the state variables was already accounted for by the other sets. As such, the unique variance attributed to both the treatment (0-1%) and the set of state variables (0-2%) was minimal (see Table 10).

Hypothesis 7 predicted that the treatment condition would explain more variance than the set of attribute variables for all outcome variables: attitudes (H7a), expectancies (H7b), and behavioral intentions (H7c). Based on the multiple regression results reported for tests of H1 and H2, hypothesis 7 was not supported. On the contrary, the set of attribute variables explained more variance (12-20%) than the treatment condition (0-5%) (See Table 9.) A

similar pattern emerged from the tests for unique variance, with attributes uniquely explaining 4-8% of the variance and treatment uniquely explaining less than 1% of the variance (see Table 10).

The set of research questions asked whether interpretations or states would explain more variance in the outcome variables: attitudes (RQ1a), expectancies (RQ1b), and behavioral intentions (RQ1c). Based on the results of multiple regressions testing H3 and H4, audience interpretations (explaining 16-25% of variance in outcomes) were generally stronger predictors than state variables (explaining 10-17% of variance) (see Table 9.) The test of unique variance showed a similar pattern, with interpretations explaining more unique variance (11-16%) than states (0-2%) (see Table 10).

Overall, then, the comparison hypotheses were partially supported. The initial regressions revealed that as a set, interpretation variables were the strongest predictors of all types of outcomes, followed by attribute variables, state variables, and then finally treatment variables (see Table 9). The tests of unique variance revealed a similar pattern, with the set of interpretation variables contributing the most unique variance for all outcomes, followed by the set of audience attributes. Again, states and treatment variables were the weakest predictors (see Table 10).

This order differed from the order predicted based on the extant literature: interpretation and states as the strongest predictors, followed by message/treatment, and then attributes. For these specific stimuli and outcomes, the predictive power of audience states was weaker than expected, especially in terms of unique variance; and the predictive power of audience attributes was stronger than expected. Most importantly, though, the findings as a whole supported the primary objective of this study: to highlight the important role of audience

interpretations. On the whole, the results of the analyses indicated that interpretation variables were overwhelmingly the strongest predictors of all outcomes.

3. Diagnostic Analyses

Following the hypotheses tests, additional diagnostic analyses were conducted to address concerns related to the stability of the initial results and the potential confounding between predictor variables and outcome variables.

Overall, the aforementioned results were largely supportive of the hypotheses and the larger goal of this dissertation: to demonstrate the role of audience interpretations in predicting outcomes of media exposure. However, it was important to check for more complex relationships between the variable sets and confirm that the reported results were accurately capturing the patterns within the data. More specifically, it was imperative to check that the predictive power of the three variable sets (attributes, states, and interpretations) was not better explained through their interaction with the treatment condition. To do this, interaction terms were computed for all attribute, state, and interpretation variables with the treatment dummy variables. Then, the interaction terms representing each variable type were tested in multiple regression analyses as predictors of the three outcome variables. As demonstrated in Table 11, the results of these interaction tests were nearly identical to the tests of the main effects (i.e., similar strength and direction). Based on these results, the stability of the original results was confirmed, and it was determined that further analysis of specific interaction effects was not warranted.

Another concern was the possibility that some of the interpretation items, by focusing on participants' evaluations of cocaine-related plot events or reactions to characters who use

cocaine, were indirectly measuring participants' general attitudes and beliefs about cocaine (i.e., the outcome measures). If these specific evaluative interpretation measures were the primary contributors of explained variance within the regression models, then there would be reason to question the apparent relationship between the interpretation variable set and the outcome variables.

A closer analysis of the individual standardized beta coefficients and p values resulting from the multiple regression analyses revealed that the cocaine-related evaluative measures in question were *not* the strongest (and significant) predictors in the interpretation variable set. Rather, the strongest interpretation predictors of cocaine-related attitudes, beliefs, and intentions were (1) perception of how clear the characters' motives for using drugs were, (2) perception of the extent to which the episode emphasized negatives consequences of drug use, and (3) rating of how humorous the episode was. As these particular interpretation measures did not pose a potential confound with the outcome measures, it was confirmed that the initial results reflected a true relationship between participants' interpretations of the stimuli and their real-world attitudes, beliefs, and intentions.

IX. Discussion

This final chapter includes a review of key findings and implications. First, the study's major contributions are summarized. Then, theoretical implications, research design implications, and practical implications are discussed. Finally, next steps for future research are proposed.

A. Findings and Contributions

The main contribution of this dissertation is that it demonstrates the important role of audience interpretations in predicting commonly measured outcomes of media exposure. Within this study, interpretations refer to the meanings that audiences construct from media content (e.g., their perceptions and evaluations of characters and behaviors). In contrast to inherent elements within a media message (e.g., the presence of blood or weapons) interpretations comprise the unique "effective stimulus" that exists within the mind of the individual viewer (e.g., perceptions of the graphicness of violent content). Although the number of possible interpretation variables is very large, the present study focuses on those interpretations that – based on the extant literature and logic – were most likely to influence participants' attitudes toward, beliefs about, and intentions to use cocaine. These variables included interpretations of character status, character regret, character motives, consequences and rewards associated with the cocaine use, as well as ratings of realism, preachiness, intensity, humor, boringness, and seriousness.

The results showed that this set of interpretation variables consistently explained more variance than the other variable sets. Perhaps most notably, audience interpretations explained between 10% and 23% more variance than the treatment conditions – which

varied in terms of key variables such as humor, character status, and consequences shown. In fact, in nearly every test, the treatment condition was the least powerful predictor of outcomes. As will be discussed in more detail below, this trend suggests major implications for the way we understand the media effects process – particularly the role of inherent elements within media messages.

Further highlighting the importance of audience interpretations, the only two variable types to contribute substantially *and* uniquely to the prediction of all three outcomes were audience interpretations and audience attributes (particularly sensation seeking). That is, these variable sets were the only sets to add statistically significant variance to the outcome measures *after* controlling for shared variance with other predictors. Based on prior substance abuse research (e.g., Jaffe & Archer, 1987), it should be expected that participants' sensation seeking tendencies would predict their attitudes towards, beliefs about, and intention to try cocaine – even *without* the presence of a media intervention. As such, it is notable that the set of interpretation variables was the only set to remain a strong predictor of attitudes, behaviors, and intentions after shared variance with attribute variables was controlled.

Of course, other types of variables also were found to be useful predictors of the three outcomes. As a whole, these findings align with the existing media effects literature, which pointed to particular attributes (e.g., sensation seeking; Sargent et al. 2007), states (e.g., emotional reactions; Chen & Grube, 2002), message features (e.g., character status; Dixon, 2005), and interpretations (e.g., perceived justification; Berkowitz & Powers, 1979) likely to predict viewers' responses to television depictions of drug use. For example, findings related to the effect of the treatment condition reinforced the relevance of the message features of

consequences, humor, and character status, and supported the premise of social cognitive theory. The three outcome measures varied across treatment conditions in expected ways – with statistically significant differences observed for attitude and belief outcomes. Specifically, participants who viewed the *Girls* episode (featuring relatable characters, humor, and positive outcomes) reported more positive attitudes about cocaine and more positive effect expectancies than participants who viewed *The Wire* episode (featuring criminal characters, no humor, and extremely negative consequences).

Regarding the predictive power of audience attributes, the multiple regression analysis revealed that sensation seeking was the attribute primarily responsible for the association between the set of attributes and the outcome variables. As stated above, the literature reports a strong association between sensation-seeking personality and drug-related thoughts and behaviors – outside the context of media exposure (e.g., Jaffe & Archer, 1987). Because the outcome measures were not assessed in the pre-test instrument, it is impossible to determine the extent to which the associations identified were a reflection of a general relationship between the attribute and cocaine-related attitudes, beliefs, and intentions, as opposed to a reflection of how the attribute predicted audience *responses to the stimulus*.

In terms of the role of audience states, this variable set moderately predicted the three outcomes, explaining between 10% and 17% of the variance in outcome variables. However, the multiple regression tests controlling for shared variance with other types of variables revealed that state variables contributed negligible unique variance to the outcomes. These findings highlight the notion that the four variable types (treatment, interpretations, states, and attributes) are not only related to the outcome variables, but also related to one another. Within this study, variable sets were considered independently as a means of illustrating the

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unique role of these conceptually distinct factors. Clearly, however, all of the variable sets are interconnected and work together in the media effects process. For example, audience interpretations are dependent on the stimuli they consume, audience attributes likely contribute to states and interpretations during exposure, and states and interpretations likely interact with one another. Considering these potential relationships, a complete understanding of the importance of each variable set cannot be reached without follow-up research to examine potential mediation and interaction involving the different variable sets.

B. Theoretical Implications

As reviewed in chapter II, various theoretical perspectives, such as priming, social cognitive theory, and LC4MP, have been applied throughout the advancing "phases" of media effects research. Although the results of the present study reinforce the notion that media researchers should shift toward a focus on audience interpretations (i.e., an "interpretation phase"), they do not necessarily discount or invalidate these prominent theories. Rather, the positioning of audience interpretations as central factors in the media effects process has implications for how we understand and employ these theories in future research. As such, this section reviews how existing theories might be strengthened when applied in the "interpretation phase" of media effects research.

Representative of the message phase, Berkowitz's (1984) cognitive neoassociationistic model of priming is commonly referenced to explain the association between exposure to message elements or "primes" (e.g., violent acts or stereotypical imagery) and specific media outcomes (e.g., violent thoughts or negative evaluations). Indeed, the model posits that the presence of such primes is vital to the media effects process. Along these lines,

researchers applying this theoretical framework tend to focus on the presence of inherent primes or triggers within media messages. What researchers tend to ignore or downplay, however, is the *interaction* between these primes and the associative networks within our brains (i.e., the accessibility of particular thoughts and ideas) that theoretically produce the media effect. In this sense, it is not an inherent message element that triggers an outcome. Rather, the presence of a message element triggers viewer *interpretations* of content, and these interpretations then lead to the outcome. Applying this concept to the example of media violence, the presence of blood (i.e., the prime) in a media message would not directly trigger violent thoughts in the viewer. Instead, the blood could trigger the viewer's interpretations of the message as graphic or highly violent, and these interpretations could promote aggressive outcomes (e.g., aggressive thoughts and behaviors).

Therefore, when applying the priming model within an interpretation phase of media effects research, researchers would not only account for media primes as they objectively appear in media content (i.e., present or not present), but also measure participants' subjective interpretations of those primes – which would reflect the unique associative pathways within each participant triggered by the primes. The patterns demonstrated in the current study suggest that these interpretations should be stronger predictors of outcomes than the presence or intensity of the primes within media messages shown to participants. As such, focusing on viewer interpretations of primes could substantially enhance the explanatory value of priming studies. The findings of such studies would not only provide more direct support for the priming model as it was originally conceived, but also illuminate a portion of the "black box" that often represents the mechanisms connecting a media stimulus to a media outcome (Geiger & Newhagen, 1993).

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Representative of the attribute phase, social cognitive theory (Bandura, 2009) is commonly referenced to explain how the presence of certain contextual elements within media messages related to characters (e.g., attractiveness or good nature) and behaviors (e.g., justification or punishment) and the interaction of these message elements with participant attributes (e.g., gender and age) influence media consumers. Although these message elements and attributes are key parts of the theory, Bandura's explication also includes the notion of retention – the transforming of information into codes. In this way, the theory accounts not only for what content is appearing on the screen but also for how that content is retained or interpreted by individuals.

Similar to priming studies, media effects research based on SCT tends to focus on audience attributes and message elements as predictors of message outcomes, without accounting for the ways that viewers (who possess certain attributes) interpret or code message elements. According to the theory, however, it is these codes that ultimately affect a viewer's likelihood of imitating the observed behavior. Continuing with the media violence example, then, the simple presence of an inherent "reward" (e.g., praise from others) following a violent act would not, on its own, promote a negative outcome. This is because a given consequence is unlikely to be interpreted the same way by all viewers. One viewer might consider social praise to be a positive consequence, whereas another might interpret attention from others to be a negative consequence. As such, it would be the individual's *interpretation* of the consequence of violence (e.g., how positive or negative it was) that would ultimately influence the outcome of exposure (e.g., adoption of the aggressive behavior).

Along these lines, when applying SCT with the interpretation phase, media effects researchers would not only focus on participant attributes and message elements, but also measure how the message elements (e.g., consequences or rewards) were coded and retained by individual participants. This type of research, by accounting for the process of retention, would function to test SCT in a more comprehensive way. Moreover, as suggested by the findings of the present study, incorporating these codes or interpretations could allow researchers to better predict outcomes such as the learning and imitation of mediated behaviors. Of course, this is not to say that message elements and audience attributes should be ignored within such research. Clearly, elements within the media message would provide a basis for interpretations, and audience attributes could influence how a given stimulus is interpreted as well as the likelihood of a participant enacting a learned behavior.

Representative of the state phase of media effects research, theories such as LC4MP (Lang, 2000, 2006) and concepts such as narrative engagement (Busselle & Bilandzic, 2009) and transportation (Green & Brock, 2000) emphasize how temporary conditions experienced by audiences during media exposure play a role in the effects process. For example, LC4MP suggests that audience motivations, arousal, and emotional experiences result in the activation of different systems that determine the allocation of resources to key processes such as encoding (i.e., selecting information and forming a mental representation), storage (i.e., creating a long-term mental representation), and retrieval (i.e., activating stored information).

Undoubtedly, an emphasis on audience interpretations could be complementary to LC4MP. For instance, researchers applying this theory in the interpretation phase could focus not only on the resources allocated to encoding and storage processes, but also on the

particular representations encoded and stored by individual participants. Such research could potentially clarify the role of audience states through their interaction with interpretations. For example, perhaps learning outcomes are more likely to occur when audiences are aroused *and* perceive media content as highly realistic. Or, perhaps interpretations of content (e.g., harshness of a punishment) are more influential when tied to high levels of emotional reaction.

Again, these potential interactions can be demonstrated using the example of media violence. For instance, if a viewer is highly aroused while watching a violent movie scene, she might allocate more resources to encoding and storing the violent message. However, her interpretation of that violent scene (e.g., how funny or realistic it is) could influence *where* the message is stored in her memory. For example, is the image or action associated with fear, excitement, or humor? Clearly, this could have major implications for the influence of that memory on future attitudes, evaluations, and behaviors.

Finally, related to the interpretation phase, media scholars have referenced multiple theoretical perspectives when arguing for the importance of audience interpretations. These perspectives include schema theory (Fiske & Taylor, 1991), the mental models approach (e.g., Johnson-Laird, 1983), and the dynamic-transactional approach (Früh & Wirth, 1992). Although articulated differently, all three perspectives, when applied in the media effects context, highlight the interaction between a viewers' cognitions and a given media stimulus. Schema theory suggests that viewers react to and interpret stimuli according to accessible cognitive networks. The mental models approach emphasizes that viewers somewhat thoughtlessly process media content by constructing models based on seemingly related information stored in memory. Finally, DTA posits that a given media stimulus is not

usually the same for all viewers because viewers interpret the stimulus in unique ways. In this sense, an individual's unique perceptions of the stimulus comprise the "effective stimulus" to which he or she is exposed (Sander, 1997, p. 51). Indeed, the wide range of responses across the interpretation variables demonstrated in the present study offers support for these theoretical premises (see standard deviations reported in Table 6).

Importantly, the DTA – a theory specific to media effects – goes further to suggest that it is the effective stimulus rather than the media stimulus that stimulates an effect on the viewer. Certainly, the findings of this study – showing that participants' interpretations of the media stimuli were far better predictors of outcomes than the treatment condition – provide support for this aspect of the theory. Unfortunately, media researchers tend to underutilize theories like the DTA, which emphasize the role of "effective stimulus," in favor of more traditional theories like priming and social cognitive theory, which at least in practice, place more importance on inherent elements of the media stimulus.

Taken together, then, the findings of this dissertation point to the value of applying and testing both alternative theories and underutilized propositions of commonly applied theories in order to enhance our understanding of the complex process of media influence.

C. Implications for Research Design

In addition to the aforementioned theoretical implications, the findings revealed in this dissertation present important implications for the design of media effects research. For example, the findings reinforce the notion that interpretation variables should be measured – in conjunction with treatment variables – as predictors of the dependent variable in media effects experiments (Potter & Tomasello, 2003). Additionally, the findings suggest that the

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potential for various audience interpretations should be considered in the design of content analyses. Elaborating on these implications and others, this section describes how experiments and content analyses should be conducted within an interpretation phase of media effects.

1. Experimental Design

The potential power of audience interpretation variables in predicting the various outcomes of media exposure brings to light several considerations related to the design and analysis of media effects experiments.

First and foremost, the findings provide support for the notion that media researchers should expand experimental designs to account for participant interpretations of message elements. Notably, Potter and Tomasello (2003) put forth this recommendation when their study revealed that interpretation variables were stronger predictors of participants' judgments of violence than the treatment conditions (i.e., TV episodes varying in number of violent acts). They explained that including interpretation measures would increase the explanatory power of experimental designs and allow for "stronger, multivariate analyses of meaning-making patterns" (Potter & Tomasello, 2003, p. 327). This type of research would increase our understanding of how audiences encounter and attend to message elements, how they construct meaning from those elements, and how their interpretations push them toward certain types of effects. Specifically, such experiments could produce the information needed to develop more precise scales of risk.

In a similar vein, O'Keefe (2003) articulated the value of incorporating participant perceptions of message content (and other psychological states) into experimental analyses.

He criticized how many researchers studying the persuasive effects of message content unnecessarily use a proxy independent variable (treatment condition) when the true independent variable of interest (e.g., perceptions or psychological states) is available. He pointed out how researchers often measure important audience perceptions, but only use them as a manipulation check. Referring to protection motivation theory research as an example, O'Keefe (2003) wrote:

> …researchers commonly report the relationship between the message variation and the perceptual state (in the form of a reported manipulation check, meant to confirm that the different messages aroused different levels of the perceptual state) and the relationship between the message variation and persuasive outcomes, but fail to report the relationship between the perceptual state and persuasive outcomes. (p. 260)

As O'Keefe contended, this tendency for researchers to underutilize this crucial data within analyses can function to obscure the true causal pathways involved in the effects process.

Applying the theoretical arguments of O'Keefe (2003) and responding to similar calls for conceptual and operational distinctions between media attributes and audience responses (i.e., perceptions and states; see Holbert & Stephenson, 2003; Newhagen, 2002), Tao and Bucy (2007) tested multiple conceptual models with perceptual measures positioned alternately as manipulation checks, mediators, or independent variables. Pointing to the value of integrating audience perceptions into experimental designs, these researchers found (in two different media contexts) that including only the media attribute as the independent variable yielded results that were not statistically significant, whereas including a perceptual measure as an independent variable yielded a positive and statistically significant relationship in both cases. Notably, Tao and Bucy pointed out, "A more complete and

intellectually defensible causal explanation was obtained, however, for the tests of

mediation, which included both media attributes and psychological states (user perceptions)

in the same model" (p. 418-419.) Their findings underline the need for future experiments

that test audience interpretations as key factors in models of media influence.

A second consideration relates to the actual stimuli used in media effects experiments.

Traditionally, experimental conditions are designed as manipulations that promote a specific

interpretation among participants. In other words, experimental stimuli are edited with the

goal of *reducing* variability across interpretations, and participants are expected to interpret

the stimuli in a relatively uniform way. Tao and Bucy (2007) referred to this as the

"homogeneity of response assumption" (p. 399). Contradicting this assumption, the findings

of the present study highlight that the same stimulus can be interpreted in diverse ways, and

that these distinct interpretations are stronger predictors than the treatment conditions. As

such, experimental researchers should consider media stimuli as springboards for meaning

construction – embracing the wide range of potential interpretations, rather than limiting

them. In practice, this would mean maintaining media content as close as possible to its

original form. This would not only stimulate the full range of interpretations among

participants, but also increase the ecological validity of the interpretations measured.

2. Content Analysis

The findings of this dissertation also suggest implications for the way content analyses

are conducted and interpreted.

Content analyses vary in terms of the variables of focus, but typically involve the coding

of both manifest content and latent content. However, the validity of latent content analysis

has been contested. For example, multiple empirical studies have demonstrated that trained message coders and untrained message receivers tend to interpret and "code" content – particularly latent content – differently (e.g., Austin, Pinkleton, Hust, & Miller, 2007; Manganello et al., 2010). Such findings have fueled the continuous debate concerning whether content analyses are appropriate for latent content (see Potter, 2008).

On the one hand, the results of this dissertation highlight how different audience members can interpret the same content in distinct ways. In this sense, the results support the notion that content analysts should focus only on manifest content variables that leave little room for interpretation. Indeed, the analysis of such variables (e.g., number of scenes depicting drug use or percentage of female characters depicted in certain professions) is useful for identifying major trends and tracking how media content has (or has not) evolved over time.

On the other hand, the results of the present study also highlight the significance of latent media content. The findings not only confirmed that audience interpretations can vary, but also demonstrated the primary role of interpretations in predicting outcomes. As such, if the underlying goal of a content analysis is to suggest the potential for content to promote certain effects (and in turn, inform future experiments designed to test these effects), then latent content – and audience interpretations of that content – *must be included*. For example, if a content analysis of media violence focused only on manifest content, it could tell us that current films feature more "bloody" scenes than films of the 1990s. Adding to this analysis the more latent variable representing how *graphic* those scenes are could presumably tell us more about the potential for those films to negatively influence audiences. However, prior research suggests that trained coders' perceptions of graphicness

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likely differ from audience perceptions of graphicness (which may also vary). As such, even if inter-coder reliability was achieved for latent variables, the analysis might not accurately represent the interpretations of untrained media audiences.

By pointing to both the challenges and value associated with coding latent content, this dissertation supports the need for a receiver-oriented approach to content analysis. Fortunately, multiple scholars have presented potential methods that facilitate this type of analysis. For example, Ahuvia (2001) argued for a reception-based approach that combines survey research and quantitative content analysis and involves the target audience under study in the development of coding categories. Along these lines, Austin and colleagues (2007) developed and applied the receiver-oriented message analysis (ROMA) as a complement to traditional content analysis that "makes it possible to verify assumptions about common meaning and investigate the potential role of developmental differences, cultural differences, and processing styles on observations and interpretations of message content" (p. 195). Specifically, this method involves members of a particular message audience ("receiver-coders") coding content qualitatively – similar to a traditional content analysis, but without using predetermined definitions. With ROMA, researchers systematically assign a sample of media messages to a large pool of respondents so that a sub-sample of subjects codes each message. The ideal sample of receiver-coders is diverse (e.g., in terms of cultural, individual, and situational differences), as to facilitate the exploration of how these individual differences predict specific interpretations.

Although approaches like ROMA have yet to be widely applied in media effects research, this type of method would be particularly relevant to research programs that align with the priorities and assumptions of the interpretation phase described above.

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D. Practical Implications

This dissertation demonstrates that audience interpretations of media messages are stronger predictors of outcome variables than the actual messages to which the audience is exposed (i.e., inherent message attributes). These findings align with the conceptualization of media audiences as *active* interpreters rather than *passive* receivers. Importantly, the notion of the active audience has practical implications for educational policy and parenting practices.

Researchers, parents, and policymakers alike have long debated the issue of media regulation vs. media education and media literacy (see Von Feilitzen & Carlsson, 2003). These stakeholders often look to empirical research to answer the question: How can we most effectively mitigate the negative outcomes of media exposure on young consumers – via protection (i.e., limiting exposure to "bad" content) or empowerment (i.e., expanding viewpoints and encouraging critical thinking about media content)? Contributing to this conversation, the present study highlights the central role of audience reception in the media effects process. In turn, it suggests that educational programs designed to increase media literacy could – through their influence on audience interpretations of media content – minimize the negative outcomes of exposure.

In other words, the results suggest that consumers can learn to think critically about media content and in turn, interpret it in ways that do not promote negative outcomes. Illustrating this point in an article about the implications of media education for human health, Perry (2006) provided the following example:

An example may be young people who learn that entertainment conglomerates exist to provide enticing programs that deliver audiences to advertisers. They may be less likely

to see violent characters as idealized cultural icons, perhaps the preferred interpretation among those creating texts. Instead, children may see them as the product of the manipulative fantasy of those in entertainment industries, perhaps reducing imitation. (p. 315-316)

This train of thought supports the notion that critical thinking-based interventions (which focus on children's power as analytical media users) can bridge the gap between the protectionist and empowerment approaches to media literacy education (see Scharrer, 2007; Walsh, Sekarasih, & Scharrer, 2014). The effect-based tradition of media education focuses on imparting knowledge of negative media effects and instilling students with negative attitudes toward "high-risk" content (Kubey, 1998). This tradition has been labeled as a "protectionist" approach in that it uses education as a tool to "inoculate" youth from negative media effects. Many scholars representing the cultural studies tradition have criticized this approach for ignoring the enjoyment that media can provide for young consumers and encouraging students to "parrot" instructors' perspectives (Buckingham, 2003; Masterman, 1985). As an alternative, these scholars have promoted an "empowerment" approach to media education that embraces children's own experience and knowledge, and emphasizes the importance of independent interpretations of media messages (Buckingham, 2003).

A critical thinking approach (see Ediger, 2001) to media education, by emphasizing deep and independent analysis of media content, encourages students' "critical autonomy" and ability to analyze media content in the absence of teachers and parents (Masterman, 1985, p. 25). In this tradition, instead of supplying students with "the answers," facilitators provide background information and encourage students to develop "nuanced analyses that reject, as

too simplistic, the notion that media are entirely 'good' or 'bad'" (Walsh et al., 2014, p. 225). The results of the present study, then, by showing that interpretations of "high-risk" media content are strong predictors of attitudes, beliefs, and intentions, suggest that a critical thinking approach to media education could function to both empower *and* protect students. By encouraging independent and perhaps nonconventional or non-preferred interpretations, media literacy education could simultaneously embrace individual media experiences *and* minimize the likelihood of negative outcomes.

Along these lines, researchers and practitioners should consider changes in student interpretations as markers of "successful" media literacy programs. In other words, when evaluating a program, researchers should not only compare pre- and post-intervention *outcomes* (e.g., aggressive behavior, self-esteem, or stereotypical beliefs following exposure), but also account for changes in students' *interpretation*s of "high-risk" media content (e.g., perceptions of realism, justification, and consequences). By incorporating these interpretation measures, researchers could confirm whether changes in students' interpretations of content contributed to a reduction in negative effects or an increase in positive effects.

In addition to emphasizing the value of media literacy education, the results of the present study also align with the extant literature on parental mediation during television viewing. Scholars studying this topic distinguish between active mediation (parent-child discussions about media content) and restrictive mediation (limiting children's exposure to certain types of media content). The literature consistently has revealed that active mediation is related to positive outcomes such as increased prosocial behavior (Huston & Wright, 1994), reduced stereotype formation (Nathanson, Wilson, McGee, & Sebastian, 2002), and

increased skepticism toward advertising (Buijzen & Valkenburg, 2005; Fujioka & Austin, 2003). In contrast, studies have shown that although restrictive mediation can effectively reduce television viewing for young children (Vandewater, Park, Huang, & Wartella, 2005), it can have a boomerang effect among older children by promoting more positive attitudes toward objectionable content and increased viewing of restricted content with friends (Nathanson, 2002).

In one example of the positive effects of active mediation, Nathanson and colleagues (2002) found that mediation strategies based on gender schema theory (i.e., parents articulating consistent messages that contradicted stereotypes portrayed) were successful in altering children's evaluations of television programs and characters, as well as in changing children's own stereotypes about gender. The patterns demonstrated in this dissertation are in line with these findings, which suggest that altering audience interpretations of media content can in turn influence the outcomes of exposure to that content.

In sum, this dissertation highlights how changing audience interpretations of media content could potentially mitigate the negative outcomes of media exposure. Although limiting exposure to certain media content (e.g., through regulation or parental restrictions) is an alternative approach, this option can sometimes backfire and is becoming increasingly difficult with the proliferation of online content. Acknowledging the critical role of interpretations in predicting outcomes, it seems more feasible and potentially more effective to empower viewers to actively and critically engage with media content in order to promote a wider range of interpretations.

E. Future Research

The overarching goal of this dissertation was to demonstrate the central role of audience interpretations in the media effects process and in turn, spur a wave of empirical studies representing a new "phase" of media effects research – the interpretation phase. As the present findings successfully showed the predictive power of interpretation variables, this section proposes multiple lines of research that could extend on these findings in order to advance further our understanding of the factors that contribute to media effects.

1. Confirming Findings and Testing Generalizability

As a first step, future research should validate the present findings by applying alternative experimental designs. Then, researchers should test the generalizability of the present findings to different media types and topics, different target audiences, and different variables representing each of the four sets (e.g., interpretations, states, attributes, and message features).

Although this study established balanced conditions through random assignment, the outcome measures of cocaine-related attitudes, beliefs, and behavioral intentions were not measured in the pre-test questionnaire. As such, the results cannot speak to *changes* in these measures from pre-test to post-test. Considering this limitation, future research should utilize a Solomon four group design in order to (1) account for changes in these measures from pre-exposure to post-exposure, and (2) identify any validity threats due to testing effects.

As noted, in addition to expanding on the design of this study, future research should test the generalizability of these findings among different populations, and with different media topics, media vehicles, and variables. This dissertation used a sample of college

undergraduates at a large public university. Although college students living in an environment that promotes experimentation with drugs (Lanier & Farley, 2011; Perkins et al., 1999; Quintero et al., 2006) were deemed particularly appropriate subjects for this dissertation, future research should consider the effects of drug depictions on different populations, including children and adolescents.

Moreover, future research should incorporate different variables representing each of the four variable sets. As stated, this dissertation measured variables that the existing literature suggested would be most influential in predicting the outcomes of focus. However, these variable sets represent only a small sample of all message, attribute, state, and interpretation variables. As such, future studies should test the predictive power of additional variables representing the four variable sets. For example, although this study found that certain states (i.e., identification, narrative engagement, and emotional reactions) were *not* strong predictors of the outcome variables, it is possible that other audience states (e.g., arousal or motivations) would function as stronger predictors in this context.

Finally, it is vital that future studies test the relative importance of different variable sets in contexts other than television portrayals of drug use. For example, this research should test the generalizability of the patterns identified here to other media vehicles (e.g., cartoons, video games, films, and websites) and other media topics (e.g., media violence, sexual portrayals, and stereotypical depictions).

2. Testing the Relationships between Variable Sets

This dissertation takes an initial step in testing the predictive power of four variable sets: message factors, attributes, states, and interpretations. Most notably, it revealed the

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substantial role of audience interpretations in predicting outcomes of media exposure. Undoubtedly, however, these four sets of variables are interrelated in the media effects process. For example, audience attributes and message factors likely influence both audience states and audience perceptions during exposure. Viewers with sensation seeking personalities might be more aroused by watching drug use and interpret the drug use as more justified than other viewers. Similarly, specific message features (e.g., a scene in which a character explains her reasoning for using drugs) are likely to promote certain interpretations (e.g., that the drug use was justified). Considering these potential relationships, future research should examine state and interpretation variables as mediators and moderators of the relationship between attributes and/or message features and outcome variables. Such research could illuminate distinct pathways of media influence. For example, it could show that message features, attributes, and states, all influence outcomes predominately through their influence on interpretations. Alternatively, it could demonstrate that the role of interpretations in the media effects process varies by effect type. For instance, perhaps some types of effects occur through a more intuitive process in which attributes and message features produce effects through their influence on audience states, while other types of effects occur through a more deliberate process in which attributes and message features produce effects through their influence on interpretations. In addition to testing the relationships between the factor types examined in the present study, future research might also explore what other factors, such as real world experiences and past media exposure, contribute to audience states and interpretations.

Furthermore, it is likely that audience states and audience interpretations are interrelated. One the one hand, states experienced during exposure could influence viewers'

interpretation of media content. For instance, viewers who are aroused by a media stimulus might interpret the stimulus as more realistic. On the other hand, interpretations of a stimulus could influence viewers' states during exposure. For example, if viewers perceive a media portrayal to be realistic, they might pay more attention to it. Considering these examples, future studies should test the interaction between states and interpretations in predicting outcomes of exposure.

3. New Directions

In addition to stimulating the aforementioned research directions, the findings of this dissertation suggest that audience interpretations should be a central focus in media effects studies. Of course, understanding the various relationships between conceptually distinct variable sets and their roles in predicting different outcomes is not the task of a single study or research program. Rather, it is a task for media researchers to tackle in the next *phase* of media effects research – the interpretation phase. As reviewed throughout this chapter, research conducted during the interpretation phase would involve (1) more comprehensive testing and application of prominent media theories, (2) experimental designs that account for participant interpretations (as independent variables and/or mediating variables), and (3) receiver-oriented approaches to content analysis. Based on the findings reported here and elsewhere in the literature, it is expected that such research would result in stronger predictive power, larger effect sizes, and most importantly, a more complex and complete understanding of the process of media influence.

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Tables

Table 1.

Effects Sizes for Message Features, Audience Attributes, Audience States, and Audience Interpretations

Relationship Tested	Effect Size Range	Number of Studies	Sample Studies
Message/Treatment → Outcome	$R^2 = .01-.04$	6	Farrar et al., 2006; Moyer-Gusé et al., 2011; Murphy, et al., 2013; Yaros, 2006
Attribute → Outcome	$\eta^2 = .03-.12$	5	Berger, 2005; Maass, Kollhörster, Riediger, MacDonald, & Lohaus, 2011; Oliver, Hartmann, & Woolley, 2012; Tamborini et al., 2004
State → Outcome	$R^2 = .02-.25$	9	Bilandzic & Busselle, 2008; Duncan & Nelson, 1985; Igartua, 2010; Johnston, 1995
Interpretation → Outcome	$R^2 = .01-.25$	9	Atkin, 1983; Huesmann et al., 1984; Meyer, 1975; Weiss & Wilson, 1998

Table 2.

Summary of Measures

Variable Set	Variable	Measure	Description or Sample Item(s)
Message	Treatment	3 conditions	*Girls, Entourage, The Wire*
Attribute	Biological sex	2 categories	Male or female
Attribute	Year in school	4 categories	Freshman, Sophomore, Junior, Senior
Attribute	Family income	4 categories	< $24,999; $25,000-$49,999; $50,000-$99,999; >/=$100,000
Attribute	Sensation seeking	8 items*	I like new and exciting experiences, even if I have to break rules.
State	Character identification**	5 items*	While viewing the video, I could feel the emotions Vince portrayed.
State	Narrative engagement**	8 items*	At times during the video, the story world was closer to me than the real world.
State	Emotional reaction (surprise, fear, disgust, sadness, happiness, anger)	8 items*	I was fearful about what would happen to Hannah after she snorted cocaine.
Interpretation	Character status**	5 items*	Shardene was attractive.
Interpretation	Character justification**	1 item*	Sasha had a good reason for using cocaine.
Interpretation	Clear motivations	1 item*	The characters' motivations for using drugs were clear to me.

* Likert-scale items, 7-point scale, ranging from "strongly disagree" to "strongly agree."
** Questionnaires contained two items for each character-related variable: one for the primary character and one for the secondary character.

Table 2 (continued).

Summary of Measures

Variable Set	Variable	Measure	Description or Sample Item(s)
Interpretation	Negative consequences	1 item*	The video clearly demonstrated the danger and negative consequences associated with drug use.
Interpretation	Positive outcomes	1 item*	The video emphasized the positive outcomes associated with using drugs.
Interpretation	Realistic, preachy, intense, serious, humorous, boring (distinct variables)	1 item* for each	The portrayal of drug use in the video was too intense for me.
Outcome	Attitudes toward cocaine use (in the real world)	4 items*	Using cocaine is desirable. Using cocaine is a negative thing (reverse coded)
Outcome	Cocaine effect expectancies (beliefs about the outcomes of using cocaine in the real world)	14 items*	If I were to use cocaine, it is likely that I would overdose (reverse coded). If I were to use cocaine, it would likely make me feel good.
Outcome	Intentions to use cocaine (self-reported likelihood of trying cocaine in the future)	2 items*	I am likely to try/use cocaine in the next three months. I am likely to try/use cocaine at some point in the future.

* Likert-scale items, 7-point scale, ranging from "strongly disagree" to "strongly agree."

Table 3.

Frequencies for Demographics and Familiarity with Stimulus

Variable	Total	Entourage	Girls	The Wire
Biological Sex				
N	310	105	101	104
% Male	30.6	31.5	32.7	27.6
% Female	69.4	68.6	67.3	71.4
Year in School				
N	311	105	101	104
% Freshman	34.1	31.4	39.6	31.4
% Sophomore	33.1	34.3	25.7	39.0
% Junior	27.7	26.7	26.7	29.5
% Senior	5.1	7.6	7.9	0.0
Household Income				
N	309	105	101	103
% $24,999 or less	10.4	8.6	11.9	10.7
% $25K – $49, 999	18.1	14.3	17.8	22.3
% $50K – $99, 999	33.3	39.0	24.8	35.9
% $100K or more	38.2	38.1	45.5	31.1
Familiarity with Series				
N	311	105	101	105
% Never watched/heard of	49.2	23.8	55.4	68.6
% Heard of/never watched	34.7	48.6	31.7	23.8
% Watched once	8.0	12.4	7.9	3.8
% Watched more than once	8.0	15.2	5.0	3.8
Familiarity with Episode				
N	311	105	101	105
% Saw episode before	5.8	8.6	5.0	3.8
% Had never seen episode	94.2	91.4	95.0	96.2

Table 4.

One-Way ANOVA for Key Variables in Pilot Test

Variable	Mean (SD)			*F*	*df*	*P*
	Entourage (N=9)	Girls (N=9)	The Wire (N=9)			
Identification with main character	3.16	4.82	3.00	5.38	2, 24	.012
Humor of drug portrayal	1.44	4.44	1.11	14.18	2, 24	< .001
Valence of outcomes depicted (higher = more positive)	3.39	4.28	1.78	7.88	2, 24	.002

Table 5.

Frequencies for Self-Reported Experience with Substance Use

Variable	Total	Entourage	Girls	The Wire
Cocaine				
N	310	105	101	105
% Never	71.9	74.3	67.3	74.0
% 1-4 times	16.5	16.2	22.8	10.6
% 5 or more times	11.6	9.5	8.8	15.4
Alcohol				
N	311	105	101	105
% Yes	94.5	96.2	95.0	92.4
% No	5.5	3.8	5.0	7.6
Tobacco				
N	311	105	101	105
% Yes	53.1	56.2	49.5	53.3
% No	46.9	43.8	50.5	46.7
Marijuana				
N	311	105	101	105
% Yes	76.8	75.2	77.2	78.1
% No	23.2	24.8	22.8	21.9
Prescription Drugs (not prescribed)				
N	311	105	101	105
% Yes	36.7	33.3	40.6	36.2
% No	63.3	66.7	59.4	63.8
Any "Hard" Drugs				
N	311	105	101	105
% Yes	43.4	43.8	41.6	44.8
% No	56.6	56.2	58.4	55.2

Table 6.

Descriptive Statistics for Sensation Seeking and Reaction Items

	N	Mean	Median	Mode	Range	SD	Skewness	Kurtosis
Sensation Seeking (antecedent)								
Total	310	4.88	4.88	5.63	5.38	1.08	-.41	-.05
Entourage	105	4.88	5.00	5.63	4.25	1.01	-.24	-.66
Girls	101	4.80	4.75	4.63*	5.38	1.11	-.36	-.03
The Wire	104	4.96	5.00	4.88	5.38	1.12	-.60	.43
Narrative Engagement								
Total	309	4.53	4.50	4.75	5.00	.90	.028	-.38
Entourage	105	4.36	4.38	4.63*	4.13	.81	-.06	-.18
Girls	101	4.61	4.56	3.88*	4.25	.94	.15	-.67
The Wire	104	4.64	4.75	4.75	4.63	.93	-.16	-.28
Affective Response								
Total	311	4.03	4.08	4.58*	5.50	1.16	.01	-.60
Entourage	105	3.32	3.25	3.00	3.25	.79	-.01	-.75
Girls	101	3.86	4.00	3.67*	4.33	.95	-.24	-.45
The Wire	105	4.90	5.08	5.25	5.50	.99	-.88	1.33
Primary Character Identification								
Total	311	3.54	3.60	3.80	5.80	1.36	.06	-.66
Entourage	105	3.60	3.60	3.60	5.20	1.18	.11	-.34
Girls	101	4.39	4.40	4.40	5.40	1.21	-.35	-.39
The Wire	105	2.66	2.60	2.00	4.80	1.10	.21	-.66
Secondary Character Identification								
Total	310	3.89	3.80	3.80	6.00	1.36	.12	-.65
Entourage	104	3.05	3.00	2.40	4.60	1.04	.09	-.45
Girls	101	3.43	3.40	3.80	5.20	1.01	.44	.46
The Wire	105	5.17	5.20	5.40	5.00	.94	-.47	.82

*Multiple modes; smallest one is shown

Table 6 (continued).

Descriptive Statistics for Reaction Items

	N	Mean	Median	Mode	Range	SD	Skewness	Kurtosis
Primary Character Status								
Total	311	3.96	4.00	4.20	5.20	.85	-.39	.72
Entourage	105	4.57	4.60	4.60	3.60	.70	-.31	.08
Girls	101	3.72	3.80	3.80	4.20	.71	-1.02	1.55
The Wire	105	3.60	3.60	3.40	4.80	.79	-.55	1.24
Secondary Character Status								
Total	309	4.55	4.60	4.80	6.00	.79	-.33	1.76
Entourage	104	4.42	4.40	4.80	5.40	.77	-.85	3.12
Girls	101	4.26	4.20	4.40	4.40	.67	-.86	2.96
The Wire	104	4.96	5.00	5.00	3.80	.76	-.03	.07
Primary Character Justification								
Total	311	2.49	2.00	1.00	6.00	1.50	.76	-.41
Entourage	105	1.72	1.00	1.00	4.00	1.05	1.64	2.18
Girls	101	3.51	4.00	4.00	6.00	1.60	-.00	-.82
The Wire	105	2.30	2.00	1.00*	4.00	1.24	.71	-.53
Secondary Character Justification								
Total	311	2.16	2.00	1.00	6.00	1.33	1.27	1.28
Entourage	105	1.82	1.00	1.00	5.00	1.25	1.81	2.82
Girls	101	2.35	2.00	1.00	6.00	1.46	1.25	1.49
The Wire	105	2.31	2.00	2.00	5.00	1.24	.84	-.03
Clear Motivations								
Total	311	4.17	4.00	5.00	6.00	1.82	-.11	-1.13
Entourage	105	4.13	4.00	3.00	6.00	1.71	.02	-.94
Girls	101	4.97	5.00	6.00	6.00	1.68	-.73	-.46
The Wire	105	3.44	3.00	2.00	6.00	1.74	.32	-.94

*Multiple modes; smallest one is shown

Table 6 (continued)

Descriptive Statistics for Reaction Items

	N	Mean	Median	Mode	Range	SD	Skewness	Kurtosis
Primary Character Regret								
Total	311	3.10	3.00	2.00	6.00	1.72	.52	-.79
Entourage	105	2.94	3.00	1.00	6.00	1.70	.52	-.91
Girls	101	3.94	4.00	3.00	6.00	1.68	-.02	-1.03
The Wire	105	2.45	2.00	2.00	6.00	1.43	1.27	1.61
Secondary Character Regret								
Total	311	2.76	2.00	1.00	6.00	1.64	.75	-.32
Entourage	105	1.96	2.00	1.00	6.00	1.26	1.53	2.45
Girls	101	2.79	2.00	1.00	6.00	1.69	.67	-.75
The Wire	105	3.51	3.00	3.00	6.00	1.58	.41	-.35
Negative Consequences								
Total	311	4.26	5.00	5.00	6.00	1.92	-.32	-1.11
Entourage	105	3.71	4.00	5.00	6.00	1.83	-.06	-1.11
Girls	101	3.47	3.00	2.00	6.00	1.75	.11	-1.3
The Wire	105	5.58	6.00	5.00	6.00	1.43	-1.43	2.29
Positive Outcomes								
Total	311	2.25	2.00	1.00	6.00	1.48	1.02	-.02
Entourage	105	2.35	2.00	1.00	6.00	1.60	1.03	-.07
Girls	101	2.91	3.00	1.00	5.00	1.54	.29	-1.18
The Wire	105	1.53	1.00	1.00	4.00	.86	1.85	3.30
Intense								
Total	311	2.21	2.00	1.00	6.00	1.80	.31	-.97
Entourage	105	1.99	2.00	1.00	5.00	1.19	.18	-1.3
Girls	101	2.00	2.00	2.00	6.00	1.25	.70	-.33
The Wire	105	2.64	2.00	1.00	6.00	1.29	-.82	.47

Table 6 (continued).

Descriptive Statistics for Reaction Items

	N	Mean	Median	Mode	Range	SD	Skewness	Kurtosis
Boring								
Total	311	2.48	2.00	1.00	6.00	1.44	.78	-.27
Entourage	105	2.57	2.00	1.00*	6.00	1.51	.78	-.35
Girls	101	2.51	2.00	1.00	6.00	1.48	.73	-.29
The Wire	105	2.34	2.00	1.00	5.00	1.34	.80	-.21
Humorous								
Total	310	3.00	3.00	1.00	6.00	1.82	.58	-.82
Entourage	104	3.03	3.00	2.00	6.00	1.57	.55	-.39
Girls	101	4.44	5.00	5.00	6.00	1.68	-.36	-.80
The Wire	105	1.59	1.00	1.00	3.00	.82	1.32	1.09
Serious								
Total	311	3.36	3.00	2.00	6.00	1.80	.31	-.97
Entourage	105	2.45	2.00	1.00	4.00	1.19	.18	-1.3
Girls	101	2.42	2.00	2.00	5.00	1.25	.70	-.33
The Wire	105	5.19	5.00	5.00	6.00	1.29	-.82	.47
Realistic								
Total	311	4.14	4.00	4.00	6.00	1.40	-.15	-.18
Entourage	105	4.32	5.00	5.00	6.00	1.42	-.51	-.02
Girls	101	3.95	4.00	4.00	6.00	1.41	-.04	-.44
The Wire	105	4.12	4.00	4.00	6.00	1.36	.13	.32
Preachy								
Total	311	2.29	2.00	1.00	6.00	1.28	1.02	.89
Entourage	105	2.26	2.00	1.00	6.00	1.35	1.21	1.56
Girls	101	2.17	2.00	1.00	5.00	1.23	1.04	.65
The Wire	105	2.44	2.00	2.00	6.00	1.23	.81	.47

*Multiple modes; smallest one is shown

Table 7.

Descriptive Statistics for Outcome Variables

	N	Mean	Median	Mode	Range	SD	Skewness	Kurtosis
Attitude toward Cocaine								
Total Sample	311	3.33	3.25	3.5	6.00	1.06	.293	-.17
Entourage	105	3.38	3.25	3.25	4.50	1.02	-.23	-.38
Girls	101	3.51	3.50	4.00	6.00	1.10	.28	.31
The Wire	105	3.10	3.00	3.5	4.50	1.03	.33	-.52
Cocaine Effect Expectancies								
Total Sample	309	3.68	3.79	3.93	5.57	1.02	-.35	-.18
Entourage	105	3.75	3.86	3.93	4.21	.96	-.42	-.11
Girls	101	3.94	3.93	4.57	5.29	.98	-.24	-.02
The Wire	105	3.36	3.57	4.43	4.50	1.05	-.33	-.55
Intention to Use Cocaine								
Total Sample	311	2.33	1.00	1.00	6.00	1.86	1.18	.079
Entourage	105	2.42	1.00	1.00	6.00	2.10	1.22	-.07
Girls	101	2.50	1.50	1.00	6.00	1.88	.96	-.39
The Wire	105	2.10	1.00	1.00	5.50	1.56	.24	.15

Table 8.

One Way ANOVA for "Manipulation Check" Variables

Variable	Mean (SD)			F	df	P
	Entourage (N=104-105)	Girls (N=101)	The Wire (N=104-105)			
Identification with primary character	3.60	4.39	2.66	56.89	2, 308	*<.001*
Identification with secondary character	3.05	3.43	5.17	134.53	2, 306	*<.001*
Positive outcomes of cocaine use	2.35	2.91	1.52	26.78	2, 308	*<.001*
Negative consequences of cocaine use	3.71	3.47	5.58	49.59	2, 308	*<.001*
Seriousness of portrayal	2.44	2.42	5.19	170.27	2, 308	*<.001*
Level of humor in portrayal	3.03	4.44	1.59	105.39	2, 307	*<.001*

Table 9.

Multiple Regressions Results for Variable Sets

Variable Set	Attitudes			Expectancies			Intentions		
	F	R^{2*}	p	F	R^{2*}	p	F	R^{2*}	p
Treatment	4.14	.02	< .05	8.86	.05	< .001	1.35	.00	ns
Attributes	12.97	.14	< .001	19.67	.20	< .001	11.84	.12	< .001
States	11.45	.12	< .001	16.55	.17	< .001	9.11	.10	< .001
Interpretations	7.83	.25	< .001	7.83	.25	< .001	4.92	.16	< .001

*Represents R^2 adjusted

Table 10.

Unique Variance Attributed to Each Variable Set

Variable Set	Attitudes			Expectancies			Intentions		
	F change	*R²* change	*p*	*F* change	*R²* change	*p*	*F* change	*R²* change	*p*
Treatment	1.81	.01	ns	.99	.00	ns	6.06	.03	< .01
Attributes	4.08	.04	< .01	8.49	.08	< .001	5.29	.05	< .001
States	1.42	.01	ns	2.30	.02	ns	1.89	.02	ns
Interpretations	4.55	.16	< .001	3.41	.11	< .001	3.54	.13	< .001

Table 11.

Multiple Regression Results for Variable Sets and Their Interaction Terms

Variable Set	Attitudes			Expectancies			Intentions		
	F	R^{2*}	p	F	R^{2*}	p	F	R^{2*}	p
Treatment	4.14	.02	< .05	8.86	.05	< .001	1.35	.00	ns
Attributes	12.97	.14	< .001	19.67	.20	< .001	11.84	.12	< .001
Attribute x Treat	4.94	.09	< .001	7.33	.14	< .001	3.07	.05	< .01
States	11.45	.12	< .001	16.55	.17	< .001	9.11	.10	< .001
State x Treat	6.75	.13	< .001	7.61	.15	< .001	6.01	.12	< .001
Interpretations	7.83	.25	< .001	7.83	.25	< .001	4.92	.16	< .001
Interpret x Treat	4.12	.23	< .001	3.17	.18	< .001	3.15	.17	< .001

*Represents R^2 adjusted

Appendix A: Questionnaires (Pre-Test and Sample Post-Test)

Thank you for your help in this important research project. We will be showing you a short 15 to 20 minute video and asking for your reactions to it. But first, we would like to learn about some of your interests and experiences. So please take a few minutes to react to the items in this Interests and Experiences Questionnaire. There are no right or wrong answers and your responses are *completely anonymous*, **so please be honest. Please begin.**

YOUR INTERESTS AND EXPERIENCES

I. YOUR INTERESTS

Please rate (by circling the corresponding number) the extent to which you agree or disagree with the following statements. 1 = strongly disagree. 7 = strongly agree.

	Strongly Disagree						Strongly Agree
1. I would like to explore strange places.	1	2	3	4	5	6	7
2. I would like to take off on a trip with no pre-planned routes or timetables.	1	2	3	4	5	6	7
3. I like to do frightening things.	1	2	3	4	5	6	7
4. I would like to try bungee jumping.	1	2	3	4	5	6	7
5. I like new and exciting experiences, even if I have to break the rules.	1	2	3	4	5	6	7
6. I like wild parties.	1	2	3	4	5	6	7
7. I prefer friends who are unpredictable.	1	2	3	4	5	6	7
8. I get restless when I spend too much time at home.	1	2	3	4	5	6	7

`

II. YOUR EXPERIENCES

Please indicate (<u>by checking the appropriate response</u>) which statement best reflects your experience with the substances mentioned in each item. Remember that your responses are *completely confidential and are in no way associated with your identity.*

1. Which one of the following statements best reflects your personal experience with alcohol? (Check only one.) (*Examples include beer, wine, shots, "hard" cider/tea, and mixed drinks.*)

☐ I have never drunk alcohol

☐ I have drunk alcohol at least once but fewer than five times

☐ I have drunk alcohol five or more times

2. Which one of the following statements best reflects your personal experience with tobacco? (Check only one.) (*Examples include cigarettes, chewing or pipe tobacco, snuff, and cigars.*)

☐ I have never used tobacco

☐ I have used tobacco at least once but fewer than five times

☐ I have used tobacco five or more times

3. Which one of the following statements best reflects your personal experience with marijuana in any form? (Check only one.)

☐ I have never used marijuana

☐ I have used marijuana at least once but fewer than five times

☐ I have used marijuana five or more times

4. Which one of the following statements best reflects your personal experience with inhalants? (Check only one.) (*Examples include Amyl nitrite or "poppers," locker room odorizers or "rush," glue, shoe polish, ether, paint solvents, lighter fluids/gases, nitrous oxide or "whippits," felt-tip pens or markers, spray paints, air duster, and other aerosol sprays.*)

☐ I have never used inhalants

☐ I have used inhalants at least once but fewer than five times

☐ I have used inhalants five or more times

5. Which one of the following statements best reflects your personal experience with hallucinogens? (Check only one.) *(Examples include LSD or acid, PCP or angel dust, peyote, mescaline, ecstasy/Molly/MDMA, Ketamine/"Special K," DMT, AMT, psilocybin, salvia divinorum, and Foxy.)*

- ☐ I have never used hallucinogens
- ☐ I have used hallucinogens at least once but fewer than five times
- ☐ I have used hallucinogens five or more times

6. Which one of the following statements best reflects your personal experience with cocaine in any form (e.g., powder, 'crack,' free base, or coca paste)? (Check only one.)

- ☐ I have never used cocaine
- ☐ I have used cocaine at least once but fewer than five times
- ☐ I have used cocaine five or more times

7. Which one of the following statements best reflects your personal experience with methamphetamine (a.k.a. crank, ice, crystal meth, speed, or glass)? (Check only one.)

- ☐ I have never used methamphetamines
- ☐ I have used methamphetamine at least once but fewer than five times
- ☐ I have used methamphetamine five or more times

8. Which one of the following statements best reflects your personal experience with heroin? (Check only one.)

- ☐ I have never used heroin
- ☐ I have used heroin at least once but fewer than five times
- ☐ I have used heroin five or more times

9. Which one of the following statements best reflects your personal experience using prescription stimulants **in any way other than that directed by your doctor**? (Check only one.) (Examples include Adderall, Benzphetamine, Concerta, Daytrana, Dexedrine, Dexmethylphenidate, Dextroamphetamine, Didrex, Diethylpropion, Focalin, Metadate, Methylphenidate, Ritalin, Phendimetrazine, Phentermine, Provigil, Tenuate, and Vyvanse.)

- ☐ I have never used prescription stimulants
- ☐ I have used prescription stimulants at least once but fewer than five times
- ☐ I have used prescription stimulants more than five times

10. Which one of the following statements best reflects your personal experience using prescription pain relievers **in any way other than that directed by your doctor?** (Check only one.) (*Examples include Actiq, Avinza, Buprenorphine, Codeine pills, Demerol, Dilaudid, Duragesic, Exalgo, Fentanyl, Fentora, Hydrocodone, Hydromorphone, Kadian, Lortab, Methadone, Morphine, MS Contin, Norco, Opana, Oxycodone, OxyContin, Oxymorphone, Percocet, Percodan, Roxicet, Roxicodone, Suboxone, Tramadol, Tylenol with codeine, Ultram, Vicodin, and Zohydro ER.*)

- ☐ I have never used prescription pain relievers
- ☐ I have used prescription pain relievers at least once and fewer than five times
- ☐ I have used prescription pain relievers five or more times

11. Which one of the following statements best reflects your personal experience using prescription tranquilizers **in any way other than that directed by your doctor?** (Check only one.) (*Examples include Xanax, Alprazolam, Ativan, Buspirone, Clonazepam, Cyclobenzaprine, Diazepam, Hydroxyzine, Klonopin, Lorazepam, Meprobamate, Soma, and Valium.*)

- ☐ I have never used prescription tranquilizers
- ☐ I have used prescription tranquilizers at least once and fewer than five times
- ☐ I have used prescription tranquilizers five or more times

12. Which one of the following statements best reflects your personal experience using prescription sedatives **in any way other than that directed by your doctor?** (Check only one.) (*Examples include Ambien, Butisol, Flurazepam, Halcion, Lunesta, Phenobarbital, Restoril, Seconal, Sonata, Temazepam, Triazolam, and Zolpidem.*)

- ☐ I have never used prescription sedatives
- ☐ I have used prescription sedatives at least once and fewer than five times
- ☐ I have used prescription sedatives five or more times

YOU HAVE COMPLETED THIS PORTION OF THE STUDY.

1. **Please place this form underneath you chair on top of the form that is already there. <u>Do not touch the other form yet!</u>**
2. **Read the introduction to the video (in a plastic sleeve on the desk in front of you).**
3. **When you're done reading, put on the headphones and press play on the computer screen to begin the video. (Feel free to adjust the volume in the right bottom corner of the screen.)**
4. **Watch the video in its entirety only once. At the end of the video, you will receive further instructions. THANK YOU!!!!**

YOUR REACTIONS TO THE VIDEO

We'd like to get your reactions to the video you just viewed. First, we ask for your reactions to the character of Hannah, then to the character of Elijah. Finally, we'd like to hear your reactions to the video in general.

I. REACTIONS TO THE CHARACTER OF HANNAH

Rate (by circling the corresponding number) the extent to which you agree or disagree with each statement. 1= strongly disagree. 7 = strongly agree.

	Strongly Disagree						Strongly Agree
1. Hannah was popular.	1	2	3	4	5	6	7
2. Hannah was attractive.	1	2	3	4	5	6	7
3. Hannah was a good person.	1	2	3	4	5	6	7
4. Hannah was immature.	1	2	3	4	5	6	7
5. Hannah was in control of her own fate.	1	2	3	4	5	6	7
6. I tended to understand the reasons Hannah did what she did.	1	2	3	4	5	6	7
7. While viewing the video, I could feel the emotions Hannah portrayed.	1	2	3	4	5	6	7
8. At key moments in the story, I felt I knew exactly what Hannah was going through.	1	2	3	4	5	6	7
9. While viewing the video, I wanted Hannah to succeed in achieving her goals.	1	2	3	4	5	6	7
10. When Hannah succeeded I felt joy, but when she failed, I was sad.	1	2	3	4	5	6	7

II. REACTIONS TO THE CHARACTER OF ELIJAH

Rate (by circling the corresponding number) the extent to which you agree or disagree with each statement. 1= strongly disagree. 7 = strongly agree.

	Strongly Disagree						Strongly Agree
1. Elijah was popular.	1	2	3	4	5	6	7
2. Elijah was attractive.	1	2	3	4	5	6	7
3. Elijah was a good person.	1	2	3	4	5	6	7
4. Elijah was immature.	1	2	3	4	5	6	7
5. Elijah was in control of his own fate.	1	2	3	4	5	6	7
6. I tended to understand the reasons Elijah did what he did.	1	2	3	4	5	6	7
7. While viewing the video, I could feel the emotions Elijah portrayed.	1	2	3	4	5	6	7
8. At key moments in the story, I felt I knew exactly what Elijah was going through.	1	2	3	4	5	6	7
9. While viewing the video, I wanted Elijah to succeed in achieving his goals.	1	2	3	4	5	6	7
10. When Elijah succeeded I felt joy, but when he failed, I was sad.	1	2	3	4	5	6	7

III. REACTIONS TO VIDEO IN GENERAL

Rate (by circling the corresponding number) the extent to which you agree or disagree with each statement. 1= strongly disagree. 7 = strongly agree.

	Strongly Disagree						**Strongly Agree**
1. At times, I had a hard time making sense of what was going on in the video.	1	2	3	4	5	6	7
2. While watching the video, I was feeling the same emotions as some of the characters were feeling.	1	2	3	4	5	6	7
3. I found my mind wandering while the video was playing.	1	2	3	4	5	6	7
4. The characters' motivations for using drugs were clear to me.	1	2	3	4	5	6	7
5. I believe that the video portrayed the New York City nightlife in a realistic way.	1	2	3	4	5	6	7
6. At times during the video, the story world was closer to me than the real world.	1	2	3	4	5	6	7
7. While watching the video, my understanding of the characters was unclear.	1	2	3	4	5	6	7
8. The video clearly demonstrated the danger and negative consequences associated with drug use.	1	2	3	4	5	6	7
9. While the video was playing I found myself thinking about other things.	1	2	3	4	5	6	7
10. I felt sorry for some of the characters in the video.	1	2	3	4	5	6	7
11. At times during the video, I felt like I was living in the world of the story and forgot I was sitting in this room.	1	2	3	4	5	6	7
12. The video was too preachy about the dangers of drug use.	1	2	3	4	5	6	7

	Strongly Disagree						Strongly Agree
13. The portrayal of drug use in the video was too intense for me.	1	2	3	4	5	6	7
14. The portrayal of drug use was funny.	1	2	3	4	5	6	7
15. The video was boring.	1	2	3	4	5	6	7
16. The video was serious.	1	2	3	4	5	6	7
17. Elijah likely regretted his decision to use cocaine.	1	2	3	4	5	6	7
18. Hannah likely regretted her decision to use cocaine.	1	2	3	4	5	6	7
19. Elijah had a good reason for using cocaine.	1	2	3	4	5	6	7
20. Hannah had a good reason for using cocaine.	1	2	3	4	5	6	7
21. The video emphasized the positive outcomes associated with using drugs.	1	2	3	4	5	6	7
22. I felt happy watching the fun that Hannah and Elijah were experiencing.	1	2	3	4	5	6	7
23. I felt disgusted by Hannah's behavior while she was on cocaine.	1	2	3	4	5	6	7
24. I was disgusted when I watched the characters snorting cocaine.	1	2	3	4	5	6	7
25. I was surprised by the way Hannah behaved when she was on cocaine.	1	2	3	4	5	6	7
26. I was surprised by the way Elijah behaved when he was on cocaine.	1	2	3	4	5	6	7

	Strongly Disagree						Strongly Agree
27. I was fearful about what would happen to Elijah after he snorted the cocaine.	1	2	3	4	5	6	7
28. I was fearful about what would happen to Hannah after she snorted cocaine.	1	2	3	4	5	6	7
29. I felt sad for Hannah when she found out about Elijah and Marnie sleeping together.	1	2	3	4	5	6	7
30. I felt angry that Hannah's friends betrayed her trust.	1	2	3	4	5	6	7

COCAINE IN THE REAL WORLD

The following questions ask your thoughts/opinions about cocaine use in the real world and in your own life. Rate (by circling the corresponding number) the extent to which you agree or disagree with each statement. 1= strongly disagree. 7 = strongly agree. _Remember, your responses are completely anonymous and confidential!!_

	Strongly Disagree						Strongly Agree
1. Using cocaine is a negative thing.	1	2	3	4	5	6	7
2. People who use cocaine are likeable.	1	2	3	4	5	6	7
3. Using cocaine is desirable.	1	2	3	4	5	6	7
4. People who use cocaine are bad.	1	2	3	4	5	6	7
5. If I were to use cocaine, it would likely make me feel powerful, like I could do anything.	1	2	3	4	5	6	7
6. If I were to use cocaine, it is likely that I would experience irreversible health consequences.	1	2	3	4	5	6	7
7. If I were to use cocaine, I would likely have a better time at parties, clubs, bars, etc.	1	2	3	4	5	6	7
8. If I were to use cocaine, it would likely give me a "rush" or sudden sense of being swept away.	1	2	3	4	5	6	7
9. If I were to use cocaine, it would likely make me feel more relaxed and mellow.	1	2	3	4	5	6	7
10. If I were to use cocaine, it is likely that I would overdose.	1	2	3	4	5	6	7
11. If I were to use cocaine, it would likely make me feel good.	1	2	3	4	5	6	7
12. If I were to use cocaine, it is likely that I would die.	1	2	3	4	5	6	7

	Strongly Disagree						Strongly Agree
13. If I were to use cocaine, it would likely make me feel nervous and/or paranoid.	1	2	3	4	5	6	7
14. If I were to use cocaine, it would likely make me feel more focused and alert.	1	2	3	4	5	6	7
15. If I were to use cocaine, it would likely make me feel sick.	1	2	3	4	5	6	7
16. If I were to use cocaine, sex would likely be more enjoyable.	1	2	3	4	5	6	7
17. If I were to use cocaine, it would likely impair my judgment.	1	2	3	4	5	6	7
18. If I were to use cocaine, it would likely make me feel agitated and/or impatient.	1	2	3	4	5	6	7
19. I am likely to try/use cocaine in the next three months.	1	2	3	4	5	6	7
20. I am likely to try/use cocaine at some point in the future.	1	2	3	4	5	6	7

BACKGROUND/DEMOGRAPHICS

In the final section of this questionnaire, we will ask you about your previous experience with the video you just viewed. Then, we will ask several demographic questions. Please mark with an "X" one response for each question. Again, your answers will be kept *confidential and anonymous*.

1. Which one of the following statements *best* represents your experience with the series *Girls* (featured in the clip you just viewed) prior to your participation in this study? (Check only one.)

- ☐ I had never seen it before or heard of it
- ☐ I had heard of it but never seen it
- ☐ I had seen it one time
- ☐ I had seen it more than once

2. Had you seen this particular episode of *Girls* before? (Check only one.)

- ☐ Yes
- ☐ No

3. What is your biological sex? (Check only one.)

- ☐ Male
- ☐ Female

4. What is your year in school? (Check only one.)

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior

5. What is your family household income? (Check only one.)

- ☐ Less than $24,999
- ☐ $25,000 - $49,999
- ☐ $50,000 to $99,9999
- ☐ $100,000 or more

**YOU HAVE REACHED THE END OF THE POST-VIDEO QUESTIONNAIRE.
TO COMPLETE YOUR PARTICIPATION IN THE STUDY, PLEASE SUBMIT THIS
QUESTIONNAIRE ALONG WITH THE ONE YOU ALREADY COMPLETED
TO THE RESEARCHER SITTING AT THE TABLE BY THE DOOR.**

THANK YOU FOR YOUR HELP WITH THIS RESEARCH STUDY.

Appendix B: Episode Summaries

The Wire

The clip you are about to watch is from the HBO series, *The Wire*. The series follows the activities of a drug dealing gang headed by **Avon Barksdale**. Avon's crew of street dealers is regularly robbed by a local stick-up man named **Omar Little**. In retaliation for these robberies, Avon has put a bounty on Omar's head. Although Avon's men have yet to get to Omar directly, they recently tortured and killed Omar's boyfriend. As such, Omar is out for his own revenge.

The action in this clip begins with three of Avon's "enforcers" (**Wee-bey**, Stinkum, and Savino) breaking into Omar's house and torching his van. Later, the three enforcers pick up **D'Angelo** (Avon's nephew) at the "low rises," where he oversees drug deals for Avon. While eating lunch, the men discuss how Stinkum has been promoted to run new territory for Avon. Stinkum says that his promotion will be official once he kills a street dealer named Scar (who belongs to a rival gang). Also during lunch, D'Angelo mentions a proposition brought to him by **Orlando** (the manager of the strip club that serves as a front for Avon's operations). Orlando wants to sell his own supply of drugs through D'Angelo at the low rises. The others suggest that D'Angelo should run this proposition by his uncle, Avon. In the following scene, we see that Avon has found out about Orlando's intentions. Avon reprimands Orlando for even considering getting involved in dealing drugs because such activity would bring police attention to the club and jeopardize it losing its liquor license. To emphasize his point, Avon beats Orlando and throws him out of his office in front of the dancers.

Later, Avon's crew throws a party celebrating Stinkum's "promotion." D'Angelo leaves the party to get more alcohol. When he returns, the party is over, and one of Orlando's strippers, Keisha, is dead.

The next day, at D'Angelo's house, **Shardene (**D'Angelo's girlfriend who also works as a stripper at Orlando's) asks D'Angelo about Keisha. D'Angelo lies to her, saying that she was "sick" the last time he saw her. Meanwhile, Wee-Bey and Stinkum prepare to kill Scar and take over his "corner" as new drug dealing territory. Before they can get to Scar, Omar emerges from the shadows, killing Stinkum and wounding Wee-Bey in the leg. Upon hearing the news, Avon rallies his enforcers and tells them that he is increasing the bounty on Omar to $10,000.

Observing the recent violence associated with Avon's gang, two police officers (who have been tracking the gang's activities through wire taps) target Shardene as a potential informant. To soften her up, they take Shardene to identify the body of Keisha – a friend of hers from the club. Realizing that D'Angelo helped to dispose of Keisha's body, Shardene decides to leave him. Meanwhile, Omar tracks down Avon at Orlando's strip club and opens fire.

The main characters are pictured on the next page.

AVON

OMAR

WEE-BEY

STINKUM

D'ANGELO

ORLANDO

SHARDENE

Girls

The clip you are about to watch is from the HBO series, *Girls.* The series is a comedy-drama following the lives of four young women living in New York City. The main character, **Hannah** i an aspiring writer. In this episode, she agrees to write a freelance article about her first experience with cocaine. After procuring some coke from her neighbor, **Laird**, Hannah and her friend, **Elijah** experiment with the drug. Interestingly, Elijah is Hannah's ex-boyfriend from college, who came out as gay after breaking up with Hannah. While under the influence, Elijah reveals to Hannah that he recently slept with her best friend, **Marnie**. Subsequently, Hannah decides to confront Marnie while she is at the home of her current love interest, **Booth Jonathan**.

Some of the main characters are pictured below.

HANNAH

LAIRD

**ELIJAH**

MARNIE

BOOTH

Entourage

The clip you are about to watch is from the HBO series, *Entourage.* The series revolves around **Vince Chase**, an up-and-coming movie star living in Hollywood with his "entourage." The entourage consists of Vince's best friend and manager, Eric or "**E,**" older brother, Johnny **"Drama"** (a C-list actor), and childhood friend, **Turtle**.

The episode begins poolside at Vince's mansion. Turtle and his girlfriend, **Alex** shoot a video with Vince and **Sasha** (Vince's girlfriend and porn actress) to promote Avión tequila (a new brand that Turtle and Alex are promoting) as Drama lays poolside wallowing over his career slump. The next morning, Vince and Drama discuss Drama's career. **Billy Walsh** (a washed-up director who used to work with Vince) arrives unexpectedly at the mansion and says he wants E's help to restart his career. Later, E shows up to warn Vince that his reckless tweeting and posting could affect his career. That night, Vince throws a party to promote Avión tequila. During the party, Billy spots Vince doing coke. Eric calls to remind Turtle that Vince has a morning meeting.

The next day, with news about Avión spreading around town, Turtle brokers an exclusive deal with a liquor store in exchange for priority placement. Unfortunately, when Turtle talks to his tequila supplier, he finds out that he can't get the inventory he needs. Meanwhile, Vince meets with his director, and Billy pitches his idea for an animation series to Drama and E. Scrambling to fulfill his end of the deal with the liquor store owner, Turtle calls everyone he gave cases to and asks for them back. Meanwhile, Vince calls E and tells him that the meeting with his director went well, but E hears a very different story from Ari (Vince's agent).
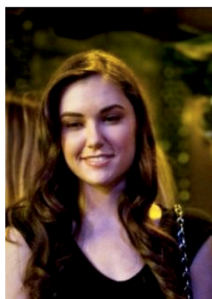
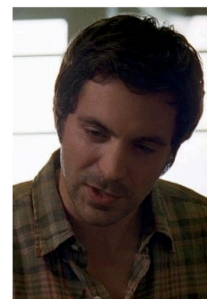*Some of the main characters are pictured below.*
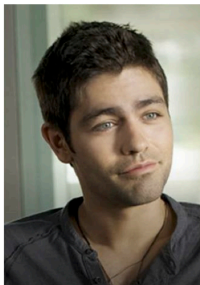
| **VINCE** | **ERIC or "E"** | **JOHNNY "DRAMA"** | **TURTLE** |

| **SASHA** | **ALEX** | **BILLY** |

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