Proactive vs. Reactive Parental Mediation: The Influence of Mediation’s Timing at Reducing Violent TV’s Effect on Children’s Aggression-related Outcomes

DISSERTATION

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By

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Abstract

This study investigated the influence of the timing of active mediation on the effect of violent television on children’s aggression-related outcomes. This study also examined the role of attitude accessibility in mediating the relationship between active mediation and children’s aggression-related outcomes. An experiment with 150 children ages 5-7 and 10-12 revealed that the timing of active mediation alters the influence of the mediation, and that the effect of mediation’s timing depends on children’s level of cognitive capacity. Children relatively high in cognitive capacity tended to have lower levels of several indicators of aggression when they received active mediation before or during their exposure to a violent TV show compared to when they heard the mediation message after their exposure. Children with relatively low levels of cognitive capacity, on the other hand, tended to have lower levels of the aggression indicators when they received post-exposure mediation. Results also provided evidence that instead of increasing the accessibility of children’s negative attitudes about television violence, active mediation likely increased children’s motivation to resist the influence of violent television, which led to lower reported levels of indicators of aggression. These results suggest that proactive mediation can help older children resist the effects of violent TV by increasing their motivation to resist counter-attitudinal persuasive messages. These
results also suggest that reactive mediation can be effective for younger children at reducing the effects of violent TV.
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Chapter 1: Literature Review

“Active” mediation, or “conversations that parents have with children about television” (Nathanson, 2001a, p. 120), has consistently been shown to be the most effective form of parental mediation at reducing the media’s negative effect on children (Nathanson, 2001a). Despite ample evidence in the literature attesting to the effectiveness of active mediation, we still do not have a firm grasp on why and how active mediation functions to impact the way and extent to which children are influenced by media exposure. While many theories for these effects are offered by scholars as post hoc explanations for descriptive findings, few of these explanations are empirically tested (Nathanson, 1999). Indeed, the “mediation literature is not couched within an overarching theoretical framework” and therefore “cannot explain how television mediation alters the normal process of mass communication that makes children vulnerable to media effects in the first place” (Nathanson, 1999, p. 126).

This study first proposes and tests a process model of active mediation that may serve as an overarching theoretical explanation for why and how active mediation functions to influence children’s reactions to violent television content. This is accomplished by drawing on research about the psychological mechanisms involved in attitude formation and attitude influence—specifically, active mediation may first
influence attitude accessibility, which subsequently influences children’s resistance to counter-attitudinal messages they encounter in the media.

These same psychological processes may help mediation scholars verify causal relationships that are assumed to exist in survey research on active mediation effects. Although experimental research into the effectiveness of active mediation on children’s outcomes tells us that mediation occurring prior to or during media exposure is effective at reducing the media’s influence, the association between parental mediation and children’s outcomes found in survey research cannot tell us whether or not mediation efforts are related to certain outcomes because they were implemented before the child’s negative reaction to media exposure or in response to the child’s negative reactions to media exposure (Livingstone & Helsper, 2008; Nathanson, 2002). Therefore, the second purpose of this study is to investigate the effectiveness of active mediation when given at different times relative to children’s exposure to violent television.

Lastly, just as media effects research consistently shows that children’s level of cognitive development impacts their responses to media exposure (Strasburger, Wilson, & Jordan, 2009), the parental mediation literature also shows that active mediation must be developmentally appropriate in order to achieve its intended, desirable outcomes (Buijzen, 2007; Cantor & Wilson, 1998, 1984; Grusec, 1973; Nathanson, 2004; Wilson & Cantor, 1987). Therefore, this study also examines the influence of cognitive development on the proposed process model and on the timing of active mediation.
Active Mediation

Parental mediation refers to parents’ efforts to “provide guidance about and control over exposure to certain media offerings” (Hogan, 2001, p. 664). Active mediation has been conceptualized as one of three dimensions, or behaviors, of parental mediation, in addition to restrictive mediation and coviewing. Active mediation is defined as parent-child discussion of television and television content (Austin, 1993) and of other media and its content (i.e., Livingstone & Helsper, 2008). Such discussions have been shown to have a positive influence on children’s reactions to television exposure. Active mediation significantly reduced the impact of advertising on children’s food consumption (Buijzen, 2009), the relations between news exposure and fear, worry, and anger among younger children (Buijzen, Walma van der Molen, & Sondij, 2007), antisocial behavior (aggression) among children (Nathanson, 1999), children’s desire for advertised products (Prasad, Rao, & Sheikh, 1978), children’s tendency to endorse gender stereotypes (Corder-Bolz, 1980; Nathanson, Eveland, Park, & Paul, 2002), children’s fright responses to scary content (Cantor, 1994), and perceived television reality scores among children (Messaris & Kerr, 1984). Active mediation has also been shown to facilitate children’s learning from educational programming (Ball & Bogatz, 1970; Reiser, Tessmer, & Phelps, 1988) and to facilitate their knowledge of art and culture (Valkenburg et al., 1998).

Factual mediation. Scholars have determined, however, that not all active mediation is the same, and have identified at least four major types of active mediation—factual, evaluative, positive, and negative mediation. Factual mediation is parent-child
discussion intended to improve children’s critical viewing skills, and thus strengthen children’s “cognitive defenses” (Buijzen, 2007, pp. 415) through informing or educating them about the technical aspects of programming, the factual veracity of the presented material (Nathanson, 2010), or literary devises such as plotlines and settings (Singer & Singer, 1998).

While it helped young children learn skills for understanding and evaluating television (Dorr, Graves, & Phelps, 1980; Rapaczynski, Singer, & Singer, 1982), factual mediation is often ineffective at countering the negative effects of television content (Nathanson, 2004; Nathanson & Yang, 2003; Watkins, Sprafkin, & Gadow, 1988). Factual mediation even has the potential to increase the salience or appeal of violence, and thus, increase a child’s susceptibility to being affected by media violence (Cantor & Wilson, 2003; Doolittle, 1980; Nathanson & Yang, 2003). Nathanson (2004) suggested that factual mediation that asks children to pay attention to certain aspects of programming may imply to the children that the content is “worth thinking about” (Nathanson, 2004, pp. 332), thereby increasing their susceptibility to negative outcomes.

**Evaluative mediation.** Evaluative mediation includes parents’ provision to children of opinions about television content intended to create evaluations of TV content in the minds of children (Nathanson, 2004). Evaluative mediation has been referred to as “affective” mediation, and often comes in the form of statements by the parents about their approval or disapproval of characters’ behaviors (Nathanson, 2010). In other words, evaluative mediation includes positive or negative evaluations about television content (Nathanson, 2004). Evaluative mediation can influence how children are affected by
television exposure. Evaluative mediation increased the likelihood of boys’ intervention in real-world violent situations (Horton & Santogrossi, 1978), decreased the likelihood of children’s endorsement of antisocial attitudes (Corder-Bolz, 1980), and reduced the aggressive tendencies of boys (Nathanson & Cantor, 2000).

**Positive and negative mediation.** The valence of the mediation—whether the mediation is positive, neutral, or negative in nature—also has an effect on the mediation’s effectiveness. “Positive” mediation refers to active endorsement or praise of media content (Austin, Bolls, Fujioka, & Engelbertson, 1999; Nathanson, 2001a). Nathanson (2001a) identified several examples of positive mediation, including pointing out the good behavior of characters, agreeing with television messages, encouraging children to adopt the behavior of television characters, and suggesting that televised portrayals are realistic. Positive mediation attempts to increase the likelihood that children will accept or imitate what they see on TV. “Neutral” forms of active mediation consist of mediation that is neither positive nor negative, but are messages that provide supplemental information or clarify content without suggesting support for or condemnation of media content (Nathanson, 2001a). “Negative” mediation refers to parents’ condemnation or refutation of media content (Austin et al, 1999; Nathanson, 2001a). Negative mediation can condemn characters’ behavior, disagree with television messages, discourage the adoption of characters’ behavior, and convey that televised portrayals are not realistic (Nathanson, 2001a). Negative mediation messages attempt to decrease the likelihood that children will accept or imitate what they see on TV (Nathanson, 2001a). Negative mediation, then, seeks to help children resist negative media effects—it is intentional or
purposeful discussion by parents who are concerned with the media’s influence on their child (Fujioka & Austin, 2002), and appears to be the most appropriate form of mediation for use by parents seeking to thwart negative media effects.

Factual mediation is neither positive nor negative in nature, but is neutrally-valenced. Factual mediation provides supplemental information or information intended to clarify content without offering either a positive or negative opinion of media content (Nathanson, 2001a). On the other hand, evaluative mediation can be either positively- or negatively-valenced. Evaluative mediation that is positive in nature seems most appropriate for parents who want to help their children adopt the attitudes, beliefs, and behaviors portrayed on television, while evaluative mediation that is negatively-valenced may be most appropriate for parents who want to discourage the adoption of portrayed attitudes, beliefs, and behaviors.

**Overarching Theoretical Framework**

Past research investigating the effectiveness of active mediation provides many explanations for why and how each of these types of active mediation function to impact the way and extent to which children are influenced by media exposure; however, most of these theoretical explanations in the literature are provided post hoc, while few are empirically-based. In addition, each of these theoretical explanations is proposed independent of other theoretical explanations, resulting in relatively slow theory building within the parental mediation research community. This is not to say that the extant research does not aid in our understanding of the active mediation process; on the contrary, these explanations add much to our understanding of how parents can
effectively talk to their children about what they encounter in the media. In fact, a careful synthesis of this explanatory body of work points to a process found in the social psychology literature that could potentially serve as an overarching theoretical framework within which active mediation can be better understood. Specifically, the theoretical explanations for the outcomes obtained by active mediation are consistent with the proposition that the active mediation process may function first to increase attitude accessibility, which in turn can impact children’s resistance to counter-attitudinal messages to which they are exposed in the media.

**Attitudes.** An attitude is an “evaluation of an object or concept” (Arpan, Rhodes, & Roskos-Ewoldsen, 2007, p. 352), or as an association between an object and the evaluation of that object in one’s memory. These evaluations include one’s thoughts and beliefs about the object, one’s feelings about or emotional reactions to the object, and one’s actions toward the object (Arpan et al., 2007). For example, one’s attitude toward using profanity encompasses what a person believes about profanity (e.g., its rightness or wrongness, the situations in which it might be appropriate to use), one’s feelings about profanity (e.g., how one feels when hearing or using profanity), and one’s own actions related to profanity (e.g., cursing, asking others not to curse around them).

**Attitude accessibility.** Attitudes are accessible when they are easily retrieved from memory (Arpan et al., 2007). If one’s memory is represented as a semantic network, both the object and the evaluation of that object are distinct nodes in that network. When two nodes in the network are activated at the same time, their association becomes stronger. To illustrate attitude accessibility, Arpan et al. (2007) suggested that
the name of your best friend is highly accessible because it is easily recalled from memory, whereas the name of your third grade teacher is less accessible because it is not as easily recalled from memory. Furthermore, the authors posit based on decades of research that when an object is encountered, the mental representation is activated, and all the nodes connected to that mental representation are also activated. If the attitude toward the object is strongly associated with the object, then that attitude is considered highly accessible (see also Fazio, Sanbonmatsu, Powell, & Kardes, 1986). And, if the association between the object and the attitude is strong enough, it can become chronically accessible.

Attitudes become more accessible the more frequently they are activated, the more recently they are activated, when one expects to need the attitude soon, and when cognitive elaboration related to the attitude occurs (Arpan et al., 2007; Roskos-Ewoldsen & Fazio, 1992). Priming one’s attitudes can also strengthen the object-evaluation association (Fishbein & Yzer, 2003; Higgins & King, 1981).

Accessible attitudes “influence how a person operates in her or his environment” (Arpan et al., 2007, p. 355). Specifically, attitude accessibility has an impact on attention, information processing, and behavior (Arpan et al, 2007). Similarly, mediation scholars explain that active mediation also functions to influence attention, information processing, and behavior. The research on attitude accessibility suggests, however, that active mediation may first influence attitude accessibility, when then influences attention, information processing, and behavior, and thus, children’s responses to counter-attitudinal media messages.
**Attention orientation function.** In their review, Arpan et al. (2007) explained that accessible attitudes determine to what we devote our attention. They cite several studies that provide support for the idea that people with more accessible attitudes toward certain objects in their environment are more likely to notice those objects among a complex array of multiple objects (see for example, Fazio, Powell, & Williams, 1989, and Roskos-Ewoldsen & Fazio, 1992). According to dual process theories (i.e. Chaiken et al., 1989; Fazio & Olson, 2003), messages can be processed deeply or superficially. Attitudes can serve as heuristics for quick decision-making and determine heuristically to what we will and will not pay attention (Arpan et al., 2007). Because of this, highly accessible attitudes can serve as a quick heuristic for us to not pay attention to counter-attitudinal messages.

This attention orientation function of attitude accessibility is consistent with explanations offered by some mediation scholars for why and how active mediation functioned in their respective studies. For example, Fisher and colleagues (2009) found that active mediation moderated the effect of exposure to sexual content on adolescents’ likelihood of engaging in sexual behaviors, sex expectancies, and intentions to engage in sexual behaviors in the future. To explain these results, the authors argued that active mediation can “cultivate skepticism, reduce perceived desirability and similarity of portrayals, and thus decrease the effects of media on risky behavior” (p. 122). Further, they argued that active mediation can signal to the child the value parents place on certain television messages, and thus, the amount of attention the child should give to those messages. While Fisher et al. (2009) do not provide a name for their theoretical
explanations for why active mediation works, it is apparent that they believe that active mediation can alter the attitudes children have towards television content, and that those attitudes then influence the amount and type of attention children pay to television messages, which then presumably influences children’s intentions to engage in behaviors, and ultimately their behavior. This unlabeled process also hearkens to several attitude-behavior theories found in the social psychology literature, including the theory of reasoned action, the attitude to behavior process model, and the MODE model (Fazio & Roskos-Ewoldsen, 2005).

Similarly, two experiments revealed that active mediation is effective at reducing children’s willingness to disclose personal information online (Lwin, Stanaland, & Miyazaki, 2008). Though they do not give a label to their explanation, the authors argue that active mediation allows the child to “attend to salient and pertinent stimuli” in their environment (p. 207), and to “create schemas for interpreting experiences” (p. 207). In other words, active mediation can direct a child’s attention to information the parent deems important at the expense of less important information, and active mediation can help establish evaluations of an object, or an attitude, to be integrated into the child’s existing schema related to that object. Lastly, in her synthesis of active mediation research, Nathanson (2001a) argued that active mediation leads to learning of educational content because it directs children’s attention to critical parts of the mediated message and because it encourages children to become active participants in the media exposure experience.
Cognitive elaboration function. Not only do accessible attitudes have the ability to direct attention to or away from certain objects in the environment, they are also related to motivated message processing. Attitudes that are accessible “often signal for us which topics or message sources are important, thereby encouraging us to attend to and elaborate on persuasive messages related to the important topic or delivered by a favored message source” (Arpan et al., 2007, p. 356). In other words, accessible attitudes are considered important and worthy of our attention, and thus serve as motivation to centrally process a message related to the attitude (Arpan et al., 2007; Fabrigar, Priester, Petty, & Wegener, 1998; Rhodes, Roskos-Ewoldsen, Edison, & Bradford, 2008; Roskos-Ewoldsen, 1997; Roskos-Ewoldsen, Bischel, & Hoffman, 2002; Roskos-Ewoldsen & Fazio, 1992a). Relative to parent-child conversations about the media, active mediation may serve to increase attitude accessibility, which motivates children to centrally process messages. This process is consistent with explanations found in the extant mediation literature.

For example, Nathanson (1999) predicted and found that active mediation worked first by influencing children’s perceptions of the importance of violent content and how much attention they gave the content. Children’s perceived importance and attention were in turn associated with aggressive tendencies. In other words, when children perceive media content to be important, they are motivated to learn from the content, elaborate more on the content, and are thus more likely to be affected by the content. And vice versa, when children hear parents’ criticism of media content, they do not perceive the content to be important, and thus do not elaborate on and subsequently learn
Nathanson’s findings corroborate other research suggesting that motivation is an important determinant of message elaboration, which is in turn related to attitudinal and behavioral change (Chaiken, Liberman, & Eagly, 1989; Chen & Chaiken, 1999; Fazio, 1986, 1990).

The findings from Nathanson’s (2004) study of the relationship between active mediation and school-age children’s reactions to TV violence are consistent with this rationale. She argued that factual mediation might actually increase the attention children pay to media messages, which then increases the influence of those messages (presumably through increased elaboration). A similar explanation was offered for Reiser, Tessmer, and Phelps’ (1988) findings that children who are asked to name the letters and numbers while watching Sesame Street learn better than children who are not asked to participate in such mental effort and just merely watch the show. Again, greater mental effort on the part of children instigated by active mediation resulted in greater learning of the material.

In addition, Nathanson (2001b) argued that active mediation draws attention to media content, for good or for bad, depending on the valence of the mediation message. When people are exposed to information that is consistent with their existing attitudes, they see it as more valid, elaborate on it more, and are more influenced by it (Ahluwalia, 2000). On the other hand, if the information to which they are exposed is counter-attitudinal, they view it as less valid, elaborate on it less, and are less influenced by it. So it may be with active mediation. Negative mediation about undesirable content causes children to consider it as less valid, leading them to elaborate on it less and thus be less
influenced by it. On the other hand, simply drawing attention to undesirable content, or expressing positive mediation toward undesirable content, would presumably encourage message processing, and thus increase the message’s influence on the child.

**Biased processing function.** This motivated message processing, however, is more than just paying attention to information. Information related to highly accessible attitudes is processed “in a manner that is consistent with our attitudes” (Arpan et al., 2007, p. 357-358). This process, referred to as biased processing (Ahluwalia, 2000; Ajzen & Fishbein, 2005; Roskos-Ewoldsen, 1997), refers to how accessible attitudes “can influence (sometimes incorrectly) perceptions of objects, people, and situations, causing the event or person to be defined or categorized according to accessible concepts and criteria, and situational behavior to follow from these perceptions and definitions” (Arpan et al., 2007, p. 359). Rhodes et al. (2008) also concluded that accessible attitudes are likely to cause biased processing of messages or information related to the attitude or attitude object, especially when the message is counter-attitudinal, such as many of the media messages that parents actively mediate. In other words, accessible attitudes suggest that we will see and hear what we want to see and hear in messages we encounter (Lord, Ross & Lepper, 1979).

The likely result of biased processing of counter-attitudinal messages is individuals’ resistance to the counter-attitudinal message (Bassili, 1996; Bassili & Fletcher, 1991; Fabrigar, Priester, Petty & Wegener, 1998; Pfau et al., 2003; Pfau et al., 2004). In other words, attitude accessibility tends to inhibit the persuasive effect. Fazio, Sonbonmatsu, Powell and Kardes (1986) likewise concluded that the faster an attitude
can be retrieved from memory, the more robust the attitude is against change in the face of counter-attitudinal message influence. Finally, Roskos-Ewoldsen’s (1997) transactive model suggests that biased message processing affects subsequent behavioral intentions, and ultimately, behaviors that flow from attitudes.

Findings in studies of active mediation are consistent with biased message processing. For example, evaluative mediation that is negative in valence has been found to be effective at reducing negative media effects. Hicks (1968) conducted a study in which children watched a video of a person acting aggressively towards a Bobo doll. The children who heard negative evaluations imitated the violent behaviors less when the experimenter was present. Horton and Santogrossi (1978) found that anti-aggressive and non-aggressive comments increased the speed at which boys reported aggression they observed. Nathanson and Cantor (2000) argued that evaluative mediation also reduced the aggressive tendencies of boys by significantly impacting children’s interpretations of and reactions to TV violence. While no reference is made to biased processing in any of these active mediation studies, the ability of evaluative mediation to influence children’s interpretations of media content is consistent with the assumptions of biased message processing.

**Children and attitude accessibility.** Much of the research on attitude accessibility and its influence on how individuals process messages in their environment comes from research with adult college students (e.g., Fabrigar et al, 1998; Rhodes et al., 2008; Rhodes & Ewoldsen, 2009); however, a growing body of evidence in the social psychology literature shows that children’s attitude accessibility can also be measured
and manipulated. As with adults, attitude accessibility among children is operationalized using a response-latency procedure, with the assumption that highly accessible attitudes are evidenced by faster reaction times to a stimulus-evaluation procedure. For example, 937 fifth graders were shown a variety of pictures and words, including target items related to smoking, and were asked to press a key on a keyboard with the right hand to represent “good” and a key with their left hand to represent “bad” (Andrews, Hampson, Greenwald, Gordon, & Widdop, 2010). Prior to the response latency test, some children participated in a smoking prevention activity. Fifth graders who participated in the smoking prevention activity had significantly less favorable implicit attitudes towards smoking compared to children in a control group. In addition, children who did not have family members who smoked had significantly less favorable implicit attitudes toward smoking than their counterparts with family members who smoked. Baron and Banaji (2006) exposed 6-year-olds to various stimuli, including spoken words such as “insects” and “flowers.” They were significantly faster to label an insect as bad and a flower as good than they were to label an insect as good and a flower as bad, revealing an implicit attitude towards each stimulus. These findings are in line with similar results obtained with 4-year-olds (Cvencek, Greenwald, & Meltzoff, 2011). More striking, however, is the study’s finding that the 6-year-olds were significantly faster at labeling a picture of an African American child as “bad” and of a European American as “good” than they were at labeling the African American photo as “good” and the European American photo as “bad.” Similar results were found for 10-year-olds and adult samples in the study. Six-year-olds’ implicit attitudes were consistent with their self-reported explicit attitudes. On
the other hand, the explicit self-reports of 10-year-olds were less biased than those of the 6-year-olds, and adults’ explicit racial bias was non-existent. These latter findings provide evidence that response latency measures of attitude accessibility have the ability to overcome social desirability bias often found in explicit self-report measures, even among children. Similar implicit attitudes about race among 6-year-olds, 10-year-olds, and adults were found by Dunham, Baron, and Banaji (2006).

Cvencek et al. (2011) asked 4-year-old children to label boys and girls as either “good” or “bad” in another response latency, attitude accessibility experiment. Girl participants were quicker to label their own gender as good than boys were to label their own gender as good. The authors argue that the results of this response latency test are valid because these findings corroborate similar findings found among adult populations.

In another study, children and adolescents (ages 9-18) participated in a response latency task in which they were asked to evaluate the desirability of both healthy and unhealthy foods (Craeynest et al., 2005). Participants who were obese were quicker to respond favorably to both types of food than non-obese participants, suggesting that obese children’s attitudes toward food in general are more accessible than the attitudes of their non-obese counterparts. Interestingly, no differences were found between the two groups in their explicit attitudes towards food.

**Summary.** According to the research on the functions of attitude accessibility, then, parents can help increase the accessibility of attitudes they perceive to be important through conversations about certain media messages that both elicit cognitive elaboration and convey to the child a need to use the attitudes in the near future. For example, if a
parent disapproves of media portrayals showing characters solving conflicts with violence, sharing that attitude with their child will help the child create an association between their parent’s negative attitude toward solving conflict with violence and violent television. Ideally, active mediation would create that same attitude within the child and associate it with violent television, so that when the child encounters violent programming, the parent’s (or their own) disapproval of what violent content represents will also come to mind.

Based on what we know about attitudes and the effects of attitude accessibility, it is possible that active mediation operates by increasing the accessibility of attitudes, which then influences subsequent message processing by allowing the child to either heuristically avoid messages that are contrary to those espoused by the attitude reinforcing mediation, or to critically, and thus in a biased manner, process those messages. As a result, children’s attitudes can become more resistant to counter-attitudinal messages they encounter in the media (see Figure 1).

![Figure 1. Attitude Accessibility Model of Active Mediation.](image-url)
Therefore, in order to replicate past research I made the following predictions:

Hypothesis 1a: Children who receive active mediation will have less aggressive attitudes after watching violent television than children who do not receive a mediation message.

Hypothesis 1b: Children who receive active mediation will report less liking of the perpetrator of violence after watching violent television than children who do not receive a mediation message.

Hypothesis 1c: Children who receive active mediation will rate television violence as less justified after watching violent television than children who do not receive a mediation message.

Hypothesis 1d: Children who receive active mediation will like the violent TV show less than children who do not receive a mediation message.

In addition, in support of the proposed model of active mediation, I predicted that children who receive active mediation will have more highly accessible negative attitudes about television violence. In other words:

Hypothesis 2a: Attitude accessibility will mediate the relationship between active mediation and children’s aggressive attitudes.

Hypothesis 2b: Attitude accessibility will mediate the relationship between active mediation and children’s liking of the perpetrators of violence.

Hypothesis 2c: Attitude accessibility will mediate the relationship between active mediation and children’s rating of television violence as less justified.
Hypothesis 2d: Attitude accessibility will mediate the relationship between active mediation and children’s liking of the violent TV show.

**Cognitive Development**

The communication literature is replete with evidence showing that children at different levels of cognitive development are influenced by the same media message in different ways (for reviews, see Valkenburg, 2004; Wilson & Drogos, 2009). Based on the application of this body of work to the study of active mediation, evidence continues to grow that children also respond to active mediation messages in ways that reflect developmental patterns consistent with how they respond to media messages (Cantor & Wilson, 2003). Indeed, “mediation strategies will not produce uniform results and must be age appropriate” (Nathanson, 2001a, p. 133). Likewise, Cantor and Wilson (2003) concluded from their review of the effectiveness of intervention strategies for the effects of media exposure: “One generalization that emerges from these studies as a whole is that tailoring any intervention to the specific needs of the audience or parts of the audience is important” (p. 397).

Even though much of the literature continues to use age as an explanatory proxy for cognitive development, it is evident that differences in cognitive development—namely cognitive capacity and prior real-world knowledge/experience—can help explain why children of different ages react differently to active mediation messages.

**Cognitive capacity.** Cognitive capacity refers to the amount of information that can be stored at one time in one’s short-term, or working, memory (Roedder, 1981). Our cognitive capacity is assumed to be limited (Lang, 2000), in that only a limited amount of
information can reside in working memory at any given time. Attention is the allocation of our working memory resources to objects in the environment (Basil, 1994). Because our working memory resources, or our cognitive capacity, is limited we cannot pay attention to every object in our environments, and must selectively choose to what we devote our attention. Limited capacity models of attention and memory suggest that if all of one’s attention/working memory capacity is allocated to an object or objects in the environment, no more attentional capacity is left to devote to additional objects (Lang, 2000).

Developmental research suggests that as children grow, so does their cognitive capacity (Fisch, 2000; Lang, 2000). In other words, as children age they have the ability to hold more information in working memory and can more efficiently process information (Fisch, 2000; Strasburger, Wilson & Jordan, 2009). Thus, older children are able to devote their attention to a greater number of objects in their environment than younger children. In a review of 72 published studies on information processing abilities, Kail (1991) concluded that the older one gets, the more processing resources are available to allocate to the completion of a number of tasks related to detecting objects in one’s environment.

For example, 48 children ages 8 and 12, and adults (16 of each age group) were asked to simultaneously recognize a letter of the alphabet (the primary task) while detecting an auditory stimulus (Manis, Keating, & Morrison, 1980). The youngest children were significantly slower to recognize the auditory stimulus than the older groups, suggesting that younger children are less able to allocate processing resources to
multiple simultaneous tasks. In a similar study, Schiff and Knopf (1985) found that 13-year-olds were significantly better than 9-year-olds at recalling and recognizing letters in their peripheral vision while simultaneously detecting symbols in their primary field of vision, suggesting that children’s ability to process multiple bits of information improves with age.

More than simply detecting objects in one’s environment, however, communications scholars are concerned with children’s ability to understand, or derive meaning from, the various messages with which they come into contact on a daily basis (Basil, 1994). Limited working memory resources during the process of deriving meaning from incoming information limits one’s ability to understand, interpret, and subsequently use that information (Basil, 1994).

Active mediation places additional processing demands on children. In addition to the media message being attended to and processed in a child’s working memory, the child must also be able to recall the active mediation message and have it influence the way in which the media message is processed. Those with limited cognitive resources, then, are at a distinct disadvantage.

These “limited” processors are generally children under six years of age (Roedder, 1981). These children are extremely curtailed in their ability to recall previously learned information to help them interpret incoming information. Around the age of six, children develop the capacity to search their working memory for information that may help them make sense or derive meaning from information to which they are currently being exposed, but only when they receive a cue from an outside source that
serves as a prompt to search their memory. Roedder (1981) classified these children as “cued” processors. Then, around the age of 10 or 11, “strategic” processors have the skills necessary to store and retrieve information spontaneously without requiring a cue.

To test Roedder’s (1981) claims, Brucks, Armstrong, and Goldberg (1988) conducted an experiment with 102 9- and 10-year-olds. On the first day of the experiment, participants watched either an instructional film intended to induce skepticism of advertising, and participated in a discussion about the film’s content, or they watched a control film. On day 2 of the experiment, participants watched a set of four advertisements for children’s toys and sweets. Prior to watching the advertisements, some of the children took a quiz intended to prime the children’s skeptical attitudes about advertising. After exposure to the ads, participants then participated in a thought-listing task in which they wrote down everything they thought about while watching the ads. The study found that 9- and 10-year-olds with prior advertising knowledge who received a cue generated significantly more counterarguments in the thought-listing task than those who did not receive such a cue. In other words, “9- to 10-year-old children do not spontaneously activate prior advertising knowledge to defend themselves against persuasion attempts” (p. 479).

Moore and Lutz (2000) found similar results. In their study, 72 children ages 7-8 and 10-11 were shown an advertisement and were then allowed to consume the advertised product. Following the experiment, the older children (ages 10-11) had attitudes toward the brand that were generally more consistent with the message contained in the ad, while younger children’s brand perceptions and attitudes did not
significantly change. The authors argued that the younger children’s (“limited”
processors) attitudes were unaltered because they lacked the cognitive resources
necessary to integrate the information from the advertisement with their own evaluations
and thoughts about their experience with the product. Stated another way, children below
the age of 10 differ in their ability to draw upon their knowledge about the media to help
interpret media messages than their older counterparts.

This work by developmental scholars has implications for active mediation
research. If young children (about ages 5 and younger) are less able to integrate previous
information with incoming information, they should also be less able to integrate active
mediation messages about television with the media messages to which they are
subsequently exposed. In addition, “cued” processors (about ages 6-9) should be able to
make such connections, but should require a priming cue in order to retrieve the active
mediation from memory. In addition, older children (about age 10 and older) should
benefit from active mediation without the need for a recent memory cue.

These findings are corroborated in active mediation research. In a review of
research comparing the effectiveness of active mediation for children of different ages,
Cantor and Wilson (1988) concluded that younger children “may have difficulties”
encoding and comprehending active mediation, storing information from active
mediation in memory and retrieving it during subsequent media exposure, and applying
the information while concurrently attending to information in television programming
(p. 68).
For example, Cantor and Wilson (1984) exposed 101 children ages 3-5 and ages 9-11 to a scary scene from a movie (The Wizard of Oz) and then gave self-reports of their emotional responses to the clip. One group of each age level was told to keep thinking that the scary scene was not real, and the other group was told to imagine they were in the main protagonist’s situation. A third group (control) received no instructions. The verbal instructions had minimal impact on the younger group of children, but produced strong significant changes among the older children—frequency of negative emotions was lower in the unreality condition for older children than in the control condition, but the role-taking condition did not differ from the control condition. Younger children also showed no differences in emotional responses between conditions; however, older children in the role-taking condition reported more fear than those in the control condition. There was no difference in fear between older children in the unreality condition and those in the control condition. Older children were also more able to identify Dorothy’s emotions, while younger children were less able to do so.

Similarly, Wilson and Cantor (1987) exposed 8- and 9-year olds and 5- to 7-year-olds to the snake pit scene from Raiders of the Lost Ark. Prior to watching the scene, experimenters offered a verbal explanation about snakes’ real-life behavior and told the children that most snakes are not poisonous. The active mediation tended to reduce fear among older children, but increased the fear of younger children. Cantor and Wilson (1988) argued that the demands of dual-task situations such as thinking about the mediation and its implications for subsequent media exposure exceed the processing capacities of young children.
In addition, Grusec (1973) exposed 5- and 10-year-old children to a film in which a female adult was either aggressive or neutral. During the exposure, an experimenter made positive, negative, or neutral evaluations about the character’s behavior. The child was then left alone to play for seven minutes and to watch another film, and was then surveyed about the character’s actions. Results showed that older children’s imitations of aggressive acts were affected by the negative evaluations of the character’s actions. Younger children showed no significant changes in imitation based on the mediation they received from the experimenter. Though no developmental explanation was offered in the article, it is possible that 10-year-olds had the cognitive capacity to think about the co-observer’s mediation concurrently while watching the show, thus allowing the mediation to bias their processing of the character’s aggressive actions. Younger children, presumably, were unable to do this due to their limited ability to simultaneously process two different messages. Because cognitive capacity increases with age (Fisch, 2000), older children may have been able to allocate more of their limited mental effort to the mediation than younger children, resulting in the processing of both messages.

This explanation is also consistent with the explanation offered by Nathanson (2004). She exposed 123 children ages 5-7 and 10-12 to a 5-minute episode of a TV show with superhero wrestlers. Different forms of mediation (factual, evaluative, or none) were given at a pause in the middle of the exposure. Evaluative mediation was generally more effective than factual mediation at reducing aggressive tendencies and positive evaluations of violence, especially among the younger children. Nathanson argued that younger children may not respond as well to factual mediation because
“asking young children to think about and store this kind of information while viewing a television program may exhaust their cognitive resources, making them unable to benefit from a factual approach” (p. 324), while for older children, factual mediation may backfire since they have more cognitive capacity to devote attention to things such as violence without negative evaluations present to bias the processing.

Buijzen (2007) presented either a factual, evaluative, or no mediation message to 206 children ages 5-6, 7-8, and 9-10, whom she classified as “early childhood,” “middle childhood,” and “older childhood,” respectively. The active mediation was presented by an experimenter during breaks in a 3-minute compilation of toy commercials. The youngest children did not benefit from evaluative mediation and only slightly benefitted from factual mediation. On the other hand, the older two groups of children benefitted from both types of active mediation. Buijzen (2007) argued that these results are evidence that young children are unable to retrieve and apply knowledge they have about the media while processing the media message. Therefore, she argued, the ability to resist undesirable media messages “is not only a matter of obtaining the necessary knowledge and understanding, but also of acquiring the information-processing skills that enable the child to apply that knowledge when watching” television (p. 413).

These theoretical propositions suggest that older children should benefit more from active mediation than younger children, since older children are more able to process both the active mediation message and the media message at the same time. Because they should be expected to simultaneously process both messages, the accessible attitudes that result from an active mediation message should be more likely to result in
more biased processing of the television programming with violent content, resulting in
greater resistance to the aggression-inducing effects of the programming. Obviously,
biased processing of the media message could not happen if the processing cannot
effectively occur in the first place due to limited dual-task processing abilities. This
biased processing, according to attitude accessibility model of active mediation (see
Figure 1), should then influence children’s resistance to television programming with
violent content. Therefore, cognitive capacity is expected to moderate the influence of
accessible attitudes on children’s resistance to counter-attitudinal media messages (see
Figure 2).

Figure 2. Cognitive Capacity as a Moderator of the Relationship Between Attitude
Accessibility and Children's Resistance to Counter-attitudinal Messages.

Summary. As has been shown, research shows that a child’s level of cognitive
capacity influences the child’s ability to process multiple messages simultaneously.
Active mediation research confirms that younger children often receive less benefit from
active mediation. No active mediation research of which I am aware, however,
empirically measures the construct of cognitive capacity in order to test these arguments in the context of active mediation of children’s television exposure. Therefore, I predicted that children’s level of cognitive capacity would moderate the relationship between active mediation and the outcomes of exposure to television programming with violent content:

Hypothesis 3a: There will be an interaction between the accessibility of negative attitudes about television violence and children’s level of cognitive capacity, such that highly accessible negative attitudes about television violence will reduce aggressive attitudes more for children with high levels of cognitive capacity than for children with low levels of cognitive capacity.

Hypothesis 3b: There will be an interaction between the accessibility of negative attitudes about television violence and children’s level of cognitive capacity, such that highly accessible negative attitudes about television violence will reduce liking of the perpetrators of violence more for children with high levels of cognitive capacity than for children with low levels of cognitive capacity.

Hypothesis 3c: There will be an interaction between the accessibility of negative attitudes about television violence and children’s level of cognitive capacity, such that highly accessible negative attitudes about television violence will reduce ratings of the justification of television violence more for children with high levels of cognitive capacity than for children with low levels of cognitive capacity.

Hypothesis 3d: There will be an interaction between the accessibility of negative attitudes about television violence and children’s level of cognitive capacity, such that
highly accessible negative attitudes about television violence will reduce liking of a television program containing violence more for children with high levels of cognitive capacity than for children with low levels of cognitive capacity.

**Prior real-world experience.** Demands on one’s limited processing capabilities can be reduced by prior real-world experience, or knowledge about, an object (Fisch, 2000). In the context of television, this means that the more experience one has with a certain type of television content, such as programs with violent content, the fewer resources are needed to process the content since the child is already familiar with and can more easily comprehend the content, potentially leaving additional cognitive resource available to be devoted to processing other information in one’s environment (Fisch, 2000), such as an active mediation message. Prior real-world experience cannot increase one’s cognitive capacity, since cognitive capacity is inherently limited—if it could be increased through experiences, then it would not be limited—but as will be shown, it can influence how those limited resources are allocated.

Prior knowledge about an object is often characterized as schemata, or mental representations one has about an object that guide the processing of subsequent information related to that object (Collins, 1981). In addition to children’s knowledge about the narrative nature of television plots and about the technical and formal features of television production, children’s knowledge about the content of television programs, or “world knowledge,” can contribute to how children react to exposure to the content (Collins, 1981).
For example, one’s domain-specific knowledge has been shown to influence reactions to media exposure about that domain. In one study (Spilich, Vesonder, Chiesi, & Voss, 1979), forty-six college students, half of whom were characterized as having high levels of knowledge about baseball and half of whom were characterized as having low levels of knowledge about baseball, each listened to a cassette tape narration of a half-inning of a baseball game. After the media exposure, participants were asked to summarize the game in a two-sentence summary and write down as much of the account as possible within 15 minutes. Participants also completed 40 questions about the presentation. Results showed that those with high levels of knowledge about baseball recalled central information about the half-inning of baseball significantly better than those low in baseball knowledge.

Consistent with these findings were the results of a study of 72 college students who watched a 70-minute television program about the Underground Railroad (Eckhardt, Wood, & Jacobvitz, 1991). Prior to watching the program, participants were tested for prior knowledge about slavery and the Underground Railroad. Those average or high in prior knowledge about the subject matter of the television program scored higher on a subsequent comprehension test than their low prior knowledge counterparts.

In another study, while prior knowledge was not explicitly measured, results still provided further evidence of the impact of prior domain-specific knowledge on outcomes associated with television exposure (Newcomb & Collins, 1979). In the study, nearly 600 boys and girls in the second, fifth, and eighth grades watched one of two situation comedies. The plots of both clips were similar in that the fathers of the portrayed family
were each offered a better job that would require him to be separated from his family. Each clip ended with the father deciding to keep his current job in order to not separate the family. The only significant difference between the two shows was the socioeconomic status (SES) of the portrayed families. In one clip, the family was a white, middle-class family, while the other clip portrayed a lower-class African-American family. After watching the clip, each participant completed measures of their comprehension of the clips.

Not surprisingly, Newcomb and Collins (1979) found that children’s comprehension was positively associated with age (grade level). The novel findings, however, dealt with the differing levels of comprehension among participants of differing SES. Specifically, for second-graders, middle-SES children reported greater levels of overall and central content comprehension than their lower-SES counterparts when they watched the clip portraying the white, middle-class family, while lower-SES children reported greater comprehension than the middle-SES children when they watched the clip portraying the African-American, lower-class family. No such differences were found among fifth and eighth graders. The authors argued that these results may have occurred because children can understand television messages better when the child is familiar with the roles, characters, and settings portrayed on television. These results suggest that “some prior experience with or knowledge of basic information about the material to be remembered facilitates memory for additional, related content” (Newcomb & Collins, 1979, p. 422).
Prior knowledge about or experience with television violence has also been shown to influence the effects of active mediation of television violence. Active mediation research provides evidence that heavy viewers of violent television respond differently to active mediation than their light viewing counterparts.

In Nathanson’s (2004) study summarized above, not only did age moderate children’s responses to the different forms of active mediation employed in the study, but the amount of children’s prior exposure to violent TV influenced their responses to active mediation. The study found that among younger children (ages 5-7), active mediation tended to produce the same pattern of effects. However, among the older children (ages 10-12), both factual and evaluative mediation were more effective for those considered heavy viewers of television violence, while neither form of mediation was effective for the older children considered light viewers of television violence.

Heavy viewers also tended to respond better to certain types of active mediation than light TV viewers in a study conducted by Nathanson and Yang (2003). They exposed 103 children ages 5-8 and 9-12 to a 5-minute clip of Los Luchadores in which the characters fought. During the viewing they received one of several active mediation messages. They were also asked questions about past TV exposure, their attitudes towards what they were exposed, and aggressive attitudes. Children considered heavy viewers of violent television had the least positive orientation toward the violent program when they received a mediation message comparing the character’s actions to how people act in real-life, while the same message produced the most positive attitudes toward the violent program among light-viewers of television violence. In addition, heavy viewers
tended to respond better to mediation in the form of questions, while mediation questions produced positive orientations towards the program among light-viewing children. The authors argued that children’s with high amounts of past experiences with violent content may perceive the content as more socially realistic than children with low amounts of past exposure to violent content; therefore, mediation that counters this perception should be more effective for those with this perception than for those without this perception.

In another study, 451 children ages 8-12 in the Netherlands completed a survey assessing their reactions to the 2004 assassination of a prominent man in the country (Buijzen, van der Molen, & Sondij, 2007). The survey also measured empathic concern, exposure to the news, and parental mediation strategies about the news coverage of the assassination. Exposure to the news increased fear, worry, anger and sadness. Active mediation significantly reduced these emotional responses; however, children with little exposure to the news showed a positive association between the intensity of emotional responses and active mediation. These results indicate that active mediation may not be as helpful for children who have watched certain content less. Logically, the less one views violent content, the less they will be affected by that content, so there is less effect for the active mediation to mediate. It is also possible that active mediation actually directs attention to negative images among children who otherwise would not attend to them, resulting in negative outcomes.

**Summary.** Past research suggests that increased levels of knowledge about or experience with the content of media offerings requires fewer of the limited processing resources to interpret. By default, more resources should then be available for the
processing of active mediation messages. Active mediation research confirms that the frequency of television viewing impacts active mediation’s effectiveness. Therefore, I would expect that children who are heavy viewers of television containing violent content would have more resources to use to integrate the active mediation-instigated highly accessible negative attitudes about television violence with the violent television exposure (see Figure 3). On the other hand, I would expect light viewers of violent television to have fewer resources to integrate their highly accessible negative attitudes about television with the messages contained in violent television.

Figure 3. Past Exposure to Violent Television as a Moderator of the Relationship Between Attitude Accessibility and Children's Resistance to Counter-attitudinal Media Messages.

Therefore, I made the following predictions:

Hypothesis 4a: There will be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to violent television, such that highly accessible negative attitudes about television violence will reduce aggressive
attitudes more for children with high levels of past exposure to violent television than for children with low levels of past exposure to violent television.

Hypothesis 4b: There will be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to violent television, such that highly accessible negative attitudes about television violence will reduce liking of the perpetrators of violence more for children with high levels of past exposure to violent television than for children with low levels of past exposure to violent television.

Hypothesis 4c: There will be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to violent television, such that highly accessible negative attitudes about television violence will reduce ratings of the justification of television violence more for children with high levels of past exposure to violent television than for children with low levels of past exposure to violent television.

Hypothesis 4d: There will be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to violent television, such that highly accessible negative attitudes about television violence will reduce liking of a television program containing violence more for children with high levels of past exposure to violent television than for children with low levels of past exposure to violent television.

Children’s past exposure to active mediation should also follow this same pattern—the more children have experience with active mediation of violent television, the fewer resources they should need to devote to processing similar mediation, leaving
more resources available for the biased processing of messages that occurs when attitudes are accessible. Therefore, I predict that one’s past exposure to active mediation of violent content will also moderate the relationship between highly accessible negative attitudes about television violence and the outcomes associated with exposure to television programming with violent content (see Figure 4).

Hypothesis 5a: There will be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to active mediation of violent television, such that highly accessible negative attitudes about television violence will reduce aggressive attitudes more for children with high levels of past exposure to active mediation of violent television than for children with low levels of past exposure to active mediation of violent television.

Hypothesis 5b: There will be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to active mediation of violent television.
violent television, such that highly accessible negative attitudes about television violence will reduce liking of the perpetrators of violence more for children with high levels of past exposure to active mediation of violent television than for children with low levels of past exposure to active mediation of violent television.

Hypothesis 5c: There will be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to active mediation of violent television, such that highly accessible negative attitudes about television violence will reduce ratings of the justification of television violence more for children with high levels of past exposure to active mediation of violent television than for children with low levels of past exposure to active mediation of violent television.

Hypothesis 5d: There will be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to active mediation of violent television, such that highly accessible negative attitudes about television violence will reduce liking of a television program containing violence more for children with high levels of past exposure to active mediation of violent television than for children with low levels of past exposure to active mediation of violent television.

Timing of Active Mediation

In order to better understand why and how active mediation works, I have proposed the attitude accessibility model of active mediation. The model posits that active mediation works first to increase attitude accessibility, which then influences resistance to counter-attitudinal media messages. Also as part of the model, research suggests that the impact of attitude accessibility on outcomes associated with exposure to
violent television should be moderated by children’s level of cognitive capacity, amount of past exposure to violent television, and past experience with active mediation of violent content. This model is, in essence, a causal process model that assumes that active mediation occurs prior to attitude accessibility, which in turn influences children’s resistance to media messages to which they are subsequently exposed.

As a causal process model, the attitude accessibility model of active mediation also has the potential to clarify questions of causality raised by the correlational nature of the results of research on active mediation conducted via survey methods. In addition, the model suggests that comparisons should be made between the effectiveness of giving children an active mediation message prior to a media exposure experience or during an incident of media exposure, both of which can be found in extant experimental research. If the model and the constructs pertaining to the model can show that the timing of active mediation is a significant predictor of mediation’s success, active mediation research can better equip parents for their efforts to help their children resist the potentially negative effects of exposure to the mass media.

According to Lang and Ewoldsen (2010), “time plays a central role in communication, and both our theorizing and our methodological paradigms need to reflect the multidimensionality of time” (p. 112). In her conceptualization of parental mediation, Nathanson (2001a) referred to the role of mediation’s timing by pointing out that the various forms of mediation (including active mediation) “can take place before, during, or after viewing” (p. 117). This potentiality of mediation occurring at different points in time relative to a child’s media exposure begs two questions: first, why might
the timing of active mediation make a difference in the mediation’s success?; and second, when is the most effective time to engage in active mediation? Unfortunately, the extant active mediation research does not provide explicit answers to either of these two questions. But fortunately, this study’s proposed attitude accessibility model of active mediation provides plausible answers to the first question, and these answers allow us to make predictions related to the second question that this study will examine.

Parental mediation research has generally been conducted in one of two ways: experimentally or via survey research (Nathanson, 2001a). Survey research is limited in its ability to establish causality between variables of interest (Wimmer & Dominick, 2003). Mediation scholars agree and have pointed out that survey research cannot tell us whether or not parental mediation efforts are related to certain outcomes because they were implemented before the child’s negative reaction to media exposure or in response to the child’s negative reactions to media exposure.

For example, Nathanson (2002) asked 167 adolescents to respond to a survey measuring attitudes toward parents, exposure to TV in the presence of friends, and parental mediation when they were living at home during high school. Though active mediation was not related to any outcomes in this study, restrictive mediation was related to less positive attitudes toward parents and to more viewing of the undesirable content with friends. Nathanson points out that in addition to the possibility that adolescents’ viewing of undesirable content was a reactive response to parental mediation efforts, it is also possible that parents did not employ mediation until after they perceived their child’s negative attitudes and behaviors or because they suspected their child was watching too
much of the undesirable content. Correlational data of this sort cannot isolate the timing of mediation efforts, so interpretation of the data is more difficult and speculative.

Another example of the inability of correlational data to provide conclusive evidence of cause and effect relationships between mediation efforts and outcomes associated with media exposure can be found in a study by Livingstone and Helsper (2008). They surveyed more than 1,000 12-17-year-olds and nearly as many parents about online risks, parental mediation strategies of those risks, and demographic factors. With one exception, the study failed to find significant associations between parental mediation and reduction in online risks, prompting the authors to conclude that “the expectation that increasing mediation would reduce risks was not supported” and that “the simple assumption that introducing forms of parental mediation will reduce the risks young people encounter online . . . is misguided,” (p. 596). To conclude that mediation efforts are not effective based on correlational data without considering the possibility that the mediation efforts occurred after children had already participated in risky online behavior is irresponsible and potentially misleading.

One reasons for the authors’ erroneous conclusions may be found in the definition of active mediation with which the study was approached—the researchers considered active mediation as parent-child conversations about media content that occur “while the child is engaging with (watching, reading, listening to) the medium,” (p. 583)—thereby excluding the consideration that mediation efforts could have occurred either before or after the child’s risky online behaviors. Indeed, the survey items tapping mediation generally reflected the study’s lack of consideration of the timing of mediation. For
example, one item asked whether or not parents talk to their child about Internet use. It is conceivable that a respondent could have answered in the affirmative whether the parental mediation occurred before, during, or after a certain instance of the child’s Internet use. The survey contained items asking about restrictions placed upon the child regarding their specific online activities, such as giving our personal information and buying things online. Again, the survey did not ask whether or not these restrictions occurred in order to prevent future risky online behavior, in response to catching a child engaging in risky online behavior, or both.

Despite their conclusion that the assumption that simply introducing parental mediation will benefit children is erroneous, the authors concede that it is possible that parents engage in certain mediation behaviors after, and not before, they discover their child’s risky online behaviors (Livingstone & Helsper, 2008). In fact, they state that “whether parental regulation is instituted before or after the fact (i.e., in response to the anticipated or actual experience of online risk) is worthy of further investigation” (p. 590).

In an effort to develop a reliable scale to assess active mediation, Valkenburg, Krcmar, Peeters, and Marseille (1999) defined active mediation as “the process of discussing certain aspects of programs with children, either during or after viewing” (p. 54). Their factor analysis identified five items that the authors suggest reliably measure active mediation. The items included questions asking parents how often they try to help their child understand what he/she sees on TV, point out why some things actors do are good or bad, explain the motives of TV characters, and explain what something on TV
really means. These items, however, do not isolate the timing of such conversations. For example, some parents might try to help their child understand what he/she sees on TV while watching. Others might wait to have the same conversation after the show is over. Still, others might have the conversation prior to a certain incident of media exposure in order to prepare the child for what they will be exposed to. Therefore, responses to these items may be confounded by the different times at which parents conduct active mediation. If parents wait until after the child’s media exposure, the child has processed the content without the biasing effect that evaluations of content could have provided, whereas mediation that occurs prior to the child’s media exposure has the potential to bias the child’s processing of the media content. Children’s responses in each of these situations have the potential to be highly different. Questions that do not isolate the timing of mediation essentially combine the responses of children who received the mediation at different times, thus confounding a study’s results.

Shin and Huh (2011) offered a similar warning when interpreting correlational results obtained by survey research. The authors analyzed secondary data collected by Pew Internet & American Life Project in which 1,102 teenagers ages 12-17 and their parents participated in a phone interview intended to measure parental mediation of the teenagers’ video game use. One item specifically asked parents if they checked the video game ratings before allowing their children to play games and/or stopping children from playing games. A parent could have responded in the affirmative, then, if they either check the video game rating before allowing their child to play the game, or in reaction to seeing the content of the video game. Results showed a significant positive relationship
between parents’ game rating checking and the frequency of teenagers’ video game
playing and deceptive gaming activities. The authors argued that the data should be
interpreted with caution since the mediation could have either caused the negative
gaming behaviors or been caused by those behaviors, and concluded that “a test of the
causal directions requires a controlled experimental design and future research is strongly
couraged to further test our findings and the alternative possibilities” (p. 957).

To date, however, no experiments compare the effectiveness of active mediation
when applied at different times relative to a child’s media exposure. Experimental
manipulations of active mediation messages have shown that active mediation messages
can help either when they are delivered prior to children’s media exposure (Cantor &
Wilson, 1984; Coates & Hartup, 1969; Hoffner, 1997; Lwin et al., 2008; Wilson &
Cantor, 1987) or during a break in children’s media exposure (Corder-Bolz, 1980;
Grusec, 1973; Hicks, 1968; Horton & Santogrossi, 1978; Nathanson, 2004; Nathanson,
2010; Nathanson & Yang, 2003). In addition, it appears that no experimental research
delivers the active mediation after the children’s media exposure, since this method
would presumably preclude the establishment of causality between the message and
reactions to subsequent media exposure.

Neither survey nor experimental research has yet provided any evidence that
active mediation at one time (i.e., before, during, or after media exposure) is more
effective than when it is applied at other times. We cannot therefore look to extant
mediation research for theoretical reasons why timing might make a difference in
mediation’s effectiveness. Fortunately, the attitude accessibility literature reviewed
above provides theoretical insight that allows us to make predictions about differential effects of the timing of active mediation relative to the child’s media exposure, at least for children with the cognitive capacity to process more than one message at once. Specifically, attitudes are less likely to influence a child’s resistance to counter-attitudinal media messages when they are not highly accessible. Therefore, active mediation should be expected to work best when it occurs at a point in time in which the resultant accessible attitudes can affect the processing of subsequent media messages. In other words, in order for attitude accessibility to function according to the model, active mediation that occurs before an instance of media exposure should be more effective than active mediation that occurs later, since mediation that occurs after the exposure has begun entails a child’s exposure to at least some of the media content without the influence of the biasing effect of accessible attitudes on information processing.

Attitude accessibility research suggests that an attitude can function to bias subsequent message processing if the attitude is accessible during the exposure to the counter-attitudinal message. Thus, the active mediation message must be present in the child’s working memory in order for the message to bias the child’s processing of media content. This cannot occur if the mediation comes in response to a child’s specific media exposure. Surely, such post-exposure mediation can impact subsequent media message processing, but there is no evidence that it can bias message processing that occurred prior to the mediation. Therefore, it is logical to predict that pre-exposure mediation will be more effective than post-exposure mediation at curbing the effects of that specific instance of exposure. For example, if a parent knows that their child is going to a
friend’s house to watch a movie with content the parent deems questionable, the propositions of the attitude accessibility model of active mediation suggest that the parent should talk to the child before dropping her/him off at the friend’s house, so that the mediation message at least has a chance to increase attitude accessibility and its subsequent effects on biased message processing. Solely talking to the child after the exposure cannot, in theory, bias the processing that has already taken place while the child watched the movie because memory search cannot find messages that are not in the memory (Ahluwalia, 2000). Likewise, it is also logical to predict that coviewing mediation, like pre-viewing mediation, will be more effective than post-exposure mediation simply because coviewing mediation occurs before at least some of the child’s media exposure.

Hypothesis 6a: Children who receive active mediation before or during their exposure to violent television will have less aggressive attitudes after watching violent television than children who receive active mediation after the exposure.

Hypothesis 6b: Children who receive active mediation before or during their exposure to violent television will report less liking of the perpetrator of violence after watching violent television than children who receive active mediation after the exposure.

Hypothesis 6c: Children who receive active mediation before or during their exposure to violent television will rate television violence as less justified after watching violent television than children who receive active mediation after the exposure.
Hypothesis 6d: Children who receive active mediation before or during their exposure to violent television will report less liking of the violent TV show after watching violent television than children who receive active mediation after the exposure.

**Timing and cognitive capacity.** As has already been shown, older children have a greater ability, or increased cognitive capacity, to hold information in working memory. Because of this ability to maintain information in working memory, older children have the distinct advantage over younger children of having the information in memory bias their perceptions of subsequent information they encounter. For example, Wilson and Cantor (1987) found that previewing mediation helped reduce fear for 2nd and 3rd graders, but increased fear for kindergarteners and first graders. Nathanson (2001a) suggested that the mediation may not have worked for the younger children because they may not have understood the mediation due to lack of vocabulary knowledge. Applying cognitive capacity models, however, would suggest that the active mediation message actually biased the older children’s perception of the subsequent media exposure, while younger children’s perceptions went unbiased because they were less able to maintain the active mediation message concurrently in working memory.

Similarly, Fisher et al. (2009) concluded from their review that active mediation can cultivate skepticism and reduce the perceived desirability of media messages, which in turn decreases the media’s effect on children. Nathanson (1999) provided more evidence that active mediation can bias media message processing (presumably for those who are able to maintain the mediation message in working memory): “television mediation sends a message to children about the importance of TV, how it should be
used, and how attentive they should be to the material. Negative active mediation . . . may subtly communicate to children that content is unimportant” and may “provide children with an orientation toward TV that shapes the degree to which they are affected by it” (p. 127-128). In other words, active mediation biases or influences the way children perceive media messages. If younger children are less able to maintain active mediation messages in working memory, then we would expect that active mediation messages, regardless of their timing, will be less effective at biasing their processing of media messages. Because they have more trouble maintaining multiple messages in active memory, it should not matter when they receive the mediation message. For older children who can maintain multiple messages in active memory, however, the timing of active mediation may determine the extent to which message processing is biased. For example, the mediation message can only bias the media exposure if it is already in the older child’s working memory—we should thus expect mediation messages that occur prior to the media exposure to be more effective at altering the media’s effect than messages received after the media exposure. These considerations, however, should not apply as much to younger children, since they are less likely to be able to hold multiple messages, including the mediation message, in working memory.

These arguments are also consistent with Nathanson’s (2004) reasoning that active mediation may not work for younger children because their cognitive resources are already exhausted by the messages contained in the media exposure. And if their cognitive resources are already depleted by the attention they are paying to the media message, then younger children will be less able to recall a pre-viewing mediation
message, or to incorporate a co-viewing mediation message into their message processing than older children.

Therefore, I made the following predictions:

Hypothesis 7a: Children with relatively high levels of cognitive capacity who receive active mediation before or during their exposure to violent television will have less aggressive attitudes after watching violent television than children who receive active mediation after the exposure, while no differences will exist between conditions for children with relatively low levels of cognitive capacity.

Hypothesis 7b: Children with relatively high levels of cognitive capacity who receive active mediation before or during their exposure to violent television will report less liking of the perpetrator of violence after watching violent television than children who receive active mediation after the exposure, while no differences will exist between conditions for children with relatively low levels of cognitive capacity.

Hypothesis 7c: Children with relatively high levels of cognitive capacity who receive active mediation before or during their exposure to violent television will rate television violence as less justified after watching violent television than children who receive active mediation after the exposure, while no differences will exist between conditions for children with relatively low levels of cognitive capacity.

Hypothesis 7d: Children with relatively high levels of cognitive capacity who receive active mediation before or during their exposure to violent television will report less liking of the violent TV show after watching violent television than children who
receive active mediation after the exposure, while no differences will exist between conditions for children with relatively low levels of cognitive capacity.

Furthermore, it is logical to predict for the same reasons that pre-exposure active mediation will function better to curb negative effects than co-viewing mediation, simply because at least some of the co-viewing mediation occurs after, or immediately in response to, the content to which the child has been exposed. At least some of the exposure, then, occurs prior to the mediation, meaning it could not have been biased by mediation which hadn’t yet occurred. The passing of time offers another reason why pre-exposure mediation should function better than coviewing mediation. Pfau et al. (2004) found that inoculation (pre-exposure by definition) worked to increase attitude accessibility over time. They cited Higgins and Kings’ (1981) findings that the effects of attitude accessibility increase over time. Pre-exposure mediation, then, may have a greater chance to influence attitude accessibility than coviewing mediation simply because more time has passed between the mediation and the media exposure, giving attitude accessibility more time to activate the content of other elements in the semantic network of that attitude.

Hypothesizing about differences resulting from mediation occurring prior to the exposure and during the exposure, however, must also take into account mediation’s ability to help the child reinterpret content to which the child is currently being exposed. As noted above, the active mediation literature shows that active mediation that occurs prior to or during the exposure can be beneficial, but it is unclear if one is more or less beneficial than the other. Anderson’s (1997) general affective aggression model
(GAAM) suggests that mediation that occurs during exposure to violent media may be just as effective as pre-exposure mediation. As messages intended to increase attitude accessibility constitute essentially a priming procedure that temporarily increases attitude accessibility (Roskos-Ewoldsen, Roskos-Ewoldsen, & Carpentier, 2009), active mediation messages may also be considered primes. According to GAAM (see also Anderson et al., 1995, 1996), violent media depictions temporarily prime aggressive thoughts and feelings (Roskos-Ewoldsen et al., 2009), which influence automatic interpretations of the situation (primary appraisal). These interpretations, however, undergo secondary appraisals, “which are more effortful, controlled appraisals of the situation” (Roskos-Ewoldsen et al., 2009, p. 82), and can correct primary appraisals (Gilbert, 1991). If active mediation messages are offered during a child’s exposure to violent content, they can both influence the child’s secondary appraisal of the violent media depiction to which she has just been exposed, and increase the accessibility of anti-aggressive attitudes, and thus bias the effortful processing of the remaining violent media depiction. Therefore, it is possible, that just as active mediation research shows, that active mediation that occurs during media exposure will also be effective at reducing negative outcomes. It remains unclear, however, whether or not pre-exposure or co-viewing-exposure mediation is better than its counterpart; therefore, I offered the following research questions:

RQ1: Will the effectiveness of pre-exposure mediation and co-viewing mediation differ at reducing aggressive attitudes, liking of perpetrators of violence, violence
justification ratings, and liking of the violent TV show that result from watching violent television?

RQ2: Will the effectiveness of pre-exposure mediation and co-viewing mediation differ at reducing aggressive attitudes, liking of perpetrators of violence, violence justification ratings, and liking of the violent TV show that result from watching violent television for children at different levels.
Chapter 2: Method

Participants

Participants were 150 5- to 7-year-olds and 10- to 12-year-olds ($M = 7.79$, $SD = 2.13$) enrolled in seven public primary schools and one private primary school in a large Midwestern city. Ninety-one of the children were ages 5-7 ($M = 6.18$, $SD = .81$), and the remaining 59 children were ages 10-12 ($M = 10.29$, $SD = .49$). These age groups were selected to correspond with general patterns of developmental differences that have been identified in previous mediation research (Nathanson, 2004), and to avoid the transitional age of eight, as it appears to be a pivotal age at which children transition to being able to understand television well (Collins & Wiens, 1983; Wright et al., 1994). These ages also generally represent Piagetian differences between pre-operational and concrete operational children that have been employed in media effects research (Cantor & Sparks, 1984), reflect distinct differences in memory (Collins et al., 1978), and because children in these age groups generally process information at different levels of maturity (Wilson & Drogos, 2009). For the purposes of analysis, the younger group will be considered “early childhood” or “younger children” while the older group will be considered “late childhood” or “older children.”

Children’s parents were also surveyed in order to obtain measures used as controls in subsequent analyses. The parent participants were largely young, college
educated, white women. Eighty-four percent of the parent participants were the mother to a child participant, while 12 percent of the parents were the father \((n = 18)\), and 1 of the parent respondents was the child’s grandmother. Parents ranged in age from 24 to 65, but 84 percent were ages 30-45. Forty-three percent of parents had obtained a graduate degree, while another 42 percent had a bachelor’s degree. Eighty-two percent of the parents considered themselves Caucasian, while 8 percent were Asian, 4 percent were Hispanic, 2 percent mixed, and about 1 percent either black or Native American/Pacific Islander.

**Procedures and Measures for Parent Participants**

A packet, including a recruitment letter, informed consent form, parental permission form and a parent’s questionnaire was sent home from school with potential child participants from two schools in one public school district and from the private elementary school. The remaining participants were recruited in the same way through participants in after school programs in another school district (22 participants). A total of 1,109 packets were sent home with students, for a response rate of 13.5 percent. The parents’ questionnaire included 66 items asking parents to report active mediation of violent television they have given to their child in the past, the child’s past exposure to television programming containing violence, family communication patterns, and demographic information (see Appendix H). The questionnaire took about 20 minutes to complete.

**Children’s exposure to violent TV.** In their meta-analysis of the effects of media violence exposure on criminal aggression, Savage and Yancey (2008) argued that
the ideal measure of exposure to violent television is to ask subjects to indicate how often they watch certain programs. Scores of media violence exposure should then be multiplied by an independent rating of the violence level of the program (Savage and Yancey, 2008). Only studies employing this or similar operationalizations of exposure to violent television were included in their meta-analysis. A review of the literature shows that some research asks parents about their child’s exposure to violent television (Cheng et al., 2004; Fitzpatrick, Barnett & Pagani, 2012), while other research asks the same questions of children (Huesmann et al., 2003). In order to minimize young children’s testing fatigue, I opted to ask the television exposure questions of their parents. Several methods have been used to identify the television programs that children watch, as well as to rate the violent content of those programs. For example, Huesmann et al. (2003) asked children ages 6-9 to indicate their frequency of viewing each of the 80 most-watched shows as rated by Nielsen, while Lemal and van den Bulck (2009) asked children ages 9-12 to indicate how often they watched each of 28 programs that were broadcast weekly to the geographic area of study at the time of their study. This study asked parents to list their child’s three favorite morning, afternoon, and evening weekday programs, as well as their child’s three most preferred Saturday programs. Parents were also asked how many hours of TV on average their child watches on weekdays and on Saturdays.

Violence ratings on a 6-point Likert scale for each of the programs listed by parents as their children’s favorite TV programs were obtained from ratings found at Common Sense Media (www.commonsensemedia.org), where “0” indicates that the
show contains no violence, and “5” indicates highly violent content. Common Sense Media is a non-profit organization that provides content ratings that are more in line with parental perceptions of the content than the ratings provided in the television industry’s Parental Viewing Guidelines. Common Sense Media provides ratings for more than 3,000 television shows. Its research is frequently cited by children and media scholars (see for example Jackson, Brown, & Pardun, 2008; Nathanson, 2010; O’Keefe & Clarke-Pearson, 2011), and it is regarded by many scholars as a suitable source for television and other media ratings (see for example Adachi-Mejia et al., 2009; Diehl & Toelle, 2009; Strasburger, 2006; Tickle, Beach, & Dalton, 2009). Researchers have concluded that content ratings, such as those provided by Common Sense Media, are “preferable to age-based ratings,” such as those found in the Parental Viewing Guidelines (Gentile, Maier, Hasson, & de Bonetti, 2011, p. 42). In three national surveys of a total of 2,392 adults, Gentile et al. (2011) asked parents about their knowledge of the existing television industry ratings, how often they use the ratings, and about their perceptions of the sufficiency of the content descriptors included with the ratings (Gentile et al., 2011). The article found that only 5 percent of parents feel the television ratings are always accurate, and that parents do not necessarily agree with the age-based ratings of the current system across a variety of content descriptors.

A score of children’s exposure to TV violence was created. First, the average violence rating of each child’s favorite shows was calculated by averaging the violence rating for the shows. Children’s average daily TV exposure was calculated by multiplying the reported average number of hours of TV exposure and multiplying it by
5, adding that number to the average number of hours of Saturday TV exposure, and dividing the sum by 6. Then, the average violence rating of children’s favorite shows was multiplied by the average hours of daily TV to create a score of children’s exposure to TV violence.

Parents were also asked to indicate how often their child watches SpongeBob SquarePants on a scale of 1 to 5, with 5 being always and 1 being never ($M = 2.66, SD = 1.14$)

**Family communication patterns.** Family communication patterns were measured using Fitzpatrick and Ritchie’s (1994) Revised Family Communication Patterns (RFCP) instrument, which contains 26 items. The items were measured on a 7-point Likert-type scale ranging from (1) “strongly disagree” to (7) “strongly agree.” Fifteen of the 26 items measured the degree to which participants’ perceive a conversation-oriented communication pattern in their family and 11 items measured perceptions of conformity orientation. The RFCP has high internal consistency, measured by Cronbach’s alpha for both the conversation-orientation measure ($\alpha = .84$) and the conformity orientation scale ($\alpha = .76$), and high test-retest coefficients (close to 1 for conformity orientation and .73-.93 for conversation orientation) (Fitzpatrick & Ritchie, 1994). As the RFCP instrument is worded for asking children to respond to each item, this study follows Ritchie’s (1991) method of simply rewording the items to apply to the parents. In this study, both conversation ($M = 5.60, SD = .73, \alpha = .85$) and conformity orientation ($M = 3.38, SD = .80, \alpha = .78$) showed satisfactory reliability.
Active mediation. Past active mediation was measured via 25 items adapted from Nathanson and Botta’s (2003) study regarding parents’ mediation behaviors in general, and in relation to violent TV specifically. Each item was measured on a 4-point scale (Buijzen, 2009). The active mediation items asked parents to report on positive, negative, and neutral mediation messages (both positive and negative). Nathanson and Botta (2003) developed questions to measure active mediation—positive, negative, and neutral—of both central and incidental television content. Their principal components factor analysis with oblimin rotation revealed that the questions tapping central content explained 67% of the variance in three factors reflecting negative, positive, and neutral mediation, while the items measuring active mediation of incidental content explained 69% of the variance in the three factors. The four items tapping neutral mediation of central content were averaged to create a reliable index ($\alpha = .82$). The three items tapping positive mediation of central content were averaged to create a reliable index ($\alpha = .76$). And the four items tapping negative mediation of central content were averaged to create a reliable index ($\alpha = .83$). Similarly, the items measuring mediation of incidental content created reliable indices for neutral mediation (5 items, $\alpha = .91$), positive mediation (3 items, $\alpha = .72$), and negative mediation (4 items, $\alpha = .79$).

In this study, two indices of active mediation were created from these items. The 11 items asking about active mediation of violent TV were averaged to create an index of active mediation of violent TV ($M = 2.01$, $SD = .51$, $\alpha = .88$). The 13 remaining items (excluding 1 item asking about coviewing) that did not address mediation of violent TV,
but of TV in general, were averaged to create an index of active mediation in general ($M = 2.61$, $SD = .44$, $\alpha = .81$).

**Procedures for Child Participants**

After securing parental permission, children participants were directed to a quiet, secluded space on their school’s premises. In one school, this was either the teacher’s lounge or a room off the library (68 subjects). In another school it was the principal’s office (50 subjects). In the remaining schools it was a corner in the cafeteria. The experimenter explained that he was trying to learn more about kids and that they would be shown a video, do a couple of activities, and answer some questions. Verbal assent was obtained for each child. Each of the children was situated in front of two laptop computers. Each child received a mediation message from an investigator, watched a clip from a children’s television show containing violence, and was asked to complete measures of attitude accessibility, aggression, evaluations of the TV show, evaluations of the perpetrators of violence in the TV show, ratings of the justification of the violence in the TV show, and cognitive capacity. Each child’s participation in the study took approximately 25 minutes.

**Violent television stimulus.** Children watched a 6-minute clip containing character violence from *SpongeBob Squarepants*. The clip featured the main character, SpongeBob, fighting with his best friend, Patrick Star, because the two friends disagree on rules for personal hygiene. What starts as a simple disagreement between friends escalates into punching and throwing objects at each other.
SpongeBob Squarepants was selected for several reasons. First, SpongeBob SquarePants is the “number-one rated animated series in all of kids’ television” (Jannarone, 2012) and has been for a decade (TV Series Finale, 2011). Second, SpongeBob SquarePants is targeted at and watched by children in the age-range of this study (Brown, 2009; CBS News, 2011). Third, SpongeBob SquarePants is seen in 171 markets in 25 languages, and is MTV Network’s most widely distributed property ever (Brown, 2009). Lastly, SpongeBob SquarePants received a violence rating of 3 on a 1-6 scale by Common Sense Media (Common Sense Media, 2012), suggesting that SpongeBob SquarePants regularly contains moderate levels of character violence.

Nickelodeon, the network that runs the show, runs episodes at a variety of times throughout the day (Rice, 2009). Partly due to its popularity, other research has begun to study the effects of SpongeBob SquarePants on its children viewers. In one recent study, for example, researchers found that SpongeBob SquarePants’ fast-paced episodes had an immediate negative effect on 4-year-olds’ executive functioning relative to the executive functioning of children who watched a similar-length clip of the educational program Caillou (Lillard & Peterson, 2011; Rubin, 2011).

**Experimental conditions.** Participants in each age group were randomly assigned to one of four experimental conditions: before \((n = 36)\), during \((n = 36)\), after \((n = 37)\), and no mediation \((n = 35)\). In the “before” condition, an investigator presented a mediation message before the child watched the TV clip. In the “during” condition, an investigator presented the same mediation message during a pause while viewing the clip. In the “after” condition, an investigator presented the same active mediation message
after participants’ exposure to the clip. In the “no mediation” condition, participants did not receive any active mediation.

Participants in each age group received the same mediation message (except the no-mediation condition) from the experimenter. The message was a negatively-valenced evaluative mediation message (see Appendix E) designed to condemn the violent actions of SpongeBob and his friend Patrick Star. The message also highlighted the negative consequences of violence and how those consequences are personally relevant to the children (Grusec, 1973; Nathanson, 2001a; Nathanson, 2004; Nathanson, 2010; Pressley, 1983; Wilson & Cantor, 1987). The message also included two questions in order to increase children’s comprehension of the message (Paris, Wixson, & Palincsar, 1986). The message took about 30 seconds for the experimenter to relate. A summary of the experimental conditions is shown in Appendix C.

**Child Measures**

**Attitude accessibility.** The accessibility of children’s negative attitudes toward television violence was measured similarly to past research (Roskos-Ewoldsen et al., 2004) as the time in milliseconds it took each participant to press a key on the keyboard which corresponds to whether or not they like or dislike an item presented on the computer screen.

In order to ensure that the objects to which children were exposed during this task were age appropriate, researchers recruited four children ages 5-7 and four children ages 10-12 via e-mail and social networking messages to acquaintances of the investigator (50% of each gender). An investigator met one-on-one with children participants in their
own homes several weeks prior to the administration of the experiment and others
measures in this study. At this meeting, the investigator showed 80-100 pictures of
objects with which children were expected to be familiar. The picture stimuli came from
the International Affective Picture System (IAPS), which has been identified as a normed
set of affective stimuli (Lang, Bradley, & Cuthbert, 1995; Payne et al., 2005). In addition
to the 80-100 pictures shown to the children, 8-10 “critical” items depicting violence on
children’s television were also shown to each child (see Appendix D). Upon viewing
each picture, participants were asked to identify each object (“1” = cannot identify, “2” =
can identify), and to participate in a sorting task in which they sorted each picture into
“like,” “don’t know,” and “dislike” categories (“1” = like, 2” = dislike, “3” = don’t
know”).

The objects used in the subsequent attitude accessibility task were the most
identifiable pictures and those rated most as “like” or “dislike.” Specifically, the attitude
accessibility task used 15 randomly selected, easily identifiable objects that children liked
(images 1463, 1710, 2650, 5010, 5410, 5480, 5551, 7250, 7325, 7400, 7405, 7460, 8162,
8420, and 8490) and 15 randomly selected, easily identifiable objects that children
disliked (1274, 1525, 2095, 2681, 6010, 7013, 7023, 9043, 9210, 9220, 9291, 9341, 9469,
9831, and 9913), as well as a “smiley face,” a “frowny face,” and the 4 most easily
identifiable and categorizable as “dislike” “critical” items from the pilot study (a man on
TV shooting a gun towards the audience, two teenage girls fighting/pulling each other’s
hair, two older boys bullying a younger boy, and the Tibble twins from Arthur wrestling
with each other).
During the attitude accessibility task, participants’ choices of which buttons to push were limited to two—a green button to indicate “like” and a red button to indicate “dislike”—in order to make the procedure as simple to understand as possible. Participants were told that pictures would appear on the screen one at a time and that they should press the button that corresponds to their bivariate attitude as quickly and as accurately as possible. The first two blocks of 20 presented either the happy face or the sad face, in random order. These two blocks were designed as practice trials in order to familiarize participants with the task. The third block presented 10 “like” pictures and 10 “dislike” pictures from the pilot study in random order. Participants were asked to complete the first three blocks at the beginning of the research session, and prior to any media exposure or parental mediation manipulation. The fourth block presented five “like” and “dislike” items from the third block, two unique “like” and two unique “dislike” items from the pilot study (not used in block 3), the happy face and the frowny face, and four critical items from the pilot study ($M = 1466.56$, $SD = 601.64$), all in random order. The fourth block was presented to participants immediately after receiving the mediation manipulation, regardless of the experimental condition to which the participant was randomly assigned. A fifth block, similar to the fourth block, was presented to participants immediately after watching the television episode. In the after condition, attitude accessibility was only measured once—after the show and after the mediation, in that order.

The response times from the fourth block were used in the analysis as the measure of attitude accessibility (Arpan et al., 2007). The response times were moderately
reliable ($\alpha = .71$). The response latency task resulted in two sets of data: the attitude score (liking or disliking of the critical images) and the response latency time (in milliseconds). On average, participants disliked 86.83% of the four critical images. Because of this high rate of disliking of the critical images, the response latency scores included the response times for the critical items that participants disliked—response times for the items that participants liked were excluded from the response latency index (Rhodes, Roskos-Ewoldsen, Edison, & Bradford, 2008). For each participant, the response time used in the analysis was the harmonic mean of responses to the four critical items in milliseconds (Arpan et al., 2007). Accordingly, a lower response time number indicated more accessible negative attitudes about television violence.

Response latency tasks have been employed with children of various ages, including children as young as four years old (Cvencek et al., 2011), 6- to 10-year-olds (Baron & Banaji, 2006; Dunham, Baron, & Banaji, 2006), 12-year-olds (Andrews et al., 2010), and 9- to 18-year-olds (Craeynest et al., 2005). Response latency procedures have high internal consistency ($r = .54$ and $.41$) between blocks of trials, and moderate test-retest reliability ($r = .20$ and $.29$) (Andrews et al., 2010). Finally, attitude accessibility has been shown to be a construct distinct from related constructs, such as confidence in one’s attitudes, shown by bivariate correlations between attitude accessibility and confidence not being statistically different from zero (Berger, 1992).

**Cognitive capacity.** Prior to the receipt of an active mediation message, exposure to the clip containing violent content, and completion of attitude accessibility measures, subjects participated in a brief task designed to measure their cognitive
capacity/working memory capacity. This construct is often measured via at least one task called a Backwards Digit Recall Task. Backward span tasks “are typically seen as working memory tasks as they require the storage of information whilst additional cognitive processing is being undertaken (in this case, reversing the sequence of moves)” (Bull et al., 2008, p. 212). Alloway (2009) employed the Backwards Digit Recall Test as taken from the Working Memory Test Battery for Children (WMTB-C; Pickering & Gathercole, 2001) among children ages 7-11. In the Backwards Digit Recall Test (Appendix F), the child hears a sequence of verbal digits and is asked to recall them in reverse order. Each trial contained 2 to 7 numbers, and the dependent variable was the number of trials correctly recalled. The test trials began with two numbers and increased by a single number at each level until the subject cannot recall four correct trials at a level (Alloway et al., 2004). The test was terminated after three errors were committed on one level. Alloway (2009) reported test-retest reliability of .69 for this measure for children ages 7-11, while Alloway et al. (2004) reported test-retest reliability of .53 for children ages 5-8. Backwards digit recall tests have been used successfully with children as young as 4 or 5 years old (Alloway, 2007; Gathercole, Brown & Pickering, 2003).

In this study, cognitive capacity was coded as a “1” if the child could not repeat the two first digits backwards. The remaining levels were coded according to the number of digits correctly recalled according to the criteria above at each level ($M = 2.88$, $SD = .98$).

**Questionnaire.** Each child responded to 35 questions, read to them by the investigator, asking about their aggressive attitudes, liking of the television characters
from the stimulus, attitudes toward the stimulus show, justification of character violence, and demographics. Unless otherwise noted, each of the aggression-related child measures was taken and adapted from Nathanson’s (2004) study on parental mediation of violent television effects. The items were adapted to be specific to the television show in this study. Responses for each of the indices, unless otherwise noted, are “no,” “sort of,” and “yes” (see Appendix G).

**Aggressive attitudes.** Ten questions were asked about children’s aggressive attitudes. Responses were summed and averaged to create an index of children’s aggressive attitudes, with higher scores indicating more aggressive attitudes ($M = 1.12$, $SD = .14$, $\alpha = .44$). When used in previous mediation research among 5- to 7-year-olds and 10- to 12-year-olds (Nathanson, 2004), an index consisting of seven of the 10 questions showed satisfactory internal consistency ($\alpha = .68$). I created three additional items in order to increase the reliability of this aggressive attitudes scale, including items asking participants if fighting is a good way to act when they don’t agree with someone, if they feel like throwing something at someone right now, and if they feel like calling someone a name right now. The addition of these three variables actually did not increase the reliability of the scale, but slightly reduced it to its final reliability score of $\alpha = .44$.

**Liking of television characters.** Children’s attitudes toward the protagonists were measured using seven items asking children how much they like and want to be like the protagonists. Scores from the seven items were summed and then averaged to create an index of children’s liking of television characters, with higher scores indicating more
liking ($M = 1.65, SD = .44, \alpha = .75$). When used in previous mediation research among 5- to 7-year-olds and 10- to 12-year-olds (Nathanson, 2004), this index showed high internal consistency ($\alpha = .89$). It is not clear why the reliability scores were lower in the current research than in past research.

**Attitudes toward the show.** Two questions were asked assessing whether the children liked the show and if they would like to ever see the show again. Responses were summed and then averaged to create an index of attitudes toward the show, with higher scores indicating more liking of the show ($M = 2.35, SD = .72$). The items were highly correlated, $r = .61, p < .001$. When used in previous mediation research among 5- to 7-year-olds and 10- to 12-year-olds (Nathanson, 2004), the two items were highly correlated ($r = .69$), indicating high internal consistency.

**Justification of televised violence.** Children were asked two questions about whether they think the protagonists’ violent actions were justified. Responses were summed and averaged to create an index of perceived justification of violence, with higher scores indicating greater perceived justification ($M = 1.31, SD = .44; r = .01, p > .05$). When used in previous mediation research among 5- to 7-year-olds and 10- to 12-year-olds (Nathanson, 2004), the two items were highly correlated ($r = .39$), indicating high internal consistency. It is not clear why the items were not significantly correlated in this study.

**Demographics.** For the following variables, never was coded as “1,” sometimes coded as “2,” and a lot coded as “3.” Children were asked if they watch cartoons ($M = 2.38, SD = .58$), action-adventure TV shows ($M = 1.71, SD = .77$), and wrestling shows
Children were also asked how often they have seen *SpongeBob SquarePants* before, where never was coded as “1,” a couple of times coded as “2,” and a lot of times coded as “3” \( M = 2.55, SD = .58 \).

**Manipulation check.** After responding to all the survey questions, an investigator asked children two final questions in order to measure their comprehension of the active mediation message. For each question, a correct response was coded as a “1,” and an incorrect response was coded as a “2.” The first question asked for a closed-ended response (“When I talked to you about SpongeBob and Patrick Starr fighting, did I say that fighting is cool, kind of cool, or not cool?”) \( M = 1.037, SD = .189 \). Ninety-six percent of children who received mediation responded with the correct answer (I said “fighting was not cool”) for the first manipulation check. The second question asked for an open-ended response (“When I talked to you about SpongeBob and Patrick Starr fighting, what did I say could happen to people who yell and throw things?”) \( M = 1.10, SD = .30 \). Ninety percent of the children who received mediation responded correctly (getting in trouble, people wouldn’t like it, or could get hurt) for the second manipulation check.
Chapter 3: Results

Manipulation Check

A one-sample t-test was computed to determine whether children who received mediation comprehended and remembered the mediation message more than would be expected by chance. For the first manipulation check, the evidence suggested that it was not just by chance that children who received mediation comprehended and remembered the mediation message, $t(108) = 57.301, p < .001$ (two-tailed). For the second manipulation check, the evidence suggested that it was not just by chance that children who received the mediation comprehended and remembered the mediation message, $t(107) = 37.684, p < .001$ (two-tailed). It appeared, then, that the manipulation was successful.

Hypotheses 1a – 1d

Analysis plan. Hypotheses 1a through 1d predicted that after watching a violent TV show, children who received active mediation would have less aggressive attitudes, report less liking of the violent character, rate the TV violence as less justified, and report less liking of the violent show, respectively, than those who did not receive mediation. To test these hypotheses, a MANOVA was first conducted to determine if the mediation condition had the predicted effect on the four dependent variables as a group. Children who received mediation were coded as a “1” and children who did not receive any
mediation (those in condition 4) were coded as a “0”. Second, univariate analyses were conducted to determine if the mediation condition had the predicted effect on the dependent variables individually.

Following the hypothesis testing, further exploratory analyses were conducted in order to explore the effects of interactions and control variables when added to the various models. First, children’s gender and age group were included as independent variables in the MANOVA to determine if the effect of the mediation condition on the dependent variables as a group differed by children’s gender and children’s age group. Gender was included as an independent variable because boys and girls tend to react to violent cartoons differently. For example, Aluja-Fabregat and Torrubia-Beltri (1998) found that boys, but not girls, were rated as more aggressive in response to violent cartoons they thought were funny or thrilling. Kirsh (2006) argued that the failure to find aggressive effects for girls could be because girls’ aggressive tendencies are displayed through relational aggression, rather than through aggressive behaviors that are easily noticed, such as name-calling and fighting. Age group (children ages 5-7 were coded as a “1” and children ages 10-12 were coded as “2”) was included as an independent variable because the extant research, as stated previously, provides evidence that differences in memory (Collins et al., 1978), maturity of information processing (Wilson & Drogos, 2009), and understanding of television (Collins & Wiens, 1983; Wright et al., 1994) occur between children in the age groups included in this study.

Second, children’s gender and age group were then included as independent variables in the univariate analyses to determine if the effect of the mediation condition
on each individual dependent variable differed by gender and age group. Third, regression analyses were conducted in order to control for the effect of additional variables (including several quantitative variables) on each outcome variable. The additional variables included parental reports of active mediation in general, parental reports of active mediation of violent television, and parental reports of family communication patterns. Because the premise of this study is that active mediation can influence children’s reactions to violent TV, it is logical to control for children’s past exposure to active mediation in general and to active mediation of violent TV. Family communication patterns have also been shown to influence children’s reactions to violent TV (Krcmar, 1998), so they were also controlled in this analysis. Since these variables are quantitative, they were included in the model as covariates in regression analyses.

Lastly, cognitive capacity was added to the regression equation in order to investigate its influence on the conditions’ effect on the various outcome variables. Cognitive capacity, as stated previously, is a measure of a child’s ability to hold information in working memory, and is different for children in the different age groups included in this study. The interaction between the mediation condition and cognitive capacity was then statistically probed with alpha set at the .05 level using the Johnson-Neyman approach as described by Hayes and Matthes (2009), where the effect of the interaction is estimated using the complete multiple regression model and all cases contributing to that model at arbitrarily assigned values along the moderator (cognitive capacity) continuum. This probing was conducted using Hayes and Matthes (2009) MODPROBE SPSS macro computational tool.
**Dependent variables as a group.** A MANOVA with the mediation condition as the independent variable and the four latent variables as dependent variables revealed a non-significant effect of the mediation condition on the 4 outcome variables as a group, Pillai’s Trace = .05, $F(4, 138) = 1.86, p > .05$, partial $\eta^2 = .05$.

**Exploratory analysis.** Children’s gender and age group were added to the MANOVA model as additional independent variables. The mediation condition still had no significant effect on the outcome variables as a group, Pillai’s Trace = .04, $F(4, 132) = 1.22, p > .05$, partial $\eta^2 = .04$. The interaction between the mediation condition and child’s age group revealed a marginally significant effect on the outcome variables as a group, Pillai’s Trace = .06, $F(4, 132) = 2.16, p = .08$, partial $\eta^2 = .06$. There was no significant effect on the dependent variables as a group due to an interaction between the mediation condition and gender, Pillai’s Trace = .05, $F(4, 132) = 1.89, p > .05$, partial $\eta^2 = .05$.

**Hypothesis 1a.** Univariate analysis with the mediation condition as the independent variable revealed that children’s aggressive attitudes did not significantly differ by the mediation condition $F(1,141) = .35, p > .05$, partial $\eta^2 = .00$. Therefore, hypothesis 1a was not supported. Descriptives statistics are displayed in Table 1.

**Exploratory analysis.** Univariate analysis with the mediation condition, gender, and age group as independent variables revealed that children’s aggressive attitudes did not significantly differ by the mediation condition $F(1, 135) = .38, p > .05$, partial $\eta^2 = .00$. The analysis revealed a significant main effect of gender on aggressive attitudes $F(1, 135) = 4.90, p < .05$, partial $\eta^2 = .04$. Specifically, boys had more aggressive attitudes ($M$
than girls ($M = 1.09, SE = .02$). However, there was no effect on aggressive attitudes due to the interaction between the mediation condition and gender $F(1, 135) = 1.02, p > .05$, partial $\eta^2 = .01$. In addition, the analysis revealed a main effect of age group on aggressive attitudes $F(1, 135) = 9.12, p < .01$, partial $\eta^2 = .06$. Specifically, older children (ages 10-12) had higher levels of aggressive attitudes ($M = 1.16, SE = .02$) than younger children (ages 5-7) ($M = 1.08, SE = .02$). However, no significant interaction effect between the mediation condition and children’s age $F(1, 135) = .53, p > .05$, partial $\eta^2 = .00$, was found.

Next, a regression analysis was conducted in order to account for the contribution of the three quantitative variables in the model. The first step of the equation included the mediation condition, gender, and age group. The second step included the three quantitative variables. The analysis revealed that when controlling for the quantitative variables, the mediation condition was not significantly associated with children’s aggressive attitudes ($\beta = .023, p > .05$).

In addition to adding gender and age group to the model, it is also possible, as stated previously, that the effect of the mediation condition could depend on the child’s cognitive capacity. The first step of the equation included the mediation condition, gender, age group, and cognitive capacity. The second step included the three quantitative variables. The third step included the interaction between the mediation condition and cognitive capacity. The analysis showed no effect on children’s aggressive attitudes due to an interaction between the mediation condition and cognitive capacity ($\beta$
Probing of the interaction revealed no significant effect of the interaction on children’s aggressive attitudes at any level of cognitive capacity.

**Hypothesis 1b.** Univariate analysis with the mediation condition as the independent variable revealed that children’s liking of the violent TV characters significantly differed by the mediation condition $F(1, 141) = 6.78, p = .01$, partial $\eta^2 = .05$. Specifically, those who received the mediation liked the violent TV characters less ($M = 1.59, SE = .04$) than those who did not receive mediation ($M = 1.81, SE = .07$). Therefore, hypothesis 1b was supported.

**Exploratory analysis.** Univariate analysis with the mediation condition, gender, and age group as independent variables revealed that children’s liking of violent TV characters remained significantly different by the mediation condition $F(1, 135) = 4.30, p < .05$, partial $\eta^2 = .03$. Specifically, those who received mediation liked the violent TV characters less ($M = 1.61, SE = .04$) than those who did not receive mediation ($M = 1.77, SE = .07$). The analysis revealed a significant main effect of gender on children’s liking of the violent TV characters $F(1, 135) = 11.77, p = .001$, partial $\eta^2 = .08$. Specifically, boys liked the violent TV characters more ($M = 1.83, SE = .06$) than girls ($M = 1.56, SE = .05$). However, there was no effect on children’s liking of the violent TV characters due to the interaction between the mediation condition and gender $F(1, 135) = .60, p > .05$, partial $\eta^2 = .00$. In addition, the analysis revealed a significant effect on children’s liking of the violent TV characters due to the interaction between the mediation condition and children’s age group, $F(1, 135) = 7.61, p < .01$, partial $\eta^2 = .05$. Specifically, younger children in the no-mediation condition liked the violent TV characters more ($M = 1.98,$
than older children (M = 1.57, SE = .11) in the same condition, while the older children in the mediation condition liked the violent TV characters more (M = 1.63, SE = .06) than the younger children in the same condition (M = 1.59, SE = .05). In other words, the effect of the mediation condition on children’s liking of violent TV characters depended on their age group. This interaction is shown graphically in Figure 5.

Lastly, regression analysis was conducted in order to account for the contribution of the three quantitative variables in the model. The analysis revealed that even when controlling for the quantitative variables, the mediation condition was still significantly associated with children’s liking of the violent TV characters (β = -.232, p < .01).

Cognitive capacity was then added to the model identically to the previous regression model that included cognitive capacity. The interaction did not add a significant amount of variance to children’s liking of violent TV characters (β = .063, p > .05). However, probing of the interaction revealed that the effect of the mediation condition on children’s liking of the violent TV characters depended on the children’s level of cognitive capacity at levels of cognitive capacity between 1.5 (β = -.321) and 3.45 (β = -.199). This interaction is shown graphically in Figure 6.

**Hypothesis 1c.** A univariate analysis with the mediation condition as the independent variable revealed that children’s ratings of the justification of TV violence did not significantly differ by the mediation condition F(1,141) = .19, p > .05, partial η² = .00. Therefore, hypothesis 1c was not supported.

**Exploratory analysis.** A univariate analysis with the mediation condition, gender, and age group as independent variables revealed that children’s TV violence justification
ratings did not significantly differ by the mediation condition $F(1, 135) = .25, p > .05$, partial $\eta^2 = .00$. The analysis revealed a significant effect on TV violence justification ratings due to the interaction between condition and gender, $F(1, 135) = 4.06, p < .05$, partial $\eta^2 = .03$. Specifically, boys who did not receive mediation rated the TV violence as more justified ($M = 1.49, SE = .11$) than girls in the same condition ($M = 1.23, SE = .10$), while boys in the mediation condition rated the violence as less justified ($M = 1.27, SE = .06$) than girls in the same condition ($M = 1.36, SE = .06$). In other words, the effect of the mediation condition on children’s TV violence justification ratings depended on their gender. This interaction is shown graphically in Figure 7.

Lastly, a regression analysis was conducted in order to account for the contribution of the three quantitative variables in the model. The analysis revealed that when controlling for the quantitative variables, the mediation condition was not significantly associated with children’s TV violence justification ratings ($\beta = -.035, p > .05$). Cognitive capacity was then added to the model as previously described. The interaction between the mediation condition and cognitive capacity did not add a significant amount of variance to children’s TV violence justification ratings ($\beta = -.124, p > .05$). Probing of the interaction also failed to reveal a significant effect of the interaction between the mediation condition and cognitive capacity at any level of cognitive capacity ($p > .05$).

**Hypothesis 1d.** Univariate analysis with the mediation condition as the independent variable revealed that children’s liking of the violent TV show did not
significantly differ by the mediation condition $F(1,141) = .71, p > .05$, partial $\eta^2 = .01$. Therefore, hypothesis 1d was not supported.

*Exploratory analysis.* Univariate analysis with the mediation condition, gender, and age group as independent variables revealed that children’s liking of the violent TV show did not significantly differ by the mediation condition $F(1, 135) = .16, p > .05$, partial $\eta^2 = .00$. The analysis revealed a significant main effect of gender on liking of the violent TV show $F(1, 135) = 8.00, p < .01$, partial $\eta^2 = .06$. Specifically, boys liked the violent TV show more ($M = 2.54, SE = .10$) than girls ($M = 2.17, SE = .09$). However, there was no effect on liking of the violent TV show due to the interaction between the mediation condition and gender $F(1, 135) = 1.53, p > .05$, partial $\eta^2 = .01$. In addition, the analysis revealed a marginally significant effect on children’s liking of the violent TV show due to the interaction between the mediation condition and age group, $F(1, 135) = 3.34, p = .07$, partial $\eta^2 = .02$. Specifically, younger kids in the no mediation condition liked the violent TV show more ($M = 2.73, SE = .15$) than older children in the same condition ($M = 2.04, SE = .18$), while the difference in liking the violent TV show between the younger ($M = 2.43, SE = .08$) and older children ($M = 2.23, SE = .10$) was less in the mediation condition than in the no mediation condition. In other words, the effect of the mediation condition on children’s liking of the violent TV show depended on their age group.

Lastly, a regression analysis was conducted in order to account for the contribution of the three quantitative variables in the model. The analysis revealed that when controlling for the quantitative variables, the mediation condition was not
significantly associated with children’s liking of the violent TV show ($\beta = -.115, p > .05$). Cognitive capacity was then added to the model. The interaction between the mediation condition and cognitive capacity did not add a significant amount of variance to children’s liking of the violent TV show ($\beta = -.053, p > .05$). Probing of the interaction also failed to reveal a significant effect of the interaction between the mediation condition and cognitive capacity at any level of cognitive capacity ($p > .05$).

**Hypotheses 2a – 2d**

**Analysis plan.** To test for the indirect effect of the mediation condition on the aggression-related outcomes through attitude accessibility, the test of statistical significance of the mediated paths recommended by Preacher and Hayes (2008) was used. They do not recommend the use of the causal steps approach to assessing mediation, except in large samples. In a study with a relatively small sample, such as this study, they recommend bootstrapping (this study employed 1000 bootstrap samples) in order to better approximate the sampling distribution of the path of the product of the independent and mediator variable and the mediator and the dependent variables to construct confidence intervals for the indirect effect. In addition, they argued that a significant relationship between the independent variable and the dependent variable need not be significant in order for mediation to occur. Using Hayes’ (in press) PROCESS SPSS macro, the mediation condition (yes was coded as “1”, and no was coded as “0”) was entered as the independent variable. The mediation variable was attitude accessibility. The outcome variable was the corresponding outcome variable for each hypothesis.
**Hypothesis 2a.** Hypothesis 2a predicted that the relationship between active mediation and children’s aggressive attitudes would be mediated by the accessibility of children’s negative attitudes about television violence. The bootstrap result for the indirect effects of the mediation condition on aggressive attitudes through attitude accessibility was not significant ($\beta = -.007, SE = .01, 95\% CI [-.03, .00]$). Therefore, hypothesis 2a was not supported.

**Hypothesis 2b.** Hypothesis 2b predicted that the relationship between active mediation and children’s liking of the perpetrator of TV violence would be mediated by the accessibility of children’s negative attitudes about television violence. The bootstrap result for the indirect effects of the mediation condition on liking of the perpetrator of violence through attitude accessibility was significant ($\beta = .024, SE = .02, 95\% CI [.00, .08]$). The direct effect of the mediation condition on children’s liking of the violent TV character was also significant ($\beta = .255, SE = .08, p < .01$), indicating that attitude accessibility partially mediated the relationship between the mediation condition and the dependent variable. A closer look at the mediated pathway indicates that those who received the mediation condition were more likely to have less accessible negative attitudes about TV violence, evidenced by a higher response time statistic ($\beta = 207.2438, SE = 116.26, p = .08$). In turn, those with less accessible negative attitudes about TV violence were more likely to like the violent TV characters ($\beta = .001, SE = .00, p = .06$). Therefore, hypothesis 2b was supported.

**Hypothesis 2c.** Hypothesis 2c predicted that the relationship between active mediation and children’s ratings of the justification of TV violence would be mediated by
the accessibility of children’s negative attitudes about television violence. The bootstrap result for the indirect effects of the mediation condition on aggressive attitudes through attitude accessibility was not significant ($\beta = -.011, SE = .02, 95\% CI [-.05, .01])$. Therefore, hypothesis 2c was not supported.

**Hypothesis 2d.** Hypothesis 2d predicted that the relationship between active mediation and children’s liking of the violent TV show would be mediated by the accessibility of children’s negative attitudes about television violence. The bootstrap result for the indirect effects of the mediation condition on aggressive attitudes through attitude accessibility was not significant ($\beta = .030, SE = .03, 95\% CI [-.01, .12])$. Therefore, hypothesis 2d was not supported.

**Hypotheses 3a – 3d**

**Analysis plan.** To test for the moderating effect of children’s cognitive capacity on the relationship between attitude accessibility and each of the four aggression-related outcome variables, linear regression analysis was used, with the first step including attitude accessibility and cognitive capacity, as well as all the previous focal and control variables used in prior analyses, including gender, age group, past active mediation in general, past active mediation of violent TV, family communication patterns, and cognitive capacity. The second step included the product of attitude accessibility and cognitive capacity. The interactions were then statistically probed with alpha set at the .05 level using the same Johnson-Neyman approach as described by Hayes and Matthew (2009) used previously.
Following the tests of each hypothesis, further exploratory analyses were conducted in order to combine the models in hypothesis 2 and hypothesis 3. In other words, exploratory analyses sought to discover if the way in which attitude accessibility mediated the relationship between the mediation condition and each of the outcome variables depended on children’s cognitive capacity. This was done using the same test of statistical significance of the mediated paths recommended by Preacher and Hayes (2008) that was used in testing hypotheses 2a through 2d, but this time was implemented via the MODMED macro of Preacher, Rucker, and Hayes (2007), since it allows for probing the interaction using the Johnson-Neyman approach.

**Hypothesis 3a.** Hypothesis 3a predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s level of cognitive capacity, such that highly accessible negative attitudes about television violence would reduce aggressive attitudes more for children with high levels of cognitive capacity than for children with low levels of cognitive capacity. The regression analysis showed that the interaction added a marginally significant 2.1% of variance to children’s aggressive attitudes ($\beta = .0001, p = .073$). Probing of the interaction revealed that the interaction was marginally significant for levels of cognitive capacity of 1 and lower and of 5.5 and higher. Therefore, this hypothesis was partially supported. However, only two children had cognitive capacity higher than 5.5, and only ten children had cognitive capacity of 1 or lower.
**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing of the interaction, was not significant at any level of cognitive capacity ($p > .05$).

**Hypothesis 3b.** Hypothesis 3b predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s level of cognitive capacity, such that highly accessible negative attitudes about television violence would reduce liking of the perpetrators of violence more for children with high levels of cognitive capacity than for children with low levels of cognitive capacity. The regression analysis showed that the interaction was not significant ($\beta = .0001, p > .05$). Probing showed that no significant interaction occurred at any level of cognitive capacity ($p > .05$). Therefore, this hypothesis was not supported.

**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing of the interaction, was not significant at any level of cognitive capacity, ($p > .05$).

**Hypothesis 3c.** Hypothesis 3c predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s level of cognitive capacity, such that highly accessible negative attitudes about television violence would reduce ratings of the justification of television violence more for children with high levels of cognitive capacity than for children with low levels of cognitive capacity. The regression analysis showed that the interaction was not significant ($\beta = .0001, p > .05$). Probing revealed that the interaction was not significant at any level of cognitive capacity ($p > .05$). Therefore, this hypothesis was not supported.
**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing of the interaction, was not significant at any level of cognitive capacity, \( p > .05 \).

**Hypothesis 3d.** Hypothesis 3d predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s level of cognitive capacity, such that highly accessible negative attitudes about television violence would reduce liking of a television program containing violence more for children with high levels of cognitive capacity than for children with low levels of cognitive capacity. The regression analysis showed that the interaction was not significant \( (\beta = .000, p > .05) \). Probing revealed that the interaction was not significant at any level of cognitive capacity \( (p > .05) \).

**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing of the interaction, was not significant at any level of cognitive capacity \( (p > .05) \).

**Hypotheses 4a – 4d**

**Analysis plan.** The same analyses were used in testing hypotheses 3a through 3d that were used for testing 3a through 3d, with children’s past exposure to violent television being added to the model as a focal predictor. Similarly, the same exploratory analyses were conducted.

**Hypothesis 4a.** Hypothesis 4a predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to violent television, such that highly accessible negative attitudes about
television violence would reduce aggressive attitudes more for children with high levels of past exposure to violent television than for children with low levels past exposure to violent television. The regression analysis revealed that the interaction was not significant ($\beta = .000, p > .05$). Probing revealed that the interaction was not significant at any level of past exposure to violent television ($p > .05$). Therefore, this hypothesis was not supported.

**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing of the interaction, was not significant at any level of past exposure to television violence ($p > .05$).

**Hypothesis 4b.** Hypothesis 4b predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to TV violence, such that highly accessible negative attitudes about television violence would reduce liking of the perpetrators of violence more for children with high levels of past exposure to TV violence than for children with low levels of past exposure to TV violence. The regression analysis showed that the interaction was not significant ($\beta = .000, p > .05$). Probing showed that no significant interaction occurred at any level of past exposure to TV violence ($p > .05$). Therefore, this hypothesis was not supported.

**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing
of the interaction, was not significant at any level of past exposure to TV violence, \((p > .05)\).

**Hypothesis 4c.** Hypothesis 4c predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s level of past exposure to TV violence, such that highly accessible negative attitudes about television violence would reduce ratings of the justification of television violence more for children with high levels of past exposure to TV violence than for children with low levels of past exposure to TV violence. The regression analysis showed that the interaction was not significant \((\beta = .000, p > .05)\). Probing revealed that the interaction was not significant at any level of past exposure to TV violence \((p > .05)\). Therefore, this hypothesis was not supported.

**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing of the interaction, was not significant at any level of past exposure to TV violence \((p > .05)\).

**Hypothesis 4d.** Hypothesis 4d predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s level of past exposure to TV violence, such that highly accessible negative attitudes about television violence would reduce liking of a television program containing violence more for children with high levels of past exposure to TV violence than for children with low levels of past exposure to TV violence. The regression analysis showed that the interaction was not significant \((\beta = .000, p > .05)\). Probing revealed that the interaction
was not significant at any level of past exposure to TV violence \((p > .05)\). Therefore, this hypothesis was not supported.

**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing of the interaction, was not significant at any level of past exposure to TV violence \((p > .05)\).

**Hypotheses 5a – 5d**

**Analysis plan.** The same analyses were used in testing hypotheses 5a through 5d that were used for testing the previous two sets of hypotheses. This time, the interaction variable included past exposure to active mediation of violent TV. Similarly, the same exploratory analyses were conducted.

**Hypothesis 5a.** Hypothesis 5a predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s past exposure to active mediation of violent television, such that highly accessible negative attitudes about television violence would reduce aggressive attitudes more for children with high levels of past exposure to active mediation of violent television than for children with low levels past exposure to violent television. The regression analysis revealed that the interaction was not significant \((\beta = .000, p > .05)\). Probing revealed that the interaction was not significant at any level of past exposure to active mediation of violent television \((p > .05)\). Therefore, this hypothesis was not supported.

**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing
of the interaction, were not significant at any level of past exposure to active mediation of
television violence ($p > .05$).

**Hypothesis 5b.** Hypothesis 5b predicted that there would be an interaction
between the accessibility of negative attitudes about television violence and children’s
past exposure to active mediation of TV violence, such that highly accessible negative
attitudes about television violence would reduce liking of the perpetrators of violence
more for children with high levels of past exposure to active mediation of TV violence
than for children with low levels of past exposure to active mediation of TV violence.
The regression analysis showed that the interaction was not significant ($b = -.0001$, $p >
.05$). Probing showed that no significant interaction occurred at any level of past
exposure to active mediation of TV violence ($p > .05$). Therefore, this hypothesis was
not supported.

*Exploratory analysis.* The bootstrap result for the conditional indirect effects of
the mediation condition on aggressive attitudes through attitude accessibility, and probing
of the interaction, were not significant at any level of past exposure to active mediation of
TV violence, ($p > .05$).

**Hypothesis 5c.** Hypothesis 5c predicted that there would be an interaction
between the accessibility of negative attitudes about television violence and children’s
level of past exposure to active mediation of TV violence, such that highly accessible
negative attitudes about television violence would reduce ratings of the justification of
television violence more for children with high levels of past exposure to active
mediation of TV violence than for children with low levels of past exposure to active
mediation of TV violence. The regression analysis showed that the interaction was significant ($\beta = -0.0004, p < .01$). Probing revealed that the interaction was significant at levels of past exposure to active mediation of TV violence less than or equal to 1.44 and greater than or equal to 2.57 ($p < .05$). Therefore, this hypothesis was supported. A scatterplot of the interaction clarifies the interaction (see Figure 8). To aid in understanding the interaction, scores of active mediation of violent TV were divided into three groups representing low levels (1 – 1.72), moderate levels (1.73 – 2.44), and high levels (2.45 – 3.17). Figure 8 shows that among those who received low levels of active mediation of violent TV, justification ratings of violent TV were highest when accessibility of negative attitudes about violent TV were lowest (represented by a higher attitude accessibility score). On the other hand, for those with received moderate and high levels of active mediation of TV violence, justification ratings were highest when accessibility of negative attitudes about violent TV were highest (represented by a lower attitude accessibility score).

**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing of the interaction, were not significant at any level of past exposure to active mediation of TV violence ($p > .05$).

**Hypothesis 5d.** Hypothesis 5d predicted that there would be an interaction between the accessibility of negative attitudes about television violence and children’s level of past exposure to active mediation of TV violence, such that highly accessible negative attitudes about television violence would reduce liking of a television program
containing violence more for children with high levels of past exposure to active mediation of TV violence than for children with low levels of past exposure to active mediation of TV violence. The regression analysis showed that the interaction was not significant ($\beta = .000, p > .05$). Probing revealed that the interaction was not significant at any level of past exposure to active mediation of TV violence ($p > .05$). Therefore, this hypothesis was not supported.

**Exploratory analysis.** The bootstrap result for the conditional indirect effects of the mediation condition on aggressive attitudes through attitude accessibility, and probing of the interaction, were not significant at any level of past exposure to active mediation of TV violence ($p > .05$).

**Hypotheses 6a – 6d**

**Analysis plan.** Hypothesis 6a through 6d predicted that children who receive active mediation before or during their exposure to violent television would have less aggressive attitudes, less liking of violent TV characters, lower ratings of the justification of TV violence, and less liking of the violent show after watching violent television than children who receive active mediation after the exposure. The same MANOVA procedure that was used in testing hypotheses 1a through 1d was conducted. In addition, the same exploratory analyses were also conducted in order to explore the effects of interactions and control variables when added to the various models. Where the mediation timing condition was a significant predictor of an outcome, regression analysis with the mediation timing condition dummy coded was conducted in order to control for the same continuous variables that have been controlled in previous analyses (active
mediation in general, active mediation of violent TV, and family communication patterns).

**Dependent variables as a group.** A MANOVA with the mediation timing condition (before, during, after, or no mediation/control) as the independent variable and the four latent variables as dependent variables, showed a non-significant effect of the mediation timing condition on the 4 outcome variables as a group, Pillai’s Trace = .09, $F(12, 414) = 1.04, p > .05$, partial $\eta^2 = .03$.

**Exploratory analysis.** Children’s gender and age group were added to the MANOVA model as additional independent variables. The mediation condition still had no significant effect on the outcome variables as a group, Pillai’s Trace = .09, $F(12, 378) = 1.01, p > .05$, partial $\eta^2 = .03$. The interaction between the mediation condition and child’s age group did not have a significant effect on the outcome variables as a group, Pillai’s Trace = .13, $F(12, 378) = 1.42, p > .05$, partial $\eta^2 = .04$. There was no significant effect on the dependent variables as a group due to an interaction between the mediation condition and gender, Pillai’s Trace = .11, $F(12, 378) = 1.21, p > .05$, partial $\eta^2 = .04$.

**Hypothesis 6a.** A univariate analysis with the mediation timing condition as the independent variable revealed that children’s aggressive attitudes did not significantly differ by the mediation timing condition, $F(3,139) = .59, p > .05$. Therefore, hypothesis 6a was not supported.

**Exploratory analysis.** There were no significant differences in aggressive attitudes due to an interaction between the mediation timing condition and age group or
between the mediation timing condition and gender when age and gender were added as factors to the univariate analysis.

**Hypothesis 6b.** A univariate analysis with the mediation timing condition as the independent variable revealed that children’s liking of the violent TV characters significantly differed by the mediation condition, \( F(3, 139) = 3.33, p < .05 \). Inspection revealed that there was homogeneity of variance as assessed by Levene’s Test for Equality of Variances (1.22, \( p > .05 \)). Therefore, planned contrasts were conducted. Results of the planned contrasts showed the liking of the violent TV characters of those in the before condition did not differ from those in the after condition, \( t(139) = 1.22, p = .112 \). The planned contrasts did show, however, that children in the during condition liked the violent TV characters significantly less (\( M = 1.51, SE = .06 \)) than those in the after condition (\( M = 1.69, SE = .08 \), \( p < .05 \) (see Figure 9). Therefore, this hypothesis was supported.

**Exploratory analysis.** A post-hoc analysis using the Bonferroni criterion revealed that children’s liking of violent TV characters of those in the during condition was significantly lower (\( M=1.51, SE = .07 \)) than those in the no mediation condition (\( M = 1.81, SE = .07 \), \( p < .05 \) (see Figure 9). Liking of the violent TV characters of those in the before condition (\( M = 1.57, SE = .07 \)) was also significantly less than those in the no mediation condition (\( M = 1.81, SE = .07 \), \( p < .01 \) (see Figure 9). The liking of the violent TV characters of those in the after (\( M = 1.69, SE = .08 \)) and no mediation conditions did not significantly differ (\( M = 1.81, SE = .07 \), \( p > .05 \).
A univariate analysis with the mediation timing condition, age group, and gender as factors was conducted to determine if an interaction between condition and gender or condition and age group existed. The analysis revealed that there was a difference in liking of the violent TV characters due to the interaction between the mediation timing condition and age group \( F(3, 127) = 3.84, p < .05, \) partial \( \eta^2 = .08 \). Specifically, younger children in the pre-exposure condition liked the violent TV character \( (M = 1.70, SE = .09) \) more than the older children in the same condition \( (M = 1.59, SE = .10) \). The same pattern held in the during condition, with younger children liking the violent TV characters \( (M = 1.55, SE = .08) \) more than the older children \( (M = 1.43, SE = .12) \), and in the no-mediation condition, with younger children liking the violent TV characters \( (M = 1.98, SE = .09) \) more than the older children \( (M = 1.57, SE = .10) \). However, older children liked the violent TV characters \( (M = 1.81, SE = .10) \) more than younger children \( (M = 1.58, SE = .09) \) in the after condition. On the other hand, younger children liked the violent TV characters more when they received the mediation prior to their exposure to violent TV \( (M = 1.70, SE = .09) \) than when they received the mediation during \( (M = 1.55, SE = .08) \) and after \( (M = 1.58, SE = .09) \). This interaction is graphically displayed in Figure 10.

In order to control for the same three quantitative variables that have been controlled for in previous analyses (active mediation in general, active mediation of violent TV, and family communication patterns), an ANCOVA was conducted with the quantitative variables included as co-variates, liking of the violent TV character as the dependent variable, and timing condition, gender, and age as factors. The analysis
revealed that even when controlling for these additional co-variates, liking of violent TV characters remained statistically different in the mediation timing conditions $F(3, 118) = 2.95, p < .05$, partial $\eta^2 = .07$. Specifically, planned contrasts revealed that the liking of violent TV characters of children in the during condition was significantly lower than those in the after condition (95% CI [-.502, -.095]). In addition, the significant effect on liking of the violent TV characters due to an interaction between the mediation timing condition and age group remained $F(3, 118) = 3.83, p < .05$, partial $\eta^2 = .09$.

**Hypothesis 6c.** Univariate analysis with the mediation timing condition as the independent variable revealed that children’s TV violence justification ratings did not significantly differ by the mediation timing condition, $F(3,139) = .22, p > .05$. Therefore, hypothesis 6c was not supported.

**Exploratory analysis.** There were no significant differences in TV violence justification ratings due to an interaction between the mediation timing condition and age group or between the mediation timing condition and gender when age and gender were added as factors to the univariate analysis.

**Hypothesis 6d.** Univariate analysis with the mediation timing condition as the independent variable revealed that children’s liking of the violent TV show did not significantly differ by the mediation timing condition, $F(3,139) = .56, p > .05$. Therefore, hypothesis 6d was not supported.

**Exploratory analysis.** There were no significant differences in children’s liking of the violent TV show due to an interaction between the mediation timing condition and
age group or between the mediation timing condition and gender when age and gender were added as factors to the univariate analysis.

**Hypotheses 7a – 7d**

**Analysis plan.** Hypotheses 7a through 7d predicted that cognitive capacity would moderate the effect of the mediation timing condition on children’s aggression-related outcomes. Specifically, the hypotheses predicted that children with relatively high levels of cognitive capacity who receive active mediation before or during their exposure to violent TV would report less aggressive attitudes (hypothesis 7a), less liking of violent TV characters (7b), lower ratings of the justification of violent TV (7c), and less liking of the violent TV show (7d) than those in the after condition. In this analysis, because cognitive capacity is a continuous variable, regression analysis was performed. The mediation timing condition was dummy coded, and the after condition was the reference group. First, the first step of the equation included the dummy coded before condition, the dummy coded during condition, the dummy coded no mediation condition, cognitive capacity, the product of the dummy coded during condition and cognitive capacity, and the product of the dummy coded no mediation condition and cognitive capacity. The second step of the equation included the product of the dummy coded before condition and cognitive capacity. Then, the same analysis was again conducted, with the product of the dummy coded before condition and cognitive capacity in the first step and the product of the dummy coded during condition and cognitive capacity in the second step.

Exploratory analyses were then conducted to determine if any significant interactions remained when adding the quantitative covariates to the various models.
Hypothesis 7a. Results showed that cognitive capacity did not affect the differences in aggressive attitudes between those in the before condition and those in the after condition ($\beta = -.016, p > .05$). The difference in aggressive attitudes between those in the during condition and those in the after condition, however, did depend on cognitive capacity. The interaction between the during condition and cognitive capacity added a significant 2.9% of variance to aggressive attitudes compared to the after condition ($\beta = -.064, p < .05$). A scatterplot (see Figure 11) of the interaction shows that when cognitive capacity was low, aggressive attitudes were higher in the during condition, but when cognitive capacity was high, aggressive attitudes were higher in the after condition. Therefore, this hypothesis was supported.

Exploratory analysis. The interaction between the during condition and cognitive capacity was still significant even when adding age group, gender, active mediation in general, active mediation of violent TV, and family communication patterns to the first step of the equation ($\beta = -.061, p < .05$), though the variance explained was reduced from 2.9% to 2.6%.

Hypothesis 7b. Results showed that cognitive capacity did not affect the differences in liking of the violent TV characters between those in the before condition and those in the after condition ($\beta = -.054, p > .05$). Neither did cognitive capacity affect the differences in liking of the violent TV characters between those in the during condition and those in the after condition ($\beta = -.099, p > .05$). Therefore, this hypothesis was not supported.
Hypothesis 7c. Results showed that cognitive capacity did not affect the differences in TV violence justification ratings between those in the before condition and those in the after condition ($\beta = .168, p > .05$). Neither did cognitive capacity affect the differences in TV violence justification ratings between those in the during condition and those in the after condition ($\beta = -.085, p > .05$). Therefore, this hypothesis was not supported.

Hypothesis 7d. The difference in liking of the violent TV show between those in the before condition and those in the after condition depended on cognitive capacity. The interaction between the before condition and cognitive capacity added a significant 2.8% of variance to liking of the violent TV show compared to the after condition ($\beta = -.351, p < .05$). A scatterplot of the interaction (Figure 12) shows that when cognitive capacity was low, liking of the violent TV show is higher in the before condition, but when cognitive capacity was high, liking of the violent TV show is higher in the after condition. Therefore, this hypothesis was supported. Cognitive capacity did not significantly affect the differences in liking of the violent TV show between those in the during condition and those in the after condition ($\beta = -.241, p > .05$).

Exploratory analysis. The interaction between the before condition and cognitive capacity was no longer significant when age group, gender, active mediation in general, active mediation of violent TV, and family communication patterns were added to the first step of the equation ($\beta = -.295, p > .05$).

Research Question 1
Research question 1 asked if there would be a difference in the four aggression-related outcome variables (aggressive attitudes, liking of perpetrators of violence, violence justification ratings, and liking of the violent TV show) between those in the before and during conditions. As the results of the tests of hypotheses 6a through 6d show, the mediation timing condition only significantly impacted children’s liking of the violent TV characters. Bonferroni post hoc analysis showed no significant difference in liking of the violent TV characters between the before and during conditions $F(3,139) = 3.33$, (95% CI [-.222, .326]).

**Exploratory analysis.** Univariate analysis with the mediation timing condition, gender, and age included in the model as independent variables revealed a significant effect of the interaction between the mediation timing condition and children’s gender $F(1, 63) = 3.90, p = .05$, partial $\eta^2 = .058$ on children’s liking of the violent TV characters. Specifically, boys in the before condition liked the violent TV characters ($M = 1.91, SE = .09$) more than girls in the before condition ($M = 1.38, SE = .07$). Boys’ and girls’ liking of violent TV characters in the during condition was much more similar, although boys still liked the violent TV characters ($M = 1.58, SE = .10$) slightly more than did girls ($M = 1.40, SE = .08$). This interaction is shown in Figure 13.

**Research Question 2**

Research question two asked if the differences in the four aggression-related outcomes between the before and during conditions depended on cognitive capacity. The same regression analyses, including the dummy coded mediation timing variables, that were used in testing hypotheses 7a through 7d were conducted in order to answer this
research question, with the before condition as the reference group and the product of the dummy coded during condition and cognitive capacity included in the second step of the equation.

Cognitive capacity did not significantly affect the difference in aggressive attitudes ($\beta = -.241, p > .05$), liking of the violent TV characters ($\beta = -.045, p > .05$), TV violence justification ratings ($\beta = -.083, p > .05$), or liking of the violent TV show ($\beta = .111, p > .05$) between those in the before condition and those in the during condition.

**Additional Analyses**

**Mediation.** Because hypotheses 2a – 2d addressed whether or not the relationship between the mediation condition and the aggression-related outcomes is mediated by attitude accessibility, it is appropriate to investigate whether or not the relationship between the mediation timing conditions and the aggression-related outcomes is also mediated by attitude accessibility. In addition, just as cognitive capacity moderated the effect of the mediation timing condition on part of the aggression-related outcomes, it is appropriate to investigate if cognitive capacity also moderates the indirect effect of the mediation timing condition on the aggression-related outcomes through attitude accessibility.

To test for this conditional indirect effect, I used the test of statistical significance of the mediated paths recommended by Preacher and Hayes (2008). Using Preacher and Hayes’ (2012) MEDIATE SPSS macro, I first entered the mediation timing condition as the independent variable, each of the aggression-related outcome variables as dependent variables (in separate analyses), and attitude accessibility as the mediating variable. No
significant indirect effects were found for any of the four aggression-related outcomes variables. Hayes’ (in press) PROCESS SPSS macro, a tool that allows for the inclusion of covariates into the model to test for conditional indirect effects, failed to reveal a conditional indirect effect for any of the conditions when compared with each of the other conditions.
Chapter 4: Discussion

While the parental mediation field has provided consistent evidence that active mediation is an effective way to thwart or reduce the effects of children’s exposure to mass media, less is understood about how active mediation works to curb those effects. The first purpose of this study was to investigate the explanatory power of a theoretical framework for how active mediation “alters the normal process of mass communication that makes children vulnerable to media effects” (Nathanson, 1999, p. 126).

This study proposed that active mediation works first to influence the accessibility of children’s negative attitudes about television violence, and that these accessible attitudes in turn create resistance to counter-attitudinal media content. Results, however, provided no evidence that attitude accessibility mediated the relationship between active mediation and several aggression-related outcomes in the expected manner.

Hypotheses 2a through 2d tested the indirect effects of active mediation through attitude accessibility and four aggression-related outcomes. Although one test did, in fact, show that attitude accessibility mediated the relationship between active mediation and children’s liking of the violent TV characters, the direction of the relationship was in an unexpected direction. Hypothesis 2b was supported, but active mediation actually decreased the accessibility of negative attitudes about violent TV, and children with those less accessible attitudes tended to like the violent TV characters more. No other tests
found any evidence that attitude accessibility mediated the relationship between active mediation and the aggression-related outcomes. Neither did the tests of hypotheses 3a-3d, 4a-4d, nor 5a-5d find that the proposed mediated pathway depended on children’s cognitive capacity, past exposure to TV violence, or past exposure to active mediation of violent TV, respectively.

One explanation for why no evidence was found that attitude accessibility mediated the relationship between active mediation and the aggression-related outcomes lies in Fazio’s MODE (Motivation and Opportunity as DEterminants of the attitude-behavior relation) model (Fazio, 1990). According to the MODE model, highly accessible attitudes can guide overt judgments or behavior spontaneously. That is, when attitudes are highly accessible, they can guide judgments without the individual needing to actively consider the attitude, or even without an awareness of the attitude influence (Olson & Fazio, 2009). This attitude to judgment relationship was the premise of the hypotheses relating to attitude accessibility in the current study. However, the MODE model also posits that this process can be altered when the motivation and opportunity for deliberative thought occurs.

The MODE model predicts that the ability of highly accessible attitudes to bias future information processing, as was predicted in this study, “should be minimized in the presence of motivation and opportunity” (Olson & Fazio, 2009, p. 26). Olson and Fazio (2009) continued, “Automatically activated attitudes can have a potent effect on overt judgments and behavior, but their influence can be attenuated when some relevant motivational goals arises” (pp. 26-27). In fact, “a purely deliberative process could be
free of even such indirect influences of attitude accessibility” (Fazio, 1995, p. 258). In other words, perhaps active mediation does not lead to increased attitude accessibility, but instead leads to the motivation to resist persuasive media messages or to attend to the active mediation, when then influences the related outcomes.

In their review of the literature on predictors of motivation, Olson and Fazio (2009) argued that motivation may arise due to a person’s desire to be accurate, a need to feel a sense of belonging, or in order to feel positively about oneself. Relative to active mediation of potentially persuasive messages sent by violent TV, it is possible that active mediation functions by increasing a child’s desire to be what the parents wants the child to be (desire to be accurate), by increasing a child’s desire to please the parent (need to belong), or by increasing the child’s desire for self-fulfillment (feel positively about oneself). In addition, Chaiken et al. (1989) argued that the motivation to defend one’s beliefs and attitudes in the face of counter-attitudinal messages can affect message processing.

When motivation is limited, information processing tends to be more spontaneous (Rhodes & Ewoldsen, 2012). Because of its rich visual and aural presentation of information, watching television requires less cognitive effort, and is therefore, a relatively cognitively-passive activity that requires little effort from young viewers compared to other media (Glieber, 2011; Greenfield & Beagles-Roos, 1988; Greenfield, Farrar, & Beagles-Roos, 1986). Children, then, may not be motivated to centrally or critically process television messages, unless active mediation provides that motivation. It is possible that in the absence of active mediation of TV, children’s accessible attitudes
guide their processing of TV messages, and that in the presence of active mediation, children are motivated to resist potentially persuasive media messages.

Perhaps this motivation can help explain why active mediation works to curb negative media effects. The MODE model would argue that the lack of evidence from the current study showing that active mediation influenced attitude accessibility simply reflects the fact that active mediation may in fact be influencing motivation to resist persuasive messages instead of influencing attitude accessibility. Without data on children’s motivations, that assumption, unfortunately, cannot be substantiated through this study’s data as the lack of a significant relationship between the mediation message and attitude accessibility is not necessarily sufficient to claim that processing of the persuasive message was altered by a motivational factor. Future research should verify this process through direct measurement of children’s motivation to resist the counter-attitudinal TV message following the receipt of active mediation through an established scale, such as Campbell’s (1995) scale measuring perceptions of undue manipulative intent.

Although this study did not specifically measure motivation, previous active mediation research suggests that motivation may be the result of active mediation efforts. For example, Nathanson (1999) predicted and found that active mediation worked first by influencing children’s perceptions of the importance of violent content and how much attention they gave the content. Children’s perceived importance and attention were in turn associated with aggressive tendencies. In other words, when children perceived media content to be important, they were motivated to learn from the content, elaborate
more on the content, and were thus more likely to be affected by the content. And vice versa, when children heard parents’ criticism of media content, they did not perceive the content to be important, and thus did not learn the mediated material. Nathanson’s findings suggest that motivation is an important determinant of message elaboration, which is in turn related to attitudinal and behavioral change, results that confirm propositions of dual-process theories of information processing (Chaiken et al., 1989; Chen & Chaiken, 1999; Fazio, 1986, 1990), such as the MODE model.

Similarly, Byrne (2008) argued that active mediation messages that include information intended to motivate children to avoid encoding, storing, retrieving, and employing aggressive behaviors displayed in media content are more effective than traditional media literacy interventions that simply provide non-evaluative information to children. In fact, according to Byrne (2008), the results of Huesmann, Eron, Klein, Brice, and Fischer’s (1983) study suggest that active mediation intended to motivate children to think deeply about a media message was more effective than factual mediation.

According to the MODE model, in the absence of active mediation, attitude accessibility should guide children’s processing of the TV message. In fact, evidence exists showing that the extent of biased processing depends on attitude accessibility (Olson & Fazio, 2009). In other words, attitude accessibility has been shown to moderate the relationship between a predictor variable and an outcome variable, both when attitude accessibility was manipulated (Fazio, Chen, McDonel, & Sherman, 1982; Lord et al., 1979; Roskos-Ewoldsen & Fazio, 1992b) and when it was measured as a preexisting condition (Fazio & Williams, 1986; Fazio, Powell & Williams, 1989; Houston & Fazio,
Post-hoc analysis of the data in the current study confirmed that active mediation served to minimize the effect of violent TV when attitude accessibility was low (see Figure 8), confirming the MODE model’s prediction that attitude accessibility should guide message processing in the absence of motivation. Therefore, it appears that active mediation may work by providing the motivation to resist the persuasive messages contained in the violent TV show. Thus, those without motivation to resist (those who do not receive mediation) may be guided by the accessibility of their negative attitudes about TV violence.

Similarly, post-hoc analysis revealed that attitude accessibility also moderated the influence of the mediation timing condition on children’s liking of the violent TV characters, providing additional evidence that active mediation may work to strengthen weak negative attitudes about television violence. If children do not have the attitude that violent television is negative, then active mediation can serve somewhat as a surrogate to fill in for the missing effect that highly accessible negative attitudes about TV violence have on children’s reactions to violent TV. Nathanson (2001a) argued that active mediation has the potential to fill in cognitive developmental gaps, such as helping children understand plots and messages, helping them to distinguish between fantasy and reality, and helping them resist advertising messages. Perhaps active mediation also fills in attitudinal gaps, or motivation to resist, that if present, could help children resist undesirable media messages. Therefore, children’s attitudes about television content may moderate the effect of active mediation on children’s responses to media content.
In addition, because the frequency and recency of attitude activation influences the attitude’s accessibility, it is possible that those who have received high amounts of active mediation in the past also have highly accessible negative attitudes about TV violence. These children would theoretically benefit less from active mediation since their attitudes are already providing the protective power they need to resist counter-attitudinal media messages. In fact, correlational analysis from this study suggests that the amount of active mediation of violent TV children received in the past does in fact increase the accessibility of negative attitudes about violent TV ($r = -0.164, p = .056$).

Therefore, past active mediation may function to alter children’s attitudes, while current mediation may then be influenced by the strength of those attitudes. Additional post-hoc analysis found that just as attitude accessibility moderated the relationship between active mediation and children’s liking of violent TV characters, children’s past exposure to active mediation of violent TV also moderated the same relationship ($\beta = .583, p < .01$). Specifically, among children who received low levels of past active mediation of violent TV, they liked the violent TV characters more in the no mediation condition than in the mediation condition. On the other hand, among children with high levels of past active mediation of violent TV, children liked the violent TV character more in the mediation condition than in the no mediation condition. In other words, the mediation was helpful for children who had not often received mediation in the past, but was not helpful for children who had already received higher amounts of active mediation of violent TV in the past. These results are consistent with the idea that past active mediation influences attitude accessibility, which then protects against media
influence, and that the lack of past active mediation leaves negative attitudes about TV violence less accessible, and thus, in need of the complementing power of current active mediation and the motivation to resist media messages that it provides.

The second purpose of this study was to investigate the effectiveness of active mediation when given at different times in relation to children’s violent television exposure. Results showed that children’s reactions to violent TV differed based on when they received mediation. Results also showed that the effect of timing depended on children’s level of cognitive capacity.

Without taking the timing of the mediation into account, there was no difference in the aggressive attitudes, violence justification ratings, or children’s liking of the violent TV show between children who received mediation and those who did not receive mediation. However, children who received active mediation liked the violent TV characters less than those who did not receive mediation. Timing does indeed change active mediation’s effect on aggression-related outcomes, especially when considering children’s level of cognitive capacity. Results showed that talking to children before or during the program was better at mitigating the effect of the program on children’s liking of the violent TV characters than not talking to kids at all. In addition, the timing condition influenced children’s aggressive attitudes and children’s liking of the violent TV show, though the effect of timing on these three outcomes depended on children’s level of cognitive capacity.

The results consistently showed that talking to kids with high cognitive capacity about violent TV either before or during their exposure to the program was more
effective than talking to them after their exposure at reducing negative media effects. Further, results consistently showed that talking to kids with low cognitive capacity about violent TV after their exposure to the program was more effective than talking to them before or during their exposure at reducing negative media effects. And for at least one aggression-related outcome, talking to children with high cognitive capacity about violent TV after they are exposed to it can even be worse than not talking to them at all.

The first novel contribution these results provide to the active mediation literature is that the timing of active mediation may be an important factor in interpreting research—especially that of correlational data. Because correlational research cannot prove causality, the extant research is unable to accurately describe the relationship between mediation efforts and the effects of media exposure on children. Correlational research does not effectively distinguish whether active mediation came before a media effect, or whether it occurred in response to a media effect. This is the first study to experimentally manipulate the timing of active mediation. The results of this study show that the timing of the mediation does make a difference, and that researchers should interpret correlational data with caution in the absence of empirical information about mediation’s timing. Beyond the implications these results have for researchers in the field, this study is the first to provide evidence to parents that it may be appropriate to talk to some children about certain media content before or during their exposure to that content, while it may be more appropriate to talk to other children after they are exposed to the content. And for some parents, it may be best to avoid active mediation at all if the conversations cannot occur before or during the exposure.
Providing an explanation for why mediation’s timing makes a difference was another goal of this study. However, the proposed pathway—active mediation to attitude accessibility to the aggression-related outcomes—failed to find support in the data. There was no evidence that pre- or during-exposure mediation influenced attitude accessibility differently or better than post-exposure or no mediation. Again, however, the MODE model offers an explanation for why accessible attitudes may not represent the process through which mediation’s timing functioned. Schuette and Fazio (1995) found that the motivation to deliberately process a message overrode the biasing effect of highly accessible attitudes. Some participants in their study were told that their judgments of the quality of scientific studies about the ability of the threat of capital punishment to effectively deter activities that qualify for the death penalty would be made public and compared to experts’ judgments. This researcher-provided message presumably increased the motivation of these participants to more deliberately process the information contained in the scientific studies, resulting in judgments that were more objective and less biased by participants’ highly accessible attitudes about the deterrent efficacy of the death penalty. In the context of the current study, it is possible, then, that those who received pre-exposure mediation were motivated to more centrally process the violent TV content, resulting in resistance to the persuasive messages contained therein. Such motivation to process deliberately was not provided by the post-exposure mediation or the lack of mediation, simply because that motivation was provided after the exposure, so the exposure was less likely to be processed deliberately. Future research can help determine whether this explanation is justified. This study is limited in its ability to
provide evidence for this explanation because neither biased processing nor motivation to resist was measured. Future studies should measure these two constructs in order to corroborate the explanation for the importance of timing provided by the MODE model.

This explanation is consistent with the explanations offered by the extant active mediation research. Nathanson (2004) argued that certain mediation (factual) might actually increase the attention children pay to media messages, which then increases the influence of those messages (presumably through increased elaboration). However, it is possible that negative-evaluative mediation, such as the mediation employed in the current study, could motivate children to critically process the message, thus impacting the influence of the media message. It is also possible that the current study did not find evidence that children’s accessible attitudes results in biased processing due to the methodology employed. Perhaps the children in this study were not able to complete the response latency tasks with the precision of adults, the audience that is generally asked to complete response latency tasks. Or, perhaps children needed more training than the three relatively quick training blocks provided in this study in order to master the response latency task.

The moderating influence of cognitive capacity on active mediation is the second novel contribution of this study to the active mediation literature. Not only did the effect of active mediation on children’s liking of the violent TV characters depend on cognitive capacity, but the effect of mediation’s timing on several aggression-related outcomes depended on children’s cognitive capacity. These results are compelling because they provide empirically-tested evidence for why children of different ages react differently to
active mediation efforts. Age is highly associated with cognitive capacity (Fisch, 2000; Kail, 1991; Lang, 2000; Strasburger, Wilson & Jordan, 2009). A Pearson’s correlation analysis in this study confirmed this assumption ($r = .572$, $p < .001$). Many studies have found that younger children and older children respond differently to active mediation, but no other study provides empirical evidence that these age-related differences may actually be due to the developmental difference of cognitive capacity.

The results of this study suggest that older children, as predicted, have an advantage over younger children, in that because they can hold more information in working memory, the information in their memory has a greater opportunity to influence their processing of subsequent information to which they are exposed. In this study, older children benefitted more from pre- and during-exposure mediation than younger children, confirming the assumption that younger children developmentally did not have the ability to maintain multiple pieces of information in their working memory, including both the mediation message and the media content, which would have allowed the mediation message to influence children’s interpretation of the media content. It appears that the pre-exposure mediation inserted information into older children’s working memory that then motivated them to resist the persuasion in the media message—this could not occur in the post-exposure or no-mediation conditions because information that is not in the working memory during the media exposure cannot change the processing of that exposure. These results are also consistent with Nathanson’s (2004) post-hoc explanation that mediation may not work for younger children because their cognitive
resources are not sufficient enough to process both the mediation message and the TV message. This appears to be true for children in the pre- and during-exposure conditions.

Another explanation for why older children tended to respond better to pre- and during-exposure mediation than to post-exposure mediation or no mediation could be offered by an understanding of psychological reactance. Reactance theory posits that people, especially children, are motivated to engage in the very behavior or accept the very judgments that the persuasive message condemns because children conclude that the persuasive message threatens or restricts their freedom (Brehm, 1966; Brehm & Brehm, 1981). In the context of parental mediation of violent TV, older children may feel that the active mediation message threatens their freedom to enjoy the violent fare or to behave in a manner of their choosing (Byrne, 2008). Consistent with the MODE model explanation given above, reactance is a motivational state (Dillard & Shen, 2005). In the case of post-exposure mediation, however, children are not motivated to deliberately consider the TV message, but they are motivated to reject the parent’s counter-persuasive active mediation message.

It is also possible that older children (those higher in cognitive capacity) exhibited reactance effects in the post-exposure mediation condition because they felt their freedom to watch the content in question in the future was threatened. On the other hand, those who received pre-exposure mediation may not have felt their freedom to watch the content was threatened because they were still able to watch the content after receiving the mediation.
Boomerang effects due to psychological reactance are not entirely uncommon in the active mediation literature (i.e. Doolittle, 1980; Nathanson, 2004; and Nathanson & Yang, 2003). For example, Nathanson and Yang’s (2003) study found age-related boomerang effects. They found that older children (ages 9-12), but not younger children (ages 5-8), had less positive orientations toward a violent TV program when they received mediation in the form of a statement. They argued, as did Nathanson (2004), that negatively-valenced statements could be perceived as an unwanted, condescending lecture by the older children. This perception could be evidence of the motivation to resist produced by psychological reactance. Byrne (2008) identified several other persuasion theories that argue that boomerang effects could result when children are motivated to resist a message, including commodity theory, EPPM, ELM, attribution theory, and ironic process theory. Future studies employing these theoretical perspectives could have implications for motivating children to resist persuasive media messages, and for preventing children’s reactance to parental attempts at active mediation.

This study is the first to find evidence suggesting that such reactance may be created by waiting to talk to children about TV violence until after their exposure, rather than having that conversation before or during their exposure to violent TV. Future research should measure reactance using an established reactance measurement tool to determine if this is in fact what is happening to older children in the case of post-exposure mediation.
In addition to the implications for policy-makers, researchers, and parents that the effect of mediation’s timing has on children’s attitudes, this study provides further evidence that proactive parenting is more effective than reactive parenting at preventing future outcomes. Human ecology and child development researchers have found that parenting strategies that occur as preventive measures before the child’s development of a concerning attitude or behavior is more effective at reducing behavioral issues and at improving social skills compared to reactive parenting strategies (Gardner, Sonuga-Barke, & Sayal, 1999; Maccoby & Martin, 1983; Padilla-Walker & Carlo, 2004; Pettit & Bates, 1989; Pettit, Keiley, Laird, Bates, & Dodge, 2007).

Nathanson (2001a) argued in her seminal conceptualization of parental mediation that mediation can occur “before, during, or after viewing” (p. 117). This study provides evidence that perhaps mediation should now be differentiated in terms of its timing as well, namely pre-exposure mediation or proactive mediation, concurrent-exposure mediation, and post-exposure mediation or reactive mediation.

Therefore, it seems that the timing of active mediation influences its outcome on both older and younger children. It also appears that active mediation serves to impact children’s motivation to process active mediation messages and to resist persuasive media messages. Despite these findings, there are several limitations associated with this study. First, the mediation in this study was provided by an experimenter, not by the parent of each child. As noted earlier, much mediation research employing experiments have explored the effects of mediation given by adults other than the child’s parent (Nathanson, 2001a). However, additional research should seek to confirm these findings.
through experimental research in which parents give the active mediation message in a natural setting. Furthermore, children’s exposure to television in this study does not necessarily mimic the home environment, meaning that it is not necessarily accurate to assume that the same findings would be obtained had the experiment occurred in each child’s natural television-viewing setting. For example, the experiment took place in a school setting—a setting in which children are expected to give the “right” answer, and a setting in which children’s learning is measured by how well they repeat back the knowledge presented to them by a trained, professional, authority figure. Therefore, it is possible that children’s survey responses are more a measure of their ability to repeat back (1) what they heard in the mediation, or (2) what they thought the experimenter wanted to hear, than they are of actual measures of children’s aggression-related outcomes. In both cases, it appears that children’s desire to appear accurate to the experimenter may have influenced their responses to the questionnaire items. The tenets of social desirability may, then, explain children’s responses.

On the other hand, considering children’s responses as simply a reflection of social desirability is not outside the scope of the MODE model. As stated above, Olson and Fazio (2009) point out that one’s desire to be accurate or to please others is a motivation that may guide children’s judgments of their environment. Therefore, social desirability may be the motivation that is necessary to alter children’s reactions to violent television. Future research could help investigate the motivating effect of social desirability by examining these same outcomes in a setting that does not necessarily demand a right or wrong answer, such as in the child’s school. Social desirability can
also be explicitly measured and included in analyses as a covariate in order to control for its effect.

Similarly, because children may have been responding in a way they thought the experimenter wanted them to respond, it is possible that their responses reflect the salience of their injunctive norms. Social norms refer to an individual’s awareness of the standards of behaviors, and injunctive norms are the social norms that have implied social rewards and punishments (Rhodes, Ewoldsen, Shen, Monahan, & Eno, 2011). In other words, children’s responses may simply reflect their perception of acceptable responses, and the consequences of responding in an acceptable or unacceptable way, to the questionnaire items. Future research should employ measures of children’s experimenter or parental norms in order to more accurately measure children’s aggression-related outcomes.

Second, it is difficult to generalize these findings beyond the relatively homogenous sample used in this study. The sample consisted of mostly white, highly-educated families within a limited geographical area. Further exploration with a more diverse sample is necessary in order to understand how mediation’s timing affects children from various backgrounds. In addition, this study is limited to children ages 5-7 and 10-12. As developmental changes also occur among children both younger and older than children in these age ranges, future research should include children from a broader age of ranges to help us understand whether the timing of mediation affects children in various age groups.
Third, the only aspect of children’s development that this study considered was cognitive capacity. Other aspects of development have been identified in research on the effect of media on children that may also influence the way active mediation influences children’s processing of media messages. To name a few, for example, children’s attention and comprehension tend to increase with age. It is possible that the results of this study relative to cognitive capacity are actually a representation of another facet of child development, but since this study did not measure nor control for these other facets, future research should seek to do so.

Fourth, the timing manipulation, as well as investigations into theoretical pathways to help explain how active mediation functions to thwart negative media effects, should be tested with different contexts. Other contexts could include other forms of television violence, such as non-cartoon violence, advertising, and sexual content. In addition, while this study focused on potentially negative effects of the media, these same constructs should be investigated for their value in enhancing the potentially positive effects of media exposure. These constructs should also be tested within the context of children’s use of the Internet and other new media platforms.

In addition, it is possible that the attitude accessibility task the children participated in did not reliably and validly measure children’s negative attitudes about media violence, even though the response times for each of the four critical images portraying violence were somewhat reliable ($\alpha = .71$). As stated previously, two of the images portrayed interpersonal aggression, one image portrayed a man on a TV screen shooting a gun, and one image portrayed the Tibble twins from the *Arthur* cartoon.
wrestling with each other. It is conceivable that children’s attitudes about interpersonal aggression were instead tapped via the attitude accessibility task. The image of the Tibble twins may also have simply measured children’s liking of the Tibble twins, especially among those familiar with *Arthur*. As this was the first study of which I am aware that measures children’s latent attitudes toward media violence, future research should seek to further validate and employ images that can be presented in response latency tasks measuring children’s attitudes toward media violence.

Future research may also benefit from measuring children’s attitudes toward media violence using an implicit attitude test, rather than simply a response latency test. Close examination of each of the studies cited in this study to justify the use of a response latency task to measure children’s shows that prior research investigating children’s latent attitudes used some sort of implicit attitude test, rather than just a response latency task. It is possible that young children’s latent attitudes, then, are better measured using an implicit attitude test than solely by a response latency task. However, post hoc analysis showed that participants were able to complete the attitude accessibility task. As stated previously, a major predictor of attitude accessibility is the frequency of activation of that attitude. Post hoc Pearson’s correlational analysis revealed that the more often children received active mediation of violent television, the more accessible their negative attitudes about violent TV were (r = -.164, p = .028, one-tailed), indicating that the study participants were able to complete the attitude accessibility task.

Future research should also investigate the relationship between active mediation and positive responses to critical images portraying media violence. As noted previously,
the response latencies of positive responses to the critical images were excluded from this study’s analyses. It is possible, however, that a relationship may be found to exist between active mediation and positive responses to the critical items. Future research should investigate this possibility within a theoretical framework capable of explaining why such an effect could occur.

Additionally, it is interesting to note that in the hypotheses investigating the effective of the mediation vs. the no mediation condition, the only aggression-related outcome that differed by the condition was children’s liking of the violent TV characters. The same pattern emerged in comparisons among children in the different timing conditions. It is possible that these results emerged due to the language of the mediation message. The message, as previously noted, highlighted children’s liking of the characters and their aggressive actions. Perhaps other outcomes would have differed by condition had the mediation message included language specifically related to the other aggression-related outcomes, including language focused on the justification of the violent acts, on liking shows that portray violence, and on the desire to be physically aggressive.

Finally, children’s motivation to attend to the active mediation message and to resist the persuasive television message should be measured using established methods in order to test the alternatives presented by the MODE model. Understanding the way in which active mediation works to promote positive and reduce negative effects is essential to helping researchers, parents, and policymakers develop meaningful media literacy.
prevention and intervention programs and more effective parent-child conversations about the media.

In summary, active mediation has been consistently shown to be an effective way for parents to counteract the persuasive power of media messages. Knowing that active mediation works, however, is different than understanding how it works. Determining why and how active mediation functions is critical to researchers’ and parents’ efforts to create mediation messages with the counter-persuasive ability to counteract the increasingly-mediated world of children. More research is needed to increase our understanding of the active mediation process and to add practical utility to the field’s findings, especially in light of the developmental differences of children and the expanding repertoire of media content to which they are exposed.
References


Fazio, R. H. (1990). Multiple processes by which attitudes guide behavior: The MODE model as an integrative framework. In M. P. Zanna (Ed.), *Advances in


Appendix A: Tables
Table 1: Means and Standard Deviations for Aggression-Related Outcomes and Attitude Accessibility by Condition

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Appendix B: Figures
Figure 5. Effect on Children’s Liking of Violent TV Characters of the Interaction Between the Mediation Condition and Children’s Age Group.
Figure 6. Effect on Children’s Liking of Violent TV Characters of the Interaction Between the Mediation Condition and Children’s Cognitive Capacity.
Figure 7. Effect on Children’s Justification Ratings of TV Violence of the Interaction Between the Mediation Condition and Children’s Gender.
Figure 8. Effect on Children’s Justification Ratings of TV Violence of the Interaction Between the Accessibility of Negative Attitudes about TV Violence and Active Mediation of Violent TV.
Figure 9. The Effect of the Timing Condition on Children’s Liking of the Violent TV Characters.
Figure 10. Effect on Children’s Liking of the Violent TV Characters of the Interaction Between the Mediation Timing Condition and Children’s Age Group.
Figure 11. Effect on Children’s Aggressive Attitudes of the Interaction Between the Mediation Timing Condition and Children’s Cognitive Capacity.
Figure 12. Effect on Children’s Liking of the Violent TV Show of the Interaction Between the Mediation Timing Condition and Children’s Cognitive Capacity.
Figure 13. Effect on Children’s Liking of the Violent TV Characters of the Interaction Between the Mediation Timing Condition and Children’s Gender.
Appendix C: Experimental Conditions Flow Chart
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Appendix E: Active Mediation Message
In this show, SpongeBob and his friend Patrick Star do not agree on how clean they should be. Instead of talking nicely to each other, they do mean things like yelling, hitting, and throwing things. Nobody likes people who act like they do. Do you like people who yell and throw things? If you fought like these guys, people won’t like it, and you’ll get in trouble. Somebody could even get hurt. And, I’m sure you would not want others to treat you the way SpongeBob and Patrick treat each other. Do you like it when others yell at you? When you see fighting like this on TV, you should remember that fighting is not cool and it is not the right way to solve problems.
Appendix F: Backwards Digit Recall Test
**Backwards Digit Recall Test**

In this game, I will say some numbers and I want you to say them backwards. So when I say 1, 2, you say 2,1. Let’s do a couple of practice ones. When I say 3, 4, you say it backwards, 4,3. 6,8, ______. Good job. 2,4. ______. Good job.

Okay, are you ready to start now? Here we go.

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<td>1, 6, 4, 3, 8, 0, 3</td>
<td>8, 1, 6, 4, 2, 4, 6</td>
<td>4, 6, 1, 7, 2, 7, 3</td>
<td>5, 0, 1, 8, 3, 2, 6</td>
<td></td>
</tr>
</tbody>
</table>
Appendix G: Children’s Questionnaire
Aggressive Attitudes

1. Do you feel like hitting or kicking someone right now?
   \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)

2. Do you feel like throwing something at someone right now?
   \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)

3. Do you feel like yelling at someone right now?
   \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)

4. Do you feel like calling someone a name right now?
   \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)

5. Do you like to watch people fight?
   \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)

6. When other kids are mean to you, do you feel like being mean back at them?
   \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)

7. When other kids call you names, do you feel like calling them names too?
   \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)

8. Is yelling at someone a good way to get what you want?
   \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)

9. Is fighting a good way to get what you want?
   \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)

10. Is fighting a good way to act when you don’t agree with someone?
    \(\text{No} \quad \text{Sort of} \quad \text{Yes}\)
Now we’d like you to answer some questions about the show you saw.

11. The name of the show you just saw is “SpongeBob SquarePants.” How many times have you seen “SpongeBob SquarePants” before?

Never    A couple of times    Lots of times

Attitude toward the violent show

12. Did you like this show?

No    Sort of    Yes

13. Would you like to see this show again?

No    Sort of    Yes

Liking of television characters

11. Did you like SpongeBob in the show?

No    Sort of    Yes

12. Did you think SpongeBob was mean?

No    Sort of    Yes

13. Did you like Patrick Star in the show?

No    Sort of    Yes

14. Did you think Patrick Star was mean?

No    Sort of    Yes

15. Do you wish you could be like SpongeBob and Patrick Star?

No    Sort of    Yes
16. Do you think SpongeBob and Patrick Star are cool?
   
   No  Sort of  Yes

17. Do you wish you had friends like SpongeBob and Patrick Star?

   No  Sort of  Yes

18. Were you glad when SpongeBob and Patrick Star fought each other?

   No  Sort of  Yes

Justification of televised violence

19. Were SpongeBob and Patrick Star right to treat each other that way?

   No  Sort of  Yes

20. Do you think SpongeBob and Patrick Star got what they deserved?

   No  Sort of  Yes

Other questions

21. When you watched that TV show, did you pay attention to all of the fighting?

   No  Sort of  Yes

22. Did you learn any new fighting tricks from that TV show?

   No  Sort of  Yes

23. Was the fighting in that TV show real?

   No  Sort of  Yes

24. Did they use camera tricks in that show?

   No  Sort of  Yes

25. Was the fighting on the show cool?

   No  Sort of  Yes
26. Do you think that SpongeBob and Patrick Star have a lot of friends?
   
   \[
   \begin{array}{ccc}
   \text{No} & \text{Sort of} & \text{Yes} \\
   \end{array}
   \]

27. Do you think I like the TV show you just saw?
   
   \[
   \begin{array}{ccc}
   \text{No} & \text{Sort of} & \text{Yes} \\
   \end{array}
   \]

28. Do you think I like SpongeBob and Patrick Star?
   
   \[
   \begin{array}{ccc}
   \text{No} & \text{Sort of} & \text{Yes} \\
   \end{array}
   \]

Finally, tell us a few more things about you

29. Do you watch cartoons?
   
   \[
   \begin{array}{ccc}
   \text{No} & \text{Sometimes} & \text{Yes} \\
   \end{array}
   \]

30. Do you watch action adventure TV shows (such as “Power Rangers,” “Speed Racer” or “Zula Patrol”)?
   
   \[
   \begin{array}{ccc}
   \text{No} & \text{Sometimes} & \text{Yes} \\
   \end{array}
   \]

31. Do you watch wrestling or fighting shows on TV (such as “Smackdown” or “Ultimate Fighting”)?
   
   \[
   \begin{array}{ccc}
   \text{No} & \text{Sometimes} & \text{Yes} \\
   \end{array}
   \]

32. Which one is most like you? Circle your answer.

   \[
   \begin{array}{ccc}
   \text{Black (African American)} & \text{Asian} & \text{White} \\
   \text{(Caucasian)} & \text{Hispanic} & \text{Other} \\
   \end{array}
   \]

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33. Manipulation check question #1: When I talked to you about SpongeBob and Patrick Starr fighting, did I say that fighting is
   a. Cool
   b. Kind of cool
   c. Not cool

34. Manipulation check question #2: When I talked to you about SpongeBob and Patrick Starr fighting, what did I say could happen to people who yell and throw things? (get in trouble or get hurt).
Appendix H: Mother’s Questionnaire
(just a reminder, please do not talk about this study with your child until they have completed their participation in the study)

**In this section, think about your family. Please indicate how much you agree or disagree with each of the following statements where a 1 = strongly disagree (SD) and a 7 = strongly agree (SA)**

1. In our family we often talk about topics like politics and religion where some persons disagree with others.
   1  2  3  4  5  6  7
   SD  SA

2. I often say something like “Every member of the family should have some say in family decisions.”
   1  2  3  4  5  6  7
   SD  SA

3. I often ask my child’s opinion when the family is talking about something.
   1  2  3  4  5  6  7
   SD  SA

4. I encourage my child to challenge my ideas and beliefs.
   1  2  3  4  5  6  7
   SD  SA

5. I often say to my child something like “You should always look at both sides of an issue.”
   1  2  3  4  5  6  7
   SD  SA

6. My child usually tells me what they are thinking about things.
   1  2  3  4  5  6  7
   SD  SA
7. My child can tell me almost anything.
   1  2  3  4  5  6  7
   SD  SA

8. In our family we often talk about our feelings and emotions.
   1  2  3  4  5  6  7
   SD  SA

9. My child and I often have long, relaxed conversations about nothing in particular.
   1  2  3  4  5  6  7
   SD  SA

10. I really enjoy talking with my child, even when we disagree.
    1  2  3  4  5  6  7
    SD  SA

11. I encourage my child to express their feelings.
    1  2  3  4  5  6  7
    SD  SA

12. I tend to be very open about my emotions.
    1  2  3  4  5  6  7
    SD  SA

13. We often talk as a family about things we have done during the day.
    1  2  3  4  5  6  7
    SD  SA

14. In our family, we often talk about our plans and hopes for the future.
    1  2  3  4  5  6  7
    SD  SA
15. I like to hear my child’s opinion, even when I don’t agree with them.
   1  2  3  4  5  6  7
   SD  SA

16. When anything really important is involved, I expect my child to obey without question.
   1  2  3  4  5  6  7
   SD  SA

17. In our home, the parents usually have the last word.
   1  2  3  4  5  6  7
   SD  SA

18. I feel that it is important to be the boss.
   1  2  3  4  5  6  7
   SD  SA

19. I sometimes become irritated with my child’s views if they are different from mine.
   1  2  3  4  5  6  7
   SD  SA

20. If I don’t approve of it, I don’t want to know about it.
   1  2  3  4  5  6  7
   SD  SA

21. When they are at home, I expect my child to obey my rules.
   1  2  3  4  5  6  7
   SD  SA

22. I often say things like “You’ll know better when you grow up.”
   1  2  3  4  5  6  7
   SD  SA
23. I often say things like “My ideas are right and you should not question them.”
   1  2  3  4  5  6  7  
   SD  SA  

24. I often say things like “A child should not argue with adults.”
   1  2  3  4  5  6  7  
   SD  SA  

25. I often say things like “There are some things that just shouldn’t be talked about.”
   1  2  3  4  5  6  7  
   SD  SA  

26. I often say things like “You should give in on arguments rather than risk making people mad.”
   1  2  3  4  5  6  7  
   SD  SA  

In this section we would like to know how often your child watches TV.

27. About how many hours of TV does your child watch on the average weekday? _____

28. About how many hours of TV does your child watch on the average Saturday? _____

29. About how many hours of TV does your child watch on the average Sunday? _____

30. How often does your child watch *SpongeBob SquarePants*?
   Never       Rarely       Sometimes       Often       Always

31. What are your child’s three favorite weekday morning TV shows?
   a. ______________________________________
   b. ______________________________________
   c. ______________________________________

32. What are your child’s three favorite weekday afternoon TV shows?
33. What are your child’s three favorite weekday evening TV shows?
   a. ____________________________________
   b. ____________________________________
   c. ____________________________________

34. What are your child’s three favorite Saturday TV shows?
   a. ____________________________________
   b. ____________________________________
   c. ____________________________________

This is the next to last section. Thinking about conversations you’ve had with your child about television, please tell us how often you:

35. tell your child that what happens on TV wouldn't happen in real life?
   Never Rarely Sometimes Often

36. tell your child that you do not like the program they are watching?
   Never Rarely Sometimes Often

37. tell your child that you do not like the overall message in the program?
   Never Rarely Sometimes Often

38. tell you child not to copy what they see on TV?
   Never Rarely Sometimes Often

39. encourage your child to discuss the plot?
   Never Rarely Sometimes Often
40. encourage your child to try to predict what will happen at the end of the story?
   Never    Rarely    Sometimes    Often

41. discuss with your child how the story relates to their own lives?
   Never    Rarely    Sometimes    Often

42. encourage your child to think about a topic introduced by the TV program?
   Never    Rarely    Sometimes    Often

43. tell your child that what happens on the show is realistic?
   Never    Rarely    Sometimes    Often

44. tell your child that you like the program they are watching?
   Never    Rarely    Sometimes    Often

45. tell your child that you like the overall message in the program?
   Never    Rarely    Sometimes    Often

46. encourage your child to imitate what they see on TV?
   Never    Rarely    Sometimes    Often

47. tell your child that you don't like how characters are acting because they are acting violently?
   Never    Rarely    Sometimes    Often

48. tell your child that TV shows a lot of violence?
   Never    Rarely    Sometimes    Often

49. make negative comments about a character’s violent behaviors?
   Never    Rarely    Sometimes    Often

50. tell your child that nobody in the “real world” acts violently like the people on TV?
   Never    Rarely    Sometimes    Often

51. tell your child that TV is too violent?
   Never    Rarely    Sometimes    Often

52. seek your child’s opinions about a character’s violent behaviors (without offering your own opinion)?
   Never    Rarely    Sometimes    Often
53. encourage your child to think about how violent certain characters are (without offering your own opinion)?
   Never    Rarely    Sometimes    Often

54. encourage your child to compare how characters on TV act compared to how people act in real life (without offering your own opinion)?
   Never    Rarely    Sometimes    Often

55. make positive comments about a character’s violent actions?
   Never    Rarely    Sometimes    Often

56. tell your child that you like a character’s violent behavior?
   Never    Rarely    Sometimes    Often

57. tell your child that people in the “real world” act like the characters on TV?
   Never    Rarely    Sometimes    Often

58. tell your child that you like certain violent characters?
   Never    Rarely    Sometimes    Often

59. watch a program containing violence with your child without making any comments?
   Never    Rarely    Sometimes    Often

Lastly, we would like to know a few things about you.

60. What was your age on your last birthday? _____

61. How much formal education have you received? (please check one)
   _____ eighth grade or less   _____ some high school   _____ high school diploma
   _____ some college           _____ college diploma    _____ some graduate school
   _____ graduate degree (e.g., M.A., Ph.D., J.D.)

62. How would you describe your ethnicity? (please check one)
   _____ Caucasian            _____ Hispanic         _____ Black or African American
   _____ Asian                _____ Native American/Pacific Islander
   _____ Other or mixed
63. How old is your child that is also participating in this study? __________

64. What grade is this child in? ______

65. Is this child a boy or girl? ______

66. How many siblings does your child (that is participating in this research) have? ______
Appendix I: Attitude Accessibility Task Instructions
We will use the computer for this next activity. On the screen you will see a bunch of pictures. If you like the picture that is on the computer, I want you to push this button (point to the key on the keyboard that corresponds to “like”). If you don’t like what you see, push this button (point to the key on the keyboard that corresponds to “dislike”). I want you to give the right answer, but I also want you to give the right answer as fast as you can. Can you do that? So, let’s practice a little bit.

(Give the 1st two blocks, consisting of 2 sets of 20 randomly selected happy face and the frowny faces. Between the 2 blocks, say: Now, I want you to try to do it a little faster this time. Be sure to encourage the child.)

Now, instead of just happy and frowny faces you will see other pictures also. Keep trying to give the right answer as fast as you can. (present 3rd block). Good job.

(prior to the 4th and 5th blocks, say: Now, I’d like you to push the correct like or dislike key as fast as you can for these pictures.)