

Media Violence and Aggression in Youth

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Violence has long been a staple of entertainment media. In the earliest days of television, slapstick cartoons featured anthropomorphized characters that chased and hit one another. Today, Japanese-inspired anime cartoons portray evil characters attacking heroes with razors, videogames reward young players for attacking law enforcement characters, and popular rap songs contain lyrics that condone aggression against women. One journalist described watching evening television in the following way, "*CSI This* and *CSI That* and *CSI The Other Thing* and *Criminal Minds* and so on and so on, and every one – each and every one – flashed scenes more violent than the last. Not just violent. Off-the-charts violent because, after awhile, routine violence isn't enough. We become hardened. So the fictional violence is escalated, day after day, program after program" (Merzer, 2006).

Public concern over media violence has waxed and waned over the years, often ignited by incidents of youth aggression. In the late 1980s, a 12-year-old boy stomped on and killed a 6-year-old girl while purportedly showing her moves he had learned from professional wrestling on television. In the late 1990s, the Columbine High School massacre stirred debate about the media because the two teen perpetrators of that crime were obsessed with heavy metal music, violent films, and violent videogames. After the shooting, police found a videotape of one of the killers with a sawed-off shotgun he called "Arlene," named after a character in the videogame *Doom*. Countless other examples of youth violence, often enacted by increasingly younger-aged perpetrators, have caused controversy regarding the role that the media may play in encouraging aggressive behavior.

This chapter focuses on the relationship between entertainment violence and youth aggression. Violence can also be found in news media as well but that topic is covered in another chapter in this volume (Smith, Moyer-Guse, & Pieper, Chapter 10). Focusing here on entertainment messages, I begin by reviewing research that documents the amount and nature of violence in various media, particularly those directed at children and adolescents. I then describe the major theoretical perspectives that have been used to account for the relationship between violent

media and youth aggression. Next, I overview the empirical evidence pertaining to this linkage, which can be divided into studies that have tested the short-term effects of exposure to media violence and those that have tested more long-term effects. Then I describe a number of moderator variables that have been shown to influence whether young people will learn from and imitate violent messages in the media. Media messages differ in their strength or potency for encouraging youth aggression. In addition, children and teens differ in their susceptibility to these messages as a function of their own cognitive functioning, personality, and environmental situation. I conclude with a discussion of recent issues that have emerged regarding media violence and needed directions for future research.

Violent Messages in the Media

Children in the United States spend an average of 6 hours a day with the media (Roberts, Foehr, & Rideout, 2005). No other activity occupies such a large proportion of their time except sleep. How much of this media exposure involves violence? To answer this question, researchers have conducted numerous content analyses of media, most of which have focused on television. One of the challenges in this research is to determine what constitutes an act of violence on the screen. Should slapstick aggression be included? Should verbal threats of violence be counted? Should accidents be counted, particularly those that occur in the midst of intentional aggression targeted at someone else? There are no universally accepted answers to these questions and the varying definitions of violence that have been used across studies can greatly influence the results. A goal for researchers is to move toward more scientific uniformity on what constitutes violence so that better comparisons can be made across time and across different media.

In this section, I review major content analyses regarding the amount of violence in television, movies, music, and videogames. I also provide a brief discussion of what we know about young people's exposure to the violent messages in each medium.

Television

Early content analyses of television were conducted by George Gerbner and his colleagues (e.g., Gerbner & Gross, 1976). The researchers analyzed an intact week of television each year beginning in 1967 and continuing to the mid-1980s. They focused on prime-time and early morning weekend programs (i.e., cartoons) that aired on the three major broadcast networks in existence at the time (NBC, CBS, ABC). Violence was defined broadly in this project to include any act or threat of physical force against the self or other. The definition included accidents and even natural disasters, which became somewhat controversial over the years, because Gerbner reasoned that such content still conveyed the lessons of violence and power. Based on their definition of violence, Gerbner and his colleagues

published annual reports on the status of television and their findings were remarkably consistent over time (Signorielli, 1990). Roughly 70 percent of prime-time programs contained some violence, with an average of five acts of violence per hour. The statistics for cartoons were much higher: 94 percent of these children's shows contained violence with about 20 acts of violence per hour. In other words, programs targeted to young viewers were the most violent content in the sample.

Employing a more comprehensive sample, the National Television Violence Study (NTVS) assessed violence on television across the entire day and on 23 channels, including the broadcast networks, basic cable, independent broadcast, PBS, and premium cable (Smith et al., 1998; Wilson et al., 1997, 1998). Violence in this three-year project was defined as an act or threat of physical force *intended* to cause physical harm against an animate being. The study revealed that a steady 60 percent of programs contained some violence between 1994 and 1997. The lower figure than the 70 percent reported by Gerbner and his colleagues is undoubtedly due to (1) a slightly narrower definition of violence that focused on intention, thereby excluding most accidents, (2) a wider range of hours examined throughout the day (6 a.m. to 11 p.m.), and (3) the inclusion of PBS. Only 18 percent of PBS programming contained violent content compared to 84 percent of premium cable shows, 51 percent of broadcast network shows, and 63 percent of basic cable shows. Thus, the proportion of programs containing violent content varied widely on the different channels.

The NTVS data set is the largest sample ever examined in a single study – it included nearly 10,000 hours of programming over the three-year period. Subsequent analyses focused more closely on children's programming (Wilson et al., 2002) and on how youth are portrayed on television as perpetrators of violence (Wilson, Colvin, & Smith, 2002). Like Gerbner, NTVS documented that children's programs were significantly more likely to contain violence (69 percent) than were non-children's programs (57 percent). Again, the figure is lower than that found by Gerbner because the NTVS sample included PBS programs. Children's shows also had more violent interactions per hour (14) than did non-children's shows (6). When children's programming was divided in subgenres, there were marked differences in the extent of violence. A full 100 percent of slapstick programs (e.g., *Bugs Bunny*, *Road Runner*) contained violence and nearly all (97 percent) of superhero programs (e.g., *Power Rangers*, *Captain Planet*) did as well. In contrast, less than half of social relationship programs (e.g., *Care Bears*, *Rugrats*) contained violence and fewer than 20 percent of magazine programs did (e.g., *Sesame Street*, *Bill Nye the Science Guy*).

Children pay close attention to programming when it features younger characters that are similar or slightly older in age (Schmitt, Anderson, & Collins, 1999). As it turns out, most of the perpetrators of violence on television are adults (89 percent) rather than teens (7 percent) or children (4 percent) (Wilson, Colvin, & Smith, 2002). Yet these percentages mask the sheer number of portrayals of youth violence – in a typical week of American television, over 1,600

acts of violence are committed by characters under the age of 20. Furthermore, the very programs that are designed for youth are the ones most likely to feature younger perpetrators; in children's programs, child perpetrators (56 percent) were proportionately more likely to be featured than were teen (7 percent) or adult perpetrators (28 percent). In music videos, teen perpetrators (13 percent) were proportionately more likely to be featured than were child (1 percent) or adult perpetrators (4 percent).

In the most recent assessment of television programming, Signorielli (2003) focused on week-long samples of prime-time programming airing on the major broadcast networks (ABC, NBC, CBS, FOX, UPN, and WB) between 1993 and 2001. Using Gerbner's definition of violence, she found that approximately 60 percent of programs contained some violence, which is identical to the figure reported by NTVS. On average, violence occurred at a rate of 4.5 acts per hour, again quite comparable to that found by NTVS.

Most content analyses of television violence have concentrated on programming, but one recent study analyzed the commercial messages aired during children's shows (Larson, 2003). Of the 588 commercials featuring at least one child character, 37 percent contained violence. The definition of violence in this study included both physical and verbal aggression (i.e., insults) so it is difficult to compare the findings to the programming content analyses, which have looked only at physical aggression.

To summarize, the landscape of television is full of violence and it has not changed much since the early 1970s. At least six out of ten programs feature physical aggression in the plot, and a young person will witness roughly six different violent exchanges in a typical hour of viewing. Given that the average American child watches 3 hours of television a day (Roberts, Foehr, & Rideout, 2005), he or she will be exposed to over 5,000 violent acts a year. Those figures rise considerably if a child watches certain genres of programming, particularly slapstick and superhero cartoons, that are targeted to viewers under age 12. A fan of superhero cartoons could witness as many as 31,000 acts of aggression per year on television. Moreover, one out of three advertisements during children's shows contains violence. To be sure, there are pockets of non-violence in the television environment. PBS is one place to go, and children's programs that focus on relationships and those that are in magazine format (i.e., short segments that contain skits, stories, or demonstrations) are also typically nonviolent.

Films/DVDs

Several of the content analyses in the previous section have included movies because they are a genre of programming that airs on television. Compared to other types of content, movies are quite violent. According to the NTVS, roughly 90 percent of movies on television contained violence whereas 70 percent of drama series, 35 percent of comedy series, and 35 percent of reality series did (Smith et al., 1998). Although movies are longer in duration than other types of shows, they

are also more likely than other genres to be saturated with violence. Not controlling for length, 60 percent of movies featured nine or more violent interactions whereas only 40 percent of drama series did.

Two recent studies looked specifically at films targeted to children. Yokota and Thompson (2000) examined G-rated animated films (i.e., those made for a General audience) released between 1937 and 1999. All 74 movies in the sample contained at least one act of violence, defined as an act intended to inflict physical harm. Furthermore, there was a significant increase over time in the duration of violence in the films. A common theme in many of the movies was that good guys triumph over bad guys by using physical force. A subsequent study by the same authors revealed that G-rated films that are animated contain more violence than do those that are not animated (Thompson & Yokota, 2004). As with television, then, cartoon movies are some of the most violent fare in the children's market.

Violence is pervasive not only in movies, but also in movie previews. Oliver and Kalyanaraman (2002) analyzed previews appearing on the video releases of 47 movies from 1996. They found that 76 percent of the previews contained at least one scene of physical aggression and 46 percent contained at least one gun scene. Previews for R-rated movies (Restricted, so that a viewer under 17 requires accompanying parent or guardian) were more likely to contain violence than were previews for movies rated PG-13 (Parent Strongly Cautioned because some material may be inappropriate for children under age 13) or movies rated G/PG (General Audiences/Parental Guidance Suggested). The previews of R-rated movies also contained higher rates of aggression per minute. The researchers then coded the actual movies, and found a high positive correlation between the content of the previews and the actual violence in the movies. In other words, the previews are valid indicators of what to expect in a film.

Clearly, movies frequently feature aggression, and there is some evidence that they are becoming more violent over time. For example, a study of top-grossing comedy films released in the United States between 1951 and 2000 found that violence increased sharply around 1970 and has been consistent since then (McIntosh et al., 2003). Showing a similar trend but for different years, a study of American war movies from 1970 to 2002 found that films released since 1990 contained more violence than did those from previous years (Monk-Turner et al., 2004). Moreover, the graphic intensity of gore (i.e., bloody wounds) in these films had increased over time.

To summarize, movies on average feature more violence than television programs do. As with the medium of television, animated movies are some of the most violent content targeted to children under 12. But even comedy films and horror films popular with older viewers contain violence. Many theatrically released films in this country target male adolescents in particular and, therefore, are highly likely to contain action, adventure, and violence.

To influence children's behaviors, children must actually see violent content. How often do young people watch violent movies? Sargent and his colleagues

surveyed a sample of over 4,000 10- to 14-year-olds and asked about their exposure to 50 box office hits, some of which were rated as extremely violent (Sargent et al., 2002). On average, extremely violent movies were seen by 28 percent of the students. The most popular violent movie, *Scream*, was seen by 66 percent of the students despite the fact that it is rated Restricted by the Motion Picture Association of America (MPAA) for "strong graphic horror violence and gore." Exposure to extremely violent movies was associated with age, sex (i.e., higher among males), lower parental education, poor school performance, and having cable or satellite television or any movie channel in the home.

Music

Despite the public controversy over the explicit content featured in rap and hip-hop music, very few studies have examined the amount of violence in such songs. This area represents a large gap in our knowledge about violent media. The few content analyses that exist have focused almost exclusively on music videos rather than on the lyrics themselves. In fact, only one published study could be found that coded song lyrics for violence. Armstrong (2001) analyzed 490 gangsta rap songs produced between 1987 and 1993 and found that 22 percent contained violent and misogynistic (i.e., expressing hatred of women) lyrics. The author noted that the sample represents an early period in the genre's development when lyrics were presumably less explicit. To provide some sense of trends, Armstrong analyzed a single top-selling rap album released in 2000: *Marshall Mathers LP* by Eminem. Using the same coding scheme, he found that 11 of the album's 14 songs (78 percent) contained violent lyrics. Admittedly, this represents a single artist who may be an extreme case, but the popularity of this CD means that exposure is high. Overall, the figure of 22 percent is likely to be an underestimate of the amount of violence in rap lyrics today.

The research on music videos has focused on the visual images rather than the lyrics. In the most comprehensive study to date, Smith and Boyson (2002) analyzed a sample of 1,962 videos drawn randomly from three channels: BET, MTV, and VH-1. Only 15 percent of the videos featured a portrayal of intentional physical aggression. However, rap (29 percent) and heavy metal (27 percent) were more likely than other genres (rock, 12 percent; rhythm and blues, 9 percent; adult contemporary, 7 percent) to contain violence. The violence in rap videos was also more likely to involve repeated acts of aggression against the same target, which may increase the chance that the aggression will be learned.

Other studies have replicated the finding that roughly 15 percent or one in six music videos contain some violence (Martin & Collins, 2002). This figure is obviously lower than that found for television programming or for movies. Yet a number of music videos do not contain a story or a concept but instead simply focus on the performers, who are rarely violent in nature. Content analyses of music videos have not yet analyzed the lyrics and the visual content simultaneously. In most cases violent visuals reinforce violent lyrics, but occasionally there are differences. Guns, for example, are shown in only 17 percent of violent rap videos

(Smith & Boyson, 2002), but guns are *talked about* in almost 50 percent of rap videos (Jones, 1997).

The point to underscore here is that rap/hip hop is consistently more violent than other music genres are. We do not have good data on how violent rap lyrics are, but nearly one in three videos of rap music contains violence. As it turns out, rap/hip hop is by far the most popular music for preteens and teens, regardless of race or gender. In a national study by Roberts and his colleagues (2005), for example, 65 percent of 8- to 18-year-olds had listened to rap/hip-hop on the previous day, over twice the proportion that had listened to any other genre. The next most popular categories were alternative rock (32 percent) and heavy metal (27 percent).

It is tempting to conclude that violent music is only an issue for teens. Yet even young children report listening to music. Those under 6 years of age spend almost an hour a day listening to audio media (Rideout & Hamel, 2006). Exposure to audio media more than doubles between the preteen and teen years, so that by age 15 the average adolescent spends 2.5 hours a day listening to music (Roberts, Foehr, & Rideout, 2005).

Videogames

There are a small number of studies that have coded videogames for violence. Thompson and Haninger (2001) assessed 55 E-rated (for Everyone) games released between 1985 and 2000. They found that 64 percent of the games included intentional physical aggression and that on average, 31 percent of the duration of game playing involved violence. In addition, 60 percent of the games required that the player injure characters in order to advance to the next level. In a subsequent study, the same researchers analyzed a sample of T-rated (Teen) games released by 2001. They found that a full 98 percent contained violence, with an average of 36 percent of playing time being violent (Haninger & Thompson, 2004). Nearly all of these teen games (90 percent) offered the player incentives or requirements to commit acts of violence against other characters.

Based on sales figures for the 1999 season, Smith, Lachlan, and Tamborini (2003) content-analyzed 60 of the most popular videogames (i.e., the games that consumers spend most of their time playing). Using the NTVS definition of violence, the researchers found that a full 68 percent of the games contained some physical aggression. On average, there were 2.3 violent interactions *per minute* of game playing. Violence differed greatly by game rating, however. Roughly 9 out of 10 Teen- and Mature-rated games contained violence compared to 6 out of 10 Everyone-rated games. Furthermore, Teen- and Mature-rated games featured almost four times as many violent interactions per minute (4.6) than did Everyone-rated games (1.2).

Instead of looking at videogames *per se*, Scharrer (2004) analyzed advertisements for games appearing in three large-circulation videogame magazines. In all, 56 percent of the 1,054 advertisements contained violence, with an average of 2.5 weapons, 1.5 violent acts, and 2.2 violent words per advertisement.

Overall, then, roughly two out of three videogames marketed for general audiences contain violence, and nearly all games marketed for older players do. But who is actually playing these games? Videogames are more popular with older children than with younger ones, yet playing tapers off during late adolescence. On a given day, only about 11 percent of children under the age of 6 report playing a videogame (Rideout & Hamel, 2006), whereas nearly 60 percent of 8- to 14-year-olds and 40 percent of 15- to 18-year-olds do (Roberts, Foehr, & Rideout, 2005). The amount of time spent playing with games follows a similar pattern with age. Nevertheless, videogame playing is a gender-typed activity. More boys than girls play videogames, and boys spend about three times as much time playing games in a given day (1 hour and 12 minutes) compared to girls (25 minutes) (Roberts, Foehr, & Rideout, 2005). Boys are also more likely to play violent games than girls are (Gentile et al., 2004).

Violence across different media

To summarize across media, violence is slightly more pervasive in videogames (68 percent) than on television (60 percent), it is quite commonly found in movies (90 percent), and rarely seen in music videos (15 percent). However, certain genres within each medium are more typically aggressive in nature. These include: children's cartoons, animated movies, rap/hip hop music, and Teen- and Mature-rated videogames. Many of these genres are targeted to youth. Lastly, the density of violence varies greatly across media. An American child watching an hour of violent television, for example, will experience an average of 6 aggressive exchanges (Smith et al., 1998). That same child who plays an hour of a violent videogame will experience an average of 138 aggressive exchanges (Smith, Lachlan, & Tamborini, 2003). I turn now to major theories that pertain to the relationship between media violence and youth aggression.

Theoretical Approaches Regarding Media Violence and Youth Aggression

Many different theoretical paradigms have been used to explain how exposure to violent media content affects youth aggression. Only one theory, which comes from a psychoanalytic tradition, uses the idea of catharsis to predict reductions in aggression after viewing violent content. The vast majority of theories, by contrast, predict increases in aggression following exposure to media aggression through social learning, priming, information processing, and arousal.

Catharsis

During early Greek times, Aristotle suggested that theatergoers could vicariously release their feelings of grief, fear, or pity by watching drama. The Greek word

katharsis literally means cleansing or purging. Sigmund Freud believed that negative emotions could build up in a person and cause unhealthy psychological symptoms if such feelings were not released (Breuer & Freud, 1956). This idea has been extended in modern days to media violence. According to catharsis theory, a person's violent impulses can be released directly or they can be "purged" through exposure to fantasy violence (Feshbach, 1955). In other words, exposure to media violence can have a positive, therapeutic effect by reducing aggressive behavior. A few early studies seemed to support this idea. In one field experiment, Feshbach and Singer (1971) found that boys living in institutionalized settings who watched a steady diet of violent television shows for six weeks were less aggressive than were those who watched nonviolent programs during the same time-frame. However, the study was plagued with methodological problems, including the fact that boys in the nonviolent condition were allowed to watch one of their favorite violent shows after vigorously complaining about their restricted television diet. Recent scientific evidence, which is reviewed in subsequent sections, reveals that media violence has quite the opposite effect from what is predicted by catharsis. Yet this notion of therapeutic benefit is still frequently touted by creators and producers in the media industry as a justification for violent entertainment products (Eleison, 1994).

Social cognitive theory

Social learning theory is arguably the most often cited theoretical explanation of the link between media violence and childhood aggression. According to Bandura (1977), children can learn new behaviors through direct experience or by observing others in their social environment. Social learning is a more efficient way to acquire novel ideas because it does not rely on personal trial and error. As it happens, children can imitate people in their immediate surroundings, or they can imitate models in the media. Recent research indicates that infants as young as 12 months old are capable of imitating simple behaviors shown on television (Barr et al., 2007). According to social learning theory, imitation is more likely to occur when the observed behaviors are rewarded than when they are punished (Bandura, Ross, & Ross, 1963b). Children will also imitate behaviors that receive no consequences because, particularly in the case of antisocial actions, the lack of punishment can serve as a tacit reward (Bandura, 1965).

Bandura (1965) also distinguished between the acquisition of a new behavior and the performance of it. In one study, he found that children who had seen a punished model did not immediately imitate that model's aggression, but were able to do so later when they were offered rewards if they could enact what they had seen on television (Bandura, 1965). In other words, the children had mentally acquired or stored the behavior and could perform it later under the right circumstances.

Not all children imitate rewarded characters and not all observed behaviors are immediately performed, which led Bandura to incorporate cognitive variables into

his largely behavioristic theory. This newer perspective, social cognitive theory, acknowledges that mental processes such as attention and retention are involved in social learning (Bandura, 1986). To learn a new behavior, the child must be capable of paying attention to the model, storing what is seen in memory, and subsequently recalling that information for performance. Thus, children's skills related to perception and memory will influence how capable they are of social learning. In addition, some models are more salient than others are. For instance, children pay more attention to models that are attractive and similar to the self (Bandura, 1986).

Social cognitive theory continues to influence our thinking by highlighting the importance of attractive role models in children's lives. It is particularly relevant in explaining how children might first acquire novel aggressive attitudes and behaviors from the media that they then imitate.

Priming theory

Once aggressive behaviors are learned, cognitive priming theory explains how the media can prompt their enactment in certain situations. According to priming theory (Berkowitz, 1990), violent stimuli in the media can activate aggressive thoughts, feelings, and even motor tendencies stored in a person's memory. For a short time after exposure, a person is in a "primed" state and can be triggered into aggressive action. Several conditions can encourage these thoughts and feelings to unfold into aggressive behavior, including intense feelings of negative affect or anger (Berkowitz, 1990), justification for aggressive behavior (Jo & Berkowitz, 1994), and cues in the environment that relate to the violent media just experienced (Jo & Berkowitz, 1994). For example, Berkowitz and Rawlings (1963) found that college students were more likely to act aggressively against a confederate when he shared the same name as the protagonist in a violent movie they had just seen than when the confederate had a different name. In other words, there was a "cue" in the environment (i.e., name of the target) that resembled the violent movie.

It is difficult to test priming because the theory does not elucidate the precise nature or strength of the environmental cue that is needed to trigger aggression. The theory is also vague about how long a person will continue to be in a "primed" state after media exposure. Nevertheless, the theory is useful for explaining how particular movies or music can instigate violence in real-life situations that closely resemble the media messages.

Information processing theories

Huesmann (1998) developed an information-processing model that helps to account for the long-term effects of media violence. The model focuses on the learning and reinforcement of scripts, which are mental routines for familiar events that are stored in memory. Well-rehearsed scripts are rich packages of information that

contain linkages between causes, goals, and action plans (Abelson, 1981). According to Huesmann, a child who is exposed to a great deal of violence, either in real life or through the media, is likely to acquire scripts that promote aggression as a way of solving problems. Once learned, these scripts can be retrieved from memory at any time, depending on the similarity between the real situation at hand and features of the script, which are influenced by the circumstances in which the script was first encoded (Huesmann, 1998). When an aggressive script is retrieved, it is reinforced and generalized to a new set of circumstances. Thus, children who are repeatedly exposed to media violence will develop a stable set of scripts that are easy to retrieve and that emphasize aggression as an appropriate response to social situations.

Huesmann's script theory incorporates aspects of social learning and priming but takes a broader view of the cumulative effects of exposure to media violence on aggression. It also sheds light on why well-learned aggressive habits are so difficult to change. Moreover, the theory can account for individual differences in aggressive behavior as a function of the range of a child's environmental experiences, both in the real world and those that are mediated through technologies.

Huesmann's theory is largely cognitive in nature and has been criticized for not adequately addressing how emotions play into aggressive responding. To fill this void, Anderson and Bushman (2002) proposed a variant of informational processing called the General Aggression Model (GAM). Their model posits that there are three routes to aggressive responding: (1) aggressive cognitions or scripts can be activated, similar to Huesmann's theory; (2) aggressive affect can be produced, which refers to hostile or angry emotional states; or (3) physiological arousal can be heightened. Any or all of these paths can be triggered by either personal variables (e.g., traits) or situational variables (e.g., exposure to media violence). According to GAM, once an input variable (personal or situational) enhances aggressive cognitions, affect, and/or arousal, a person engages in an appraisal process before responding. Appraisals can be immediate and automatic (similar to priming), which may produce impulsive aggression. Alternatively, appraisals can be more thoughtful in nature, which may result in a decision to not respond aggressively in a given situation. GAM is a broad framework that incorporates components from most of the other theories, yet is difficult to test the GAM theory, or more importantly to falsify it, because it encompasses all possible pathways and outcomes in explaining aggressive behavior.

A developmental perspective

Theoretical accounts of the influence of media violence have focused on properties of the message (social cognitive, priming), on how people process violence and store it in memory (script theory), and on how exposure can prompt imitation and/or aggressive behavior (priming, social cognitive). No theory to date, however, takes into account developmental issues as central to its framework (Kirsh, 2006). Yet there are shifts in cognitive processing during childhood

that have important implications for how young people will respond to media violence.

Three developmental differences that distinguish preschoolers and early elementary schoolers (roughly 3–7 years of age) from older elementary schoolers (roughly 8–12 years of age) will be described: perceptual to conceptual processing, comprehending reality and fantasy, and concrete to inferential processing. Two additional features of adolescent cognition have implications for how adolescents will react to media violence compared to their younger counterparts: metacognitive thinking and adolescent egocentrism.

Perceptual to conceptual processing Preschoolers pay close attention to how stimuli look and sound, a characteristic that has been labeled *perceptual boundedness* (Springer, 2001). For example, children below the age of 6 or 7 typically group objects by color or shape, whereas older children focus more on conceptual properties such as the functions that objects share (Tversky, 1985). Applying this idea to media violence, younger children are likely to pay close attention to the physical appearance of a character as well as to the character's actions. Older children become increasingly selective in their attention, searching for cues that are meaningful to the plot such as the goals and motives of a character. In support of this idea, Cooke and Krcmar (2001) found that younger children focused more on whether a character was punished in judging whether an aggressive behavior was wrong or right, whereas older children focused more on the character's reasons for violence. Thus, an attractive perpetrator who goes unpunished for violence can be a potent role model for younger children, whereas older children are more likely to discount that character if his or her motives are selfish.

Comprehending reality and fantasy Another cognitive skill that develops during childhood is the ability to discriminate fantasy from reality. Very young children often attribute life to inanimate objects, have imaginary friends, and talk to characters on the television screen (Jaglom & Gardner, 1981). By age 4 or 5, children better understand that what is on television is a representation of real life, and they tend to rely on striking violations of physical reality to make judgments about content (Dorr, 1983). Cartoons are often cited as unreal simply because the characters are animated (Wright et al., 1994). Yet fantasy characters can still be attractive role models for young children (Cobb, Stevens-Long, & Goldstein, 1982), reflecting how tenuous these early reality judgments are. By age 7 or 8, children begin to use multiple cues for judging reality in the media. They are able to consider production techniques, the genre of the content, and even the source of the message (Wright et al., 1994). Older children are likely to pronounce a program, a movie, or even a videogame as realistic if it depicts characters and events that are *possible* in the real world (Dorr, 1983). As children move into the teenage years, they increasingly judge media content in terms of how *plausible* the events are in the real world (Dorr, 1983).

Concrete to inferential processing Younger children focus on information that is fairly explicit and tangible. Yet full comprehension of most media messages requires an ability to extract information that is implied but not explicitly presented. Television series, for example, require viewers to track and connect multiple storylines in an episode, and even videogames convey implicit information about space and time.

In entertainment media, violence is often separated in time from the goals that motivated this behavior as well as the consequences that ensue because of it. The timing (i.e., temporal contiguity) and the explicitness of plot information affect younger children's plot comprehension. By age 9 or 10, children show dramatic improvements in their ability to link scenes and subplots together and to infer causal and time-ordered connections from media content (Collins, 1983). For example, Collins (1973) showed third, sixth, and eighth graders a television program in which a violent perpetrator was punished immediately or after a 4-minute commercial break. Third graders were more likely to behave aggressively if they had seen the violence separated from the consequence than if they had seen the contingent consequence. By contrast, the separation manipulation had no impact on the older children's behavior. Similarly, plot information that is vague or only suggested will be challenging for younger children because they have difficulty drawing inferences. Often a viewer must infer a character's motives, for example, from dialogue or a seemingly unrelated story event to understand the plot.

Metacognitive thinking Metacognition refers to the ability to comprehend, monitor, and adjust one's own thought processes during tasks (Metcalfe & Shimamura, 1994). Younger and even older children have difficulty considering their own thoughts, in part because it requires tremendous mental energy just to track the environment (Flavell, Miller, & Miller, 2002). As they move toward adolescence, cognitive skills become routinized, thereby freeing up mental resources for higher-order thinking. Preadolescents and teens are often able to contemplate their own feelings and reactions to a situation, for example, at the same time that they are also processing what is happening in the environment. Preadolescents and adolescents are also increasingly aware of the mental demands of different tasks (Lovett & Flavell, 1990). When applied to media violence, teens should be able to recognize that intricate movie plots and multiplayer videogames require more concentration, and the depth of processing they employ will, in turn, increase their comprehension of complex material. In addition, preteens and teens should be capable of contemplating their own cognitive scripts for violence and of considering how the media might influence their thoughts and behavior.

Adolescent egocentrism Adolescence is a time of seeking and experimenting with personal identity. Teens increasingly gravitate away from parents and toward their peers during this exploration, and often confront decisions that involve risk (Jessor, 1992). According to the 2005 National Youth Risk Behavior Survey (Eaton et al., 2006), nearly 20 percent of ninth through twelfth graders reported that they had carried a weapon in the preceding month and 5 percent reported

that they had carried a gun. A full 36 percent had been in a physical fight in the preceding year. Some of this risk taking may be a function of what has been called "adolescent egocentrism" (Elkind, 1985). Egocentrism is the inability to distinguish one's own perspective from another's and this tendency is characteristic of early childhood (Flavell, Miller, & Miller, 2002). During the adolescent years, egocentrism is manifested in a preoccupation with one's own thoughts and experiences. This view of the self as exceptional can lead to a feeling of invulnerability to negative consequences (Greene et al., 2002). Indeed, research shows that teens routinely underestimate their own personal risk in situations that they readily perceive as dangerous for others (Finn & Bragg, 1986). Other scholars have linked this tendency to brain functioning, which reveals less activation of frontal cortex regions responsible for rational, higher-order thinking during early adolescence than later adolescence (Kirsh, 2003). Regardless of the mechanism, younger adolescents who are repeatedly exposed to entertainment violence may show poorer executive functioning (Kronenberger et al., 2005) and thus feel even more immune to the dangers associated with weapons and physical aggression.

Summary of developmental issues pertaining to media violence To recap, preschoolers and younger children are likely to focus on the most striking features of a violent show or videogame, such as how the characters look and act. Violent actions will be highly salient, regardless of whether they are animated or fantasy in nature. Older children, in contrast, can appreciate more conceptual aspects of a violent storyline such as the characters' motives, feelings, and goals. Older children also are able to track the main plot as well as subplots, even when crucial events are temporally separated in a violent story. Older children also will discount the content as unrealistic if the events are impossible in real life. By adolescence, youth will comprehend violent content even if it is complex and intricate and they are capable of analyzing media messages for potential impact on themselves and on society. Nevertheless, teens' tendency toward egocentric thinking may undermine their resilience when repeatedly exposed to violent entertainment media.

Empirical Evidence for a Link Between Media Violence and Aggression

Various methods have been used to assess whether media violence contributes to the learning of aggressive attitudes and behaviors in youth. Experiments provide a strong test of causality but are often conducted in artificial conditions and can only measure immediate, short-term responses to media stimuli. Surveys assess more naturalistic exposure and behavior patterns in youth but do not permit strong causal conclusions. Longitudinal studies address the long-term effects of media violence and can provide a test of the direction of causality – does media violence lead to aggressive behavior or is being aggressive associated with selective exposure to

violent content? However, longitudinal research is expensive and, unlike experiments, can only provide control over the extraneous variables that are actually measured in a given study.

Irrespective of method, the vast majority of studies have focused on television rather than other media. Only recently have researchers begun to explore the impact of violence in music and in videogames. I will organize the evidence around two categories that are relevant to the theories: short-term versus long-term effects of media violence on aggression. The short-term effects have been documented most persuasively through experiments, whereas the long-term effects are best illustrated with longitudinal studies. Within each of these categories, three forms of violent media – television, music, and videogames – will be reviewed. This section will conclude with a discussion of the meta-analyses that have been conducted in this arena.

Short-term effects on aggressive attitudes and behaviors

The earliest evidence of short-term effects after exposure to media violence comes from Bandura's classic Bobo doll experiments (e.g., Bandura, Ross, & Ross, 1963b). This research demonstrated that preschoolers would imitate a televised model that aggressed against a plastic inflatable doll, particularly if the model was rewarded for such behavior. Subsequent experiments showed that young children would imitate a cartoon character as readily as a human model (Bandura, Ross, & Ross, 1963a), that they could reproduce aggressive behaviors they had seen on television up to 8 months later (Hicks, 1965), and that they would aggress against a human clown as easily as against a plastic doll (Hanratty, O'Neal, & Sulzer, 1972). Much of this work supported social learning theory.

These early experiments were often criticized for employing artificial measures of aggression, for setting up situations in which adult models seem to condone aggression, and for using video clips created by experimenters (e.g., Freedman, 1986). Since then, field experiments have been conducted in more naturalistic settings and have found that watching television violence can increase children's real-life aggression against peers in social situations like playgrounds (e.g., Friedrich & Stein, 1973). Congruent with social cognitive theory, field experiments demonstrate that children do pay attention to characters engaging in aggression on the screen and that children can store these behaviors in memory and enact them in unconstrained social exchanges with peers. Research also shows that cartoons as well as non-animated programs can encourage youth aggression immediately after viewing, and that this effect can occur after exposure to a single episode of violent television (Boyatzis, Matillo, & Nesbitt, 1995). Furthermore, environmental cues that are associated with a previously viewed violent television show can instigate aggressive behavior in youth (Josephson, 1987), in support of priming theory.

There is far less research on violent music's impact on short-term aggression, and most of it involves undergraduates. In one of the most extensive investigations,

five experiments were conducted on college students to assess the impact of violent lyrics on a variety of aggressive outcomes (e.g., Anderson, Carnagey, & Eubanks, 2003). When compared to listening to nonviolent lyrics, listening to violent lyrics increased feelings of hostility and led to more aggressive cognitions. These findings were documented across multiple experiments. In other research, sexually violent lyrics in heavy metal music (St Lawrence & Joyner, 1991) and in rap music (Wester et al., 1997) have been found to produce short-term increases in aggression against women by male undergraduates.

Only two experimental studies could be found that test the short-term effects of violent music on youth. Both involve teen exposure to music videos. In one study, seventh and tenth graders watched either a randomly compiled group of videos from MTV or a pre-selected group of high-impact MTV videos containing sex, violence, and antiestablishment overtones (Grecson & Williams, 1986). The high-impact videos increased tenth graders' self-reported acceptance of the use of interpersonal violence. In contrast, the videos had no significant effect on seventh graders who generally showed high acceptance of such violence regardless of experimental condition. Unfortunately, the high-impact videos contained themes other than aggression, and some of the low-impact videos actually contained violence, so the manipulation was not clean in this study.

In the second study (Johnson, Jackson, & Gatto, 1995), African American males between the ages of 11 and 16 were exposed to eight violent rap videos, to eight nonviolent rap videos, or to no music videos. The teens then read vignettes, one of which involved a jealous boyfriend who assaulted his girlfriend as well as another man who vied for her attention. Teens who had watched the violent videos expressed greater acceptance of the use of violence against the man than did those in the nonviolent and control groups. Compared to the control group, participants in the violent video group also reported a greater acceptance of the use of violence against the girlfriend and a greater likelihood of personally engaging in similar violence.

In contrast to the near absence of research on violent music, there has been a flurry of studies on the effects of videogame violence, especially as this medium has grown in popularity. However, most of the evidence pertains to young adults. Several experiments have found that compared to nonviolent games, playing a violent videogame can lead to short-term increases in aggressive thoughts (Anderson & Dill, 2000), hostile mood (Anderson & Ford, 1986), and aggressive behavior (Bartholow, Sestir, & Davis, 2005) among undergraduates. The fact that media violence can increase negative or hostile emotions is consistent with GAM.

Turning to children, a few early experiments showed no effects of videogame play on younger players' aggression (Cooper & Mackie, 1986; Graybill et al., 1987). However, the games used in the violent conditions in these studies were very mild compared to what is available today.

The more recent experimental evidence is generally in line with studies of violent television. For example, Irwin and Gross (1995) found that second-grade boys who played a violent martial arts videogame exhibited more physical and verbal

aggression in free play than did those who played a nonaggressive racing game. Similarly, Kirsh (1998) found that third- and fourth-grade children who played *Mortal Kombat II*, a widely criticized violent game, were more likely than those who played a nonviolent game to attribute negative intent to others in hypothetical stories, reflecting a hostile attribution bias; however, aggressive behavior was not actually measured. In contrast to these two studies, another recent experiment found no effects on aggression. In this study (Funk et al., 2003), 5- to 12-year-olds played either a violent or a nonviolent game for 15 minutes and then responded to 10 hypothetical stories by predicting what would happen next and what they would do in similar situations. There was no difference in children's aggressive responses to the stories as a function of videogame condition.

In the largest and most recent experiment to date (Anderson, Gentile, & Buckley 2007), 161 9- to 12-year-olds were randomly assigned to play either a violent or a nonviolent video game for 20 minutes. Two different E-rated (for Everyone) games were used in the violent condition – both involved cartoon-like characters engaging in continuous violence against nonhuman enemies. Afterward, children played another computer game that allowed them to select the punishment levels (i.e., noxious noise blasts) to be delivered to an opponent, whom they believed was their competitor in the game. Children in the violent game condition delivered significantly more high-intensity noise blasts than did those in the non-violent game condition. Although boys were generally more punitive (i.e., aggressive), violent videogame playing increased short-term aggression for both girls and boys.

To summarize, there are dozens of experiments that demonstrate that exposure to violent television programs can lead to short-term increases in aggressive behavior in children of all ages. The research on violent music and violent videogames is more limited. The impact of music on children under 12 has not really been tested, nor have any of the studies of teens focused on violent lyrics as opposed to violent videos. The studies of violent videogames have focused on children rather than teens. Early studies showed no effects but recent evidence involving more violent games has generally documented increases in short-term aggression. One major limitation is that the studies of music and videogames, for the most part, have employed self-report measures of aggressive tendencies. Unlike the studies of television, few music or videogame studies have looked at actual aggressive behavior in social situations, such as classrooms or playgrounds.

Long-term effects on aggression

Survey research has linked violent television (Kuntsche et al., 2006), violent music (Chen et al., 2006), and even violent videogames (e.g., Gentile et al., 2004) to aggression in youth. However, the only way to ascertain the causal direction of this link is to collect measures of exposure and behavior over time. Huesmann and his colleagues have conducted several longitudinal studies of television violence. In one of the early studies (Eron et al., 1972), the researchers found that

heavy viewing of television violence at age 8 predicted a significant increase in aggressive behavior at age 19 for boys but not for girls. This pattern held true even after controlling for initial aggressiveness, social class, and IQ. However, the reverse was not true – aggressive behavior at age 8 did not predict higher exposure to television violence at age 19. This same cohort of participants was tracked down 10 years later (age 30). Once again, exposure to television violence in early childhood predicted subsequent adult aggression in men (Huesmann, 1986). In this case, heavy viewing of violent television at age 8 actually predicted the severity of adult criminal behavior, even after controlling for a variety of other variables.

The researchers conducted another longitudinal study in the late 1990s to explore the issue of gender differences (Huesmann et al., 2003). They interviewed over 500 elementary-school children and then surveyed them again 15 years later. In support of the earlier research, heavy exposure to television violence in childhood predicted increased aggressive behavior in adulthood. This time the pattern held true for both boys and girls. The researchers speculated that the shift in findings pertaining to girls might be a result of increased societal acceptance of assertiveness among females as well as a possible increase in aggressive female characters on television.

Cross-cultural longitudinal work generally finds the same link between childhood exposure to television violence and subsequent aggression that has been found in the United States (Huesmann & Eron, 1986). Furthermore, exposure to television during the teen years has been associated with an increased risk of adult aggression, even after controlling for family income, childhood neglect, psychiatric disorders, neighborhood violence, and parental education (Johnson et al., 2002). However, this latter study found that the relationship was generally stronger for boys than for girls, and it assessed overall television viewing instead of violent viewing habits. Even so, those who watch a great deal of television are often heavily exposed to violence because of the substantial amount of aggressive content in television programs (e.g., Smith et al., 1998).

Once again, the evidence for effects is sparse outside the television arena. Only one longitudinal study of exposure to violent music could be found in the extant literature. Wingwood and her colleagues (2003) surveyed 522 African American girls (ages 14 to 18) twice over the course of a year and assessed their exposure to rap music videos as well as their sexual activity, drug use, and aggressive behavior. Early exposure to rap music videos was a significant predictor of several risk-taking behaviors 12 months later, after controlling for parental monitoring as well as teen employment, age, involvement in extracurricular activities, and participation in religious events. Of particular interest here, girls who reported greater exposure to rap music at baseline were three times more likely to have hit a teacher by the follow-up than were those who reported light exposure to rap. Rap music exposure at baseline was not predictive, however, of getting in a fight or being arrested one year later. Unfortunately, the researchers did not assess the reverse causal relationship – whether risk taking at baseline led to more rap music listening 12 months later.

There is only one published study to date on the long-term effects of playing violent videogames on youth. In the longitudinal study, Anderson and his colleagues (2007) tested a total of 430 third through fifth graders at two points in time, roughly five months apart. Self-reports of violent media exposure, physical aggression, and hostile attribution bias were assessed. In addition, teacher reports and peer ratings of aggression were obtained for the children. The researchers found that violent videogame playing early in the school year predicted a subsequent increase five months later in (1) physical aggression (based on a composite measure), (2) verbal aggression, and (3) hostile attributions, or the tendency to perceive ambiguous situations in a hostile fashion. These patterns held up even after controlling for sex, race, initial levels of aggression, total time spent with screen media, and parental involvement.

Clearly, there is a need for more longitudinal research, especially on the effects of exposure to violent music and videogames. The work on television violence is impressive in scope and length, yet studies that span shorter time intervals could also be helpful, especially if we want to pinpoint media effects during particular developmental periods. Instead of looking at each medium in isolation, we might also profit from assessing media habits more broadly. As an illustration, Ostrov, Gentile, and Crick (2006) asked 60 parents about their preschoolers' exposure to television programs, movies, and videogames over a two-year period. The researchers also observed the children's aggressive behaviors during play and collected teacher reports of aggression. For boys, exposure to violent media predicted an increase in observed physical, verbal, and relational aggression four months later. For girls, violent media exposure was associated with a subsequent increase in verbal aggression only. The authors did not control for other variables that might predict aggression nor did they try to isolate the impact of various media, but the patterns are intriguing nonetheless.

In another study that focused on media diets, Slater (2003) surveyed 2,550 middle-school children over the course of two years regarding their exposure to violent media (i.e., action films, violent videogames, and violent Internet sites) as well as their aggressive attitudes and behaviors. Exposure to violent media predicted subsequent increases in aggression in these teens, even after controlling for age, gender, sensation seeking, and general Internet use. Conversely, being aggressive did not predict increased selective exposure to violent media over time.

Meta-analyses

Meta-analytic techniques allow us to combine individual studies to test hypotheses across different investigations and methodologies. The result is a numerical effect size of the aggregate of research findings. According to scientific convention, an effect size of 0.10 is considered small, 0.30 is medium, and 0.50 is large (Cohen, 1988). There have been several meta-analyses of the research on television violence and aggression and all have found positive effects (Anderson, 1977; Hearold, 1986; Wood, Wong, & Chachere, 1991). In one of the most extensive

meta-analyses, Paik and Comstock (1994) analyzed 217 studies and found an overall effect size of 0.31, which is considered medium in size. Effect sizes for experiments were larger than those for surveys or longitudinal studies, presumably because there is more error in naturalistic measures of aggression, but all were significant and positive in direction.

To provide some context, Bushman and Anderson (2001) compared the television violence-aggression link to other well-established connections in medical research. They found that the effect of television violence on aggression is stronger, for example, than the effect of exposure to lead on IQ scores in children, and also larger than the effect of calcium intake on increases in bone mass. In fact, the effect of television violence on aggression is only slightly smaller than the documented effect of smoking on lung cancer. Bushman and Anderson (2001) also found that the effects of television violence on aggression have been increasing over time since 1975. They speculated that growing consumption of violent media as well as increasing levels of violence in entertainment content could be responsible for this trend.

There is simply not enough research on violent music and its relationship to aggression to permit a meta-analysis. However, two have been conducted on the violent videogame literature. Sherry (2001) analyzed 25 studies and found an overall effect size of 0.15, which is considerably smaller than that documented for television. Surprisingly, the effect size was negatively related to playing time, but this finding was largely due to two studies involving *Mortal Kombat*. A study in which participants played the game for 10 minutes showed a greater effect on aggression than a study in which participants played the game for 75 minutes. Clearly, more research is needed on game playing time.

Anderson (2004) conducted a more recent meta-analysis involving 32 independent samples of participants and found an overall effect size of 0.20. When studies that had serious methodological shortcomings were removed (e.g., violence manipulation not clean in an experiment, exposure not focused on violent games in a survey), the effect size rose to 0.25, which is closer to the effect size for television violence. Thus, the meta-analyses to date do not support the argument made by some scholars that videogames should produce stronger effects than television because they require more active involvement and typically reward players for role playing as violent perpetrators. However, two recent studies by Anderson and his colleagues (2007) directly compared exposure to violent videogames with exposure to television and movie violence and found some evidence that gaming produced more robust effects on aggressive behavior in youth (Anderson, Gentile, & Buckley, 2007). Clearly, more research is needed on this issue.

In the most comprehensive meta-analysis to date, Bushman and Huesmann (2006) combined 431 studies that examined the effects of all types of violent media (i.e., television, film, videogames, music, and even a few on comic books) on various indices of aggression. The relationship between violent media and aggressive behavior was 0.19, a small-to-medium effect. The researchers then separated studies that looked at short-term effects (lab experiments) from those that looked

at long-term effects (longitudinal studies). They found that effect sizes in lab studies were stronger for adults than for children, whereas effects sizes in longitudinal studies were stronger for children than for adults.

Bushman and Huesmann (2006) argued that this pattern conforms with theoretical accounts of aggression in the following way: Short-term effects should be more pronounced for adults because they possess more elaborated aggressive scripts in memory that can be readily triggered by a single violent message. Long-term effects should be more pronounced for children because they are more susceptible to developing new scripts from violent media; adults already possess established scripts that are more difficult to modify, even with repeated exposure to media. On the other hand, the observed age patterns could be due in part to methodological issues. For example, researchers are likely to use more intensely violent material in laboratory studies with adults than in studies with children because of ethical reasons, hence obtaining stronger effects in the former. Clearly, more research is needed on the magnitude of different types of media violence effects over the course of childhood.

Collectively, then, all eight of the meta-analyses reported here found a significant, positive relationship between exposure to media violence and subsequent aggression. The evidence is stronger for television than for videogames or for music, the latter of which has not received enough empirical attention for a meta-analysis. Unlike television, the conclusions one can draw for videogames and music are hampered by a lack of longitudinal studies. Yet when exposure to violent content is assessed across multiple media, both short-term and long-term effects on aggression exist.

Moderating Variables

No researcher would argue that media violence affects all young people in the same way. Indeed, the small-to-medium effect sizes in meta-analyses suggest that there is a great deal of variation in outcomes among samples of children and teens. The impact of violent programming, music, or even videogames depends upon a host of factors, including the nature of the content, personal characteristics of the individual, and the environment in which media are experienced.

Nature of the violent message

Violence in entertainment media varies considerably. Aggressive behaviors are perpetrated by different types of characters, they occur for different reasons, and they result in different kinds of consequences. As it turns out, the way in which violence is presented has implications for how much risk is posed to young people. In support of social cognitive theory and priming, violence is more likely to be learned and imitated when it is enacted by an attractive character (Paik & Comstock, 1994), when it appears to be justified (Hogben, 1998), when it is

realistic (e.g., Atkin, 1983), when it is rewarded (e.g., Carnagey & Anderson, 2005), and when it results in minimal consequences to the victim (Hogben, 1998). The caveat about realism is that it depends upon both cues in the program and the cognitive skills of the viewer; cartoons might be discounted by older children but can be potent sources of social learning for younger children who are still developing their understanding about fantasy-reality distinctions.

In contrast to these high-risk factors, the depiction of punishments (Carnagey & Anderson, 2005) as well as pain and harm to the victim (Wotring & Greenberg, 1973) can actually inhibit the learning of aggression. Unfortunately, much of the violence on television is perpetrated by good characters who use violence to solve problems and whose behavior results in unrealistically low levels of harm to the victim and to society (Wilson et al., 2002). This glorification and sanitization of violence dominates entertainment television. Only 4 percent of all violent programs actually present aggression as a serious problem (Smith et al., 1998). Similar high-risk portrayals have been documented in music videos (Smith & Boyson, 2002) and violent videogames (Smith, Lachlan, & Tamborini, 2003).

Personal characteristics of the child

Media violence influences both males and females, although some research suggests that effects may be slightly stronger for males (Paik & Comstock, 1994). This pattern could be because males prefer violent media content more than females do (Funk, Buchman, & Germann, 2000; Sargent et al., 2002). It also could be due to the fact that the vast majority of aggressive role models in the media are still male (Wilson et al., 2002).

The research on the moderating effect of age is currently unclear. The meta-analysis by Paik and Comstock (1994) found the strongest effects of television violence among preschoolers, supporting the idea that younger children are highly responsive to imitation and have yet to develop norms and scripts that would inhibit antisocial behavior. There has not been enough research to systematically test age in meta-analyses of videogame studies (Anderson, 2004). Yet the meta-analysis by Bushman and Huesmann (2006) on all types of media violence found that both children and adults were influenced, but that children showed stronger long-term effects while adults showed stronger short-term effects. To sort out some of these ambiguities, scholars need to examine how developmental processes interact with violent message characteristics and type of medium.

Research indicates that highly aggressive individuals are more susceptible to the effects of exposure to media violence than less aggressive individuals are (e.g., Bushman, 1995; Josephson, 1987). However, even relatively nonaggressive children can be influenced by violent messages (Gentile et al., 2004). Because youth who are high in trait aggression are often attracted to violent television and videogames (Kronenberg et al., 2005), some have argued that a spiral or cycle of influence is at work (Huesmann & Taylor, 2006). That is, children and teens with aggressive predispositions may seek out violent content because it helps them

to justify their behaviors. In turn, repeated exposure to violent role models in the media serves to reinforce and stabilize well-developed aggressive scripts in these youth. In this way, trait aggression is a heightened risk factor. Put another way, the relationship between exposure to violent media and aggression appears to be bi-directional.

Finally, research suggests that children, especially boys, who strongly identify with violent characters in the media are more susceptible to the long-term effects of media violence (Huesmann et al., 2003). Perceiving television and other media as highly realistic also puts a child at risk for learning aggression from entertainment content (Huesmann et al., 2003).

Environmental factors

Children from households of a lower socioeconomic status (SES) watch more violent programming than do those from middle-to-upper SES families (Eron et al., 1972). However, statistically controlling the effects of family background does not eliminate the relationship between media violence and physical aggression in youth (Huesmann et al., 2003). Within every social stratum, the more television violence a person watches, the more likely that person will become aggressive.

Parental behaviors may be more crucial than SES. Theoretically, parents who are violent in the home are themselves encouraging the learning of aggressive scripts and modeling aggressive behaviors for their children. Yet there is still a statistically significant relationship between early violent viewing and subsequent aggression even when parental aggression and parental punishment of the child are controlled (Huesmann et al., 2003). Nevertheless, violence in the home can certainly heighten the risk of a child behaving aggressively (Bauer et al., 2006). Moreover, a national study of over 1,000 children aged 6 to 12 found that family conflict was positively associated with violent television viewing and violent electronic game playing (Vandewater, Lee, & Shim, 2005). There was no overall increase in media use as a function of family conflict, suggesting that attraction to violence rather than escape was motivating the media habits of these children.

It should be noted that parents can actually reduce the risks associated with media violence in several ways. Simply reducing overall exposure to television and videogames has been shown to decrease aggressive behavior in children, perhaps because most screen-based content is violent (Robinson et al., 2001). Moreover, parents who engage in mediation techniques that help children to think critically about media violence can decrease the likelihood that they will enjoy and learn from such content (Nathanson, 2004).

Concluding Issues and Directions for Future Research

Media violence is certainly not the sole cause or even the most important contributor to youth aggression. Nonetheless, the research reviewed in this chapter

documents that exposure to violent entertainment can cause children to imitate novel aggressive behaviors and can even prime children and teens to act aggressively immediately after the media encounter. The research also indicates that repeated exposure to a steady diet of media violence is predictive of long-term increases in aggressive behavior even into adulthood. At present, there is far more evidence to implicate violent television than violent music or videogames. Furthermore, there is a shortage of longitudinal evidence in this arena, and much of it that exists pertains to repeated exposure to television.

Several other issues are ripe for further investigation. There is a small but growing body of work now looking at social or relational aggression, especially because it is more common than physical aggression among girls. Social aggression involves harming others' feelings through exclusion, gossip, or social manipulation. In one study, this type of behavior was found in 92 percent of programs popular with teens (Coyne & Archer, 2004). Preliminary research suggests that social aggression on television may be linked to such behavior in teens (Coyne, Archer, & Eslea, 2004), but far more research is needed on this alternative form of youth aggression.

Another issue concerns desensitization. Desensitization has typically been defined as reduced responsiveness to a stimulus after repeated exposure, a phenomenon that has been observed in the context of media violence (Drabman & Thomas, 1974). But what is the relationship between desensitization and aggression? On the one hand, repeated exposure may produce less empathy and more tolerance for violence (Funk, 2005), which in turn could make a child *more* willing to behave aggressively. On the other hand, desensitization means that a child will be *less* aroused by mediated violence, and arousal is an important generator of aggression according to theories such as GAM and priming. Part of the confusion is in how researchers are conceptualizing desensitization – does it pertain to physiological arousal, emotional empathy, tolerance, or some combination of these? Is there a distinction between short-term and long-term desensitization?

A third issue that needs more attention is the content of the violent messages. As demonstrated in this chapter, not all entertainment violence produces the same effects. If violent rap music is of concern, for example, experiments need to examine the impact of the lyrics as well as the visual images in music videos. Experiments should also be conducted to assess the impact of song lyrics that are explicit versus ambiguous, lyrics that reward versus punish violence, and lyrics that seem to justify aggression. Some violent messages can actually be educational and may diminish the likelihood of aggression in youth. We also need more research examining the impact of different media diets among children. Does the combination of violence gaming and violent television pose more risk than violent music? Do violent television shows have more impact if they are watched in the absence of educational programming?

A fourth issue concerns young people's attraction to media violence. We need better empirical evidence concerning whether violence actually draws children to particular television shows, videogames, and music. Or do other features such as

action contribute more to children's enjoyment of media (Alvarez et al., 1988)? If violence does heighten a media product's appeal, what theoretical mechanisms can explain this attraction and are certain children more susceptible than others? Studies suggest that boys as well as children who are high sensation seekers are likely to have more violence in their media diets (Slater, 2003), but our understanding of selective exposure is inadequate at best.

Finally, we need to take a stronger developmental approach in our research on media violence. Are there age periods that are particularly vulnerable to certain types of violent messages in the media? How do children of different ages interpret pain cues from the victim in a videogame? Do violent lyrics affect older children and teens more strongly because they understand their meaning? Developmental issues need to be incorporated more regularly into our theorizing about the effects of media violence on aggression.

There is little doubt that violence will continue to be a mainstay in entertainment media. Many of the violent games, music, and movies in today's media environment are being marketed directly to children (Federal Trade Commission, 2000). As newer technologies are developed, the images and themes will become even more realistic and potentially involving. Research on the short-term and long-term effects of violent content on youth of different ages and backgrounds is crucial in our understanding of the role that entertainment media play in developmental outcomes.

References

- Abelson, R. P. (1981). The psychological status of the script concept. *American Psychologist*, 36, 715-29.
- Alvarez, M. M., Huston, A. C., Wright, J. C., & Kerkman, D. D. (1988). Gender differences in visual attention to television form and content. *Journal of Applied Developmental Psychology*, 9, 459-75.
- Anderson, C. A. (2004). An update on the effects of playing violent video games. *Journal of Adolescence*, 27, 113-22.
- Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, 53, 27-51.
- Anderson, C. A., Carnagey, N. L., & Eubanks, J. (2003). Exposure to violent media: The effects of songs with violent lyrics on aggressive thoughts and feelings. *Journal of Personality and Social Psychology*, 84, 960-71.
- Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, 78, 772-90.
- Anderson, C. A., & Ford, C. M. (1986). Affect of the game player: Short-term effects of highly and mildly aggressive video games. *Personality and Social Psychology Bulletin*, 12, 390-402.
- Anderson, C. A., Gentile, D. A., & Buckley, K. E. (2007). *Violent video game effects on children and adolescents: Theory, research, and public policy*. New York: Oxford University Press.

- Andison, F. S. (1977). TV violence and viewer aggression: A cumulation of study results 1956-1976. *Public Opinion Quarterly*, 41, 314-31.
- Armstrong, E. G. (2001). Gangsta misogyny: A content analysis of the portrayals of violence against women in rap music, 1987-1993. *Journal of Criminal Justice and Popular Culture*, 8(2), 96-126.
- Atkin, C. (1983). Effects of realistic TV violence vs. fictional violence on aggression. *Journalism Quarterly*, 60, 615-21.
- Bandura, A. (1965). Influence of models' reinforcement contingencies on the acquisition of imitative responses. *Journal of Personality and Social Psychology*, 1, 589-95.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A., Ross, D., & Ross, S. A. (1963a). Imitation of film-mediated aggressive models. *Journal of Abnormal and Social Psychology*, 66, 3-11.
- Bandura, A., Ross, D., & Ross, S. A. (1963b). Vicarious reinforcement and imitative learning. *Journal of Abnormal and Social Psychology*, 67, 601-7.
- Barr, R., Muentener, P., Garcia, A., Fujimoto, M., & Chávez, V. (2007). The effect of repetition on imitation from television during infancy. *Developmental Psychobiology*, 49, 196-207.
- Bartholow, B. D., Sestir, M. A., & Davis, E. B. (2005). Correlates and consequences of exposure to video game violence: Hostile personality, empathy, and aggressive behavior. *Personality and Social Psychology Bulletin*, 31, 1573-86.
- Bauer, N. S., Herrenkohl, T. I., Lozano, P., Rivara, F. P., Hill, K. G., & Hawkins, J. D. (2006). Childhood bullying involvement and exposure to intimate partner violence. *Pediatrics*, 188(2), 234-44.
- Berkowitz, L. (1990). On the formation and regulation of anger and aggression: A cognitive neoassociationistic analysis. *American Psychologist*, 45, 494-503.
- Berkowitz, L., & Rawlings, E. (1963). Effects of film violence on inhibitions against subsequent aggression. *Journal of Abnormal and Social Psychology*, 66(5), 405-12.
- Boyatzis, C. J., Matillo, G. M., & Nesbitt, K. M. (1995). Effects of the "Mighty Morphin Power Rangers" on children's aggression with peers. *Child Study Journal*, 25, 45-55.
- Breuer, J., & Freud, S. (1956). *Studies on hysteria*. London: Hogarth Press.
- Bushman, B. J. (1995). Moderating role of trait aggressiveness in the effects of violent media on aggression. *Journal of Personality and Social Psychology*, 69, 950-60.
- Bushman, B. J., & Anderson, C. A. (2001). Media violence and the American public: Scientific facts versus media misinformation. *American Psychologist*, 56, 477-89.
- Bushman, B. J., & Huesmann, L. R. (2006). Short-term and long-term effects of violent media on aggression in children and adults. *Archives of Pediatrics and Adolescent Medicine*, 160(4), 348-52.
- Carnagey, N. L., & Anderson, C. A. (2005). The effects of reward and punishment in violent video games on aggressive affect, cognition, and behavior. *Psychological Science*, 16(11), 882-9.
- Chen, M. J., Miller, B. A., Grube, J. W., & Waiters, E. D. (2006). Music, substance use, and aggression. *Journal of Studies on Alcohol*, 67, 373-81.
- Cobb, N. J., Stevens-Long, J., & Goldstein, S. (1982). The influence of televised models on toy preference in children. *Sex Roles*, 8, 1075-80.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd edn.). Hillsdale, NJ: Lawrence Erlbaum.

- Collins, W. A. (1973). Effect of temporal separation between motivation, aggression, and consequences: A developmental study. *Developmental Psychology*, 8, 215-22.
- Collins, W. A. (1983). Interpretation and inference in children's television viewing. In J. Bryant & D. Anderson (Eds.), *Children's understanding of television: Research on attention and comprehension* (pp. 125-50). New York: Academic Press.
- Cooke, M. C., & Krcmar, M. (2001). Children's moral reasoning and their perceptions of television violence. *Journal of Communication*, 51(2), 300-16.
- Cooper, J., & Mackie, D. (1986). Video games and aggression in children. *Journal of Applied Social Psychology*, 16, 726-44.
- Coyne, S. M., & Archer, J. (2004). Indirect aggression in the media: A content analysis of British television programs. *Aggressive Behavior*, 30, 254-71.
- Coyne, S. M., Archer, J., & Eslea, M. (2004). Cruel intentions on television and real life: Can viewing indirect aggression increase viewers' subsequent indirect aggression? *Journal of Experimental Child Psychology*, 88, 234-53.
- Dorr, A. (1983). No shortcuts to judging reality. In J. Bryant & D. R. Anderson (Eds.), *Children's understanding of television: Research on attention and comprehension* (pp. 199-220). New York: Academic Press.
- Drabman, R. S., & Thomas, M. H. (1974). Does media violence increase children's toleration of real-life aggression? *Developmental Psychology*, 10, 418-21.
- Eaton, D., Kann, L., Kinchen, S., Ross, J., Hawkins, J., Harris, W. A., et al. (2006). *Youth Risk Behavior Surveillance - United States, 2005*. Atlanta, GA: Centers for Disease Control and Prevention.
- Eleison, M. (1994, January). *Scapegoat: Hollywood*. Retrieved April 3, 2007, from <http://www.moviemaker.com/magazine/editorial.php?id=160>.
- Elkind, D. (1985). Egocentrism redux. *Developmental Review*, 5, 218-26.
- Eron, L. D., Huesmann, L. R., Lefkowitz, M. M., & Walder, L. O. (1972). Does television cause aggression? *American Psychologist*, 27, 253-63.
- Federal Trade Commission. (2000). *Marketing violent entertainment to children: A review of self-regulation and industry practices in the motion picture, music recording & electronic game industries*. Washington, DC: Federal Trade Commission.
- Feshbach, S. (1955). The drive-reducing function of fantasy behavior. *Journal of Abnormal and Social Psychology*, 50, 3-11.
- Feshbach, S., & Singer, R. D. (1971). *Television and aggression: An experimental field study*. San Francisco: Jossey-Bass.
- Finn, P., & Bragg, B. W. E. (1986). Perception of risk of an accident by young and older drivers. *Accident Analysis and Prevention*, 18, 289-98.
- Flavell, J. H., Miller, P. H., & Miller, S. A. (2002). *Cognitive development* (4th edn.). Upper Saddle River, NJ: Prentice Hall.
- Freedman, J. L. (1986). Television violence and aggression: A rejoinder. *Psychological Bulletin*, 100, 372-8.
- Friedrich, L. K., & Stein, A. H. (1973). Aggressive and prosocial television programs and the natural behavior of preschool children. *Monographs of the Society for Research in Child Development*, 38(4, Serial No. 151), 1-63.
- Funk, J. B. (2005). Children's exposure to violent video games and desensitization to violence. *Child & Adolescent Psychiatric Clinics of North America*, 14, 387-404.
- Funk, J. B., Buchman, D. D., & Germann, J. N. (2000). Preference for violent electronic games, self-concept, and gender differences in young children. *American Journal of Orthopsychiatry*, 70(2), 233-41.

- Funk, J. B., Buchman, D. D., Jenks, J., & Bechtoldt, H. (2003). Playing violent video games, desensitization, and moral evaluation in children. *Applied Developmental Psychology*, 24, 413-36.
- Gentile, D. A., Lynch, P. J., Linder, J. R., & Walsh, D. A. (2004). The effects of violent video game habits on adolescent hostility, aggressive behaviors, and school performance. *Journal of Adolescence*, 27(1), 5-22.
- Gerbner, G., & Gross, L. (1976). Living with television: The violence profile. *Journal of Communication*, 26, 172-94.
- Graybill, D., Strawniak, M., Hunter, T., & O'Leary, M. (1987). Effects of playing versus observing violent versus nonviolent video games on children's aggression. *Psychology: A Quarterly Journal of Human Behavior*, 24, 1-8.
- Greene, J. O., Krcmar, M., Rubin, D. L., Walters, L. H., & Hale, J. L. (2002). Elaboration in processing adolescent health messages: The impact of egocentrism and sensation seeking on message processing. *Journal of Communication*, 52, 812-31.
- Greeson, L. E., & Williams, R. A. (1986). Social implications of music videos for youth: An analysis of the content and effects of MTV. *Youth and Society*, 18, 177-89.
- Haninger, K., & Thompson, K. M. (2004). Content and ratings of teen-rated video games. *Journal of the American Medical Association*, 291, 856-65.
- Hanratty, M. A., O'Neal, E., & Sulzer, J. L. (1972). Effect of frustration on imitation of aggression. *Journal of Personality and Social Psychology*, 21, 30-34.
- Hearold, S. (1986). A synthesis of 1043 effects of television on social behavior. In G. Comstock (Ed.), *Public communication and behavior* (pp. 65-133). New York: Academic Press.
- Hicks, D. J. (1965). Imitation and retention of film-mediated aggressive peer and adult models. *Journal of Personality and Social Psychology*, 2, 97-100.
- Hogben, M. (1998). Factors moderating the effect of televised aggression on viewer behavior. *Communication Research*, 25, 220-47.
- Huesmann, L. R. (1986). Psychological processes promoting the relation between exposure to media violence and aggressive behavior by the viewer. *Journal of Social Issues*, 42, 125-39.
- Huesmann, L. R. (1998). The role of social information processing and cognitive schema in the acquisition and maintenance of habitual aggressive behavior. In R. G. Green & E. Donnerstein (Eds.), *Human aggression: Theories, research, and implications for social policy* (pp. 73-103). San Diego, CA: Academic Press.
- Huesmann, L. R., & Eron, L. D. (1986). *Television and the aggressive child: A cross-national comparison*. Hillsdale, NJ: Lawrence Erlbaum.
- Huesmann, L. R., Moise-Titus, J., Podolski, C., & Eron, L. D. (2003). Longitudinal relations between children's exposure to TV violence and their aggressive and violent behavior in young adulthood: 1977-1992. *Developmental Psychology*, 39, 201-21.
- Huesmann, L. R., & Taylor, L. D. (2006). The role of media violence in violent behavior. *Annual Review of Public Health*, 27, 393-415.
- Irwin, A. R., & Gross, A. M. (1995). Cognitive tempo, violent video games, and aggressive behavior in young boys. *Journal of Family Violence*, 10, 337-50.
- Jaglom, L. M., & Gardner, H. (1981). The preschool viewer as anthropologist. In H. Kelly & H. Gardner (Eds.), *Viewing children through television. New Directions in Child Development*, vol. 13 (pp. 9-29). San Francisco, CA: Jossey-Bass.

- Jessor, R. (1992). Risk behavior in adolescence: A psychosocial framework for understanding and action. In D. E. Rogers & E. Ginzburg (Eds.), *Adolescents at Risk: Medical and social perspectives* (pp. 19–34). Boulder, CO: Westview Press.
- Jo, E., & Berkowitz, L. (1994). A priming effect analysis of media influence: An update. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 43–60). Hillsdale, NJ: Lawrence Erlbaum.
- Johnson, J. D., Jackson, L. A., & Gatto, L. (1995). Violent attitudes and deferred academic aspirations: Deleterious effects of exposure to rap music. *Basic and Applied Social Psychology*, 16, 27–41.
- Johnson, J. G., Cohen, P., Smailes, E. M., Kasen, S., & Brook, J. S. (2002). Television viewing and aggressive behavior during adolescence and adulthood. *Science*, 295, 2468–71.
- Jones, K. (1997). Are rap videos more violent? *Howard Journal of Communication*, 8, 343–56.
- Josephson, W. L. (1987). Television violence and children's aggression: Testing the priming, social script, and disinhibition predictions. *Journal of Personality and Social Psychology*, 53, 882–90.
- Kirsh, S. J. (1998). Seeing the world through *Mortal Kombat*-colored glasses: Violent video games and the development of a short-term hostile attribution bias. *Childhood*, 5, 177–84.
- Kirsh, S. J. (2003). The effects of violent video games on adolescents: The overlooked influence of development. *Aggression and Violent Behavior*, 8, 377–89.
- Kirsh, S. J. (2006). *Children, adolescents and media violence: A critical look at the research*. Thousand Oaks, CA: Sage.
- Kronenberger, W. G., Mathews, V. P., Dunn, D. W., Wang, Y., Wood, E. A., Larsen, J. J., et al. (2005). Media violence exposure in aggressive and control adolescents: Differences in self- and parent-reported exposure to violence on television and in video games. *Aggressive Behavior*, 31, 201–16.
- Kuntsche, E., Pickett, W., Overpeck, M., Craig, W., Boyce, W., & de Matos, G. M. (2006). Television viewing and forms of bullying among adolescents from eight countries. *Journal of Adolescent Health*, 39, 908–15.
- Larson, M. S. (2003). Gender, race, and aggression in television commercials that feature children. *Sex Roles*, 48, 67–75.
- Lovett, S. B., & Flavell, J. H. (1990). Understanding and remembering: Children's knowledge about the differential effects of strategy and task variables on comprehension and memorization. *Child Development*, 61, 1842–58.
- Martin, B. A. S., & Collins, B. A. (2002). Violence and consumption imagery in music videos. *European Journal of Marketing*, 36, 855–73.
- McIntosh, W. D., Murray, J. D., Murray, R. M., & Manian, S. (2003). What's so funny about a poke in the eye? The prevalence of violence in comedy films and its relation to social and economic threat in the United States, 1951–2000. *Mass Communication and Society*, 6(4), 345–60.
- Merzer, M. (2006). We in the media share blame for violence in society. *The Miami Herald*, December 10. Retrieved January 4, 2007, from www.miami.com/mld/miamiherald.
- Metcalf, J., & Shimamura, A. P. (Eds.). (1994). *Metacognition: Knowing about knowing*. Cambridge, MA: MIT Press.
- Monk-Turner, E., Ciba, P., Cunningham, M., McIntire, P. G., Pollard, M., & Turner, R. (2004). A content analysis of violence in American war movies. *Analyses of Social Issues and Public Policy*, 4(1), 1–11.

- Nathanson, A. I. (2004). Factual and evaluative approaches to modifying children's responses to violent television. *Journal of Communication*, 54, 321-36.
- Oliver, M. B., & Kalyanaraman, S. (2002). Appropriate for all viewing audiences? An examination of violent and sexual portrayals in movie previews featured on video rentals. *Journal of Broadcasting and Electronic Media*, 46, 283-99.
- Ostrov, J. M., Gentile, D. A., & Crick, N. R. (2006). Media exposure, aggression and prosocial behavior during early childhood: A longitudinal study. *Social Development*, 15, 612-27.
- Paik, H., & Comstock, G. (1994). The effects of television violence on antisocial behavior: A meta-analysis. *Communication Research*, 21, 516-46.
- Rideout, V., & Hamel, E. (2006). *The media family: Electronic media in the lives of infants, toddlers, preschoolers and their parents*. Palo Alto, CA: Kaiser Family Foundation.
- Roberts, D. F., Foehr, E. G., & Rideout, V. (2005). *Generation M: Media in the lives of 8-18-year-olds*. Menlo Park, CA: Kaiser Family Foundation.
- Robinson, T. H., Wilde, M. L., Navracruz, L. C., Haydel, K. F., & Varady, A. (2001). Effects of reducing children's television and video game use on aggressive behavior: A randomized controlled trial. *Archives of Pediatrics and Adolescent Medicine*, 155, 17-23.
- Sargent, J. D., Heatherton, T. F., Ahrens, M. B., Dalton, M. A., Tickle, J. J., & Beach, M. L. (2002). Adolescent exposure to extremely violent movies. *Journal of Adolescent Health*, 31, 449-54.
- Scharrer, E. (2004). Virtual violence: gender and aggression in video game advertisements. *Mass Communication and Society*, 7, 392-412.
- Schmitt, K. L., Anderson, D. R., & Collins, P. A. (1999). Form and content: Looking at visual features of television. *Developmental Psychology*, 35, 1156-67.
- Sherry, J. L. (2001). The effects of violent video games on aggression: A meta-analysis. *Human Communication Research*, 27, 409-31.
- Signorielli, N. (1990). *Cultivation analysis: New directions in media effects research*. Newbury Park, CA: Sage.
- Signorielli, N. (2003). Prime-time violence 1993-2001: Has the picture really changed? *Journal of Broadcasting and Electronic Media*, 47, 36-57.
- Slater, M. (2003). Violent media content and aggressiveness in adolescents: A downward spiral. *Communication Research*, 30, 713-36.
- Smith, S. L., & Boyson, A. R. (2002). Violence in music videos: Examining the prevalence and context of physical aggression. *Journal of Communication*, 52(1), 61-83.
- Smith, S. L., Lachlan, K., & Tamborini, R. (2003). Popular videogames: Quantifying the presentation of violence and its context. *Journal of Broadcasting and Electronic Media*, 47, 58-76.
- Smith, S. L., Wilson, B. J., Kunkel, D., Linz, D., Potter, W. J., Colvin, C., & Donnerstein, E. (1998). Violence in television programming overall: University of California, Santa Barbara study. In *National television violence study*, vol. 3 (pp. 5-220). Newbury Park, CA: Sage.
- Springer, K. (2001). Perceptual boundedness and perceptual support in conceptual development. *Psychological Review*, 108, 691-708.
- St Lawrence, J. S., & Joyner, D. J. (1991). The effects of sexually violent rock music on males' acceptance of violence against women. *Psychology of Women Quarterly*, 15, 49-63.

- Thompson, K. M., & Haninger, K. (2001). Violence in E-rated video games. *Journal of the American Medical Association*, 286, 591-8.
- Thompson, K. M., & Yokota, F. (2004). Violence, sex, and profanity in films: Correlation of movie ratings with context. *Medscape General Medicine*, 6, 3.
- Tversky, B. (1985). The development of taxonomic organization in named and pictured categories. *Developmental Psychology*, 21, 1111-19.
- Vandewater, E. A., Lee, J. H., & Shim, M. (2005). Family conflict and violent electronic media use in school-aged children. *Media Psychology*, 7, 73-86.
- Wester, S. R., Crown, C. L., Quatman, G. L., & Heesaker, M. (1997). The influence of sexually violent rap music on attitudes of men with little prior exposure. *Psychology of Women Quarterly*, 21, 497-508.
- Wilson, B. J., Colvin, C. M., & Smith, S. L. (2002). Engaging in violence on American television: A comparison of child, teen, and adult perpetrators. *Journal of Communication*, 52(1), 36-60.
- Wilson, B. J., Kunkel, D., Linz, D., Potter, W. J., Donnerstein, E., Smith, S. L., et al. (1997). Violence in television programming overall: University of California, Santa Barbara study. In *National television violence study*, vol. 1 (pp. 3-268). Thousand Oaks, CA: Sage.
- Wilson, B. J., Kunkel, D., Linz, D., Potter, W. J., Donnerstein, E., Smith, S. L., et al. (1998). Violence in television programming overall: University of California, Santa Barbara study. In *National television violence study*, vol. 2 (pp. 3-204). Thousand Oaks, CA: Sage.
- Wilson, B. J., Smith, S. L., Potter, W. J., Kunkel, D., Linz, D., Colvin, C. M., & Donnerstein, E. (2002). Violence in children's television programming: Assessing the risks. *Journal of Communication*, 52(1), 5-35.
- Wingwood, G. M., DiClemente, R. J., Bernhardt, J. M., Harrington, K., Davies, S. L., Robillard, A., & Hook, E. W. (2003). A prospective study of exposure to rap music videos and African American female adolescents' health. *American Journal of Public Health*, 93(3), 437-9.
- Wood, W., Wong, F. Y., & Chachere, J. C. (1991). Effects of media violence on viewers' aggression in unstrained social interaction. *Psychological Bulletin*, 109(3), 371-83.
- Wotring, C. E., & Greenberg, B. S. (1973). Experiments in televised violence and verbal aggression: Two exploratory studies. *Journal of Communication*, 23, 446-60.
- Wright, J. C., Huston, A. C., Reitz, A. L., & Piemyat, S. (1994). Young children's perceptions of television reality: Determinants and developmental differences. *Developmental Psychology*, 30(2), 229-39.
- Yokota, F., & Thompson, K. M. (2000). Violence in G-rated animated films. *Journal of the American Medical Association*, 283, 2716-20.

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