
Media Ratings for Violence and Sex

Implications for Policymakers and Parents

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This article reviews research on the implementation of media-rating systems, parents' use and evaluation of them, and the impact of ratings on children. Although half or more of parents report using media-rating systems, understanding of various components of the systems is low, particularly for television ratings. A meta-analysis of national polls shows that parents overwhelmingly prefer that ratings specify content, rather than giving age recommendations. A second meta-analysis, of experiments testing the effects of ratings on children's interest in programs, shows that ratings indicating restricted or controversial content have a deterrent effect for children under age 8 but that, by age 11 and especially for boys, the ratings show a small enticement effect. This effect occurs for both age-based and content-based ratings. Implications for policymakers and parents are discussed.

Then shall we allow our children to listen to any story anyone happens to make up, and so receive into their minds ideas often the very opposite of those we shall think they ought to have when they are grown up?

—Plato, *The Republic*

Throughout time, parents have worried about the stories their children might be exposed to, fearing that some of these stories might have a negative influence on them. Since the time of Plato, however, the number of storytellers has increased exponentially. Many of the stories today come from the mass media—television, movies, video and computer games, the Internet, and musical recordings. Virtually every new form of mass media entertainment has evoked concerns about its potentially harmful effects on children, and researchers have produced a wealth of evidence of the potential of media presentations to harm children. Meta-analyses have confirmed that exposure to media violence promotes aggressive behaviors, engenders attitudes more accepting of violence, increases hostility, and results in other antisocial outcomes (Anderson & Bushman, 2001, 2002; Bushman & Anderson, 2001; Bushman & Huesmann, 2001; Paik & Comstock, 1994). Other research has demonstrated the association between media exposure—especially exposure to media violence—and fears, anxieties, and sleep disturbances (e.g., Cantor, 1998b, 2001; Harrison & Cantor, 1999; Owens et al., 1999; Singer, Slovak, Frierson, & York, 1998).

Less research has been done on the effects of sexual content (largely because of ethical concerns). However, an

emerging literature demonstrates that both pornographic and mainstream erotic materials promote sexual callousness, cynical attitudes about love and marriage, and perceptions that promiscuity is the norm (Allen, Emmers, & Gebhardt, 1995; Zillmann, 2000). Moreover, media in which sex is combined with violence may have particularly pernicious effects (e.g., Allen, D'Alessio, & Brezgel, 1995; Linz, Donnerstein, & Penrod, 1988). Although there is little research on the effects of exposure to profanity, content analyses show that the use of profanity has increased over the years in movies (Jay, 1992), and surveys have reported that many parents are concerned that exposure to television might stimulate their children to use coarse or taboo language (e.g., Cantor, Stutman, & Duran, 1996).

Because of the increasing prevalence of media in children's lives (e.g., Rideout, Foehr, Roberts, & Brodie, 1999) and parents' concerns about the potential harmful impact on their children (e.g., Cantor et al., 1996), parents need information about media content so they can make more informed choices about their children's media consumption. A major approach to informing parents about media content has involved the implementation of ratings. Ratings are designed to provide quick information that parents can depend on so that they do not have to research or preview every program, movie, video game, or music CD their child might consume. Many people consider ratings to be a reasonable middle ground between censorship, at one extreme, and providing no help to parents, at the other.

Specific rating, labeling, and advisory systems began to emerge in the late 1960s in the United States, as mainstream media began to move into more controversial areas (see Federal Trade Commission [FTC], 2000, for a detailed history of the development of U.S. media-rating systems). Unfortunately, each form of media transmission developed its own rating system. Today there are separate rating systems for movies, television programs, musical recordings, video and computer games, coin-operated arcade

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games, and Internet sites. There have been some pressures to simplify the media-ratings situation for parents. For example, a bill that would mandate a uniform labeling system for violent media content was introduced into Congress and referred to committee in May 2001 (21st Century Media Responsibility Act of 2001). However, there is no likely prospect for successful legislation in the near future. Table 1 displays information about the media-rating systems most commonly used in the United States.

Are ratings performing their function of informing parents and helping them to guide their children's viewing in healthy directions? In this article, we bring together a variety of research findings in an attempt to answer this important question. First, we describe the major U.S. rating systems and the context of their use, and provide recent data on the relative frequencies with which the various rating levels are being applied. Second, we review recent research on parents' use and understanding of rating systems. Third, because rating systems were developed to serve parents' needs, we review research on the types of ratings information parents prefer and find most useful. Fourth, because ratings may also affect children directly by discouraging or encouraging exposure, we review research on the effects of rating systems on viewers' interest in media. Finally, we discuss the implications of these findings for policymakers and parents.

Rating Systems Currently Available in the United States

Media-rating systems in the United States have been developed by the various media industries, usually as the result of public pressure or the fear of government intervention. Rating systems may be divided into two major types: evaluative and descriptive. *Evaluative ratings* make

recommendations regarding who should or should not be exposed to a particular media offering. These ratings suggest the appropriate age for viewing (age-based ratings) or provide cautionary advice (e.g., *parental discretion advised*). In contrast, *descriptive ratings* (also referred to as *content-based ratings*) contain information about the content of a media product. Descriptive ratings often indicate the presence and/or intensity of violence, sex, profanity, or other controversial elements but do not make recommendations about who should or should not use the product. As shown in Table 1, several major rating systems fall totally within the evaluative or descriptive category. Other rating systems are hybrids of the two systems, providing both evaluative and descriptive elements.

Movie Ratings

Most movies that are shown in U.S. theaters are rated by a division of the Motion Picture Association of America (MPAA). As can be seen in Table 1, the movie-rating system has five age-based categories. Producers submit their films to a ratings board composed of parents who are employed full-time by the MPAA. An appeals board, whose membership is composed entirely of entertainment industry members, can overturn the ratings board's recommendation by a two thirds vote (Valenti, 2000). The MPAA does not publish data on the proportion of movies given each rating. However, independent analyses reveal that typically two thirds of movies receive an R rating and 5% or fewer receive a G rating (e.g., Cantor, 1998c; FTC, 2000). The ratings are displayed in advertising and on movie posters and video packaging. Reasons for ratings of PG or higher are available on the MPAA's Web site (<http://www.mpa.org>) and are included in some movie advertisements. The R rating, which requires that children under age 17 be accompanied by an adult, is sometimes, but not consistently, enforced at theaters (FTC, 2000). Some video rental establishments permit parents to specify whether their unaccompanied children may have access to R-rated videos.

Television Ratings

The TV Parental Guidelines. Television ratings for the major broadcast and cable TV networks were developed in response to a section of the Telecommunications Act of 1996. This act mandated that new television sets be manufactured with a V-chip, a device that allows parents to block out TV programs with objectionable content.¹ Developed by a committee of entertainment industry executives, the TV Parental Guidelines system has two ratings for programs directed to children and four ratings for other programs. It was originally based only on age, but after receiving a great deal of pressure from child advocates and members of Congress, the television industry agreed to

¹ Although many observers assume that the V in V-chip stands for violence, Tim Collings, the engineer most often credited with its invention, has stated that he originally intended the V to stand for viewer, as in viewer choice (Price, 1998).

Table 1
A Guide to the Most Commonly Used Rating Systems in the United States

| Evaluative ratings | Content indicators | Assignment |
|--|---|--|
| <i>Motion Picture Association of America ratings</i> | | |
| G: general audiences PG: parental guidance suggested PG-13: parents strongly cautioned R: restricted—under 17 requires accompanying parent or adult guardian NC-17: no one 17 and under admitted | None; reasons for ratings of recent films available at http://www.mpa.org and on some movie posters and advertisements | Assigned by a paid panel of parents; a movie's producer may appeal the panel's decision to an industry appeals board |
| <i>TV Parental Guidelines (V-chip ratings)</i> | | |
| TV-Y: all children ^a TV-Y7: directed to older children ^a TV-G: general audience ^a TV-PG: parental guidance suggested ^a TV-14: parents strongly cautioned ^a TV-MA: mature audiences only ^a | FV: fantasy violence ^a V: violence ^a S: sex ^a L: coarse language ^a D: sexual dialogue or innuendo ^a | Self-assigned by the producer or distributor; designed to be applied to all programming except news and sports |
| <i>TV: Premium channel content codes</i> | | |
| None | MV: mild violence V: violence GV: graphic violence AL: adult language GL: graphic language BN: brief nudity N: nudity AC: adult content SC: strong sexual content RP: rape | Assigned by the channel showing the movie |
| <i>Music advisories</i> | | |
| Parental advisory: explicit content | None | Self-assigned by the producer or distributor |
| <i>Video games: Electronic Software Ratings Board ratings</i> | | |
| eC: early childhood, ages 3+ E: everyone, ages 6+ T: teen, ages 13+ M: mature, ages 17+ Ao: adults only | Variety of phrases (e.g., <i>animated violence, comic mischief, strong language, mature sexual themes</i>) | Assigned by a rating board on the basis of a submitted tape and questionnaire |
| <i>Arcade games: Parental Advisory System</i> | | |
| None | <i>Animated violence, lifelike violence, sexual content, language</i> (three levels of each: green, suitable for everyone; yellow, mild; red, strong) | Self-assigned by the producer or distributor |
| <i>Internet Content Rating Association</i> | | |
| None | Violence, nudity, sex, offensive language, intolerance, alcohol, tobacco, drug use, and so forth | Computer-generated rating based on a questionnaire filled out by the producer |

Note. Adapted from <http://www.joannecantor.com>
^a Definitions are usually not given with the abbreviated ratings.



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Photo by Jeff Miller

add content letters to the age-based system (Cantor, 1998b). The rating icons and content letters (e.g., TV-Y7, FV) are usually displayed without their definitions (e.g., TV-Y7 [directed to older children], and FV [fantasy violence]). In addition to being read by the V-chip for purposes of blocking, the ratings are shown on screen at the beginning of programs and are included in some programming guides in newspapers. Since October 1997, all but two major TV networks have used the revised system. The National Broadcasting Company (NBC) uses the age-based ratings but not the content indicators. Black Entertainment Television does not use either the age-based ratings or the content indicators.

Television producers or distributors independently decide which rating is appropriate for their program. News programs and sporting competitions are exempt from the ratings. A 1998 content analysis of the application of ratings to programs showed that most of the eligible television programs were rated with at least an age-based icon (Kunkel et al., 1998). Of the children's programs sampled, 79% were rated TV-Y (all children), and 21% were rated TV-Y7 (directed to older children). Of the latter group, 56% also received the content descriptor of FV (fantasy violence). Of the general audience programs in the sample, 32% were rated TV-G (for a general audience), 41% were rated TV-PG (parental guidance suggested), 15% were rated TV-14 (parents strongly cautioned), and 0% were rated TV-MA (mature audiences only). In addition, content descriptors (V, violence; S, sex; L, coarse language; or D, sexual dialogue or innuendo) were attached to 33% of the programs rated TV-PG and to 62% of those rated TV-14.²

Premium cable channel content codes.

Several years before the development of the TV Parental Guidelines, three premium cable channels, Home Box Office (HBO), Showtime, and Cinemax, developed their own

rating system for the movies shown on their channels. As can be seen in Table 1, this is an entirely content-based system. Personnel employed by these channels decide which content labels are appropriate, and the labels are displayed visually before each movie, in addition to the movie's MPAA rating. A content analysis of a random sample of movies on HBO, Showtime, and Cinemax during the 1996–1997 season showed that 68% of the movies on these channels displayed the code AL (adult language), 50% displayed the code AC (adult content), 49% displayed one of the violence codes, 20% displayed one of the nudity codes, and fewer than 1% displayed the other codes (Cantor & Nathanson, 1998).

Music Advisories

Most major recording companies place an *explicit content* advisory on music containing lyrics with strong language or explicit references to sex, violence, or substance abuse. Each record company applies its own standards for determining which recordings should receive the advisory. Data from an FTC (2000) report show that approximately one third of the top 100 best-selling CDs contain an explicit content advisory.

Video Game Ratings

Electronic Software Rating Board (ESRB) ratings. The ESRB rating system for video games has both descriptive and evaluative elements. To obtain a rating, publishers submit a videotape of the game being played, showing the most extreme aspects of the content that could affect the rating. According to the ESRB's Web site (<http://www.esrb.org>), each game is evaluated independently by three trained raters who have no ties to the video game industry. The ESRB system is used on virtually all console-based video games and on 80% of computer games (FTC, 2000). According to the Interactive Digital Software Association's Web site (<http://www.idsa.com>), 71% of video game titles are rated E (everyone), 19% are rated T (teen), and 7% are rated M (mature).

The Parental Advisory System for coin-operated video games. Another system for rating video games, used by the purveyors of arcade games, is mainly descriptive. The ratings are self-applied by the manufacturer on the basis of guidelines provided by the rating system's developers and are presented on the developer's Web site (<http://www.coin-op.org>). As shown in Table 1, the system contains a variety of content descriptors and no evaluative elements. However, a code of conduct discourages video game parlor staff from allowing children who are unaccompanied by a parent to play games that have red labels, indicating strong content (FTC, 2000). Several cities have enacted video game ordinances to require arcade-game proprietors to restrict children's access to mature-rated games without parental permission. After a

² There are no content codes for the ratings of TV-Y and TV-G in the TV Parental Guidelines system. Only two programs (0%) were rated TV-MA in the analysis.

lawsuit by video game manufacturers, an Indianapolis ordinance was declared unconstitutional (Stop Child Abuse by the Media, 2002). Similar ordinances in other cities are also being challenged by the video game industry.

Ratings for Internet Content

A free, self-rating system for Internet content is available from the Internet Content Rating Association (ICRA), an international working group. The system involves a series of value-neutral descriptors and numerous categories of concern, including violence, nudity, sex, drug use, and intolerance. Web sites answer a series of questions about their content, and the computer determines their rating status. The ICRA system is available as a free filtering device on major Internet browsers, including Microsoft Explorer and Netscape Communicator (see the ICRA Web site, <http://www.icra.org>), and the major Internet service providers America Online, Yahoo, and Microsoft Network are now labeling their sites with that system (McGuire, 2002).

The above review establishes that the media provide a variety of rating systems for their programming and products. But are these systems helping parents? In the next section, we review research on the degree to which parents use and understand rating systems, and we explore parents' attitudes toward different types of ratings.

Research on Parents and Media Ratings

Parents' Use and Understanding of Specific Rating Systems

Use of media ratings. Two recent national surveys have explored parents' use of ratings for television, movies, music recordings, and video and computer games. An Annenberg Public Policy Center survey conducted in April 2000 reported that the following percentages of parents used the various media ratings: movie ratings, 80%; TV ratings, 39%; music ratings, 45%; video and computer game ratings, 50% (Woodard, 2000). A Kaiser Family Foundation (2001) survey conducted in May 2001 reported somewhat higher percentages for each medium (movies, 84%; TV, 56%; music, 50%; games, 59%), with the largest difference occurring for TV ratings. A smaller scale national survey conducted in winter 2000–2001 (Krcmar, Pulaski, & Curtis, 2001) reported that 83% of parents used the MPAA ratings on videos, 56% used the age-based portion of the TV ratings, and 59% used the content information in the TV ratings.

Approximately half of the parents in the Kaiser Family Foundation (2001) survey who used each rating system reported the ratings to be *very useful* (movies, 53%; TV, 48%; music, 52%; games, 52%), and approximately 40% deemed them *somewhat useful* (movies, 40%; TV, 44%; music, 38%; games, 41%).

Understanding of TV rating codes. Concerns have been raised specifically about parents' lack of understanding of the television rating system. The Annenberg survey (Woodard, 2000) reported a progressive de-

cline over the years in parents' awareness that a television rating system exists. After the rating system was launched in 1997, 70% of parents reported knowing about it. By 2000, this figure had decreased to 50%. In contrast, the Kaiser Family Foundation's (2001) survey reported that after being informed by the interviewer that there was a television rating system, 85% of parents said that they knew about it.

The Kaiser Family Foundation's (2001) survey also revealed, however, that parents' knowledge of the meanings of the various TV ratings is poor. It reported that only 31% of the parents of two- to six-year-olds understood the rating TV-Y, 43% knew the meaning of TV-Y7, and only 14% knew that FV had something to do with violence. They further reported that of all the parents in their sample, the majority knew the meanings of TV-G (63%), TV-PG (74%), and TV-14 (62%), and half or more of the parents knew the meanings of V (62%), S (52%), and L (50%). However, 47% knew what TV-MA meant, and only 5% understood the meaning of D (Kaiser Family Foundation, 2001). The survey by Krcmar et al. (2001) revealed that more than half of the parents surveyed understood the meanings of TV-14 and TV-Y (both 58%) and that 47% knew the meaning of V. However, this survey confirmed the low recognition value of the letters FV and D. Only 18% knew that FV had something to do with violence, and only 7% knew that D stood for sexual dialogue or innuendo.³

When parents in the Kaiser Family Foundation's (2001) survey were asked whether a single rating system that would be applied to all entertainment media would be more useful or less useful than the status quo, 40% said a single system would be more useful, and 17% said it would be less useful; 38% said that it would not make a difference.

Parents' Preferences for Content Information Versus Age Guidelines

Starting with the passage of the Telecommunications Act of 1996, which mandated the V-chip and TV ratings, six well-publicized national surveys explored the question of what parents would find most useful in a rating system. Almost all of these surveys indicated that parents strongly preferred a content-based system to one that gave age guidelines (see Cantor, 1998c). The one exception was a poll commissioned by the television industry itself (Hart, 1996). Since the revision of the TV Parental Guidelines to add content indicators to the age recommendations, there seems to have been no impetus for polls assessing parents' preference for one type of system or the other. However, a recent national survey by the Kaiser Family Foundation (2001) asked parents which part of the TV ratings provides more useful information, the age component or the content component. Again, there was a large preference for content, with 58% finding content information more useful and 18% finding age information more useful.

³ The survey by Krcmar et al. (2001) did not ask about the meanings of the other icons and letters in the TV Parental Guidelines system.

To determine the magnitude of parents' preference for content-based rating systems over age-based rating systems, we conducted a meta-analysis (Wang & Bushman, 1999).⁴ To ensure that there was no bias in the selection of preference surveys for this meta-analysis, we further searched all published and unpublished studies in the *PsycINFO* (*PsycLIT*, *Psychological Abstracts*, and *Dissertation Abstracts International*) computer database (1887–2001), using the following terms: (*televi** or *TV* or *screen* or *music* or *movie* or *film* or *video game* or *arcade game* or *computer game* or *motion picture* or *Internet* or *www* or *World Wide Web* or *Web*) and (*rate* or *rated* or *rating* or *label* or *code* or *warning* or *advisor** or *MPPAA* or *Motion Picture Association of America*). The asterisk option retrieves words containing the letter string with all possible endings. For example, the term *televi** retrieves studies that use the terms *television* or *televised*. This search retrieved no additional surveys of preference for content-based versus age-based ratings. The magnitude of the effect was computed as a standardized mean difference.⁵ It gives the number of standard deviation units between the percentage favoring content-based ratings and the percentage favoring age-based ratings. According to Cohen (1988), a small effect is $d = 0.20$, a medium effect is $d = 0.50$, and a large effect is $d = 0.80$.

Across the seven polls identified, the 4,799 parents questioned expressed a strong preference for content-based ratings (64.7%) over age-based ratings (25.4%). The average effect was 1.09 with a 95% confidence interval ranging from 1.04 to 1.15. This effect is larger than Cohen's (1988) conventional value for a large effect.

In summary, the research reviewed in this section reported that four fifths of parents say they use movie ratings and about half report that they use ratings for TV, music, and video games. Nevertheless, the research demonstrates that awareness of the television rating system has declined since its inception and that there is widespread ignorance of the meanings of some of the TV rating codes. Our meta-analysis supports the conclusion that parents strongly prefer content-based ratings and find them more useful than age-based ratings.

Effects of Ratings on Viewer Interest in Programs

Although it is commonly agreed that ratings are directed at parents to help them monitor the media their children consume, viewers of all ages might also use ratings to select media presentations that appeal to their interests (e.g., Greenberg & Rampoldi-Hnilo, 2001). It is therefore important to determine the impact of advisories and ratings on the choices individual viewers make. Specific concerns have been raised about whether ratings indicating that the content of a media presentation is controversial or inappropriate for children might actually increase children's interest and therefore undermine the purpose of the ratings.

Forbidden Fruit or Tainted Fruit?

Media ratings might exert a forbidden-fruit effect on audiences. The term *forbidden fruit* comes from the Biblical story in which God (the ultimate authority figure) told Adam and Eve to help themselves to any food in the Garden of Eden except the fruit from the tree of knowledge of good and evil. Adam and Eve ate the forbidden fruit anyway—perhaps because God told them

⁴ We computed a z score to test the difference between the proportion of parents who preferred content-based ratings and the proportion of parents who preferred age-based ratings using the following formula:

$$z = \frac{\hat{\pi}_j - \hat{\pi}_k}{\sqrt{\frac{\hat{\pi}_j + \hat{\pi}_k - (\hat{\pi}_j - \hat{\pi}_k)^2}{n}}}$$

where $\hat{\pi}_j$ is the proportion of parents who preferred content-based ratings, $\hat{\pi}_k$ is the proportion of parents who preferred age-based ratings, and n is the survey sample size. We thank Doug Bonett for providing us with this formula. To use a common effect-size metric throughout the article, we then computed a correlation from a z score by using the following formula: $r = z/\sqrt{n}$ (Rosenthal, 1994). The correlation was converted to a standardized mean difference by using the formula $d = 2r/\sqrt{1-r^2}$ (Rosenthal, 1994). The standardized mean differences were then corrected for small-sample bias and were combined in the manner described in footnote 5.

⁵ When the primary studies in question compared two groups, either through treatment versus control comparisons or through orthogonal contrasts, the effect size is expressed as some form of standardized difference between the group means, often called the d index (Cohen, 1988). Suppose that the assumptions for the validity of the two-sample t test are met in each study. That is, the observations in the experimental and control groups of the i th study are independently normally distributed with means μ_{E_i} and μ_{C_i} , respectively, and common variance σ_i^2 . Define the population effect size in the i th study as the standardized mean difference $\delta_i = (\mu_{E_i} - \mu_{C_i})/\sigma_i$, and define the sample estimator of δ_i as $d_i = (M_{E_i} - M_{C_i})/SD_i$, where M_{E_i} and M_{C_i} are the respective sample means for the experimental and control groups and SD_i is the pooled within-group sample standard deviation.

Because d_i is a biased estimator of δ_i , and the bias can be a serious problem when both the experimental and control group sample sizes are small, Hedges (1982) provided an exact correction factor for this sample bias:

$$C(v_i) = \frac{\Gamma\left(\frac{v_i}{2}\right)}{\sqrt{\frac{v_i}{2}\left(\frac{v_i-1}{2}\right)}}$$

where $\Gamma(\cdot)$ is the gamma function, $v_i = n_{E_i} + n_{C_i} - 2$ are the degrees of freedom, and n_{E_i} and n_{C_i} are the respective sample sizes for the experimental and control groups. Thus, an unbiased estimator of δ_i is given by $d_{U_i} = C(v_i)d_i$. When $n_{E_i} = n_{C_i}$, d_{U_i} is also the unique minimum unbiased estimator of δ_i (see Hedges, 1981).

The estimated variance of d_{U_i} is given by

$$\text{Var}(d_{U_i}) = \frac{n_{E_i} + n_{C_i}}{n_{E_i}n_{C_i}} + \frac{d_{U_i}^2}{2(n_{E_i} + n_{C_i})}$$

(Hedges & Olkin, 1985, p. 86). To obtain an unbiased weighted average of the sample standardized mean differences, d_{U_i} , each d_{U_i} was weighted by the inverse of its variance. Symbolically, $d_{U_*} = \sum_{i=1}^k w_{U_i} d_{U_i} / \sum_{i=1}^k w_{U_i}$, where $w_{U_i} = 1/\text{Var}(d_{U_i})$. The upper and lower bounds of a 95% confidence interval for the population standardized mean difference δ are given respectively by

$$d_{U_*} + 1.96 \sqrt{1 / \sum_{i=1}^k w_{U_i}} \text{ and } d_{U_*} - 1.96 \sqrt{1 / \sum_{i=1}^k w_{U_i}}.$$

not to eat it (see Genesis, chap. 2–3). Mark Twain (1962) had this to say about the Biblical story: “Adam was but human—this explains it all. He did not want the apple for the apple’s sake, he wanted it only because it was forbidden” (p. 40).

The forbidden-fruit idea is consistent with psychological reactance theory (J. W. Brehm, 1966, 1972; S. S. Brehm & Brehm, 1981; Wicklund, 1974). According to reactance theory, when a person’s freedom to engage in a particular behavior is threatened or eliminated, the person will experience psychological reactance—an unpleasant emotional state that motivates the person to try to restore the freedom. One method of restoring the freedom is to engage in the restricted behavior. Thus, if media ratings are perceived as a restriction on people’s freedom to consume whatever media they want, then reactance theory would predict that such ratings should draw individuals to the restricted media.

One issue that has arisen in research on the forbidden-fruit effect is whether evaluative ratings are more attractive than descriptive ratings. Reactance theory might be interpreted to suggest that evaluative ratings would make media more attractive than descriptive ratings because descriptive ratings do not explicitly restrict access. Consistent with this notion, several researchers have interpreted the findings of their research as evidence that evaluative ratings exceed descriptive ratings in their tendency to attract audiences (Bushman & Stack, 1996; Cantor, 1998c; Roberts, 1998). On the other hand, descriptive ratings that denote controversial content such as sex and violence might also serve as a draw for young audiences. It is a truism that sex and violence are topics of great interest to children and adolescents (see, e.g., Brown, 2000; Goldstein, 1998). Moreover, most young people have been taught that those activities are either discouraged or prohibited for their age cohort.

An alternative to the forbidden-fruit effect of media ratings is the view that there is a tainted-fruit effect (see Christenson, 1992). This view suggests that people interpret media ratings as implying that the media have potentially harmful effects and are therefore deterred from viewing the restricted media.

Previously published research has been somewhat inconsistent and includes findings that different types of media ratings sometimes increase, sometimes decrease, and sometimes have no significant effect on viewer interest, when compared with a control condition (e.g., Greenberg & Rampoldi-Hnilo, 2001). Adding to this inconsistency is the fact that many studies have reported differential effects in groups that vary by age and sex (e.g., Cantor & Harrison, 1997).

The inconsistencies in the findings and the increasing number of studies on the topic led us to use a meta-analytic approach to the issue (Wang & Bushman, 1999). In our analyses, we tested the effects of media ratings in general and explored the characteristics of ratings and of audiences that moderated these effects. We expected media ratings to have had a larger effect on

male than on female participants because of the well-documented findings that males are more interested than females in violence (e.g., Cantor, 1998a) and in sex (Oliver & Hyde, 1993). On the basis of reactance theory, we expected media ratings to have a stronger effect on children than on adults because children are often restricted from media containing objectionable content. According to reactance theory, evaluative ratings should also be more enticing than descriptive ratings because evaluative ratings give people advice about what media they should and should not consume.

Literature Search Procedures

Both published and unpublished studies were included in the review to reduce publication bias. For this search, the *PsycINFO* (*PsycLIT*, *Psychological Abstracts*, and *Dissertation Abstracts International*) computer database was searched (1887–2001), using the same search terms we used for our analysis of the surveys on rating preferences. The search was restricted to empirical studies involving human participants. It retrieved 1,732 research reports. The abstract of each research report was carefully read. Of these, there were 14 research reports on the effects of rating systems on attraction to media. The reference sections of these relevant research reports were also combed. This resulted in 4 more research reports. They were conference reports not indexed by *PsycINFO*. The 18 research reports contained a total of 70 independent samples involving 5,519 participants.⁶

Coding Frame

We coded several characteristics from each study (see Table 2). These characteristics were divided into four categories: source characteristics, participant characteristics, experiment characteristics, and primary study results.

1. Source characteristics included publication year and whether the study was published in a peer reviewed journal.

2. Participant characteristics included age and sex. Age was coded as the mean age of participants in the group. Mixed-gender groups were coded as the percentage of participants who were male.

3. Experiment characteristics included study design (experimental, nonexperimental), type of response variable (self-report, behavioral), type of media (TV program, movie, video game, music), and type of rating system (descriptive, evaluative). For descriptive rating systems, we coded the content of media (i.e., violence,

⁶ One study (Hamilton, 1994) examined the impact of warning labels on audience sizes (determined by Nielsen ratings) for different age groups. This study was excluded because the unit of analysis was the number of movies ($N = 2,295$) shown on broadcast network television between September 14, 1987, and September 26, 1993, rather than the actual audience size. The results from this study showed that warning labels decreased Nielsen ratings among children 2–11 years old. Warning labels did not significantly influence Nielsen ratings in any adult or teen demographic group. Another study (Krcmar & Albada, 2000) examined the effect of educational/informational icons on children’s perceptions of a program they viewed. This study was not included in the analysis.

Table 2
Summary of Characteristics Coded for the Meta-Analysis on Rating Effects

| Experiment characteristic | N | % |
|---------------------------|----|------|
| Study design | | |
| Experimental | 56 | 81.2 |
| Nonexperimental | 13 | 18.8 |
| Type of response | | |
| Self-report | 63 | 74.1 |
| Behavioral | 22 | 25.9 |
| Type of media | | |
| TV program | 56 | 71.8 |
| Movie | 17 | 21.8 |
| Video game | 3 | 3.8 |
| Music | 2 | 2.6 |
| Type of rating system | | |
| Descriptive | 33 | 41.8 |
| Evaluative | 46 | 58.2 |
| Content of media | | |
| Violence | 46 | 76.7 |
| Sex | 12 | 20.0 |
| Profanity | 2 | 3.3 |
| Level of content | | |
| Low | 11 | 15.5 |
| Moderate | 46 | 64.8 |
| High | 14 | 19.7 |
| Level of restriction | | |
| None | 10 | 10.8 |
| Low | 20 | 21.5 |
| Moderate | 23 | 24.7 |
| High | 40 | 43.0 |
| Type of control group | | |
| General rating | 51 | 67.1 |
| Parental guidance rating | 21 | 27.6 |
| No rating | 4 | 5.3 |

Note. Mean publication year was 1996, and 35.2% of the studies were published in a peer reviewed journal. Participants' mean age was 17.3 years ($SD = 10.0$ years), and a mean percentage of 50.2% were male.

sex, profanity) and the level of content (i.e., low, moderate, high). For example, if a cable TV program was rated GV (graphic violence), the content was coded *violence*, and the level of content was coded *high*. For evaluative rating systems, we coded the level of restriction (i.e., none, low, moderate, or high). For example, if participants were eight-year-olds, a movie rating of PG was coded *low restriction*, a movie rating of PG-13 was coded *moderate restriction*, and a movie rating of R was coded *high restriction*. Some experimental studies used a no-rating control group, whereas other studies used a general-rating control group (e.g., a movie rating of G).⁷ We coded type of control group because general audience ratings could also either repel or attract individuals to the media.

4. Primary study results included both the direction and the magnitude of the effect of media ratings on media interest. A positive effect indicates that the rating increased

interest in the media—a forbidden-fruit effect. A negative effect indicates that the rating decreased interest in the media—a tainted-fruit effect. The magnitude of the effect was computed as a standardized mean difference (see footnote 5), which gives the number of standard deviation units between the rating and no-rating groups. According to Cohen (1988), a small effect is $d = 0.20$, a medium effect is $d = 0.50$, and a large effect is $d = 0.80$. If a study did not include enough information to compute an effect, we contacted the authors and requested the missing data.⁸

Shifting Unit of Analysis

One problem that arises in estimating average effects is deciding what constitutes an independent effect. We used a shifting unit of analysis (Cooper, 1989). We coded each statistical test as if it were an independent event. For example, suppose that participants in a study rated how much they wanted to watch different TV programs. By random assignment, one third of the programs were rated V (for violent content), one third were rated S (for sexual content), and the remaining third were not rated (control). A total of two effects would be coded (i.e., V vs. control and S vs. control). For the overall estimate of the effect of media ratings on media interest, the two effects would be averaged so that the study would contribute only one effect. In an analysis that tested the effect of ratings for different media content on media interest, the study would contribute two effects. Thus, the shifting unit of analysis retains as much data as possible without violating too greatly the independence assumption that underlies the validity of meta-analytic procedures.

Intercoder Reliability

All of the studies were independently coded by Brad Bushman and by a graduate student. Perfect agreement was obtained for all coded characteristics.

Results

Preliminary analyses using Tukey's (1977) box plot revealed that there were no extreme outliers in the data set. A normal quantile plot revealed that the effects were normally distributed and that there was no hint of publication bias (Wang & Bushman, 1998).

Overall, ratings and advisories increased rather than decreased attraction to media when compared with control conditions. The average effect was 0.12, with a 95% confidence interval ranging from 0.06 to 0.17.⁹ The 95% confidence interval did not include the value zero. The overall effect was smaller than Cohen's (1988) conventional value for a small effect (i.e., $d = 0.20$).

⁷ One study (Cantor & Harrison, 1997) used programs rated PG as a comparison group.

⁸ We would like to thank those authors who provided previously unpublished data.

⁹ The pattern of results was similar for fixed and random effects analyses. Because of the small number of studies included in the meta-analysis, we report fixed effects analyses in this article.

As expected, media ratings had stronger effects on male than on female participants, $\chi^2(1, k = 64) = 16.60$, $p < .05$. The average effect for the 32 samples of male participants was 0.25 (0.16, 0.34), whereas the average effect for the 32 samples of female participants was 0.003 (-0.08, 0.09). The obtained sex differences were independent of the respondents' age (i.e., the interaction between respondents' sex and respondents' age was nonsignificant).

As can be seen from Figure 1, media ratings flagging restricted or objectionable content decreased interest until the age of 8, increased interest until about age 22, and then decreased interest after age 36. As Figure 1 shows, there were no samples between 23 and 36 years old. Media ratings had opposite effects on older children and younger children, $\chi^2(1, k = 42) = 25.68$, $p < .05$. The average effect for the 34 samples of children 8 to 17 years old was 0.21 (0.13, 0.29), whereas the average effect for the 8 samples of children under 8 years old was -0.30 (-0.50, -0.11). Neither confidence interval included the value zero. Thus, ratings had a forbidden-fruit effect on older children and had a tainted-fruit effect on younger children. The average effect for the 23 samples of adults 18 to 22 years old was 0.31 (0.21, 0.41). The confidence interval did not include the value zero. Thus, media ratings increased attraction to media with objectionable content in 18- to 22-year-olds. This age group consisted primarily of college students. The average effect for the 9 samples of adults over age 36 was -0.08 (-0.19, 0.03). This effect did not differ from zero.

Ratings of violent content were more likely to attract viewers than were ratings of sexual content, $\chi^2(1, k =$

58) = 4.77, $p < .05$. There were too few studies to make comparisons with profanity. The average effect for the 46 samples exposed to violence ratings was 0.22 (0.14, 0.29), whereas the average effect for the 12 samples exposed to sex ratings was 0.04 (-0.10, 0.19). Note that the confidence interval for the violence ratings does not contain the value zero, whereas the confidence interval for the sex ratings does contain the value zero. The effect size for violent media was small but not trivial. This same pattern of results was obtained for male and female participants. No samples of children were exposed to media with sexual ratings.

No other moderator variables were significant. For example, published and unpublished studies yielded similar effects.

Discussion of Findings on Ratings Effects

The meta-analytic findings reveal that media ratings do more to attract than to repel viewers. Both evaluative and descriptive ratings made programming more enticing to audiences. The magnitude of the effect overall is quite small ($d = 0.12$), but the range of the confidence interval does not include the value zero. This effect is moderated by several important factors, however. The effect is stronger for male participants than for female participants. For male participants, the effect is small; for female participants, the effect is about zero. There is also a curvilinear relationship of the effect with age. Ratings actually deter media selection until the age of 8; by the age of 11 and until at least the age of 22, ratings exert an attraction effect.

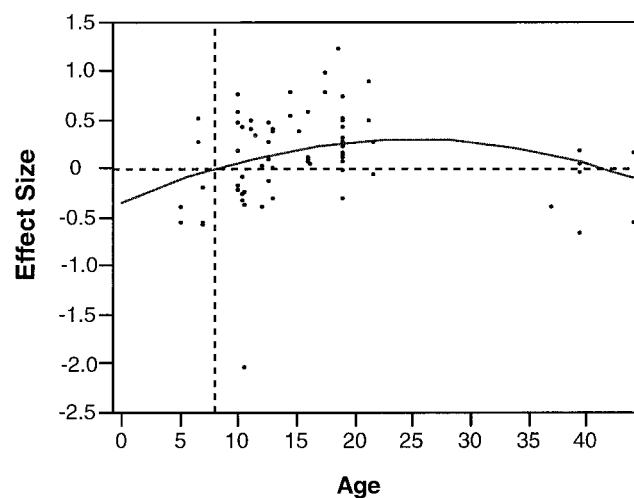
We were surprised that evaluative ratings were not more enticing than descriptive ratings. This finding is inconsistent with reactance theory. Also inconsistent with reactance theory is the finding that media ratings continue to increase interest into the viewer's twenties, long after the ratings suggest that the viewer is too young to be exposed to the presentation. Thus, reactance theory cannot fully explain these findings.

A more plausible explanation for the findings seems to be that both restrictive and descriptive ratings suggest the presence of violence or sexual behavior or other types of mature content that children, adolescents, and young adults are curious about and find increasingly appealing as they move from childhood to adulthood. Ratings may serve as a convenient way to find such content. In addition, even in the absence of age restrictions, viewing programs with such designations may be a way for older children and adolescents to demonstrate their seeming maturity or, more specifically, for boys to show their manhood (see Cantor, 1998a).

Implications for Parents and Policymakers

This article demonstrates that a great deal of effort has gone into the production of ratings to help parents monitor their children's consumption of media. The review of rating systems reveals, however, that the efforts of a variety of independent media industries have resulted in a dizzying array of ratings, icons, definitions, and procedures that are,

Figure 1
Age Differences in the Effects of Media Ratings on Attraction to Media With Restricted or Objectionable Content



Note. Tainted-fruit effects are less than zero, whereas forbidden-fruit effects are greater than zero.

in many cases, difficult to understand and remember. Almost all of these rating systems have been prompted by the threat of government intervention, and each industry has attempted to balance the provision of information against its own economic concerns. Although creating a rating system that works well for parents is not an easy task, it is clear that the preferences of parents have not often prevailed.¹⁰

Ratings decisions are not independent of financial concerns. Most of the ratings are self-assigned, by the producer or distributor of the material, or are dependent on self-report procedures. Although the MPAA ratings are an exception, members of the ratings panel are employees of MPAA, and their decisions may be overturned by an appeals board composed exclusively of industry insiders. None of the rating systems involve child development experts or psychologists in determining ratings.

The research on parents' attitudes confirms that parents find media ratings useful but that they have a very strong preference for content information over age recommendations. One reason for this preference seems to be that many parents have different ideas about the degree of harm produced by exposure to violence versus sex versus coarse language and so forth (e.g., Cantor et al., 1996). Unfortunately, the ratings for movies and music provide no content information at all. Furthermore, although the television industry agreed to a compromise that added content information to the TV Parental Guidelines, one of the three major broadcast networks (NBC) still refuses to provide the content information (more than five years after the compromise was reached).

Research on parents' awareness of the rating systems suggests that more needs to be done to ensure that parents understand the rating systems that are available. This problem seems most severe for television ratings. Although the amended television rating system has been in use since the fall of 1997, an appallingly low percentage of parents know (or can even guess) the meaning of important content indicators, such as D for sexual dialogue and innuendo and FV for intense violence in children's programs. The fact that these ratings are so poorly understood is hardly a coincidence—publicity for the ratings has been sporadic at best, and more important, parents have not been able to learn the definitions because the television industry provides the icons and letters without also providing their meanings in words. The definitions of these symbols must be sought out in inconvenient places, such as on a particular page in *TV Guide* or in infrequently televised public service announcements. All of the other rating systems use icons and words together (or words alone) to ensure that users understand them.

Our meta-analysis on ratings effects confirms that media ratings do have the drawback of making programs more attractive to some children and adolescents. This enticement effect should be kept in mind and balanced against a rating system's usefulness to parents. A rating that screams "CONTROVERSIAL!!" but provides no information (like the parental advisory for music or the R rating for movies) might actually do more harm than good.

However, it should be kept in mind that the forbidden-fruit effect was not observed in children under the age of 8. Such very young children may be considered the most vulnerable to media effects because they are still developing an understanding of the distinction between fantasy and reality (e.g., Cantor, 1998b; Paik & Comstock, 1994). It is also more difficult to use reasoning with younger children to counteract the impact of a compelling video presentation (Cantor & Wilson, 1988).

For older children, the forbidden-fruit effect may be a factor in viewing decisions. However, it should be recalled that, although significant, the effect size was small and was much smaller than the effect size for parents' preference for information about content. The analysis revealed quite a bit of variability in the enticement effects of ratings. Future research should address techniques to maximize ratings' information-promoting potential while minimizing their unwanted side effects.

Overall, this review demonstrates that although media ratings can be helpful to parents, more work needs to be done to ensure that parents know about them, understand them, and can use them effectively. A rating that provides reliable information about the nature and intensity of content to be encountered should provide benefits that outweigh its capacity to attract viewers.

The data presented here—about the myriad rating systems and parents' failure to understand them—support efforts to implement a universal rating system for all media, one that provides accurate information about program content in easily understood language. Short of legislation that would mandate such an approach, the existing rating systems should be improved so that they better meet the needs of parents. Accordingly, we make the following recommendations:

1. Rating systems should all provide guidance that can be easily understood without memorizing definitions or referring to a separate code.
2. Rating systems should all provide content information.
3. Explicit, public information about the criteria for assigning ratings to media offerings should be available. Indeed, the media should include psychologists and the findings of psychological research in the development of ratings that focus on the types of content that are most likely to risk harming children at different ages.
4. If the ratings are assigned by coders who have a financial stake in the product, there should be some procedure for public review or appeal by consumers.

¹⁰ In response to parents' frustrations over the current ratings, companies are beginning to produce rating systems that are independent of the media industries being rated. For example, the PSV Rating System (<http://www.PSVratings.com>) rates a variety of types of media products for three levels of profanity (P), sex (S), and violence (V), and TV Mentor (<http://www.TVMentor.com>) is developing a system that is based on both content and age. Both companies have child psychologists and child development specialists as advisors. Joanne Cantor is an advisor to TV Mentor and is on the Standards Board of the PSV Rating System.

5. The media industries should make sincere and affirmative efforts to educate parents about the rating systems, and ratings should be displayed in a way that makes it easy for parents to find them.

Censorship is not a workable alternative in the American media environment. Media apologists and opponents of censorship are quick to place the burden on parents to monitor and control their children's viewing. For this to happen, however, parents and other caregivers need reliable, understandable information about media content. Is this too much to ask?

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