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Third-Person Effect, Gender, and Pornography on the Internet

Ven-hwei Lo and Ran Wei

This study examined the role of gender in the third-person effect in the context of Internet pornography. The results indicate that most respondents believe Internet pornography has a greater negative influence on others than on themselves. Female respondents tend to perceive greater negative effects of Internet pornography on other males than on other females, and they are readier to support restrictions of Internet pornography. Finally, the magnitude of perceptual bias appears an unreliable predictor of support for media restriction, which may help explain the mixed results in previous studies. This novel gender-differential approach strengthens the growing literature on the third-person effect.

The rapid, worldwide growth of the Internet leads to unprecedented opportunities in applications in business, communication, education, and entertainment (Hagel & Armstrong, 1997; Johnson, 1997; Schawrtz, 1997; Tapscott, Lowy, & Ticoll, 1998). Commercial interests act as a driving force behind these applications, but one of the byproducts is sex—lots of it. Sex is one of the most researched keywords on the Internet. Pornographic web sites have shown tremendous growth in the past few years, increasing by nearly 300 a day (Chen, 1999) and $700 million a year (Hapgood, 1996). They now total approximately 170,000. "Cybersex" or "cyberporn" came hand-in-glove with global interconnectivity.[1]

Pornography on the Internet is unique because sexually explicit materials posted on the Internet differ from traditional forms of pornographic materials, such as magazines and videos, in several important ways: (a) It is widely available through Bulletin Board Services (BBS) groups and via the World Wide Web through database accesses, interactive services, e-mail, Internet Relay Chat (IRC), and real-time data feeds; (b) it is *active* and *interactive* through the presentation of materials in

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multimedia formats such as digitized moving images, animated sequences, sexually explicit texts, hot chats, and interactive sexual games; and (c) consumers also are producers of pornographic materials.[2] As Catherine MacKinnon (1995) put it: "Pornography in cyberspace is pornography in society—just broader, deeper, worse, and more of it " (p. 1959).

Research on pornography in cyberspace is burgeoning. Some studies have content analyzed pornographic materials posted and distributed on the Internet (Heider & Harp, 2000; Mehta & Plaza, 1997; Rimm, 1995). A few experimental studies have explored the effects of Internet pornography on attitudes and behavior (Barak, Fisher, Belfry, & Lashambe, 1999; Mahood, Kalyanaraman, & Sundar, 2000). This study seeks to contribute to the growing research literature on Internet pornography by using large-scale survey data to examine the actual use and perceived effects of exposure to Internet pornography within a third-person effect theoretical framework.

The support for the third-person effect has been consistently robust in the past decade (Perloff, 1993, 1999). Several studies found that a majority of respondents tend to perceive pornography to have greater negative influence on others than on themselves (Gunther, 1995; Lee & Yang, 1996; Lo & Paddon, 1999; Rojas, Shah, & Faber, 1996). Other studies focusing on the behavioral component of the third-person effect predicted successfully that third-person perceptions would lead to support for media restrictions on such things as press coverage of criminal television content (Gunther & Ang, 1996), violence on television (Hoffner et al., 1999; Rojas et al., 1996; Salwen & Dupagne, 1999), and negative political advertising (Rucinski & Salmon, 1990).

Oddly, however, third-person effect research has paid scant attention to Internet pornography. The availability and quantity of Internet pornography, the multifaceted nature of its delivery, and the active role that its consumers play suggest that many people will condemn cyberporn as causing greater social harm than traditional pornography. From a theoretical standpoint, these distinctive features of Internet pornography should not only inject the third-person effect into Internet communication but also magnify it compared to traditional mass media. Thus, research on effects of Internet pornography with a third-person effect theoretical perspective is timely and worthwhile.

Moreover, although previous studies found that women were more likely than men to associate pornographic materials with negative effects and were also more likely to support restrictions on pornography (Gunther, 1995; Thiessen, 1994; Thompson, Chaffee, & Oshagan, 1990; Wilson & Abelson, 1973), none of them addressed theoretically the relationships among gender, perceived effects of pornography on self and other males or females, and support for censorship of pornography. By splitting perceived effects according to gender in the use of Internet pornography, the present study attempts to expand the robust and growing third-person effect research.

Finally, most of the studies that examined the behavioral component of the third-person effect had used *magnitude of perceptual bias* as a predictor of support

for media restrictions. Although using the magnitude of perceptual bias as a predictor of support for media restriction has some empirical support, its basic assumption seems questionable since it fails to distinguish between those who perceive pornography to have high influence on themselves and on others, and those who perceive pornography to have low influence on themselves and on others. In testing the relationships among third-person effect, gender, and support for restriction of Internet pornography, another goal of this study is to demonstrate empirically the methodological problem of using magnitude of perceptual bias as a predictor of support for pornography restriction.

Literature Review and Hypotheses

Perceived Third-Person Effect

Since Davison (1983) proposed the third-person effect hypothesis, numerous studies have gathered a significant amount of empirical evidence to support the third-person effect or the perceptual component of the hypothesis using different methodologies such as experiments and surveys (Paul, Salwen, & Dupagne, 2000; Perloff, 1999). The perceptual component of the third-person effect hypothesis states that people tend to perceive mass media messages to have a greater impact on others than on themselves.

Perloff (1993) reported that 13 of 14 studies on the third-person effect between 1983 and 1992 found support for the perceptual component of the hypothesis. During the 1990s, studies also overwhelmingly supported the third-person perceptual component of the hypothesis (Perloff, 1999). In fact, recent research has found that the third-person effects are even stronger when the communication is seen as socially less desirable or potentially harmful: rap music (McLeod, Eveland, & Nathanson, 1997), pornography (Gunther, 1995; Rojas, et al., 1996), sensitive television content (Gunther & Ang, 1996), media violence (Duck & Mullin, 1995; Salwen & Dupagne, 1999), undesirable advertising (Henriksen & Flora, 1999; Shah, Faber, & Youn, 1999), and press coverage of the O. J. Simpson trial (Salwen & Driscoll, 1997). Similar research conducted in Taiwan (Lo & Paddon, 1999) shows that respondents perceived pornography to have greater negative influence on others than on themselves.

Based on these findings, we predicted the following:

H1: Both male and female respondents will perceive Internet pornography to have a greater negative effect on *others* than on *themselves*.

Internet Pornography, Gender, and Third-Person Effect

A great deal of research has examined the content and effects of traditional forms of pornography in the past decades. Findings of previous research on pornography

suggest that pornographic materials depict women routinely as sexual objects or as sexual commodities who enjoy suffering or humiliation (Dines, Jensen, & Russo, 1998; Dworkin, 1989). Women are also presented in situations that are humiliating, demeaning, and subjugating (Dobson, 1997). In a qualitative analysis of 14 pornographic videos and 20 pornographic novels, Jensen and Dines (1998, pp. 90-98) found the following four elements central to the representation of sexuality in pornography: (a) *hierarchy* (the power imbalance was overwhelming, routinely placing women at the bottom of a hierarchy); (b) *objectification* (women were depicted as objects or treated as less than human by their sexual partners); (c) *submission* (women were portrayed as learning to comply with the orders and desires of men who had power over them); and (d) *violence* (violent acts were presented as an acceptable method of ensuring sexual cooperation from women). Because women are routinely presented as sexual objects in scenarios of degradation, injury, abasement, or torture (Dines et al., 1998; Dworkin, 1989), pornography is seen as "a method to motivate, orchestrate, justify and guide sexual abuse and violence against women" (Russo, 1998, p. 29). As Dworkin (1988) argues, "Pornography is the material means of sexualizing inequality; and that is why pornography is a central practice in the subordination of women" (pp. 264-265).

The explosion of pornographic Web sites on the Internet in the past few years made such materials readily available to anyone, regardless of age, with an online account or access to the World Wide Web. The proliferation of pornographic materials on the Internet and intense public debate on how to regulate the Internet have triggered a small number of pioneer studies examining the content and effects of Internet pornography (Barak et al., 1999; Heider & Harp, 2000; Mahood et al., 2000; Mehta & Plaza, 1997; Rimm, 1995). A content study of 857,410 pornographic images on private bulletin board services by Rimm (1995) found that the dominant themes were pedophilic, hebephilic, and paraphilic, including bondage, sadomasochism, urination, defecation, and bestiality. In another content analysis of 150 randomly selected pornographic images downloaded from newsgroups, Mehta and Plaza (1997) reported that the most prevalent themes were close-ups, erect penises, fetishes, and masturbation. Both studies confirmed that pornographic materials were widely available on the Internet. Another textual analysis of more than 100 pornographic sites by Heider and Harp (2000) found that pornographic materials on the Internet also depict women as sexual objects and as willing, submissive, and subjugated to the needs of the male dominator. Building on the work of Jensen and Dines (1998), they concluded that Internet pornography seemed to reinforce "traditional constructions of men's power over women in the forms of hierarchy, objectification, submission, and violence" (p. 23).

Empirically, past studies on pornography show that pornography, including Internet pornography, is produced and used primarily by men (Dines et al., 1998; Lin, 1999; Mehta & Plaza, 1997). Women were found to be less likely than men to consume it frequently, to be less sexually aroused by it, and to have less favorable attitudes toward pornography (Greenberg, Brown, & Buerkel-Rothfuss, 1993; Lo &

Paddon, 1999; Malamuth, 1996). In a nationwide survey in the United States, Wilson and Abelson (1973) reported that 84% of men, compared with 69% of women, said they had been exposed to one or more kinds of pornographic material. More men (52%), compared to women (37%), also disclosed that they had seen pictorial depictions of an explicit sexual nature in the two years prior to the interview. In a more recent study, Thompson et al. (1990) found that men were three times more likely than women to watch X-rated or sexually explicit movies on pay TV, on VCRs, or in theaters. Research conducted in Taiwan (Lo, Neilan, Sun, & Chiang, 1999) also found that males had much higher levels of exposure to pornography than females. As Mehta and Plaza concluded in their study (1997), pornographic materials on the Internet tend to reflect "the values, tastes, preferences, and mores of young white, upper middle-class men" (p. 65).

The Wilson and Ableson study (1973) found that women were more likely than men to associate pornography with negative effects, ranging from "Make people sex crazy" and "Lead people to lose respect for women," to "Lead to a breakdown of morals" and "Lead people to commit rape." Women were also less accepting of the arousal and entertainment values of these materials. Thiessen (1994) noted that women expressed negative affect toward use of pornography and were less willing to volunteer for studies of erotica. The researchers concluded that greater negative affective reactions would seem both to result from, and in turn contribute to, the lower exposure rates of women to pornography. Even when the pornographic content was specially developed to appeal to women, women still experienced both more negative affect and less positive affect than men (Mosher & MacLan, 1994).

Three pioneering studies examined negative effects of Internet pornography on men's attitudes toward women (Barak & Fisher, 1997; Barak et al., 1999; Mahood et al., 2000). Exposure to Internet pornography was found to have no effects on men's attitudes toward women, rape myth acceptance, or likelihood of sexual harassment in the experimental studies by Barak et al. (1999). The Mahood et al. study, however, found that exposure to high and medium interactivity, as compared with low interactivity, increased the negative effect of dehumanizing Internet pornography and led to more acceptance of violence toward women. Although results about the negative effects of exposure to Internet pornography were mixed, past research on pornography presented in traditional mass media suggests that exposure to pornography has a negative impact on men's attitudes toward women (Zillmann & Bryant, 1989). Exposure to pornography also increases acceptance of violence against women (Malamuth & Chech, 1981) and contributes to men's acceptance of the rape myth (Allen, Emmers, Gebhardt, & Giery, 1996). Repeated exposure to pornography increases the reported likelihood of forcing women into unwanted sexual acts (Chech & Guloien, 1989; Zillmann, 1989) and inspires men's sexual callousness toward women (Zillmann & Weaver, 1989).

Based on these findings—that men tend to dominate in use of Internet pornography, and that pornographic scripts tend to instigate negative affect in women and promote men's insensitivity and sexual callousness toward women—we expected

the public would consider men as more vulnerable to the harmful effects of Internet pornography. We also expected women to be more likely than men to perceive greater negative effects of Internet pornography on males. As such, it was hypothesized that

H2: Respondents will perceive Internet pornography to have greater negative effects on *other male* respondents than on other female respondents.

H3: *Female* respondents will be more likely than male respondents to perceive that Internet pornography will exert greater negative effects on *other male* respondents.

Moreover, we also propose that females will be more likely to support restricting pornography on the Internet. This expectation is derived from findings in previous pornography research as well. Because pornography is degrading to women (Dines et al., 1998; Dworkin, 1989), viewing pornography was found to make women more tense, anxious, angry, and hostile (Senn, 1993). Empirical research indicates that women not only view less erotic media, they also tell researchers that they are more willing to seek restrictions on it. In their development of an Attitudinal Censorship Questionnaire, Hense and Wright (1992) found that although no gender differences were found on the General Censorship factor, females were more willing to censor pornography than were males. Lee and Yang (1996) found that females were more likely than males to support censorship of sexual violence and sexually explicit materials on television. Thompson et al. (1990) reported that women were more supportive than men of anti-pornography legislation. In a recent survey of 1,858 Taiwan high school students, Lo and Paddon (1999) found that female students were more likely than male students to support the restriction of pornography.

These previous research findings provided the theoretical rationale for the following hypothesis:

H4: Female respondents will be more likely to support the restriction of pornography on the Internet than male respondents.

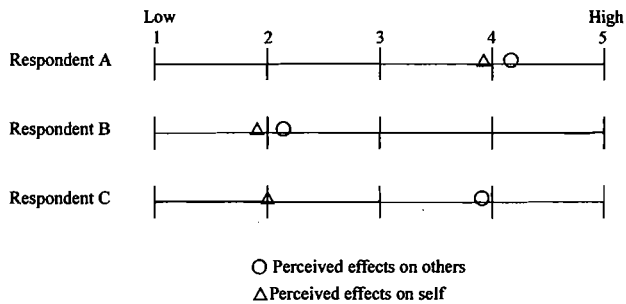
Magnitude of Perceptual Bias and Methodological Issues

Finally, we propose that the magnitude of perceptual bias will *not* be a reliable predictor of support for restricting Internet pornography. Most of the previous studies examining the behavioral component of the third-person effect used the magnitude of perceptual bias, or the magnitude of the difference in perceived effects on self and perceived effects on others, as a predictor of support for media restrictions. Inconsistent results were reported (Perloff, 1999). Although the magnitudes of perceptual bias were significantly associated with support for restriction of pornography (Gunther, 1995; Rojas et al., 1996), sensitive television content (Gunther & Ang, 1996), misogynic rap music (McLeod et al., 1997), undesirable advertising (Shah et al., 1999), and electoral campaign messages (Salwen, 1998), they failed to predict support for censoring pornography in Taiwan (Lo & Paddon, 1998b), coverage of the

O. J. Simpson trial (Salwen & Driscoll, 1997), and external control of political communications (Rucinski & Salmon, 1990). Price, Tewksbury, and Huang (1998) even found that the magnitude of perceptual bias was negatively related to support for publication of a Holocaust-denial advertisement.

Given the inconsistent findings concerning the relationship between magnitude of perceptual bias and support for media restriction, we suggest that the inconsistency may be largely caused by the use of magnitude of perceptual bias as a predictor. This is because this variable does not distinguish between those who perceive pornography to have a high influence on themselves and on others and those who perceive pornography to have a low influence on themselves and on others. Figure 1 illustrates the problem of using magnitude of perceptual bias as a predictor of support for pornography restriction. Respondent A represents the individuals who perceive pornography to have a high negative effect on themselves and on others. Respondent B represents those who estimate pornography to have a low negative effect on themselves and on others. Respondent C represents those who perceive pornography to have a low negative effect on themselves but a high negative effect on others, and is most likely to demonstrate the established third-person behavioral effect.

Figure 1
Perceived Effects of Pornography on Self and Others



If the magnitude of perceptual bias is a good predictor of support for censorship, one would expect Respondent A to display the same censorship attitudes as Respondent B. Respondent C would display the strongest pro-censorship attitude or behavior. But there is no reason to expect that Respondent A, who perceives pornography to have a highly harmful effect on self and on others, is likely to display the same censorship attitude as Respondent B, who sees little harm on self and others. In fact, we argue that those who perceived high effects on self and others (i.e., Respondent A) are more likely to support restricting pornography than were those who perceived low effects on self and others (i.e., Respondent B). We further argue that there may be no significant difference between those who perceived high effects

on self and others (i.e., Respondent A) and those who perceived high effects on others and low effects on self (i.e., Respondent C), Thus, it was hypothesized that

H5: Respondent A will be more likely to support restrictions of pornography on the Internet than Respondent B.

H6: Respondent A will be as likely as Respondent C to support restrictions of pornography on the Internet.

Furthermore, we anticipated that perceived negative effects on *other males* would be a better predictor of support for restriction of pornography on the Internet than the magnitude of perceptual bias. This expectation is consistent with past research which suggests that it was the perceived effect on others that motivated people to support media restrictions (Cohen, Mutz, Price, & Gunther, 1988; Gunther, 1991; Lo & Paddon, 1998b). Salwen (1998) found that perceived effect on others was positively related to support for restrictions on unfair election news coverage. Lo and Paddon (1998b) also found that perceived effect on others was a significant predictor of support for restriction of pornography.

A large body of pornography research literature adds more theoretical backing to our expectation. As pornography is primarily produced for men, they are more likely than women to consume it frequently, thus to be at greater risk of being negatively affected by, and to have more favorable attitudes toward, pornography (Greenberg et al., 1993; Malamuth, 1996; Zillmann & Bryant, 1982). Existing research also indicates that pornography would likely cause negative attitudes toward women (Zillmann & Bryant, 1989). Exposure to pornography promotes insensitivity toward victims of sexual violence and contributes to men's acceptance of the rape myth (Allen, Emmers, Gebhart, & Giery., 1996). Prolonged consumption of pornography was also found to breed men's sexual callousness toward women (Zillmann & Weaver, 1989) and to increase reported willingness to rape (Chech & Guloien, 1989). Thus, people tend to perceive pornography as having a greater negative influence on other males than on other females. Since people will consider other males as more vulnerable to the harmful effects of pornography, it is reasonable to assume that it is the perceived negative effects on other males, rather than the perceived effects on other females, that leads people to support censorship of pornography. Accordingly, we hypothesize that

H7: Perceived effects of Internet pornography on *other males* will be a better predictor of support for restriction of pornography on the Internet than will *magnitude of perceptual bias.*

H8: Perceived effects of Internet pornography on *other males* will be a better predictor of support for restriction of pornography on the Internet than will perceived effects *on other females.*

Methods

Numerous surveys in a large number of countries show that users of the Internet are characteristically young and well-educated. They belong to the "net generation" (Tapscott, 1998). The Internet medium appeals to this group particularly because of the high level of computer literacy and higher social economic status of its members. Therefore, our study targeted this group.

Using multistage cluster sampling, we first drew 20 colleges and high schools at random from a pool of 26 colleges and 63 high schools in Taipei, Taiwan. We then randomly selected three classes from each of these 20 institutions. Finally, we administered the questionnaire to all students in these 60 classes between mid April and mid May 1999. Respondents were assured of complete anonymity. Participation was voluntary. Trained senior undergraduate students at a large university supervised the distribution and collection of the self-administered questionnaires. Of the 2,713 students, 2,628 (96.9%) completed the survey.

Measurement of Key Variables

Computer use. We used two measures of computer use. First, respondents were asked to indicate the number of days per week that they used the computer. Then, they were asked to estimate the average daily amount of time (in minutes) spent using a computer. A computer use index was created by multiplying the number of days they used a computer per week and the amount of computing time per day to provide an overall measure of computer use ($M = 448$, $SD = 495$).

Exposure to Internet pornography. Exposure to Internet pornography was measured by asking respondents to self-report how often they surfed pornographic Web sites. The response categories ranged from 1 (*never*) to 5 (*frequently*). The greater the score, the more frequent the exposure to pornographic sites ($M = 1.73$, $SD = 1.02$).[3] Exposure to Internet pornography was used as a control variable in the regression analyses since previous studies indicated that pornography exposure was related to perceived effect of pornography on self and others and support for restriction of pornography (Hoffner et al., 1999; Lo & Paddon, 1998a; Thompson et al., 1990).

Perceived negative effects on self and others. To measure perceived negative effects of Internet pornography on self and others, we asked respondents to estimate the likely negative effects of "surfing pornographic web sites" on moral values, attitudes toward the opposite sex, sexual knowledge, sexual attitudes, and sexual behavior. We used a 5-point scale, where 1 means "no negative effect at all" and 5 means "a strong negative effect." Results of a principal component factor analysis showed that the self, other male students, and other female students items were clearly grouped in three distinct factors. Therefore, the five "self" items were added and divided by five to create a measure of "perceived negative effects on self" (alpha = .94, $M = 2.28$, $SD = 1.19$).

Similarly, the five "other male students" items were added and divided by five to construct a measure of "perceived effects on *other male* students" (alpha = .96, M = 3.31, SD = 1.17). The five "other female students" items were also added and divided by five to build a measure of "perceived effects on *other female* students" (alpha = .95, M = 2.78, SD = 1.11). The higher the score, the greater the perceived negative effects on self and others. These novel measures differentiating *others* into *other males* and *other females* were never used in the previous third-person effect research.

Magnitude of perceptual bias. Differences in scores between perceived effects on self and each of the two comparison groups (i.e., other male students and other female students) were computed to measure magnitude of perceptual bias. Thus, the higher the score, the greater the magnitude of perceptual bias between the perceived negative effects on self and the perceived negative effects on other males and females.

Support for restrictions of Internet pornography. Support for restrictions of pornography on the Internet was measured by five behavior intention items. If pornographic web sites caused grave public concern, we asked respondents how likely they would be to take the following action: signing a petition for regulating pornographic sites, calling the Internet service providers to block pornographic sites, writing to lawmakers to prompt legislation to ban pornographic sites, engaging in protests against pornographic sites, and boycotting pornographic sites. The scale ranged from 1 (*very unlikely*) to 5 (*very likely*). Principal component analysis showed that the five items were grouped in a single factor, thus indicating that they measured the same underlying concept. The single-factor solution explained 69% of the total variance. A composite measure of support for restrictions of pornography on the Internet was created by adding the five items and dividing the sum by five (alpha = .88, M = 2.67, SD = 1.10).

Demographics. Finally, respondents were asked about their gender, years in school, grade average, and religious belief. Years in school was coded into two categories: high school and college. Grade average was coded into four ordinal categories ranging from 1 (upper quartile) to 4 (lower quartile). Religious belief was measured in strength and later coded into four ordinal categories ranging from 1 (*no religious belief*) to 4 (*strong religious belief*) (M = 1.84, SD = .91). These four demographic variables were also used as controls in the regression analyses, because previous studies indicated that they were related to support for censorship of pornography (Gunther, 1995; Lo & Paddon, 1998b; Rojas et al.,1996).

Results

The sample consisted of 55% male (1,414) and 45% female (1,182). Of the sample, 1,335 (50.8%) were high school students and 1,293 (49.2%) were college students. About 90% of the respondents said they had at least one computer in the

home, with 19% of them owning two or more. The average daily time spent using the computer was 97 minutes (SD = 76). About 88% of the respondents said they had navigated the Internet, with 44% reporting having surfed pornographic web sites.

Hypothesis 1 predicted that both male and female respondents would perceive Internet pornography to have greater negative influence on others than on themselves. Table 1 shows the results of paired t tests that supported the third-person effects for both male and female respondents. In the pooled sample, the results showed $t(2,627) = -46.31$ at $p < .001$ for self vs. other males, and $t(2,627) = -23.30$, $p < .001$ for self vs. other females; in the male sample, the results showed $t(1,413) = -25.91$, $p < .001$ for self vs. other males, and $t(1,413) = -17.07$ at $p < .001$ for self vs. other females; and in the female sample, the results showed $t(1,213) = -42.77$ at $p < .001$ for self vs. other males, and $t(1,213) = -15.94$, $p < .001$, for self vs. other females. As expected, the third-person effect differentials were significant for comparisons of self to other male students and self to other female students in the pooled sample, the male sample, and the female sample. Overall, the respondents perceived other males and females as more influenced by Internet pornography than themselves. Hypothesis 1 was supported.

Table 1
Mean Estimates of Perceived Negative Effects of Internet Pornography on Self, Other Males, and Other Females

			Comparison Groups	
Samples	N	Self	Other males	Other females
All	2,628	2.28 (1.19)	3.31 (1.17)	2.78 (1.11)
Males	1,414	2.21 (1.13)	2.89 (1.11)	2.73 (1.13)
Females	1,214	2.36 (1.25)	3.79 (1.04)	2.83 (1.09)

Note: Figures in parentheses are standard deviations. All differences between self and the two comparison groups are significant at the $p < .001$ level. All differences between perceived effects on other males and perceived effects on other females are also significant at the $p < .001$ level.

Hypothesis 2 predicted that respondents would perceive Internet pornography to have greater negative influence on other male students than on other female students. Results of the paired t test showed that respondents perceived other male students to be more negatively influenced by Internet pornography than other female students in the pooled sample: $t(2,627) = 26.99$, $p < .001$; for the male sample, $t(1,413) = 6.34$, $p < .001$; and for the female sample, $t(1,213) = 36.44$, $p < .001$.

Hypothesis 3 stated that female respondents would be more likely than male respondents to perceive that Internet pornography would exert a greater negative effect on other male students. As Table 1 further shows, t test results yielded strong support for this hypothesis. Female respondents were more likely than male respon-

dents to perceive other male students to be more negatively influenced by Internet pornography: $t(2,627) = 21.54$, $p < .001$.

In Hypothesis 4, we predicted that female respondents would be more likely than male respondents to support restriction of pornography. To test this hypothesis, a hierarchical regression analysis was performed in which demographic variables were entered first, followed by computer use and exposure to Internet pornography. The final block of the regression equation entered perceived effects of Internet pornography on self, on other males, and on other females. Results of the regression analysis revealed that gender was the most powerful predictor of support for restriction of pornography on the Internet (beta = −.25, $p < .001$; see column 1 in Table 2). This particular finding indicates that females were much more likely than males to support regulating Internet pornography. Hypothesis 4 was supported.

Table 2
Hierarchical Regression Analysis Predicting Support for Restriction of Pornography on the Internet

	Regressions					
Independent variables	1	2	3	4	5	6
Block 1: Demographics						
Gender	−.25***	−.29***	−.30***	−.29***	−.25***	−.29***
Years in school	.04*	.03	.03	.03	.04	.03
GPA	−.02	.02	.02	.02	.02	.02
Religious belief	.07***	.06***	.07***	.07***	.06***	.06***
Adjusted R^2	.17	.17	.17	.17	.17	.17
Block 2: Computer use						
Computer use	.03	.03	.02	.02	.03	.03
Exposure to Internet porn	−.22***	−.23***	−.24***	−.24***	−.22***	−.23***
Incremental adjusted R^2	.04	.04	.04	.04	.04	.04
Block 3: Third-person variables						
Perceived effects on self	.10***	.12***			.22***	.20***
Perceived effects on other males	.13***					
Perceived effects on other females		.08***				
Perceptual bias (other males-self)			−.01		.12***	
Perceptual bias (other females-self)				−.03		.08***
Incremental adjusted R^2	.03	.03	.00	.00	.03	.03
Total adjusted R^2	.24	.23	.21	.21	.24	.23

Note: Beta weights are from the final regression equation with all blocks of variables in the model. N = 2,628. Variables coded, or recoded, as follows: gender (0 = female, 1 = male); years in school (0 = high school, 1 = college); religious belief ranged from 1 (no religious belief) to 4 (strong religious belief); exposure to Internet pornography ranged from 1 (never) to 5 (frequently); perceived effects on self and others ranged from 1 (no negative effect) to 5 (a strong negative effect). Support for restriction of pornography on the Internet ranged from 1 (very unlikely) to 5 (very likely).

***$p < .001$ **$p < .01$ *$p < .05$

In Hypothesis 5, we predicted that Respondent A would be more likely to support restrictions of pornography on the Internet than Respondent B. In Hypothesis 6, we predicted that Respondent A would be as likely as Respondent C to show support for restrictions of pornography on the Internet. To test these two hypotheses, a four-fold typology of third-person effects based on the two dimensions of "perceived negative effects on self" and "perceived negative effects on other males" was constructed by splitting each of the two indices at the median. As shown in Figure 2, Type 1 (i.e., Respondent A in Figure 1) represents the individuals who perceived Internet pornography to have high effect on themselves and on others as well. Type 2 represents those who perceive pornography on the Internet to have high effect on themselves but low effect on others. Type 3 is the opposite of Type 2, that is individuals who perceive Internet pornography to have low effect on themselves but high effect on others (i.e., Respondent C). Type 4 (i.e., Respondent B) represents those who estimate Internet pornography to have low effect both on themselves and on others.

Figure 2
A Typology of Perceived Effects of Internet Pornography on Self and Others

Perceived Effects on Self	Perceived Effects on Other Males: High	Perceived Effects on Other Males: Low	
High	Type 1 *N* = 962 (2.96)	Type 2 *N* = 475 (2.39)	*N* = 1437 (2.77)
Low	Type 3 *N* = 423 (2.95)	Type 4 *N* = 768 (2.31)	*N* = 1191 (2.54)
	N = 1385 (2.96)	*N* = 1243 (2.34)	*N* = 2628 (2.67)

Note. Figures in parentheses are means of support for restrictions of pornography on the Internet.

A one-way ANOVA test revealed a significant difference among the group means ($F = 75.23$, $df = 3,2624$, $p < .001$). Results of a Scheffe test indicated that the mean for Type 1 (i.e., Respondent A, $M = 2.96$) was significantly greater than the mean for Type 4 (i.e., Respondent B, $M = 2.31$). Moreover, no significant difference was found between the means of Type 1 and Type 3 (i.e., Respondent C, $M = 2.95$). These results supported Hypotheses 5 and 6.

Hypothesis 7 predicted that perceived effects of Internet pornography on other males would be a better predictor of support for restriction of pornography on the Internet than would magnitude of perceptual bias. A total of six separate hierarchical regression analyses were run to test it (including the one used to test Hypothesis 4). In the first hierarchical regression analysis (see column 1 in Table 2), the first block of the regression equation entered gender, years in school, grade point average, and

religious belief as control variables. Results show that gender, years in school, and religious belief were significantly related to the support for restrictions of Internet pornography. The second block included computer use and exposure to Internet pornography. Only exposure to Internet pornography was significantly but negatively related to support for restrictions of pornography on the Internet. The final block included perceived effects of Internet pornography on self and perceived effects on other males. The overall regression equation was significant, $F(8, 2619) = 104.23$, $p < .001$, adjusted $R^2 = .24$. Both perceived effects on self (beta = .10, $p < .001$) and perceived effects on other males (beta = .13, $p < .001$) were found significantly and positively related to support for restriction of Internet pornography.

In the second hierarchical regression analysis (shown in Column 2 of Table 2), demographic variables were also entered first, followed by computer use and exposure to Internet pornography. The final block consisted of the perceived effects of Internet pornography on self and perceived effects on other females. The overall regression equation was also significant: $F(8, 2619) = 101.42$, $p < .001$, adjusted $R^2 = .23$. The results show that both variables were positively related to support for restriction of Internet pornography.

In the third and fourth hierarchical regression analyses (i.e., columns 3 and 4 in Table 2), the first two control blocks were unchanged. What was changed was in the final block. Specifically, in the third hierarchical regression analysis, the final block entered the magnitude of perceptual bias (other males-self): $F(7, 2620) = 97.87$, $p < .001$, adjusted $R^2 = .21$. In the fourth hierarchical regression analysis, the final block included the magnitude of perceptual bias (other females-self): $F(7, 2620) = 98.29$, $p < .001$, adjusted $R^2 = .21$. As anticipated, the two magnitude of perceptual bias variables were not significantly related to support for restriction of pornography on the Internet. The results provided support for Hypothesis 7.

Further, for the sake of demonstrating the methodological problem of multicollinearity in third-person effect research, two more regression analyses were run (see columns 5 and 6 in Table 2) following analytical procedures similar to that in several earlier studies (e.g., Gunther, 1995; Gunther & Ang, 1996; Lee & Yang, 1996). In addition to the two blocks of demographic variables, computer use and Internet pornography exposure, variables entered in the final block were perceived effects on self and the magnitude of perceptual bias (other males-self). Again, the overall regression equation was significant: $F(8, 2619) = 104.24$, $p < .001$, adjusted $R^2 = .24$.

As results in column 5 of Table 2 show, when perceived effects on self and the magnitude of perceptual bias (other males-self) were simultaneously entered into the equation, the estimated standardized regression coefficients of perceived effects on self and the magnitude of perceptual bias (other males-self) increased substantially. The sixth regression analysis was run in a similar fashion (see column 6 in Table 2) with perceived effects on self and the magnitude of perceptual bias (other females-self) in the final block: $F(8, 2619) = 101.42$, $p < .001$, adjusted $R^2 = .23$. Similar results were obtained. When perceived effects on self and the magnitude of percep-

tual bias (other females-self) were simultaneously entered into the equation, the estimated standardized regression coefficients of perceived effects on self and the magnitude of perceptual bias (other females-self) also increased substantially.

Since magnitude of perceptual bias is defined as the difference between perceived effects on self and perceived effects on others, it was inevitably related to perceived effects on self. This relationship suggests that it was the effects of multicollinearity that lead to substantial changes in the estimated standardized regression coefficients of perceived effects on self and the two magnitude of perceptual bias variables in the fifth and sixth regression analyses.

Table 3 shows the results of Pearson's correlation coefficients between gender, the third-person variables, the magnitude of perceptual bias variables, and support for restriction of pornography on the Internet. Magnitude of perceptual bias (other males-self) was significantly related to support for pornography restriction at the zero-order level, but was reduced to non-significance after controls for the first two blocks in the third regression analysis. In the fifth regression analysis, when magnitude of perceptual bias (other males-self) and perceived effects on self were simultaneously entered in the equation, it became a significant predictor of support for restriction of Internet pornography (beta = .12, $p < .001$).

Table 3
Correlations Between Gender, Perceived Effects on Self, Perceived Effects on Other Males and Females, Magnitude of Perceptual Bias, and Support for Restrictions of Pornography on the Internet

	1	2	3	4	5	6
1. Gender (male = 1)						
2. Perceived effects on self	−.06**					
3. Perceived effects on other males	−.39***	.54***				
4. Perceived effects on other females	−.04*	.55***	.61***			
5. Perceptual bias (other males-self)	−.33***	−.50***	.47***	.05**		
6. Perceptual bias (other females-self)	.03	−.53***	.04*	.42***	.59***	
7. Support for restriction of Internet pornography	−.40***	.19***	.33***	.17***	.13***	.04*

$N = 2,628$
*$p < .05$ **$p < .01$ ***$p < .001$

In sum, these results suggest that it was the effects of multicollinearity on regression coefficients that made the magnitude of perceptual bias a significant predictor of support for regulating Internet pornography in the fifth and sixth regression analyses.

Finally, Hypothesis 8 predicted that perceived effects of exposure to Internet pornography on other males would be a better predictor of support for restriction of pornography on the Internet than would perceived effects on other females. Results

of the final blocks of the first and second regression equation show (refer back to columns 1 and 2 in Table 2) that both perceived effects on other males and perceived effects on other females were significantly related to support for restriction of pornography on the Internet. However, the beta size of perceived effects on other males as a predictor of support for restriction of Internet pornography was larger (beta = .13, $p < .001$) than that of perceived effects on other females (beta = .08, $p < .001$). Hypothesis 8 was thus supported.

Conclusions and Discussion

This study focuses on exploring the theoretical relationships among gender, perceived effects of Internet pornography on self and other males or females, and support for censorship of Internet pornography, an area that has not been addressed in the growing third-person effect research. By splitting perceived effects according to gender in the use of Internet pornography, we found that both male and female respondents tended to perceive Internet pornography to have greater negative effects on other males than on other females, but female respondents were more likely than male respondents to perceive greater negative effects of Internet pornography on *other males* than on *other females*. Furthermore, the results of this study found that perceived negative effects of Internet pornography on other males was a better predictor of support for restriction of pornography on the Internet than perceived effects on other females. These findings suggest that females who have lower levels of exposure to Internet pornography are more likely to see such content as having potentially greater negative effects on other males than on other females, and thus are more willing to seek restrictions on it. Several previous studies indicate that females are more likely than males to perceive greater effects of pornography on themselves and others (Gunther, 1995; Lo & Paddon, 1998a). Our findings suggest that these studies may overlook the important theoretical relationship among gender, perceived effects on other males, and perceived effect on other females.

The results of this study also indicate that gender appears to have a *mediating* effect on the relationship between the concept of "social distance" (i.e., the similarity or differences between oneself and others) and third-person effect. Past research suggests that the strength of the third-person effect increases with social distance (Cohen et al., 1988; Gunther, 1991; Henriksen & Flora, 1999; McLeod et al., 1997), and the social distance of the same gender is in general closer than that of opposite gender (Lee & Yang, 1996). The results of our study show that females tend to perceive greater negative effects of Internet pornography on other males than on other females, but males do not consider Internet pornography to have greater negative effects on other females than on other males. Females apparently are more likely to believe their attitudes are more similar to those of other females than of males.

It is also probable that females are more likely than males to perceive other males

to be more likely to be exposed to pornographic materials on the Internet than other females, and thus are more likely to perceive such content as having greater harmful effects on other males. As previous research suggests, perceived likelihood of exposure to negative media messages is a more powerful predictor of perceived impact on others than perceived social distance (Eveland, Nathanson, Detenber, & McLeod, 1999). Thus, it is possible that gender is related to perceived likelihood of exposure, which, in turn, is related to perceived effects on other males and other females—both of which, in turn, are related to support for restriction of pornography on the Internet. Unfortunately, this study did not include perceived likelihood of exposure to Internet pornography. Future research can further examine the relationships among gender, perceived likelihood of exposure, perceived effects on other males and other females, and support for restriction of pornography on the Internet.

The present study also makes a contribution to the literature on third-person effects by demonstrating that *magnitude of perceptual bias* is an unreliable predictor of support for pornography on the Internet. Previous studies have suggested that the magnitude of perceptual bias leads to greater support for censorship of pornography (Gunther, 1995; Rojas et al., 1996). Our four-fold typology showed that Respondent A (perceived high effects on self and others) was more likely to support restrictions of Internet pornography than Respondent B (perceived low effects on self and others), while Respondent A and Respondent C (high effects on others and low effect on self) displayed similar attitudes toward cyberporn control.

These results suggest that using magnitude of perceptual bias as a predictor of media restriction may miss some perception/behavioral relationship. Furthermore, we demonstrated that the magnitude of perceptual bias only becomes a significant predictor of support for Internet pornography restrictions when it is tested simultaneously with *perceived effects on self.* Apparently, multicollinearity substantially increases the regression coefficients of the magnitude of perceptual bias. As perceived effects on self and the magnitude of perceptual bias are collinear variables, it is, therefore, difficult to determine their separate effects on support for pornography restrictions (Hamilton, 1992; Neter, Wasserman, & Kutner, 1983). Taken together, these findings are methodologically important for third-person effect research because they call into question the use of magnitude of perceptual bias as a predictor for control of pornography.

The present study, on the other hand, has some limitations. Due to low responses to two additional questions, the study relies on a single question as a measure of exposure to Internet pornography. Moreover, the measure of the dependent variable (i.e., support for restrictions of pornography on the Internet) was based on self-reported likelihood of taking action. A measure of actual behavior would be more desirable because there might be a gap between intended and actual behavior. Finally, Taiwanese students may differ from their American counterparts in using the Internet and surfing pornographic web sites. Thus, it remains to be seen whether the results of our study can readily be generalized to other countries, especially since most third-person effect studies have focused on American audiences.

The larger issue of sample-related differences concerns culture differences in media effects research. Cultural difference could affect respondents' use of the Internet and responses to the explosive growth of pornographic materials in the cyberspace. This study did not attempt a cross-cultural comparison. Thus, an examination of the third-person effect, gender, and Internet pornography across cultures would be an important avenue for future research—in more countries and on different topics, such as news coverage, voting behavior, political advertising, or media violence. The growing third-person effect research should benefit from such comparative analyses.

Notes

[1] Factors that contribute to the rapid growth of pornography on the Internet include (a) easy access and affordability to users across age groups and geographic boundaries, (b) anonymity of users, (c) opportunities for users to customize materials for downloading and storage, and (d) the safety of "modem sex" (see Cooper, 1997; Rimm, 1995).

[2] Although some argue that pornographic materials on the Internet are no different in nature from those appearing in pornographic magazines and videos because most of the pornographic images on the Internet were taken directly from pornographic magazines, videos, and laser disc (Mehta & Plaza, 1997; O'Toole, 1998), we disagree. Internet pornography is not simply a matter of more of the same kind but more of a different kind based on those aforementioned differences.

[3] Two more questions were used to measure respondents' exposure to Internet pornography by asking respondents to indicate the number of days per week that they surfed pornographic sites and to estimate the average daily amount of time spent surfing such pornographic sites. However, low response rates (47.6% for the second question and 46.6% for the third question) limited the use of these two measures. As a result, only the first measure was used. This is admittedly a weakness.

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