A Test of Motivational vs. Cognitive Explanations for the Third-Person Perception

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Recognizing insufficient direct tests of the cognitive and motivational explanations of the third-person perception (TPP), this study formulated and tested a set of hypotheses derived from them with web-based survey data (N=575). The motivational explanation appears to receive more support than the cognitive account. Consistent with the motivational account, there was evidence for the social desirability corollary. Moreover, social desirability of presumed message influence predicted effects on self positively but effects on others in one’s peer group negatively; and when a target other was viewed as superior in knowledge of and experience with the media, the patterns of self-other gaps in perceived effects were either reduced or reversed. Individuals utilized media effects schema to estimate message effects across three referents, demonstrating some evidence for the general cognitive account of self-other asymmetry in information and beliefs. However, individual hypotheses from the cognitive account (attribution, exposure and social distance) did not receive support. Implication and directions for future research on TPP are discussed.

Keywords: third-person perception, motivational, cognitive, social comparison, media effects schema

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The third-person effect (TPE) hypothesis originated in Davison’s (1983) seminal paper. The central idea is that people tend to believe that others easily fall prey to media influences whereas they themselves can remain unaffected. There are two components in the TPE: a perceptual component and a behavioral component. The perceptual component, called the third-person perception (TPP), captures the self-other asymmetry in individuals’ perception of media influences. Davison also suggested that this perceptual bias may lead people to take certain actions (see Sun, Pan, & Shen, 2008, Xu & Gozenbach, 2008). The behavioral component of TPE is about how people react to perceived media influences and consequently, alter social relationships and other aspects of their social realities (Perloff, 2002). This paper focuses on the perceptual component of TPE, rather than the behavioral component.

There has been substantial empirical evidence that the TPP is a robust phenomenon (Davison, 1996; Perloff, 2002; Sun et al., 2008). Scholars have uncovered a host of relevant factors that form two general theoretical accounts of TPP: one motivational and the other cognitive. The motivational account explains TPP as a “self-serving” or “self-enhancement” bias (Perloff, 2002). According to this account, individuals are motivated to project an image of being superior to an average other. Consequently, they tend to assign greater effects of undesirable messages to others, and conversely, assign greater effects of messages with desirable influences to themselves (a self-other perceptual gap known as the “first-person perception,” FPP). The cognitive account contends that individuals use factors in their lay theories to estimate message effects on self vs. on others; and that is the self-other disparities in the utilized factors that lead to TPP or FPP.

These two accounts are not necessarily incompatible with one another, but they do emphasize different aspects of the mechanism underlying TPP or FPP. In his narrative review, Perloff (2002) declares that the motivational explanation for TPP has the most evidence. With a few exceptions (e.g., McLeod, Detenber, & Eveland, 2001; Reid & Hogg, 2005), studies on TPP oftentimes did not measure the explanatory factors empirically to estimate their relationships with the self-other gap in perceived effects. In addition, with the complex and intertwined relationship between motivation and cognition (Phelps, 2006), it is plausible that TPP results from both motivational and cognitive processes. However, there have been few studies that test the two explanations simultaneously (see, Reid, Byrne, Brundidge, Shoham, & Marlow, 2007), such that they can be directly tested against each other. Consequently, it remains inconclusive whether TPP is motivational or cognitive in nature, or the combination of the two.

We hope to fill this gap in the TPP literature by a) empirically measuring the explanatory factors, and b) testing hypotheses derived from the motivational and cognitive explanations against each other in the same study. We will first offer working definitions of cognition and motivation. Following a theoretical articulation of different approaches within each general explanation, data from a web-based survey will be analyzed to assess a) self-other perceptual gaps across three types of messages varying in social desirability, and b) the...
relationships between such perceptual gaps and a host of predictors that comprise parts of the two general accounts and involve their joint operation.

**Cognition vs. Motivation**

Researchers agree that cognition and motivation are different mechanisms and contribute to human behavior and information processing in different ways. They also correspond to different regions in the brain: the midbrain (Hypothalamus) for motivation and forebrain (prefrontal cortex) for cognition (e.g., Daw & Shohamy, 2008). There is also a consensus that cognition and motivation are inter-related (e.g., Kuhl, 1986; Locke, 2000; Phelps, 2006). Therefore, it might be helpful to present working definitions for cognition and motivation before discussing the two explanations for TPP. In a narrow sense, cognition is defined as a specific type of representation of objects and facts. In a broader sense, cognition can include any presentation of incoming (i.e., external) information, including all mental structures and processes. The term motivation is oftentimes used in a narrow sense referring to emotional processes that are closely connected with preferred actions. In a broader sense, motivations are the desires or wants that energize and direct goal-oriented behavior. It can be the processing of action-related information, including action plans and cognitive processing of internal states.

**Motivational Explanations for TPP**

*Social desirability*. Evidence for the motivational explanation for TPP is circumstantial for the most part. Some scholars have measured related constructs such as optimistic bias and self-esteem to capture the self-enhancing motivation, but they failed to detect any significant effects (e.g., Banning, 2001; Chapin, 2000). Others inferred the operation of the self-enhancing motive based on the association between self-other perceptual gaps and social desirability of the presumed influence. The rationale is that, to enhance one’s self image, individuals tend to deny or discount their own susceptibility to undesirable social influences, but to accept or overestimate their own receptivity to desirable effects. The former is summarized as “the negative influence corollary” (Gunther & Storey, 2003), and the latter “the reversed third-person effect” or “the first-person effect” (Gunther & Mundy, 1993). Social desirability, therefore, lies at the heart of testing the motivational explanation for TPP.

Studies that measured social desirability of presumed influence and estimated its effect empirically (e.g., Jensen & Hurley, 2005; McLeod et al., 2001) showed that the variable has a significant negative effect on TPP. This finding is supported by a recent meta-analysis (Sun et al., 2008). The meta-analysis also shows that the self-other perceptual gaps follow the TPP pattern when the desirability of presumed media influence is ambiguous. Thus, it is predicted that:
H1: Social desirability is negatively associated with the self-other gap in perceived effects such that:

H1a: Others will be seen as being influenced more than self by a media message when the presumed influence is socially undesirable (TPP);
H1b: TPP occurs when the social desirability of a message’s presumed influence is ambiguous;
H1c: Others will be viewed as being less influenced than self if the presumed influence is socially desirable (FPP).

The empirical evidence for the negative association between social desirability and TPP, however, while consistent with the motivational interpretation of TPP, can also support the cognitive account, which contends that individuals use components in their lay theories of media effects as informational ingredients when making effect judgments. Social desirability may be just one component in such lay theories. The point here is that the main effect of social desirability on TPP is insufficient evidence for the motivational account. Pronin, Kruger, Savitsky, and Ross (2001) suggested that there are cognitive alternatives to the motivational explanation for self-enhancing assessments. Therefore, caution is needed in interpreting such results when the motivational and cognitive explanations are viewed as co-occurring and/or competitive with each other.

More direct evidence for the motivational account of TPP would come from how social desirability may be used as a factor in reaching effect estimates. Given that motivations behind the TPP are self-enhancing in nature, the motivational application of social desirability in the process of effects estimation should be favorable to oneself (i.e., the more desirable a message is, the more effects on self), but unfavorable to others (i.e., the more undesirable a message is, the more effects on others). In other words, the self-enhancing motivation should lead to self-serving “errors” and “biased information processing” (Dunning, Leuenberger, & Sherman, 1995) in forming their attributions and judgments concerning self and others respectively. This line of arguments is consistent with the claim that perceived-effects on self and others are two differentiable perceptual processes in TPP (McLeod et al., 2001). Hence, we predicted that

H2: Social desirability impacts perceived effects on self and others differently such that:

H2a: It predicts perceived effects on self, positively;
H2b: It predicts perceived effects on others negatively.

Motivated social comparison. There has been sporadic evidence for the “social distance corollary” (Cohen, Price, Mutz, & Gunther, 1988), which states that the more distant an “other” is, the greater the self-other perceptual gap. Part of the reason can be attributed to the fact that the construct of social distance is not well-explicated or
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operationalized. On the other hand, there is a motivational explanation for its lack of support. Although the message effects questions in most TPP studies are asked on each target alone and absolute judgments (Chambers & Windschitl, 2004), TPP is a social judgment that is comparative in nature. Social Comparison Theory (Festinger, 1954) suggests that individuals’ choices of comparison others are, in part, determined by a) (dis)similarity of a target other, and b) perceived benefits and costs of making the comparison in the content domain of evaluation (Kruglanski & Mayseless, 1990; Wood, 1989). When self and others are placed on the same level of some normatively evaluative hierarchy (Locke, 2003), the theory predicts that similar, rather than dissimilar, others provide more desirable standards for comparison, especially when the dimension under evaluation is negative (Kruglanski & Mayseless, 1990; Wood, 1989). It is argued that comparison with dissimilar others may serve the goal of learning about the dimension under evaluation, whereas comparison with similar others serve the goal of self-enhancement (Wood, 1989). Consider the illusory superiority in “better than average effect.” Individuals tend to select an average person (i.e., similar to themselves) as the referent, rather than someone at the extremes. These extreme referents are oftentimes selected in the context (or for the purpose) of learning and education, for example, as role models and/or anti-role models.

Such “motivated” social comparison suggests that when the “other” is perceived to be superior to self regarding experiences of media and/or resistance to influences. For example, being more mature, more experienced with and knowledgeable about the media, and more critical when consuming media content, individuals tend to a) avoid social comparison to maintain a positive self-image, or b) to engage in an upward social comparison such that self will be perceived as “more similar” to this superior other in the domain of (resisting) media influence. Hence, self-image is enhanced (Kruglanski & Mayseless, 1990; Wood, 1989). This argument leads to the following hypothesis:

H3: When a third person is perceived as superior in the domain of being influenced by specific media messages, TPP/FPP will be reduced or even reversed.

Cognitive Explanations for TPP

Because the message effects questions compel a person to place multiple referents on a scale of being influenced, rendering such a judgment requires retrieving, selecting, using, and weighing information about each target, some undifferentiated social aggregate as a whole, and oneself. In other words, it is assumed that individuals have lay theories of media effects as informational ingredients when making effect judgments. Researchers labeled one of such lay theories as “media effects schemas” (e.g., McLeod et al., 2001; Price, Huang, & Tewksbury, 1997).

Media effects schemas are cognitive schemas about how media function and influence individuals. They might be “a constellation of beliefs that media messages are often
persuasive or manipulative, and that audience members are generally gullible and susceptible to manipulation” (Price & Tewksbury, 1996, p. 123). Such schemas may be viewed as containing two inter-related sets of beliefs: those about audience’s dispositions and those about situational factors. The dispositional components are beliefs about factors originating from within an individual, such as one’s selective use of media content, susceptibility to influences in general and to media influence in particular, and (lack of) critical use of the media (Price et al., 1997). Their roots can be traced to individuals’ personality or attitudinal dispositions. The situational components are the beliefs about the media and how the media emanate influences upon individuals, such as beliefs about media power, social desirability of presumed message influences, and the beliefs about people’s use of particular media messages as the locus of being “victimized” by the media. While media use is presumably an individual-enacted behavior, falling prey to media influences through such use is presumably an unintended consequence that is not rooted in one’s disposition.

Three cognitive accounts can be identified in the extant literature: attribution error, exposure hypothesis, and the social distance corollary. These explanations for TPP share the assumption that individuals may bring to bear information regarding the messages in question and target referents. Their differences lie in what information (about referents, media messages, etc.) individuals utilize when they render effects estimates on multiple referents (self vs. others).

**Attribution error.** The first cognitive explanation is based on the fundamental attribution error (e.g., Gunther, 1991). It suggests that individuals tend to attribute their own psychological reactions to what they regard as “the objective reality,” or external conditions, but those of others to their personal characteristics, or internal dispositions. Placed in this theoretical account, TPP is a subset of various perceptual biases rooted in the epistemic tendency called “naïve realism” (Pronin, Gilovich, & Ross, 2004), which refers to the tendency to privilege one’s own psychological experiences. Based on this line of argument, it is predicted that:

H4: Self-other gap in perceived effects arises from attribution error such that:

H4a: Individuals attribute effects on self to situational/external factors.
H4b: Individuals attribute effects on others to dispositional/internal factors.

**Exposure.** The second cognitive approach to TPP focuses on perceivers’ presumptions of message exposure of specific others. This line of arguments suggests that individuals, when estimating message effects on various referents, consider the likelihood or the general levels of exposure to the messages in question. Greater message effect is allotted to a specific referent if this referent is seen as having a higher likelihood of exposure (Eveland, Nathanson, Detenber, & McLeod, 1999; Innes & Zeits, 1988) or categorized as a member of a group, to which exposure to the message is normative (Reid & Hogg, 2005). A recent
meta-analysis (Sun et al., 2008) shows that the effect size of TPP increases when others are perceived to be “likely audience” of a particular media message. Hence, it is predicted that:

H5: Self-other gap in perceived effects is a function of exposure to messages such that:

H5a: TPP occurs when others are perceived to have more exposure to media messages than self.
H5b: FPP occurs when others are perceived to have less exposure to media messages than self.

Social distance. Studies that provided evidence for the social distance corollary (Cohen et al., 1988) tend to concur that its underlying psychological mechanism is cognitive in nature (see Eveland et al., 1999 for a discussion). An alternative approach is that individuals have more privileged information about self than about others. Such information differentials are activated by the cues present in a judgment context, such as the descriptors of “others.” Thus TPP can be considered as resulting from comparative social judgments rendered under different availability (or lack) of information (David, Liu, & Myser, 2004; Paek, Pan, Sun, Abisaid, & Douden, 2005). The rationale is that, the more distant the target referent is, the less information is available about this “other.” Hence, larger effect size in TPP. Therefore, it is predicted that:

H6: Self-other gap is positively associated with social distance.

METHOD

Data Collection

Participants. Data were collected via a web-based survey of undergraduate students in introductory communication and journalism courses in a major Midwest university. Students accessed the survey at any location with Internet connection by entering their student ID as a password. They completed the survey in a two-week study period in exchange for a small amount of extra credit. Duplicate surveys were carefully identified and discarded, yielding a valid sample of 575 respondents. This sample consisted of 71% females and 29% males; 5.6% were freshmen, 38.3% sophomores, 37.6% juniors and 18.6% seniors. They were between ages 18-32 (M=20.49, SD=1.42). The sample was somewhat heterogeneous in ethnicity (89.2% white/Caucasian, 5.9% Asian, 2.9% Hispanic and 1.9% African American).

Target referents. We constructed verbal descriptors of two kinds of others: “an average person in your own age group” and “an average person in your parents’ age group.” The
singularity was used to remove possible confound of heterogeneity, size, generality, and group-level comparisons in designations of different target others. The labels “your own” and “your parents” were used to make the descriptors convey concrete similarity and difference between self and each target other. The label “your parents” was used to cue the image of a different (in age and life experiences) but superior (in knowledge of and experiences with media) other that the undergraduate participants might hold in the domain of experiences with media influences.

**Media messages.** Three types of media message were used: Internet pornography, reality TV shows, and public service announcements (PSA). To ensure the same messages were under consideration by the participants, other than Internet pornography, the effect-estimate questions referred to specific messages. For Internet pornography, we simply referred to label with no description, and the participants were left to use their own definition. We asked about two Reality TV shows that were popular at the time of the survey, *The Benefactor* and *The Apprentice* after a brief synopsis about each show. Synopses were also provided before the measures related to the two PSAs, one titled “*In America*” that encourages donations to charity; and the other titled “*Steps*” that advocates connecting with people in one’s community.

**Measures**

All variables have multiple indices except belief in media power. The multiple indices under one concept were necessitated either by multiple referents (i.e., measures repeated for “yourself” and the two others), such as critical media use, susceptibility to influence in general, and susceptibility to media, or by multiple messages (i.e., measures repeated or adapted to three different message types), such as perceived social desirability of message influence; or both (i.e., measures replicated on self and the two others, and varying with message types), such as perceived message exposure and perceived message effects. Scale reliabilities were estimated using the procedure developed by Raykov (1997), where reliability is calculated as: $\rho = \frac{(\text{Sum of factor loadings})^2}{[(\text{Sum of factor loadings})^2 + (\text{sum of error variance})]}$, which is based on the conceptualization that scale reliability is a ratio of true variance in the latent variable to its observed variance, and is computed based on the parameter estimates from confirmatory factor analyses (CFA). The advantages of $\rho$ over Cronbach’s $\alpha$ lies that it overcomes the limitations of the later (see Sijtsma, 2009).

*Perceived similarity.* We operationalized social distance as perceived (dis)similarity. Perceived similarity was measured by four 7-point items (1=*not at all similar* and 7=*very similar*) in terms of basic values, goals in life, ways of treating other people, and the sense of social responsibility. CFA showed that these items were unidimensional for each referent.
Ratings on these four items were averaged into a single index for each referent. The scale reliability ($r$) was .70 for the peer group measure and .58 for the parent group measure.

**Belief in media power.** Belief in media power was measured by 14 Likert scale items ($1=\text{Strongly disagree}, 7=\text{Strongly agree}$). Sample items were: “Media can strongly influence how people think about issues,” “Media are powerful in shaping how we see the world” and “Media often elicit strong emotions among people.” Four items were excluded to achieve unidimensionality. The other ten items were averaged into a single index ($r = .86$).

**Social desirability of message influence.** Social desirability was measured by four 7-point semantic differential scales. The word pairs were: “socially undesirable,” “beneficial to society,” “harmful to cultural values,” and “favorable to societal norms,” versus their counterparts. CFA confirmed that these items were unidimensional for each message. These items were averaged into a single index within each message. The scale reliability ($r$) of the measure ranged from .74 to .77 across the three messages.

**Critical media use.** Respondents were asked to rate their own critical use of the media on six questions ($1=\text{rarely}, 7=\text{very often}$) adapted from Kosicki and J. McLeod (1990) to capture two dimensions: active media use (such as “read between the lines of media stories”) and reflective media use strategy (such as “discuss with others about some media reports”). CFA, however, showed that a single-factor structure yielded a better fit. Hence the six items were averaged into one scale ($r=.84$).

Respondents were also asked about their perceptions of the two others’ media use strategies in comparison to their own. The specific wording was “Compared with you, how much more or less does an average person in your age group/your parents’ age group do the above things when using the media?” ($1=\text{a lot less}, 7=\text{a lot more}$). Two such questions were asked, one following the items on one’s own active media use, and the other following the items on one’s reflective media use. They were averaged into one scale for peer ($r=.74$) and parent ($r=.76$) respectively.

**Susceptibility to influence in general.** Susceptibility to influence in general was measured by six items ($1=\text{very unlikely}, 7=\text{very likely}$). The respondents indicated how likely they themselves and each of the two others would: “be swayed by others who seem to know more;” “take up the perspective of a media report;” “be persuaded by an ad to buy a product;” “switch positions on an issue in a debate;” etc. CFA confirmed that for each referent, the set of items formed a single factor. They were then averaged into an index for each referent. The scale reliability ranged between .72 and .79.

**Susceptibility to media.** A single question was asked about respondents’ own susceptibility to media ($1=\text{not at all}, 7=\text{very}$). The exact wording was, “People differ in how
susceptible they are to media influences. How susceptible do you think YOU are to media influence?” Two comparative questions, each using a 7-point scale anchored by 1 = a lot less, 7 = a lot more, were asked to capture how respondents perceived each of the two others would differ from them respectively in terms of susceptibility to media.

**Message exposure.** The participants estimated the amount of exposure to each type of media content for each referent. We asked two questions about exposure to Internet pornography. To dilute the intrusiveness of such questions and increase participants’ truthful reporting, we included a preamble acknowledging that encountering such materials could be accidental given its prevalence on the Internet. Then we asked a) how frequently (1 = never, 7 = quite often) the participants themselves and the two others encountered such materials on the Internet and b) if they accidentally encountered such materials, how likely (1 = very unlikely, 7 = quite likely) they would “take a look at them.” The two measures were correlated for each target (r = .51, p < .001, for self; r = .47, p < .001, for peer, and r = .34, p < .001 for parent). The logic of this measurement strategy dictates that second item was conditioned upon the first one. Therefore, for each target, the two items were multiplied to form an exposure index, which was then transformed via square root, returning it to the original scale.

For each of the reality shows, participants were asked to indicate how frequently they themselves and the two others watched each of the two shows asked about in the survey (1 = never, 7 = quite often). The two measures were correlated for each target (r = .23, p < .001, for self; r = .40, p < .001, for peer, and r = .52, p < .001 for parent). A cumulative index of reality show exposure was created by taking the average of the two.

Exposure to PSAs was measured in a similar way as Internet pornography. Because the label PSA may sound less familiar to the participants, the preamble briefly introduced what kind of messages counted as PSAs. After that, we asked the participants to rate a) how often (1 = never, 7 = quite often) they and the two others have encountered a PSA in the past 12 months, and b) how likely (1 = very unlikely, 7 = quite likely) each referent would pay attention to it if encountering one on TV. For each target, the two items were correlated for each target (r = .39, p < .001, for self; r = .40, p < .001, for peer, and r = .39, p < .001 for parent). For each target, the two items were multiplied to form an index of PSA exposure. Each resulting index was transformed via square root to the original scale.

**Perceived message effects.** For each type of media content, a specific set of perceived effect measures were asked on respondents themselves and on the two others. Within each message type, the order of the evaluated targets was randomized to remove potential question-order effects. For all questions, the same 7-point scale was used, with 1 being not at all and 7 being a great deal. The items for Internet pornography were: “How much do you think they would influence your/the target referent’s moral values concerning sex/ways of dealing with sexually involved relationships/acceptance of sexually explicit talks or
The items for reality TV shows were: “How much do you think they would influence your/the target referent’s perceptions of the business world/goals in life/work ethics/definition of success?” And the items for PSAs were: “How much do you think they would influence your/the target referent’s altruistic values/perception of charity/behavior of helping others/donation to charity?” CFA showed that all the perceived effects measures were unidimensional. Across three referents, the scale reliability ranged from .93 to .94 for reality shows, from .86 to .88 for Internet pornography, and .94 for PSAs.

RESULTS

Data Analysis Strategy

The analysis took two steps: a) auxiliary analyses on the differences in desirability across messages and in perceived similarity and differences among referents, and b) testing the substantive hypotheses. A series of repeated-measures models were estimated through either the General Linear Model (GLM) procedure or multilevel linear modeling (MLM) procedure. In this study, perceived effect varies across different measurement occasions defined by messages and referents. With three messages and three referents, each respondent rendered 9 different effect estimates. To test our hypotheses, for each referent, a two-level model, with individuals at the higher level and measurement occasions as repeated measures clustered within individuals, is estimated (see, Rabe-Hesketh & Skrondal, 2005 for discussions of multilevel models in general).

Auxiliary Analyses

Perceived similarity. A paired-sample t-test was conducted to compare the perceived similarity between self and each of the referent others. An average person in one’s own age group was perceived as more similar to oneself ($M=4.48, SD=.97$) than an average person in parents’ age group ($M=4.26, SD=.88$): $t(574)=4.34, p<.001$, $\eta^2 = .014$. This significant, albeit small difference in perceived similarity supports our expectation in developing the descriptors that “an average person in your parents’ age group” would be viewed as being more distant than an average peer.

Social desirability. A repeated-measures General Linear Model (GLM) procedure, with message (Internet pornography, reality TV shows, and PSAs) as the within-subjects factor and sex and age as covariates, was used to compare the social desirability of the three types of media messages. Pair-wise comparisons were carried out via Bonferroni method to adjust for possible Type I error inflation due to multiple tests. The omnibus $F$ was significant: $F(2, 572)=48.29, p<.001$, $\eta^2 = .150$. So was the linear trend: $F(1, 572)=96.69, p<.001$, $\eta^2 = .140$. The PSAs were perceived as most socially desirable: ($M=5.68, SD=1.00$),
followed by reality TV shows ($M=3.73$, $SD=.99$); and Internet pornography was considered as most undesirable ($M=2.12$, $SD=1.09$). All pair-wise differences were significant at the level of $p<.05$. Assuming alpha=.05, with a sample size of 575, the statistical power to detect an effect size equivalent to $r=.20$ exceeded .99. These results are entirely consistent with our expectation in selecting the messages and descriptors of the two target others for the study.

**Self-other disparities in media effects schemas.** Table 1 presents the means and standard deviations for the media effect schemas for each referent. One sample $t$-tests were conducted for the two comparative measures (susceptibility to media and critical media use). In addition, repeated measures GLM procedures were conducted with susceptibility to influence in general, and exposure to each of the three messages as dependent variables, referent as the within-subjects factor, and sex and year in school as covariates; pair-wise comparisons were carried out via Bonferroni method. Assuming alpha=.05, with a sample size of 575, the statistical power to detect an effect size equivalent to $r=.20$ exceeded .99.

Compared with self, an average peer was perceived as more susceptible to media ($M=5.18$, $SD=.99$): $t(574)=6.74$, $p<.001$, $\eta^2=.027$, and less critical when using the media ($M=3.66$, $SD=1.21$): $t(574)=-28.60$, $p<.001$, $\eta^2=.038$. On the other hand, an average person of parents’ age was perceived to be equally susceptible to media ($M=3.93$, $SD=1.35$) as self: $t(574)=-1.27$, $p<.21$, $\eta^2=.00$, but more critical when using the media ($M=4.47$, $SD=1.41$) than self: $t(574)=8.04$, $p<.001$, $\eta^2=.052$.

There was a main effect of referent on susceptibility to influence in general: $F(2, 571)=31.66$, $p<.001$, $\eta^2=.100$. An average peer ($M=4.73$, $SD=.84$) was perceived as more susceptible to influence than self ($M=3.71$, $SD=.84$): $\eta^2=.268$, while an average person of parents’ age was perceived as less susceptible than self ($M=3.59$, $SD=.99$): $\eta^2=.004$. All pair-wise comparisons were significant at level of $p<.05$.

The main effect of referent was significant on exposure to Internet pornography: $F(2, 571)=35.38$, $p<.001$, $\eta^2=.110$. An average peer was estimated to have the greatest amount of exposure ($M=4.56$, $SD=1.22$), followed by an average person of parents’ age ($M=3.30$, $SD=1.25$), and self had the least ($M=2.93$, $SD=1.52$). The effect size was substantially larger for the difference between an average peer and self ($r=.252$) than that between an average person of parents’ age and self ($\eta^2=.017$). All pair-wise differences were significant at $p<.001$.

The main effect of referent was also significant on exposure to reality TV shows: $F(2, 571)=60.70$, $p<.001$, $\eta^2=.180$. Pair-wise comparisons showed that self was estimated to have significantly less exposure ($M=3.67$, $SD=2.21$) than either an average peer ($M=7.73$, $SD=2.30$, $\eta^2=.448$), or an average person of parents’ age ($M=7.55$, $SD=2.64$, $\eta^2=.386$, $p<.001$; while the two others did not differ in their estimated exposure ($p>.47$).

The main effect of referent was also significant on the estimated exposure to PSA: $F(2, 571)=6.58$, $p<.01$, $\eta^2=.020$. Self ($M=4.37$, $SD=1.38$) was estimated to have more exposure than an average peer ($M=4.11$, $SD=1.26$): $\eta^2=.009$, but less than an average person of
parents’ age (M=4.52, SD=1.25): \( \eta^2 = .004 \). All pair-wise comparisons were significant at \( p<.05 \).

These results demonstrated that the label “an average person in your parents’ age group” successfully evoked an image of a “different but superior other” in the domain of experiences with the media. There is self-serving bias in estimates of message exposure by self and the target referents (see, also, Peiser & Peter, 2000), except for parents’ age group’s exposure to PSA. The participants believed that an average person in their parents’ age group was less susceptible to influences and used media more critically. We considered this as evidence that the third-person descriptor “an average person in your parents’ age group” did evoke perceptions of a “different but superior other” in the domain of experiences with the media: The superiority of that target referent does not lie in the fact that they are less exposed to undesirable messages, and/or more exposed to desirable messages, but in their being less susceptible to influences and having more critical media use strategies.
Impact of Message and Target Referent

H1, H3 and H6 make specific predictions on the direction and magnitude of self-other gaps in perceived effects as a function of message and target referent combined. A repeated-measures GLM was estimated to test these two hypotheses. Message (Internet pornography, reality TV shows, and PSAs) and referent (self, average peer, and average person of parents’ age) were specified as within-subjects factors, sex and year in school were specified as covariates. Pair-wise comparisons were carried out via Bonferroni method. Figure 1 presents the perceived effects on each referent across the three messages.

The main effect of referent on perceived effect: \( F(2, 571)=32.62, p<.001, \eta^2 = .10 \). The main effect of message was also significant: \( F(2, 571)=4.41, p<.05, \eta^2 = .015 \). The interaction between referent and message was significant: \( F(4, 569)=17.84, p<.001, \eta^2 = .110 \). Pair-wise comparisons showed that the self-other gaps in perceived effects were generally consistent with the predictions.

For Internet pornography, there was a significant TPP gap between self and an average peer: \( t=-21.86, p<.001, \eta^2 = .130 \); but not between self and an average person of parents’ age: \( t=-1.23, p<.56, \eta^2 = .00 \). The pattern was very similar for reality TV shows: There was a significant TPP gap between self and an average peer: \( t=-24.39, p<.001, \eta^2 = .168 \), but not between self and an average person of parents’ age: \( t=1.67, p<.30, \eta^2 = .001 \). For PSAs, there was a significant FPP gap between self and an average peer: \( t=3.39, p<.001, \eta^2 = .002 \). The gap between self and an average person of parents’ age was also significant, but in the direction of TPP: \( t=-6.71, p<.001, \eta^2 = .011 \).

Therefore, in the context of comparing with one’s peer, the three components of H1 were all supported: TPP occurred for socially undesirable messages (Internet pornography) and ambiguous messages (Reality TV shows), while FPP occurred for the socially desirable message (pro-social PSAs). The generalization of these results on TPP and FPP needs to be qualified in light of the evidence supporting H3: In the context of comparing with a target referent who was perceived to be superior in relevant domains, the self-other gap predicted in H1a-H1c was either reduced to non-significance (Internet pornography and Reality TV shows) or reversed (PSAs). These results, while providing support to H3, mean that H6 was not supported: an average person of one’s parents’ age is more distant (dissimilar) to self than an average peer; however, TPP was reduced or even reversed, instead of increased.

H5 predicts that TPP occurs when others are perceived to have more exposure to media messages than self; while FPP occurs when others are perceived to have less exposure than self. Results from the auxiliary analyses and the repeated measures GLM analyses also allowed for the testing of this hypothesis. When the target referent is an average peer, H5 was supported across three media messages: an average peer was perceived to have more exposure to Internet pornography and reality TV shows than self, and TPP was significant for both messages. An average peer was perceived to have less exposure to PSAs than self, and FPP was significant. The results were mixed when it comes to an average peer of one’s
parents’ age: On one hand, this other was perceived to have less exposure to PSAs than self, and FPP was significant; on the other hand, this referent was perceived to have more exposure to both Internet pornography and reality TV shows, yet TPP was nonsignificant in both cases.

Information Utilized in Estimating Messages Effects on Self vs. Others

H2 and H4 concern how various media effects schemas are used in individuals’ lay theory to estimate message effects on self vs. others. These two hypotheses were tested together with series of MLM analyses via the *xtmixed* procedure in Stata. In these models, each predictor was estimated in its “unique” impact on the perceived-effect estimate concerning a referent. This was accomplished by including the perceived effects on the other
two referents as predictors. For each referent, two models were estimated. The one without media effect schema variables was construed as the null model and the one with these variables added was labeled as the full model. Table 2 presents the fixed effects in unstandardized regression coefficients for each predictor (expressed as r to be consistent with the model specification) and the random effects in variances.

Results from the two-level models showed that the set of media effects schema variables predicted significant proportion of variances in perceived effects across three referents: .13 for effects on self, .07 for effects on an average peer, and .06 for effects on an average person of parents’ age. We turn to the fixed effects parameter estimates for specific predictors to test H2 and H4. H2 predicts that social desirability positively predicts effects on self, but negatively predicts effects on others. The parameters estimate for that variable was positive and significant on effects on self ($\beta = .15, p < .001$), but negative and significant on perceived effects on peer ($\beta = -.12, p < .001$). Its impact on perceived effects on parent was positive, but non-significant, which is generally consistent with the prediction (i.e., not being considered in a favorable manner). Hence, H2 was supported.

H4 predicts that individuals tend to attribute effects on self to external factors and effects on others to internal factors. Across three messages, both external (desirability and exposure) and internal (critical media use, susceptibility to influence and to media) were significant predictors of effects on self. For effects on an average peer, all three external factors, but only one internal factor (susceptibility to media) were significant predictors. For effects on an average person of parents’ age, two external (belief in media power and exposure) and two internal (susceptibility to influence and to media) factors were significant predictors. These results provide little evidence for H4.

**CONCLUSION AND DISCUSSION**

**Strengths and Limitations**

In this study, we discussed the motivational and cognitive accounts of TPP in the extant literature and tested a set of hypotheses derived from such accounts. The motivational account suggests that individuals estimate message effects on self vs. others in a way to help portraying a positive self-image. The cognitive perspective, on the other hand, suggests that individuals utilize information regarding media messages and referent others in their lay theories to estimate message effects on self as well as on others. The results from the web-based survey data from a college student sample help shed some light on how TPP or FPP may occur and how they may vary.

The strength of this study comes from increased internal validity as well as external validity. Threats to internal validity are reduced in two aspects in this study: first, the multilevel modeling approach is more parsimonious, which reduces the inflation in Type I error due to multiple tests. Second, the procedure is more appropriate when the independence
Table 2  
*Restricted Maximum Likelihood Estimates (Unstandardized) of Two-level Mixed Model of Perceived Effects*\(^a\)

<table>
<thead>
<tr>
<th>Model</th>
<th>Self</th>
<th>Peer</th>
<th>Parent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Part</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desirability</td>
<td>.15***</td>
<td>-.12***</td>
<td>.03</td>
</tr>
<tr>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td></td>
</tr>
<tr>
<td>Belief in media power</td>
<td>-.01</td>
<td>.01*</td>
<td>-.01*</td>
</tr>
<tr>
<td>(0.01)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>.15***</td>
<td>.09***</td>
<td>.09***</td>
</tr>
<tr>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td></td>
</tr>
<tr>
<td>Critical media use</td>
<td>-.05*</td>
<td>-.03</td>
<td>.01</td>
</tr>
<tr>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td></td>
</tr>
<tr>
<td>Susceptibility to influence</td>
<td>.12**</td>
<td>.02</td>
<td>.09**</td>
</tr>
<tr>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.03)</td>
<td></td>
</tr>
<tr>
<td>Susceptibility to media</td>
<td>.05*</td>
<td>.14***</td>
<td>.10***</td>
</tr>
<tr>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td></td>
</tr>
<tr>
<td>Random Part</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respondents</td>
<td>.12***</td>
<td>.11***</td>
<td>.09***</td>
</tr>
<tr>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Residual (σ(^2))</td>
<td>.72</td>
<td>.60</td>
<td>.75</td>
</tr>
<tr>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Total variance</td>
<td>.84</td>
<td>.71</td>
<td>.84</td>
</tr>
<tr>
<td>(0.05)</td>
<td>(0.05)</td>
<td>(0.05)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Log restricted likelihood</td>
<td>-2292.53</td>
<td>2162.49</td>
<td>-2304.58</td>
</tr>
<tr>
<td>Additional variance explained(^b)</td>
<td>.13***</td>
<td>.07***</td>
<td>.06***</td>
</tr>
</tbody>
</table>

\(^a\)Number of observations: N=1725; number of clusters: I=575; number of observations per cluster: J=3.

\(^b\)The predictors in the null models were: sex, year in school, two dummy variables for message, and two perceived effects variables (on the other two referents).

\(^c\) Based on \(χ^2\) test of the difference in the log likelihood statistics between the null and full models for each referent. The results are: \(χ^2=130.04\) for perceived effects on self, \(χ^2=53.15\) for perceived effects on peer, and \(χ^2=45.93\) for perceived effect on parent. All the tests have 6 degrees of freedom.

\* \(p<.05\), ** \(p<.01\), *** \(p<.001\),

Standard errors in parentheses.
assumption is violated due to repeated measures. The multilevel model approach yields unbiased estimates of the error terms, hence produces less biased estimates and significance tests. regard to external validity, we recognize that our findings have low ecological validity because the participants in our study were not randomly selected from a larger definable population. But other features of our study, such as including three message types that varied in empirically validated levels of desirability and the perceived-effect measures that referred to concrete messages evaluated, contribute to enhancing other aspects of external validity (see berkowitz & donnerstein, 1982). That is, the findings have knowable relationships with messages and message-effect estimates that populate our media-shaped world. It is more difficult to conclude the same about findings based on references to “the media” in general or general content category with only assumed rather than measured desirability of their presumed influences.

As a web-based survey, our study was cost-effective as far as resources and efficiency were concerned. However, the first limitation is that we did not have the same levels of control in the data collection as in a laboratory study. The second limitation is in the lack of generalizability of our findings. The three types of messages selected for this study only address variations among media messages on the dimension of social desirability. Other possible dimensions of message were not addressed. For example, perceived relevance of a message and/or its presumed effect may be important to consider. The literature on social comparison suggests that self-relevance of the dimension under evaluation is a major factor that affects whether social comparison would occur (e.g., pleban & tesser, 1981). Another clear limitation lies in that fact that some of the scales had relatively low reliability (e.g., perceived similarity for parent-age group). With these strengths and limitations in mind, we turn to the specific findings.

The Motivational Account of TPP

All three hypotheses derived from the motivational account of TPP received support from the data. First, self-other gap in perceived effects is in the form of TPP for a socially undesirable (internet pornography), but in the form of FPP for a desirable message (PSAs) (H1a and H1c). Second, these self-other gaps in perceived effects are more pronounced when social comparisons in the domain of message effects serve, presumably, the function of self-enhancement, indicated by comparisons against a target other how is presumed at the similar level in an evaluative hierarchy such as a peer. However, it is reduced or reversed when the self-enhancing gain works toward believing in more similarities, as indicated by comparison against a superior other (H3). Third, more direct evidence for the motivational process embedded in the role of social desirability of presumed influence came from the prediction of self-serving mode of “biased processing” (H2). This states that social desirability is utilized positively when estimating message effects on self but negatively when estimating effects on an average peer, the other against whom social comparisons would result more
gain in self-enhancement. The non-significant association between social desirability and perceived effects on the parent-age group also constitutes evidence supporting the motivational account in that the same motivation in social comparison with a superior other in the domain of evaluation would lead individuals to choose a different algorithm.

**The Cognitive Account of TPP**

The fact that the set of media effects schema variables predicted significant proportion of variances in perceived effects across three referents provided support for the general premise of the cognitive explanations of TPP in that individuals do utilize media effects schema components in generating message effects estimates. These considerations are clearly informational for individuals to render their estimates of message effects. The information may be amassed for a judgment task from multiple sources: lay theories about self and others, a third person descriptor that constitutes a cue in the immediate environment of message effect evaluations, and the media message in question.

The results were mixed, however, when it comes to cognitive explanations that concern specific predictors (exposure and social distance). This is not surprising given that it would be rare, if not impossible, for individuals to consider only one piece of information when estimating message effects. Instead, results in this study show that individuals use information from a host of factors. There has been evidence that when exposure is taken into consideration, social distance no longer predicts TPP (e.g., Eveland et al., 1999); and that the impact of exposure would disappear when the target referent is perceived to use media critically (the current study), or when self-categorization and group norm are functioning (e.g., Reid & Hogg, 2005; Reid et al., 2007). The exposure hypothesis and the social distance corollary would probably receive support when different factors that impact TPP are in the same direction, for example, a more distant other is perceived to have more exposure.

The attribution error explanation did not receive support either. This account predicts that individuals would attribute effects on self to external factors and effects on others to internal factors. Our results showed that a) both external and internal factors predicted effects on self, and effects parent (superior other), and b) more external (all three) than internal (one out of three) factors predicted effects on an average peer. Post hoc analyses estimating two-level models within each message showed that the pattern did not differ between the undesirable Internet pornography and the desirable PSAs.

**Is TPP Motivational, Cognitive, or Both?**

Perloff (2002) claims that the motivational, self-enhancement explanation for TPP has received more evidence than the cognitive explanation. Results from this study appear to provide further evidence for his claim. We should not, however, make haste to reject the cognitive account. First, results showed that the set of media effects schema variables
explained significant proportions of variance in perceived effects on all three referents. This constitutes clear evidence for the general premise of the cognitive account—individuals utilize information on target referents, messages, and media in general to estimate message effects on multiple referents.

Second, individuals tend to be more “systematic” when estimating effects on self (i.e., more variance explained) than when doing so on others, especially with regard to utilizing information about referent’s internal dispositions (e.g., susceptibility) and experiences (e.g., critical processing of media content). This self-other asymmetry might be because individuals have more available, more accessible, and more presumably applicable information on self than on others. It is reasonable to infer this self-other asymmetry as some indirect evidence for the cognitive “information asymmetry thesis” (Paek et al., 2004). A basic premise for this thesis states that individuals have more privileged information about self than about others (see Epley & Dunning, 2000; Kruger & Gilovich, 2004; Pronin et al., 2001, 2004). This information disparity concerning self and others might be the cognitive mechanism that underlies self-other gaps in perceived effects.

Third, the current conceptualization for the cognitive explanations tends to be oversimplified—they tend to focus on one or two factors at a time, which unfortunately puts them at a disadvantageous position. Fourth, estimates of message effects, as in all social judgments, are “relational,” “motivational,” and “selective” (Dunning, 2000, p. 374). No theoretical model of TPP would be truly integrative until both motivational and cognitive factors are explicitly incorporated as explanatory variables. The challenge for us in future studies, thus, is to develop a clear theoretical framework to not only differentiate, incorporate, but also explain judgments embedded with motivated and non-motivated forms of biases (Chambers & Windschitl, 2004; Dunning et al., 1995). By proposing and testing hypotheses derived from the cognitive and motivational accounts simultaneously, we intended to strive for an integrated theoretical view on TPP, and to invite theoretical efforts to incorporate both motivational and cognitive explanations of TPP. Future studies on TPP, as Banning (2008) calls for, should be more “experimental in focus and interdisciplinary in scope” so as to broaden our theoretical understanding of the phenomenon. Without extensive theoretical work, the TPP research will remain, as Mussweiler, Rüter and Epstude (2004, p. 833) lamented of social comparison research, “a disintegrated puzzle.”

REFERENCES


