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CONGENIAL PUBLIC, CONTRARY PRESS, AND BIASED ESTIMATES OF THE CLIMATE OF OPINION

ALBERT C. GUNTHER
CINDY T. CHRISTEN
JANICE L. LIEBHART
STELLA CHIH-YUN CHIA

Abstract This field experiment focused on perceived public opinion about the use of primates in laboratory research. We used this contentious issue to examine the simultaneous effects of three hypothetical ideas—the hostile media perception, the persuasive press inference, and the projection bias—on partisan perceptions of public opinion. Our data supported the projection hypothesis but also confirmed that partisans on each side of the issue judged news articles to be biased in a disagreeable direction relative to judgments of those on the other side. The perception of relatively disagreeable media bias, in turn, influenced perceptions of public opinion. Results supported the hypothesis that people make inferences about the climate of opinion based on their reading of the news, especially the perceived slant of that news.

Introduction

Objective public opinion, however important it may be, is rivaled in many theoretical settings by an imagined sibling we might call perceived public opinion. Often illusory, perceived public opinion is, nevertheless, a critical concept in important public opinion models, including spiral of silence, bandwagon and underdog effects, and, by definition, anything incorporating the notion of pluralistic ignorance.

ALBERT C. GUNTHER is professor, STELLA CHIH-YUN CHIA is a doctoral student, and JANICE L. LIEBHART is a master's student in the Department of Life Sciences Communication at the University of Wisconsin—Madison. CINDY T. CHRISTEN is assistant professor in the Greenlee School of Journalism and Communication at Iowa State University. Address correspondence to Albert C. Gunther, Department of Life Sciences Communication, University of Wisconsin—Madison, 440 Henry Mall, Madison, WI 53706. Telephone: 608-262-1506. Fax: 608-265-3042. E-mail: agunther@facstaff.wisc.edu. We thank Daniel Bolt, Jim Dillard, Michael Horvath, Patricia Moy, Dietram Schefele, and three anonymous reviewers for helpful suggestions. This project was supported in part by USDA grant no. 04295.

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Thus, exploring the origins of perceived public opinion is a pursuit of continuing interest. This article will focus on two explanations that have potentially contrary outcomes. One is the well-established idea of projection, which suggests that peoples' estimates of the opinions of others are a direct result of their own. The other is an indirect path that can be drawn through the intersection of two relatively recent hypotheses: the persuasive press inference and the hostile media effect.

The hostile media effect describes the tendency for people who are highly involved in an issue to see news coverage of that issue as biased, particularly as biased against their own point of view. Anecdotal evidence of this effect is commonplace: liberal groups typically describe the media as a lapdog for corporate interests, while conservatives tend to see it as a left-wing conspiracy. Another common example, popular with newspaper journalists, is letters-to-the-editor from two partisan readers, each charging that the news is slanted to favor the other side.

However common the anecdotal evidence, empirical tests of the hostile media effect are scarce. The scarcity may result in part from the typically demanding study design, which requires one to identify controversial issues, highly involved partisans, and objectively neutral news coverage all in one place. In this study we examine a broader definition of this notion, one we call the "relative hostile media effect." The relative hostile media effect enlarges the potential scope of research on this sort of perceptual bias and also on its consequences for perceived public opinion.

PERCEPTIONS OF HOSTILE MEDIA COVERAGE

The first published experiment illustrated the hostile media perception dramatically. Vallone, Ross, and Lepper (1985), showing news broadcasts of the conflict in the Middle East to Arab and Israeli students, found that both groups saw the news as biased in favor of the other side. The phenomenon was highlighted by the fact that nonpartisans saw the same content as neutral. The researchers proposed two central explanations. One, a perceptual bias, suggests that partisans actually perceive and recall a disproportionate amount of disagreeable content. The other, an evaluative bias, argues that partisans assess the same content using different standards, so that attempts at evenhandedness are nevertheless seen as unfair. A more detailed discussion of theoretical background can be found in Giner-Sorolla and Chaiken (1994).

A persistent and important question is whether the hostile media effect is limited to partisans. The earliest studies took this view. Vallone, Ross, and Lepper (1985) first tested their notion of this perceptual bias with Jimmy Carter and Ronald Reagan supporters shortly after the 1980 presidential election, but with disappointing results. They attributed their difficulties to respondents' lack of strong feelings for or against candidates, and they concluded that the hostile media effect might depend on "an issue that prompted fiercer

and more enduring partisanship" (p. 579). As a solution, they turned to media coverage of conflict in the Middle East, and they recruited partisan subjects from pro-Arab and pro-Israeli student groups. This choice proved practical in application and provided robust support, and subsequent researchers chose the same issue (Giner-Sorolla and Chaiken 1994; Perloff 1989). During the 1997 United Parcel Service (UPS) strike, highly partisan subjects—UPS managers and Teamsters—also clearly exhibited the hostile media perception (Christen, Kannaovakun, and Gunther 1998). In findings that seemed to reinforce the importance of using partisan subjects, Giner-Sorolla and Chaiken (1994), who recruited participants from college classes rather than from partisan groups, produced only partial support for the hostile media perception. The authors speculated that the weaker support might have resulted from a pool of subjects with less extreme attitudes or less activist involvement.

In a 1992 study, Gunther proposed that group identification might be a productive indicator of partisanship, because it taps deeper and more profound levels of involvement. That study found that people in a wide variety of social groups—for example, Catholics, born-again Christians, Republicans, Democrats, Hispanics, and African Americans—perceived media coverage to be significantly more unfavorable when it focused on their own group.

However, some survey research has shown evidence of hostile media perceptions in broader samples of the population based on attitude measures alone (Dalton, Beck, and Huckfeldt 1998; Gunther and Christen 1999). It is more difficult to clearly identify hostile media perceptions with correlational data analysis, but these studies give some indication that the phenomenon is not confined only to highly involved partisans.¹ Experimental replication has been limited, and research has yet to separate the relative importance of attitude strength, group identification, and group membership. Existing results indicate that partisan-group affiliation is a reliable, although perhaps not necessary, condition for the judgment that media coverage is hostile to one's own point of view.

Another important condition in current hostile media effect studies is the premise that subjects are evaluating what is actually "neutral" news coverage of the issues in question. By demonstrating that partisan groups on either side of an issue perceive news content to favor the opposing side, these experimental results make the same case made by embattled newspaper editors. When editors print letters from readers charging bias, but bias in different directions, the implication is that the news itself must be somewhere in between—somewhere safely within neutral boundaries.

But, in fact, quite a bit of news content does have some degree of slant. Many news stories, by virtue of the events they cover or the sources they include, would be seen by disinterested observers as favoring a particular

1. A negative correlation does not necessarily mean respondents on both sides of an issue see news coverage as hostile to their view.

point of view. Most journalists presumably believe they cleave to a professional standard of objectivity or balance, but most people in the media audience may not see it that way.

The prospect of evaluations of news content with an apparent slant toward one side or another puts an interesting twist on conceptualizations of the hostile media perception. If even neutral viewers would not rate the news as neutral, how is one to assess the conjecture that highly involved partisans are prone to biased perceptions of media bias? The answer is that, while the perception of bias is an inherently subjective evaluation, the hostile media perception does predict an objective and testable outcome. Even when few would evaluate news coverage of a controversial issue as neutral, we should expect that partisans on one side of that issue will rate the news as significantly less favorable or significantly more unfavorable than will their adversaries on the other side of the fence. When two partisan groups assessing the same media coverage display significantly different evaluations—each evaluation in an unfavorable direction relative to the other—we will call this the relative hostile media perception (see also Gunther and Christen, *in press*). While this outcome does not have the dramatic character of two groups each accusing the media of favoring the other side, it is an equally significant indicator of the theoretical logic behind the hostile media effect. In theoretical terms, the relative hostile media effect describes the same phenomenon as its more strictly defined cousin, but it likely embraces many more instances of such divergent perceptions and thus offers more ways to examine the causes and consequences of the perceptual bias.

However, while published replications of the hostile media effect may seem scarce, they are plentiful in comparison with the amount of research on its significance. The importance of this effect depends crucially on its consequences, such as corresponding misperceptions of public opinion and potential effects on opinion expression, voting patterns, and other social behaviors that might result. But existing hostile media effect research has not addressed these potential consequences.

ASSUMPTIONS OF MEDIA INFLUENCE

The gap between perceptions of news slant and perceived public opinion is bridged by a related theoretical model called the persuasive press inference (Gunther 1998). The persuasive press inference proposes that individuals often infer public opinion from their perceptions of the content of media coverage because of their assumptions that such content has a substantial influence on others. The logic for this hypothesis is built on a number of propositions: (1) that from their own exposure to small samples of news content people extrapolate to the quantity and slant of news more generally, (2) that people believe this mass media coverage will have a broad reach, and (3) that people expect this media content to have a persuasive impact on the opinions of

others. Finally, because of this perceived media influence, people will infer a climate of opinion that reflects their impressions of news content. In other words, "what mass media are saying today must be what the public will be thinking tomorrow" (Gunther 1998, p. 487).

Some support for the persuasive press inference has been demonstrated in two recent experiments. Participants who read news articles manipulated to have a favorable or unfavorable slant on a topic saw a corresponding difference in public opinion on those issues. In addition, they estimated that public opinion had changed "in the last few days," in line with the timing of the news reports (Gunther 1998; Gunther and Christen 1999; see also Mutz and Soss 1997).

However, there are untested assumptions in the persuasive press inference model. One of these is extrapolation—the notion that people believe the news coverage they are exposed to, however small and unrepresentative a sample it might be, is similar to news coverage more generally. This extrapolation hypothesis is supported in theory by the law-of-small-numbers bias (Tversky and Kahneman 1971), which suggests that people are prone to view even a small sample as highly representative of the population. A second assumption is the notion of perceived reach—not only that people are exposed to news coverage of an issue themselves but that they perceive many other people to be similarly exposed. This presumed exposure is likely to be a necessary condition for inferences about media influence on others.

If reach proves to be a significant moderating factor, it will argue against a potential alternative explanation for the persuasive press inference findings. That rival explanation is the accessibility bias (Iyengar 1990), the notion that people make judgments, presumably including judgments about public opinion, based on what is most cognitively accessible, most easily retrieved from memory. Iyengar suggests that media often provide the most easily retrieved content. But if an accessibility bias were driving judgments of public opinion, then perceived reach should make no difference.

While extrapolation and reach are important theoretical elements, the critical independent variable in the persuasive press inference hypothesis is perceived media coverage. Thus, the persuasive press inference is naturally tied in a most interesting way to the hostile media perception. A key implication of the persuasive press inference is that biased perceptions of media coverage—the type of perceptions the hostile media effect would produce—can lead to biased perceptions of public opinion. More specifically, partisan individuals are likely to perceive media coverage as biased against their own point of view, and one might expect that, as a result, they will perceive others' opinions as more at odds with their own.

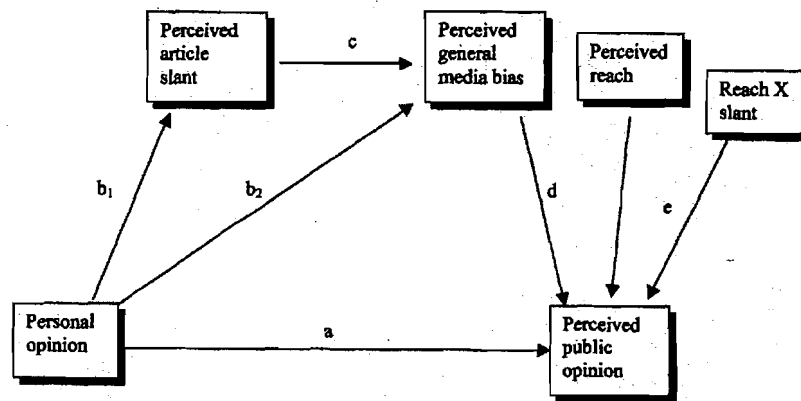


Figure 1. Hypothetical model of influence on perceived public opinion, including (a) projection, (b) hostile media effect, (c) extrapolation, (d) persuasive press inference, and (e) the moderating effect of perceived reach.

THE PROJECTION EFFECT

However, an alternative to this scenario is presented by another theoretical model called projection, also sometimes known as the looking-glass effect (Fields and Schuman 1976). In this model, individuals project their own opinions onto others or, as Fields and Schuman put it, "look out onto the world and somehow see their own opinions reflected back" (1976, p. 437). Projection is especially relevant because it means that individuals in a minority (such as the partisan groups of interest in this research) will overestimate the percentage of others who share their opinion. There is a great deal of empirical support for the projection bias (see, e.g., Marks and Miller 1987), and it appears to apply to partisans as readily as to those relatively uninvolved in an issue (Fabrigar and Krosnick 1995). Thus, projection would predict that partisans will misjudge public opinion but misjudge it as more favorable, rather than more opposed, to their own point of view.

This research set out to examine the potentially contrary roles of projection and the persuasive press inference. Figure 1 presents a hypothetical model illustrating how each of these three theoretical constructs may be interrelated and how they might together influence perceived public opinion.

- a. The lower leg represents projection, the direct and positive influence of personal opinion on estimates of public opinion.
- b. The first stage of the upper path in figure 1 represents the relative hostile media effect hypothesis. Theoretical logic here argues that people in a partisan group will see the slant of news coverage (the coverage to which

they are personally exposed) as more disagreeable or at least less congenial than will those in the opposing group. Thus, we expected a negative relationship (b_1) between personal opinion and perceived news slant. By the same logic, we expected a similar negative relationship (b_2) between personal opinion and perceived general news coverage.

- c. The next step corresponds to the extrapolation hypothesis. The law-of-small-numbers bias suggests that people will assume general news coverage resembles the sample of news coverage they have been exposed to personally. Thus, we expected a positive relationship between perceived news slant and perceived general media coverage.
- d. The final segment of this indirect path represents the persuasive press inference, the inference that the perceived slant of news coverage will shape public opinion.
- e. Perceived reach is hypothesized to be a moderating variable that can affect the strength of the persuasive press inference. One might assume that, as people see news coverage reaching a wider audience, they may infer an increase in media influence and a corresponding change in public opinion. Therefore, we expected the high-reach condition to result in a stronger relationship between perceived slant and perceived public opinion. This expectation was analyzed via the reach-by-slant interaction term, which tests for any differential effect of perceived news slant in the low-reach versus high-reach conditions (Kenny and Judd 1984). Reach was treated as a moderating or contingent condition, because we did not expect it to be causally dependent on other independent variables. Thus, it is pictured as an exogenous factor in this model. A main-effect test of reach was also incorporated in the model, but its result is not relevant to the moderator hypothesis (Baron and Kenny 1986).

Taken together, the steps in the upper portion of this model represent an indirect and negative influence of personal opinion on perceived public opinion, mediated by perceptions of press coverage. Testing all of these theoretical constructs simultaneously will allow us to assess their relative influence. If both paths in the model prove significant, it will suggest the two processes—the positive effect of projection and the negative influence of a persuasive but disagreeable press—both occur and may, to some extent, cancel each other out. In this case, individuals who demonstrate both types of biased perceptions may, ironically, end up closest to an accurate impression of public opinion.

CONTEXT FOR THIS STUDY

The use of primates in laboratory research has been a controversial national issue for years. Opponents object because of the proximity of primates to humans on the evolutionary ladder; they also argue that the animals receive

inadequate care and that much of the research is unnecessary. Those who support research using primates claim that it has provided significant medical benefits for both humans and other animals and that this scientific progress would not be possible without the use of animal species very close to our own. News-media coverage of the issue has been fairly steady, driven at times by incidents like activist demonstrations.

During the summer of 1999, a group of animal rights activists launched a 24-city "Primate Freedom Tour," which included demonstrations and picketing at the seven major primate research facilities funded by the National Institute of Health. The group arrived at the University of Wisconsin—Madison, the home of a large primate research center, in mid-August. Together with a local animal rights organization, the activists staged demonstrations and informational meetings outside the primate-center buildings and in other public locations for 4 days. The activists also picketed at the home of the primate-center director.

The primate center's research faculty and staff kept a low profile during the 4-day protest; center doors were locked, and campus and city police maintained a visible presence. A number of activists, who chained themselves to the front door of one laboratory building, were arrested.

Anticipating this level of confrontational activity, we assumed that these two groups, animal rights activists and research staff at the primate center, would qualify as highly involved individuals in two adversarial camps. Thus, we seized this opportunity to test the hypothetical model suggested by the theoretical literature above.

Method

For this experiment, a team of graduate students recruited participants from the animal rights group and its affiliated local organization ($n = 77$) and from the faculty and staff of the university's primate research center ($n = 75$). As an incentive, a \$5-per-participant donation was made to an organization aligned with the subjects' sympathies: for animal rights proponents, it was the local animal rights organization; for research center staff, it was a primate-center library fund. Our incentive strategy appeared to be effective; interviewers reported nearly unanimous cooperation.

We also recruited, from local adult lecture groups and one undergraduate communications course, a pool of 111 potentially "neutral" participants. We used these participants' responses to the initial item measuring attitude toward primate research to identify 55 who appeared most nonpartisan on this issue (within one point of the "neither support nor oppose" midpoint on the 11-point scale).

Participants first read and signed a consent form that described the study as a survey of audience evaluations of newspaper-news coverage of the pri-

mate-research issue and included an explanation of the \$5 donation. Subjects then received a copy of the experiment packet. The packets, previously randomized, contained three sections: a set of preliminary questions about the participant's personal attitudes toward the issue of primate research, photocopies of two recent news articles (described on the cover page as "randomly selected . . . from nationally circulated news publications"), and four pages of additional items.

Subjects were randomly assigned to read a pair of newspaper articles that were either both favorable toward primate research or both favorable toward animal rights. We selected articles that appeared to lean toward different sides on the primate-research controversy, and a group of seven judges, who declared themselves neutral on the issue, agreed unanimously with our assessments of article slant. All four articles were taken from national media sources. Of the two pro-animal rights articles, one was headlined "Man Protests in Cage at Chimp Research Lab" and the other "Twists and Turns in Chimp AIDS Research." The two pro-research stories were "Behind Mystique of Animal Research" and "The First Chimpanzee: Scientists Zero in on the Source of the AIDS Virus." Every effort was made to match the first two and the second two articles in separate conditions on characteristics other than slant. Participants were told the first article in each pair had been carried by the Associated Press and clipped from the June 24, 1999, issue of the *Washington Post*. The second article in each condition was attributed to the September 4, 1998, issue of *Newsweek*. (The news-story manipulations were actually published at different times during the past year; we selected these dates to provide a uniform time frame and to minimize the likelihood of any suspicions on the part of potentially very well-informed participants.) The articles, with appropriate logos and datelines, were composed in a graphics program to reflect the design and layout styles of those two publications. The first articles in each of the two conditions were approximately equal in length, and each dealt with the question of laboratory conditions. The second two articles in the pro-research and pro-animal rights conditions were also similar in length and dealt with research on the AIDS virus.

Following a cover page containing directions and another general explanation of the study, we asked participants a series of attitude items about the primate-research issue. The central items were used as a check on our field manipulation. The first was, "To what extent do you support or oppose the use of primates in laboratory research?" followed by an 11-point scale ranging from +5 (strongly support) to -5 (strongly oppose). To incorporate group identification in this manipulation check, we also included questions about attitudes toward members of the two groups—animal rights activists and active supporters of primate research—followed by the same -5 to +5 scale, with extremely favorable and extremely unfavorable as anchor points. These three items proved to have high reliability ($\alpha = .91$) and were used as indicators of personal opinion.

The second section in the experiment packet contained the two newspaper articles. These were followed by a series of questions focusing on perceived bias or slant in the articles: "Would you say that the news coverage about the use of primates in laboratory research in these articles was strictly neutral, or was it biased in favor of one side or the other?" In addition to this item dealing with overall bias, we asked about more specific aspects of the stories, including, "Would you say that the news coverage of active supporters of primate research in these articles was strictly neutral, or was it biased for or against them?" and a similar item asking about coverage of animal rights activists. Each of these questions was followed by an 11-point scale anchored by +5 (strongly biased in favor) and -5 (strongly biased against), with 0 as the neutral midpoint. These three measures also had good reliability ($\alpha = .92$), and they were used as indicators of perceived article slant.

The last item in this section asked about the perceived leanings of editors and reporters: "Would you say that the journalists responsible for these articles were strictly neutral, or were they biased in favor of or against the use of primates in laboratory research?" This was followed by the same 11-point scale.

To measure the effects of differing perceptions of news-story bias, we also asked participants about their estimates of others' opinions. The central item, "In your estimation, what percentage of Americans are opposed to the use of primates in laboratory research?" was followed by a 10-point-interval scale ranging from 0 to 100 percent. (For clarity in reporting results, this item was reverse coded for all analyses except those related to figure 3.)

Since many of our highly partisan participants were likely to have followed news on this topic with a substantial degree of interest and attention, we expected that the articles we asked them to read might strike them as very similar to, or quite different from, the major trends they discerned in their own sampling of news coverage. But the extrapolation hypothesis suggested that the small, two-article sample of news we provided would significantly influence participants' assessments of general media coverage. Thus, we also included questions to tap respondents' sense of media coverage more generally as well as their sense of the articles' reach. To gauge their impressions of general media coverage we asked, "In the past year, would you say that media coverage in the United States has been strictly neutral, or biased in favor of one side or the other, with respect to the use of primates in research?" This item was followed by the same +5 (more favorable) to -5 (more opposed) scale. Perceived reach was measured by asking, "What percentage of Americans would likely have read one of these articles or a similar article in the past year?" In a final section, respondents provided a brief resume of demographic information, including age, gender, education, and household income.

We first analyzed the general model, diagrammed in figure 1, using a correlation matrix and maximum likelihood estimates in structural equation modeling (LISREL 8.3). Personal opinion, perceived article slant, and the slant

Table 1. Comparison of Demographic Variables by Group

| | Animal Rights Activists | Primate Researchers | Test Statistic |
|------------------------|----------------------------|------------------------|-------------------|
| Education ^a | 3.70 (1.44) | 4.54 (1.16) | $Z = -3.68^{***}$ |
| Income ^b | 3.03 (1.80) | 3.25 (1.69) | $Z = -.94$ |
| Age | 34.4 (14.2) | 32.6 (10.6) | $Z = .87$ |
| Gender (% female) | 64.8 | 62.5 | $\chi^2 = .081$ |

NOTE.—All groups except gender were compared using the Mann-Whitney procedure. *N* (sizes of the groups) varied between 65 and 73. All variables except gender are presented as means. Standard deviations are in parentheses.

^a Education: 1 = some high school, 2 = high school graduate, 3 = some college, 4 = college graduate, 5 = some postgraduate, 6 = postgraduate degree.

^b Household income (annual): 1 = \$15,000 or less, 2 = \$15,001–\$30,000, 3 = \$30,001–\$45,000, 4 = \$45,001–\$60,000, 5 = \$60,000–\$75,000, 6 = \$75,001 or more.

*** $p < .001$.

component of the interaction term in figure 1 were analyzed as latent variables derived from the indicator variables described above. We set one indicator as a reference variable for each latent variable. Equation modeling allowed us to test the simultaneous effects of several variables on perceived public opinion, indirect effects via mediating variables, and the degree of fit between theory and data. We followed this omnibus test with a series of independent-samples *t*-tests to elaborate on the relative hostile media perception, the persuasive press inference, and other specific components of the general model.

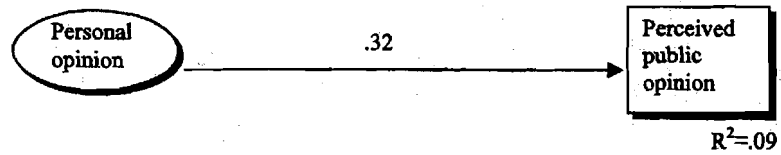
Results

Because our partisan participants came by necessity from two distinct groups rather than from a randomly assigned pool, we used the four demographic measures as a rough check on their comparability. Mann-Whitney rank tests, reported in table 1, showed no differences between groups except that, as expected, primate researchers reported higher education levels.²

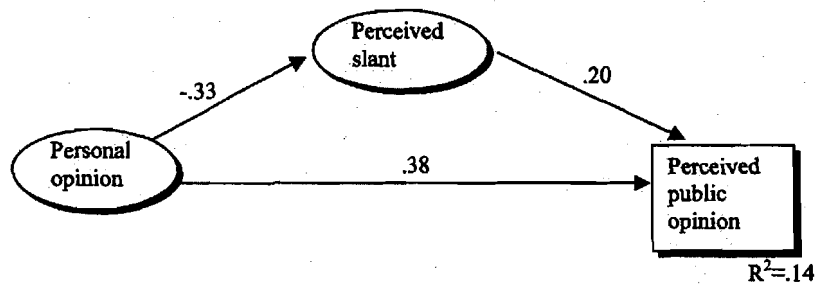
To verify the presumption that group members were indeed partisan on both sides of this issue, we used the personal opinion index described above. Scores confirmed that participants who belonged to animal rights organizations had highly negative attitudes on the primate-research index ($M = -4.28$ on

2. We considered nonparametric Mann-Whitney tests the most appropriate for the ordinal variables education and income. We used the same test for age to avoid the assumption of normal distribution.

Model 1:



Model 2:



Model 3:

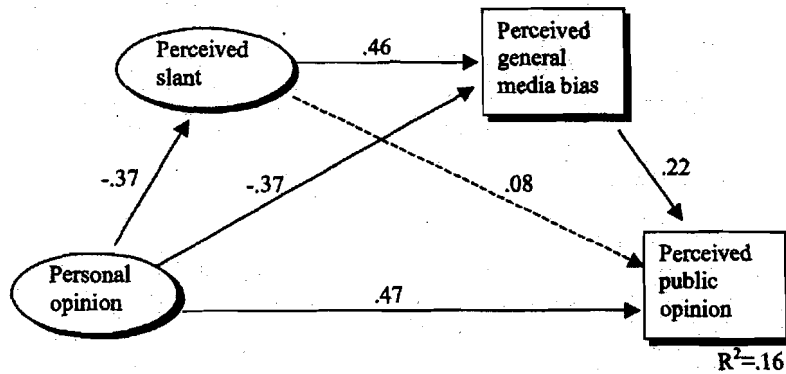


Figure 2A

Model 4:

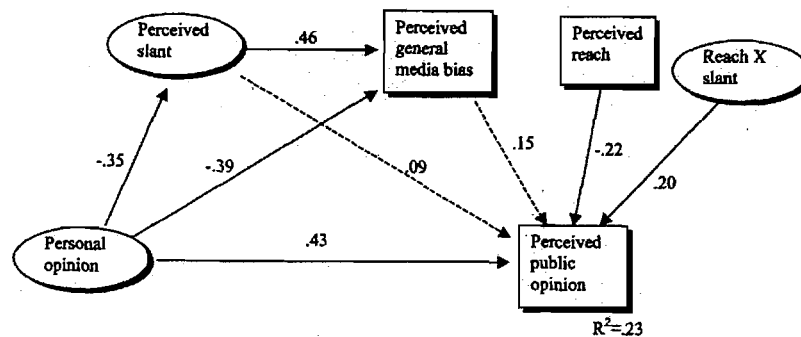


Figure 2B. The empirical consequences of adding theoretical components predicting perceived public opinion. Parameters are standardized coefficients. All solid-line arrows are significant at $p < .05$ or better. Rectangles represent observed variables; ovals represent latent variables (see fig. A1 in app. for the full measurement model). Model 1: $\chi^2 = .80$, $df = 2$, $p = .67$, RMSEA = .000, GFI = 1.00, NNFI = 1.01. Model 2: $\chi^2 = 20.12$, $df = 12$, $p = .07$, RMSEA = .067, GFI = .96, NNFI = .98. Model 3: $\chi^2 = 18.75$, $df = 14$, $p = .17$, RMSEA = .047, GFI = .97, NNFI = .99. Model 4: $\chi^2 = 58.91$, $df = 47$, $p = .11$, RMSEA = .041, GFI = .94, NNFI = .98.

a scale from -5 to $+5$). The attitudes of participating primate researchers were clearly positive ($M = 2.88$), though they were apparently not as extreme as those of the animal rights adversaries. The absolute difference between animal rights activists and primate researchers was statistically significant ($t(151) = -34.24$, $p < .001$).

Manipulation checks confirmed that pro-research and pro-animal rights news articles were perceived as such by the 55 neutral participants. The pro-research stories were viewed as being biased in favor of primate research ($M = 3.30$) and primate-research supporters ($M = 2.29$) while being somewhat negative toward animal rights activists ($M = -.88$). The pro-animal rights news articles, on the other hand, were perceived to be negative toward primate research ($M = -1.23$) and primate-research proponents ($M = -0.71$) but slightly favorable toward animal rights supporters ($M = 0.61$). For all three measures, the difference between nonpartisans who read pro-research or pro-animal rights articles was significant: bias about primate research ($t(54) = 10.17$, $p < .001$); bias about primate-research supporters ($t(55) = 6.29$, $p < .001$); and bias about animal rights activists, ($t(55) = -3.30$, $p < .05$).

To simultaneously test the several components in our hypothetical model, we produced a series of structural models (see figs. ; also, a full measurement model is presented in the appendix in fig. A1), which show the standardized parameters as well as changes in these parameters as new theoretical elements were added.³ We found this series of models instructive not for testing rival explanations but rather for the theoretical insights gained through a step-by-step decomposition of effects (Maruyama 1998).

As expected, model 1, presented in figure 2A, showed strong support for the direct effect of personal opinion on perceived public opinion—the projection effect. Participants' personal opinions were significantly correlated ($\gamma = .32$) with their perceptions of the proportion of Americans who opposed research using primates.

Model 2, presented in figure 2A, incorporates the simple indirect path proposed by linking the hostile media perception and persuasive press inference hypotheses. The first hypothesis in this indirect path, the relative hostile media perception, was supported by a significant negative relationship ($\gamma = -.33$) between subjects' personal opinions and perceived slant of the news-story stimuli. As predicted, partisans saw the news articles as more hostile to, or less agreeable with, their own point of view relative to those in the other camp. (This relationship will be analyzed in more detail below.) In addition, the data indicated support ($\beta = .20$) for the persuasive press inference.

Model 3, presented in figure 2A, adds a test of the extrapolation hypothesis, which was supported by a positive relationship ($\beta = .45$) between perceived slant of the experimental articles and perceived slant of media coverage generally. Although the circumstances of our experimental manipulation were necessarily somewhat artificial, this result suggests that exposure to a small sample of news coverage may indeed have a significant influence on perceptions of the news as a whole.

Model 3 also supported the hypothesized role of extrapolation in the persuasive press inference process; not only did partisans infer general media coverage from the sample they were exposed to but they also adjusted their perceptions of public opinion accordingly. In addition, specifying the extrapolation effect reduced the direct relationship between perceived article slant and perceived public opinion, suggesting good empirical support for an indirect persuasive press inference path via extrapolation. It was apparent in the significant path from personal opinion to perceived general media bias ($\gamma = -.38$) that participants' perceptions of a relative hostile bias in general media coverage were at least as strong as their collective perceptions of bias in the article manipulations we provided. Including this path also eliminated a substantial degree of noncausal correlation between perceived article slant

3. It should be noted that selected variables in figs. 2A and 2B—personal opinion, perceived article slant, and the slant component of the interaction term—were latent variables composed of multiple indicators. Calculation of degrees of freedom included those indicator variables. All variables in the model displayed reasonably normal distributions.

and perceived general media bias. Finally, the projection relationship in model 3 was substantially stronger ($\gamma = .47$) than in the simple bivariate analysis in model 1.⁴ This result suggests that the indirect—and, importantly, negative—effect of personal opinion, mediated by perceived news coverage, suppresses projection estimates when the indirect path is not specified.

Model 4, presented in figure 2B, displays the complete empirical structure incorporating the effect of reach—the extent to which subjects thought other Americans would be exposed to these or similar articles. If reach is indeed moderating the influence of perceived slant, then the influence of slant will be significantly stronger in the high-reach condition. Thus, the effect should be seen in the reach-by-slant interaction (Kenny and Judd 1984).

We expected no main effect for reach, since effects of the pro-research articles should be counteracted by effects of the pro-animal rights articles. But reach was significant only in the case of pro-animal rights articles, and this asymmetrical outcome resulted in a linear effect for the reach variable on its own.⁵

Even though perceived reach was a significant factor only in the pro-animal rights condition, overall results indicate that the interaction of reach and slant exerted a significant influence ($\beta = .20$) on perceived public opinion. A multigroup analysis (Baron and Kenny 1986; Neale 1998) for high-reach and low-reach conditions revealed an interaction pattern in the expected direction. In the high-reach condition, perceived article slant had a significant influence on perceived public opinion; in the low-reach condition, that path was non-significant. Thus, in model 4, the persuasive press inference is evident in the interaction term, where the influence of perceived article slant is moderated by perceived reach.

The total indirect effect of personal opinion on perceived public opinion ($\beta = -.13$) was also significant ($p < .05$) in model 4. The chi-square statistic and other indices ($\chi^2 = 58.9$, $df = 47$, $N = 152$, $p = .11$, RMSEA =

4. The unstandardized coefficient for the bivariate projection relationship in model 1 was .33, while the same relationship in model 3 was .48. The 95 percent confidence interval for the latter coefficient was .38–.58, indicating that the difference between these coefficients was greater than chance.

5. We expected that greater perceived reach of the pro-research articles would be associated with decreases in estimated public opposition to primate research and, similarly, that greater perceived reach of the pro-animal rights articles would result in increases in estimated public opposition. These two linear trends should hypothetically counteract one another, producing no main effect for reach. However, an effect for reach was evident in the case of pro-animal rights news coverage only. The relationship between perceived reach of pro-animal rights news articles and estimated opposition to primate research (reverse coded) was statistically significant in the predicted direction for both partisan groups: animal rights activists ($r = -.51$, $p < .01$) and primate researchers ($r = -.35$, $p < .05$). Among those who read the pro-research news articles, we found no significant relationships. This robust effect only for pro-animal rights articles resulted in a significant main effect for reach in the overall model.

.041, GFI = .94, NNFI = .98) for model 4 suggested a good fit.⁶ The model accounted for 13 percent of variance in perceived article slant, 48 percent in perceived general media slant, and 23 percent in perceived public opinion.

To analyze the relative hostile media perception in more detail, we used independent-samples *t*-tests to examine differences in perceptions of bias among animal rights activists and primate-research supporters in the pro-research and pro-animal rights news article conditions. Table 2 shows consistent support for the hypothesis. Both partisan groups saw the pro-animal rights news articles as unfavorable toward research, but researchers saw them as significantly more biased against primate research than did animal rights activists. Among those who read articles with a pro-research slant, animal rights partisans perceived the articles to be significantly more biased in favor of primate research than did supporters of primate research. Significant differences in the expected direction were also found for perceptions of bias in news coverage of animal rights activists and in news coverage of primate-research supporters. In addition, partisans attributed a relatively hostile bias to the journalists responsible for news articles. These relationships were essentially unchanged when education, the only significant difference between the two partisan groups, was included as a covariate.

A more detailed picture of the persuasive press inference is illustrated in figure 3. Translating aggregate scale scores into the percentage estimates they represent shows that story-slant manipulations altered perceptions of public opposition to primate research in the predicted directions. Animal rights activists who read pro-animal rights articles estimated that 47 percent of Americans were opposed to the use of primates in laboratory research, while those who read articles with a pro-research slant perceived that only 34 percent of Americans were opposed.⁷ This difference in estimates was significant ($t(74) = -2.56, p < .01$). Judgments of public opposition by primate researchers who read articles with a pro-research or pro-animal rights slant also varied in the predicted direction (24 percent vs. 33 percent, respectively); this difference was also significant ($t(75) = -2.03, p < .05$).

In addition to the influence of story slant, figure 3 illustrates the underlying presence of projection. Group estimates (collapsed across treatment conditions) of the percentage of Americans opposed to research using primates

6. Although its value is debated, generally a lower and nonsignificant chi-square statistic means a better-fitting model. Desirable fit for the root mean square error of approximation (RMSEA) is less than .05, which indicates a close fit of the model in relation to degrees of freedom (the 90 percent confidence interval for the RMSEA in model 4 was 0.00–0.07). Goodness-of-fit indices (GFI), which assess the relative amount of variances and covariances jointly accounted for by the model, are considered satisfactory at .90 or better (Maruyama 1998). The Tucker-Lewis nonnormed fit index (NNFI) is an incremental test that compares the fit to a more restricted baseline model (Hu and Bentler 1995); again, .90 or better is considered satisfactory.

7. These group percentages were derived from a 10-point response scale, where 1 = 0–10 percent, 2 = 11–20 percent, etc. For these group calculations, we assumed that a number represented the midpoint of its percentage interval so that, e.g., a 3 would equal 25.5 percent of Americans opposed to research using primates.

Table 2. Mean Estimates of Perceived Hostile Media Bias as a Function of News-Article Slant and Group Membership

| | Pro-Research Slant | | | Pro-Animal Rights Slant | | |
|---|-------------------------|---------------------|----------|-------------------------|---------------------|----------|
| | Animal Rights Activists | Primate Researchers | <i>t</i> | Animal Rights Activists | Primate Researchers | <i>t</i> |
| Bias in coverage of primate research | 3.81 (1.71) | 2.45 (1.29) | 3.90*** | -.34 (1.58) | -2.34 (1.33) | 5.83*** |
| Bias in coverage of animal rights activists | -2.95 (1.65) | -.74 (1.19) | -6.65*** | .38 (1.53) | 1.56 (1.70) | -3.19** |
| Bias in coverage of primate-research supporters | 3.49 (1.88) | 1.97 (1.48) | 3.91*** | .18 (1.53) | -1.74 (1.84) | 4.93*** |
| Bias among journalists | 3.64 (1.46) | 1.98 (.30) | 5.15*** | -.24 (1.50) | -1.94 (1.49) | 4.87*** |

NOTE.—Standard deviations are in parentheses.

** $p < .01$.

*** $p < .001$.

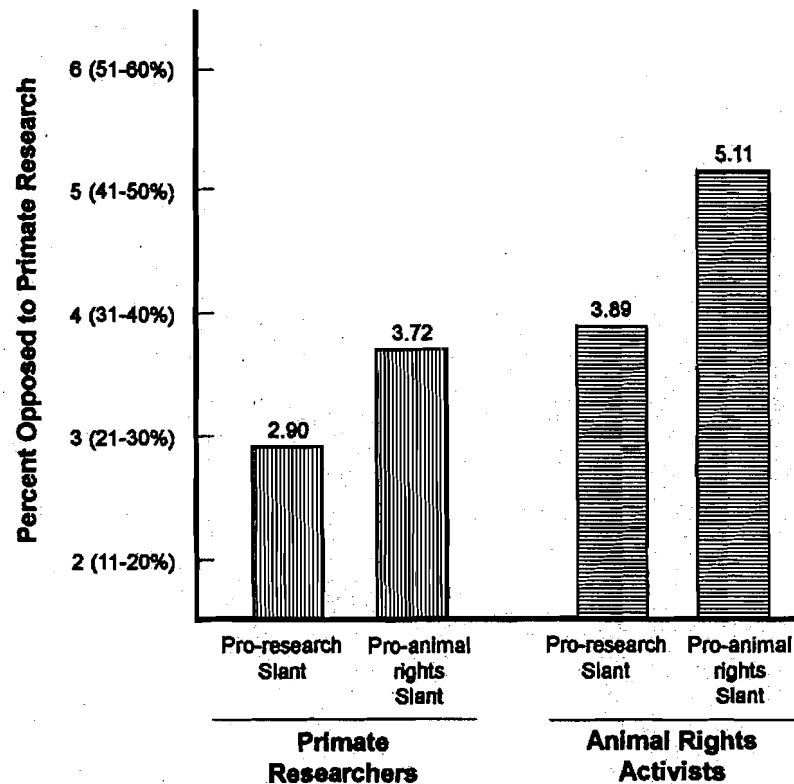


Figure 3. Estimated public opposition to primate research as a function of news-article slant and group membership.

were significantly larger for animal rights activists (41 percent) than for primate researchers (29 percent) ($t(149) = 3.78, p < .001$).

Discussion

The premise of this study was that variation in perceived public opinion could be predicted by the mutual influence of three distinct theoretical models. The fit between theory and observation was a good one, and the results answer a series of questions about underlying processes.

One, do opposing partisans see and evaluate the same news coverage in different ways? The answer in these data is a resounding yes. Participants who were actively involved on one side of the primate-research issue perceived

newspaper articles to be significantly less agreeable, or more hostile, to their own point of view than did those on the other side. The results give an interesting twist to traditional definitions of the hostile media perception, but they are consistent with that hypothesis.

A second important question is whether partisans' perceptions of media bias influence their perceptions of public opinion. Again, the answer in these data is yes. In both groups, participants who saw the news as slanted against the use of primates in laboratory research saw significantly more public opposition to primate research than did those who perceived the stories as slanted in favor of such research. Results also gave some support to previously untested processes that would explain this persuasive press inference: the fact that people appear to extrapolate from a small sample of news stories to news coverage more generally and that the perceived reach of news stories is related to inferences about their persuasive impact.

The findings in this study represent a number of conceptual and theoretical advances in our understanding of attitudes toward news coverage and their perceived influence on the opinions of others. Partisans' evaluations of bias in the news square nicely with past research on the hostile media perception, but they also allow us to take a broader perspective on this phenomenon. In past research, the hostile media effect has been operationalized as two partisan groups who each see media coverage as biased against their own point of view. Since these partisans were evaluating presumably neutral news coverage, the divergent perceptions had an important implication for journalists—that cries of foul play from both sides could be dismissed as the result of a distorted perspective in these partisan audiences.

But the important result from a psychological and public opinion perspective is that the theoretical predictions behind the hostile media perception are the same whether news content is objectively neutral or not. These data indicate that we may expect divergent perceptions from opposing camps no matter how balanced or slanted the news might be. The important difference from traditional definitions is that this is a *relative* hostile media perception. Partisans in both groups may not actually see media coverage as hostile, in an absolute sense, to their own point of view. But partisans in each group will see content as more hostile to, or less agreeable with, their own side of the issue relative to the way the other group sees it.⁸ It is interesting to note that the relative hostile media perception, although it describes contrast rather than assimilation effects, is a conceptual twin to the false consensus effect (Ross,

8. Primate researchers saw the pro-research articles as biased in their favor, while animal rights activists saw the pro-animal rights articles as essentially neutral. Such differences might suggest separate mechanisms leading to hostile media perceptions in these two groups. The data, however, do not allow a clear analysis, since the variations may also stem from differences in the degree of partisanship of group members or from differences in the stimulus articles. This is a question ripe for further research.

Greene, and House 1977), in which each group believes its own view to be relatively more common than other groups see it.

These results illustrate a curious contradiction in social perceptions. While mass media are seen as relatively antagonistic to one's own view, people, by contrast, are perceived as relatively sympathetic. Evidence for the projection bias is found in the fact that partisans on each side of the issue see relatively more public support for their own point of view.

We should note that the projection pattern in these data is more correctly described as a false consensus effect. Projection is often understood to mean that partisans on each side see their own view as the majority view. But, in this study, the collective perception of both groups is that the majority of Americans support the use of primates in laboratory research. Each side, however, also believes that the general public is in relatively greater agreement with its own view: animal rights advocates perceive significantly more opposition than do primate researchers.

However, alongside this false consensus finding is evidence that perceptions of public opinion are also swayed by perceptions of media content. We expected that partisan individuals might have firmly formed impressions of both media coverage and public opinion and thus be unaffected by two sample articles. However, these participants adjusted their assessments of public opinion in predictable directions depending on the slant of media coverage they were exposed to, which lends more support to the persuasive press inference hypothesis.

At first glance, the hostile media perception seems to suggest that partisans will see both news coverage and public opinion as contrary to their own views. However, the data indicate that two factors work against the latter outcome. One is that, as the relative hostile media perception implies, partisans on both sides will often see the news as slanted in one direction. In this study, for example, primate researchers saw the pro-research articles as, indeed, favorable toward research (even though substantially less favorable than the animal rights partisans saw them). The group for whom that is an agreeable slant—primate researchers in this case—is not likely to infer hostile public opinion, in the absolute sense, as a result. The second factor is projection. The structural model suggests that, while perceptions of relatively hostile media content can heighten the perception of disagreeable public opinion, they may not altogether counteract the tendency toward projection. In addition, the structural equations indicate that projection estimates may be, if anything, underestimated by empirical tests that do not account for the mediating effect of disagreeable news coverage.

While these findings clarify the countervailing influences of projection and the hostile media perception on perceived public opinion, they also support some previously untested propositions underlying the persuasive press inference model. For one, the inference that public opinion will be shaped by press coverage may depend in part on extrapolation, the assumption that the news

coverage one is exposed to personally resembles news coverage more generally. The significant relationships between perceived slant of the treatment articles and perceived slant of U.S. media coverage support this notion, suggesting that the law-of-small-numbers bias applies to news coverage just as it does to other kinds of information. Whatever subset of news stories people happen to encounter is likely to influence their impression of the character of most of the news.

A second proposition is the moderating effect of perceived reach, the extent to which the news coverage is perceived as receiving wide exposure. If people are indeed making a news-based inference about public opinion, then greater perceived reach should be associated with greater perceived influence. In the overall picture, this conjecture was supported. Reach was measured only for the stimulus articles in this design, but, in that context, it proved to be a significant contingent condition for the persuasive press inference. Support for the reach hypothesis is additionally meaningful because it offers a rebuttal to the accessibility bias (Iyengar 1990) as a rival explanation for persuasive press inference findings. It is plausible that some people may make a top-of-the-head connection between media content—such as two just-read news articles—and public opinion. But if public opinion judgments resulted from such an accessibility reflex, rather than from an inference based on assumed media influence, then public opinion judgments should be unaffected by differing perceptions of reach. Greater perceived effect of article slant in the high-reach condition reinforces the view that public opinion inferences are drawn, at least in part, from assumed media influence.⁹

Our follow-up analysis found that reach made a difference for only one set of news articles, articles with a pro-animal rights slant. Why we did not find this pattern for the pro-research articles remains a question, but it may be a result of preexisting impressions of general public opinion. The collective perception was that the public is strongly supportive of the use of primates in lab research; people may feel that exposure to additional pro-research articles is unlikely to alter an already positive public opinion.

One final theoretical observation is that the persuasive press inference offers a ready explanation for a relatively understudied aspect of the spiral of silence model. The spiral of silence model proposes that, for individuals, mass media are a major source of information about public opinion. Whether this climate of opinion is seen as agreeable with one's own, in turn, affects an individual's willingness to join in public debate on public issues. It has been suggested that media provide readers or viewers with public opinion cues such as camera angles and "crowd reactions" (Noelle-Neumann 1993, p. 166), but this element

9. While the reach variable seems most plausible to us as a moderating factor, it is theoretically possible that personal opinion might influence the reach-by-slant interaction term. People in the unfavorable-article condition, e.g., may overestimate the exposure of disagreeable news content for some of the same reasons they appear to overestimate influence. We found no evidence for this possibility, but we feel it should not be ignored in future research.

of the spiral of silence theory has not been examined in much detail. If people do indeed infer public opinion from their impressions of the slant of media coverage, then the persuasive press inference may make an important theoretical contribution to the spiral of silence hypothesis.

In addition to theoretical implications, these findings may also have significant practical applications, many of which have yet to be explored. For one, the results of this study might be taken as bad news for journalists, for they affirm the notion that partisans will view the news as at least relatively antagonistic. It seems clear that opposing partisans' judgments of the credibility of news coverage will be significantly different whether or not journalists try to maintain the appearance of objectivity. Thus, media efforts to accommodate predictable partisan complaints may be misguided. Consequences for partisan audiences can also be dysfunctional if they increasingly reject useful news content rather than giving it reasonable consideration.

Again, it is important to point out that news stories used as stimuli in this experiment were the bona fide article, taken from mainstream news coverage of the primate-research issue. Mass-media professionals might justifiably argue that these articles, like many others, are genuinely objective reports where the weight of facts happens to come down on one side of the story. But it is clear that a partisan audience sees them differently. Partisans attribute a genuine bias not only to the stories themselves (a perception that could result from the de facto emphasis noted above) but also to the motives of journalists responsible for these stories.

A major strength of these data is in the experimental design, which provides internal validity for testing both the relative hostile media perception and the persuasive press inference. And while it is true that we cannot generalize these results to large populations, the design does contain some significant advantages over traditional laboratory experiments. One is that the treatment stimuli were actual news articles and thus reflect real-world media content. A second advantage is that the participants in this experiment came from actual partisan groups, with the concomitant level of involvement that goes with active or even passionate engagement in an issue.

The use of preexisting partisan groups also puts this research design into the field experiment category, with the lack of random assignment that is an inherent liability in such cases. However, a number of factors compensate for this shortcoming. One is that these are naturally occurring groups, as they are in all instances of the relative hostile media perception, and group differences are unavoidable. A second is that accumulating replications of the relative hostile media perception reinforce the causal argument insofar as they study different and diverse groups and thus increasingly control for potentially confounding factors. A third source of reassurance is that this design allowed us to control for some of these demographic differences directly. We found that the two partisan groups did not differ significantly with respect to age, gender, or household income, although primate researchers predictably reported a

higher education level than did animal rights activists. More important, however, we observed no changes in perceptions of media bias when education was included as a covariate.

It is also important to note that, of the last two hypotheses we tested, only the extrapolation analysis incorporated time order. Our analysis of the reach hypothesis relied on small-sample correlations. This leaves open the question of causal order in the case of reach, but it also suggests that the mixed support for that hypothesis may stem from limited statistical power.

Finally, while we expected that partisans' perceptions of actual bias in U.S. media coverage generally might be a more robust predictor of the persuasive press inference than the slant of two news articles in an experiment packet, we could not completely disentangle the treatment effects from this variable. Distinguishing these two factors, as well as the theoretical implications of each, may be a productive angle to take in future designs.

The results suggest a number of other avenues for further research. The relative hostile media perception, a new conceptualization in this study, provides more diverse and manageable ways to study partisans' curious tendency to see news coverage as relatively biased. Questions about the involvement threshold necessary to invoke this perception could be answered by studies employing a more complete range of the involvement continuum. Many questions also remain about the consequences of the relative hostile media perception, including which involvement factors influence the relative magnitude of both projection and the relative hostile media perception.

These data give us a detailed look at an important interaction between mass media and public opinion that has not received much attention in our research traditions. For most public issues, except for prominent topics for which there are published poll results, media contain little information that might directly inform people about the climate of opinion. What we have observed here, however, is that media can indirectly influence impressions of what others are thinking. While media are not, for the most part, reporting on public opinion directly, they are giving the audience grist for inferences about public opinion via news coverage and, especially, the apparent slant of that news coverage.

These inferences about public opinion are susceptible to error in a number of ways. First, the slant of news coverage itself may diverge so much from actual opinion that the persuasive press inference will lead to erroneous judgments. Second, any individual's sample of news may not be representative of the news in general, providing a false basis for inferences about public opinion. Third, as we have seen here, perceptions of news slant may themselves be biased, leading to corresponding misjudgments about the opinions of others.

However, potential misjudgments should not obscure the essential nature of the persuasive press inference. This hypothesis simply proposes an influence of mass media via audience assumptions that news coverage will have some significant effect on the opinions of others. In fact, these assumptions about

public opinion may be quite correct, either because media coverage of an issue correctly corresponds to public opinion on that issue or because such news coverage does indeed influence the opinions of others.

We cannot be certain how often these public opinion judgments may be right or wrong. What does seem certain is that people who are highly involved in a controversial issue will find media coverage of that issue to be relatively disagreeable. As a result, such partisans will see public opinion on that issue as more contrary to, or at least less compatible with, their own opinions.

Appendix

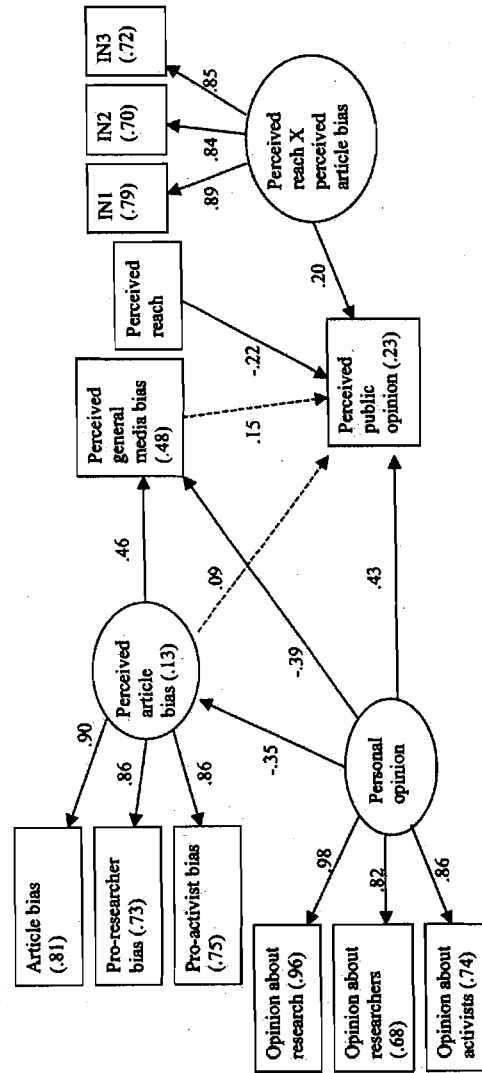


Figure A1. Full measurement model. The coefficients are standardized. All solid-line arrows are significant at $p < .05$ or better. R^2 values are reported in parentheses. $\chi^2 = 58.94$, $df = 47$, $p = .11$, RMSEA = .041, GFI = .94, NNFI = .98.

References

- Baron, R. M., and D. A. Kenny. 1986. "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic and Statistical Considerations." *Journal of Personality and Social Psychology* 51(86):1173-82.
- Christen, C. T., P. Kannaovakun, and A. C. Gunther. 1998. "Partisan Perceptions of Public Opinion: An Extension of the Hostile Media Effect." Paper presented to the American Association for Public Opinion Research, St. Louis, MO, May.
- Dalton, R. M., P. A. Beck, and R. Huckfeldt. 1998. "Partisan Cues and the Media: Information Flows in the 1992 Presidential Election." *American Political Science Review* 92:111-26.
- Fabrigar, L. R., and J. A. Krosnick. 1995. "Attitude Importance and the False Consensus Effect." *Personality and Social Psychology Bulletin* 21(5):468-79.
- Fields, J., and H. Schuman. 1976. "Public Beliefs about the Beliefs of the Public." *Public Opinion Quarterly* 40:427-48.
- Giner-Sorolla, R., and S. Chaiken. 1994. "The Causes of Hostile Media Judgments." *Journal of Experimental Social Psychology* 30:165-80.
- Gunther, A. C. 1992. "Biased Press or Biased Public? Attitudes toward Media Coverage of Social Groups." *Public Opinion Quarterly* 56:147-67.
- . 1998. "The Persuasive Press Inference: Effects of Mass Media on Perceived Public Opinion." *Communication Research* 25(5):486-504.
- Gunther, A. C., and C. T. Christen. 1999. "Effects of News Slant and Base Rate Information on Public Opinion Inferences." *Journalism and Mass Communication Quarterly* 76(2):277-92.
- . In press. "Projection or Persuasive Press? Contrary Effects of Personal Opinion and Perceived News Coverage on Estimates of Public Opinion." *Journal of Communication*.
- Hu, L., and Bentler, P. M. 1995. "Evaluating Model Fit." In *Structural Equation Modeling: Concepts, Issues, and Applications*, ed. Rick H. Hoyle, pp. 76-99. Thousand Oaks, CA: Sage.
- Iyengar, S. 1990. "The Accessibility Bias in Politics: Television News and Public Opinion." *International Journal of Public Opinion Research* 2(1):1-15.
- Kenny, D., and C. Judd. 1984. "Estimating the Nonlinear and Interactive Effects of Latent Variables." *Psychological Bulletin* 96(1):201-10.
- Marks, G., and N. Miller. 1987. "Ten Years of Research on the False-Consensus Effect: An Empirical and Theoretical Review." *Psychological Bulletin* 107(1):72-90.
- Maruyama, G. M. 1998. *Basics of Structural Equation Modeling*. Thousand Oaks, CA: Sage.
- Mutz, D. C., and J. Soss. 1997. "Reading Public Opinion: The Influence of News Coverage on Perceptions of Public Sentiment." *Public Opinion Quarterly* 61:431-51.
- Neale, M. 1998. "Modeling Interaction and Nonlinear Effects with Mx: A General Approach." In *Interaction and Nonlinear Effects in Structural Equation Modeling*, ed. R. E. Schumacker and G. A. Marcoulides, pp. 43-61. Mahwah, NJ: Erlbaum.
- Noelle-Neumann, E. 1993. *The Spiral of Silence: Public Opinion: Our Social Skin*. 2d ed. Chicago: University of Chicago Press.
- Perloff, R. M. 1989. "Ego-Involvement and the Third Person Effect of Televised News Coverage." *Communication Research* 16(2):236-62.
- Ross, L., D. Green, and P. House. 1977. "The 'False Consensus Effect': An Egocentric Bias in Social Perception and Attribution Processes." *Journal of Experimental Social Psychology* 13: 279-301.
- Tversky, A., and D. Kahneman. 1971. "Belief in the Law of Small Numbers." *Psychological Bulletin* 76:105-10.
- Vallone, R., L. Ross, and M. Lepper. 1985. "The Hostile Media Phenomenon: Biased Perception of Media Bias in Coverage of the Beirut Massacre." *Journal of Personality and Social Psychology* 49(3):577-85.