Routledge
Taylor & Francis Group

Toll Booths on the Information Superhighway? Policy Metaphors in the Case of Net Neutrality

TODD K. HARTMAN

Scholars have argued for centuries that metaphors are persuasive in politics, yet scant experimental research exists to validate these assertions. Two experiments about the issue of federally regulating the Internet were conducted to test whether metaphors confer a unique persuasive advantage relative to conventional messages. The results of these studies confirm that an apt metaphor can be a powerful tool of persuasion. Moreover, the evidence suggests that metaphor-induced persuasion works particularly well for politically unsophisticated citizens by increasing assessments of message quality. Ultimately, this research concerns how individuals make sense of politics and how policymakers can use what we know about human cognition to convey their platforms to the general public.

Keywords metaphor, persuasion, policy, net neutrality, experiment

One can resist the invasion of an army, but one cannot resist the invasion of ideas.—Victor Hugo, *Histoire d'un crime*

These days Americans seem more interested in the latest celebrity breakup than the implications of government policy. Even those individuals who are sufficiently motivated to pay attention to politics have busy lives and perforce cannot allocate the cognitive energy necessary to make fully informed decisions. To navigate the constant stream of political information, citizens must strike a balance between adopting strategies that will minimize effort yet obtain a desirable outcome (Fiske & Taylor, 1991). Dual process theorists call this a tradeoff between being "economy-minded" while simultaneously being "accuracy-minded" (Chaiken, Liberman, & Eagly, 1989; Eagly & Chaiken 1993; see also Petty & Cacioppo, 1981, 1986). A central question for scholars of political communication is what type of policy information will resonate with average Americans, given what we know about their limited motivation and capacity to process information about politics (e.g., see Delli Carpini & Keeter, 1996).

To address this question, scholars have posited various theories that might explain how individuals overcome the high demand on their cognitive resources when evaluating politics. For instance, there is compelling evidence that citizens can and will rely upon judgemental shortcuts, or heuristics, to form their policy preferences (Popkin, 1991;

Sniderman, Brody, & Tetlock, 1991). Messages that contain low-effort cues such as party identification (Kam, 2005; Rahn, 1993), references to elites (Mondak, 1993) or interest group endorsements (Lupia, 1994) have been shown to guide individuals' political evaluations. Other scholars find that frames—central organizing ideas or story lines—can help citizens interpret and understand the core aspects of an issue (Berinsky & Kinder, 2006; Chong, Druckman, 2007a; Gamson & Modigliani, 1987; Nelson, Clawson, & Oxley, 1997). Framing effects have been demonstrated for a wide array of issues such as civil liberties (Nelson et al., 1997), welfare (Kinder & Sanders, 1996), and gay rights (Brewer, 2002). These theories have helped us identify some of the ways that average citizens use information to make their policy decisions.

Another approach worthy of exploration is the study of what Schlesinger and Lau (2000; see also Lakoff, 1996; Lau & Schlesinger, 2005; Schon, 1979) call "policy metaphors," which elicit comparisons between political issues and familiar, non-political domains of experience. Gentner (1983; see also Gentner, 1982; Gentner & Markman, 1997) explains that metaphor-induced inferences are driven by "structure-mapping," in which relational similarities are highlighted between source and target concepts.[1] In other words, metaphors imply a *system of relations*, which should affect how individuals think and reason about politics. As Pinker notes: "Metaphors are not just literary garnishes but aids to reason . . . [they] can power sophisticated inferences" (2007, p. 253).

The key for those studying political communication is that apt policy metaphors capture the essence of a lengthy political debate and present this information in a succinct, yet novel format. As a result, policy metaphors should be able to sway public opinion, particularly for matters that are complex, or what Carmines and Stimson (1980) call "hard" issues (e.g., those that are technical, means-oriented, or unfamiliar). To the extent that they can take difficult issues and make them easier to comprehend, policy metaphors should also be especially effective for unsophisticated citizens in society, since they have much to gain from these metaphor-induced comparisons. In the following sections, I discuss existing research concerning the functions of metaphors and their role in attitude formation and change. In addition, I present the results from two experiments in which I attempt to parse out the distinct persuasive effects of a message with a policy metaphor relative to one without it.

The Functions of Metaphors

A review of the literature concerning metaphors and their usage reveals that they serve several cognitive, affective, and communicative functions. First, as mentioned above, metaphors are frequently used to explain abstract or complex concepts, or what Fainsilber and Ortony (1987) call "inexpressibility." Consider how we might use metaphors to take a complicated concept like the meaning of life and relate it to a more common, everyday experience. For example, the metaphor *life is a journey* suggests that in life we often travel from place to place, meet new people, and explore the world around us. This is, of course, only one of many ways of thinking about life. Others may conceive of it with the metaphor *life is a roller coaster*, in which the source, roller coaster, implies that life may be both exhilarating and frightening and that we often experience many "ups" and "downs"—metaphors for positive and negative experiences—before coming to an end. Or, perhaps *life is a jungle*, in which people struggle to survive in a dangerous world. No matter how people choose to conceptualize the meaning of life, these examples underscore the

ways that metaphors can help explain abstract concepts and convey the vividness of that experience in more concrete and familiar terms.

Second, metaphors offer the speaker a succinct and efficient way of communicating ideas (Fainsilber & Ortony, 1987). For example, a simple statement like "the room is small" communicates a single piece of information about the subject of this sentence. By simply replacing the adjective "small" with a noun like "dungeon," we have, in effect, created a metaphor. Now the sentence "the room is a dungeon" conveys multiple pieces of information, or what Miller (1956; see also Simon, 1974) calls "chunks" of information. Thus, we not only learn that the room is small from the source (dungeon) but also that it is dark, dank, confining, and should be perceived negatively. The efficiency gained from the use of metaphors could be quite useful for political communication.

Third, metaphors often function as organizational frameworks to interpret incoming information and facilitate its recall from memory (Allbritton, 1995; Belt, 2003; Gentner, 1982; Lau & Schlesinger, 2005; Mio & Lovrich, 1998; Mio, Thompson, & Givens, 1993; Read, Cesa, Jones, & Collins, 1990; Robins & Mayer, 2000; Schlesinger & Lau, 2000). As Gentner (1983) notes, metaphors imply a system of relations that helps people understand how different pieces of information fit together. For instance, the metaphor *war on drugs* tells us that those involved in the sale of drugs are the "enemy," and that they should be "fought" aggressively in "battles" that can be won or lost. The ultimate goal of this metaphorical war is "victory," in which the supply of drugs is to be completely "annihilated."[2] Essentially, this metaphor maps a familiar framework (i.e., "war") onto the social problem of drugs, and in doing so, helps people understand how various pieces of information about the issue fit together.

Fourth, metaphors can be used to evoke or intensify emotions (Belt, 2003; Blanchette & Dunbar, 2001; Gibbs, 2002; Read et al., 1990; Thagard & Shelley, 2001), which has long been exploited by skilled writers and rhetoricians. Consider this example from Martin Luther King, Jr.'s, impassioned "I Have a Dream" speech:

> Now is the time to *rise from the dark and desolate valley of segregation* to the *sunlit path of racial justice;* now is the time to *lift our nation from the quicksands of racial injustice* to the *solid rock of brotherhood;* now is the time to *make justice a reality* for all God's children. (August 28, 1963)

Here, King invokes source domains that have strong affective implications (e.g., "dark" and "quicksand" are prototypically negative; "rise," "sunlit," and "lift" have positive connotations). One clear advantage of using affective metaphors is that a growing body of research demonstrates that emotion is central to decision making and behavior (e.g., see Marcus, 2000). Moreover, affect has been shown to operate through dual routes to persuasion (Petty & Wegener, 1999), functioning heuristically in some instances (Slovic, Finucane, Peters, & MacGregor, 2007) and systematically in others (Marcus, Neuman, & MacKuen, 2000).

And finally, metaphors that consist of novel juxtapositions and vivid language tend to stand out in verbal and written communications. As a result, these metaphors draw attention to the message and its contents, increasing the likelihood that they will influence attitudes as well as ratings of the speaker and message itself (e.g., see Ottati, Rhoads, & Graesser, 1999; Read et al., 1990). This is no small feat, as speakers often vie for the public's attention in this age of information overload.[3]

Metaphors and Political Persuasion

There is some evidence that exposure to a metaphor can affect political attitudes. For instance, Lau and Schlesinger (2005) find that policy metaphors related to former President Clinton's health care plan significantly influenced public support for health-related issues (i.e., treating substance abuse and providing long-term care to the disabled and elderly) and even affected two unrelated social domains (i.e., affordable housing and public education). Similarly, Robins and Mayer (2000) demonstrated that exposure to a short vignette about international trade—either invoking the metaphor *trade is war* or *trade is a two-way street*—persuaded subjects to support the metaphor-consistent policy solution. And Bosman (1987) showed that attitudes toward right-wing Dutch political parties were influenced by exposing subjects to passages containing different metaphors (e.g., "we have to pull off this party's mask").

One major limitation of these studies is that they do not directly address the question of whether "it is the distinctively metaphorical aspects of understanding that shape policy attitudes, as opposed to more general framing effects" (Lau & Schlesinger, 2005, p. 106). As subjects were only exposed to messages with competing metaphors (and not similarly worded, but non-metaphorical control conditions), it is impossible to test whether metaphors provided any persuasive advantage over standard language. As a result, one could argue that the policy metaphors used by Lau and Schlesinger (2005), Robins and Mayer (2000), and Bosman (1987) are simply cognitive schemas or frames that have been studied extensively in psychology (e.g., see Fiske & Taylor, 1991).

There are, however, a few studies that pit metaphorical messages against literal comparison statements. For instance, Bosman and Hagendoorn (1991) measured attitudes toward an extreme Dutch political party after exposing some subjects to a passage containing metaphorical messages (e.g., "the Center Party is the fruit born of an ill society" compared to others who read literal counterparts such as "the Center Party was caused by a malfunctioning society"). Yet, Bosman and Hagendoorn find no support for the persuasiveness of metaphor relative to conventional language; instead, they report directional evidence that metaphors were less persuasive than literally worded passages. But we should interpret these findings with caution, since they concern attitudes toward a political party, rather than a specific issue. One could make the case that a party is a relatively easy object to evaluate—it is familiar and non-technical to use Carmines and Stimson's (1980) issue-difficulty criteria. In this case, it is likely that subjects already have knowledge of and strong attitudes toward the pro-Nazi party used in this study. Consequently, this might explain why the metaphor did not shift subjects' attitudes relative to those in the literal control condition.

Unlike Bosman and Hagendoorn, Bowers and Osborn (1966) find support for the supremacy of metaphor over conventional language. In one of the earliest recorded experimental studies of metaphor-based persuasion, they had subjects listen to a speech that either concluded with a metaphor or literal passage and then report their attitudes toward two political issues. One speech provided an argument against special interest groups' desire to impose protective tariffs by invoking various metaphors related to the domain of sex (e.g., "rape of Western economies," "prostituted our own interests," and "economic abortion"). The other speech opposing government aid to needy students instantiated death metaphors like "slowly strangle our own individuality," "death of freedom," and "gentle murder of our values." Bowers and Osborn demonstrate that subjects exposed to these policy metaphors experienced significantly greater attitude change than those subjects exposed to literal versions of the same speeches.

To reconcile these findings, Sopory and Dillard (2002) conducted a meta-analysis of 12 published articles[4] with designs that contained a wide array of metaphors, attitude objects, and experimental manipulations (it should be noted that few of the studies actually concerned political attitudes). They report a small but significant mean effect size for the hypothesis that metaphors are more persuasive than comparable literal statements ($r = .07$; $N = 2,344$; $k = 16$ studies).[5] Sopory and Dillard also note that the effect size of metaphorical persuasion could be as large as $r = .42$ under optimal settings (based upon the novelty of the metaphor, its location in the message, and the familiarity of the target object).

These studies are encouraging and suggest that it is essential to carefully control wording between metaphor and control conditions to parse out the unique effects attributable only to the policy metaphor. With such a design, I should be able to contribute to the current debate and test my key hypothesis. *I expect a persuasive message with a policy metaphor should produce greater attitude change than the same message with a similarly worded literal statement.*

In addition, I propose a more nuanced hypothesis concerning *which* citizens will likely benefit from an apt policy metaphor. Attitude theorists dating back to McGuire (1968, 1985) have considered message comprehension as a crucial component of persuasion. In a number of studies, scholars have shown that people are unlikely to change their attitudes when they have difficulty comprehending the arguments contained within a persuasive message. One important determinant of message comprehension is issue difficulty—that is, how "easy" or "hard" an issue is to grasp (Carmines & Stimson, 1980). Easy issues tend to be symbolic, outcome-oriented, or familiar; thus, they should require less conceptual sophistication to comprehend than hard issues that tend to be technical, means-oriented, or unfamiliar.

When an issue is relatively easy to comprehend, citizens at all levels of political sophistication should understand the key arguments contained within a persuasive message, regardless of whether that message invokes a policy metaphor. For hard issues, however, citizens at low to moderate levels of political sophistication should have difficulty grasping conventional (i.e., literal) arguments without the aid of a policy metaphor and thus remain unpersuaded by the message. In this case, an apt policy metaphor should help these citizens comprehend and process information contained within a persuasive message, thereby producing attitude change. Of course, citizens who are politically sophisticated should be able to understand even the most difficult issue arguments; therefore, they should not need the policy metaphor to inform their issue attitudes. In other words, *I expect political sophistication to moderate the effects of a policy metaphor on political attitudes for "hard" issues, such that the difference in persuasion between metaphor and control conditions is greatest for unsophisticated citizens.*

Unfortunately, there is little consensus from existing empirical research concerning my political sophistication hypothesis. For instance, Johnson and Taylor (1981) discovered that only politically sophisticated subjects were influenced by metaphors. They argue that one explanation is that only sophisticated subjects have the ability to integrate new information from the metaphor into their existing knowledge structures. Yet, Robins and Mayer (2000) demonstrate just the opposite, namely that persuasion occurs only for the least knowledgeable subjects because they have the most to gain from the novel connections created by the metaphor. And Lau and Schlesinger (2005; see also Schlesinger & Lau, 2000) find that the effects of the health-related metaphor held for citizens at all levels of political knowledge, suggesting that metaphors may provide enough novel insight into a problem to benefit political sophisticates as well as the average, low-information citizen.

One potential mechanism through which metaphors may operate is message quality. Because they can explain abstract concepts in more familiar terms and experiences, metaphors should be judged as making qualitatively better arguments than their literal counterparts. This is important, since Lavine and Snyder (1996; see also Lavine et al., 1999; Read et al., 1990) have shown that subjective ratings of message quality represent one mediator of message type on political attitudes. Thus, *I hypothesize that policy metaphors should increase perceptions of message quality, which in turn facilitate attitude change.* Of course, this is only one of several potential mechanisms facilitating political persuasion. For instance, Schlesinger and Lau (2000) argue that metaphors may evoke emotional responses in individuals, which then can be used as a likeability heuristic (Sniderman et al., 1991) among those lacking political sophistication.

Study 1

Subjects read an article about the issue of network (net) neutrality, which concerns how information is priced and transmitted over the Internet. As Web companies have begun offering higher quality audio, video, and voice data, broadband service providers have responded to the increased demand by lobbying Congress for permission to establish a tiered system of content delivery. Their plan involves charging consumers a premium to ensure that only data that are paid for are transmitted at the highest possible speed to offset the increased costs associated with this data-intensive information. Proponents of net neutrality argue that this tiered system violates the "neutrality" principle of the Internet—that is, the principle that the Internet was originally created to treat all data packets equally, regardless of their type. They want Congress to pass legislation that would prohibit broadband carriers from using their market power to discriminate against competing applications or content. Opponents argue that broadband service providers have every right to impose new fees to pay for the maintenance and expansion of their high-speed networks.

I chose the issue of net neutrality for a few important reasons. First, net neutrality is a real political issue, the debate of which has generated huge lobbying efforts, pitting large broadband service providers like AT&T, Verizon, and AOL Time Warner against Web giants like Google, Yahoo!, and Microsoft. In addition, parties on both sides of the issue have invoked a number of different metaphors to sell their position to the public. The fact that this is a real issue debated before Congress helps to increase external validity. As Bill Moyers notes: "The debate is hot, the language heady, the metaphors many."

Second, despite receiving a great deal of media attention, as well as concerted grassroots efforts to publicize the issue (e.g., the "Save the Internet" campaign), net neutrality remains largely unknown to the general public. In 2006, a nationally representative survey of 800 American adults revealed that only 7% of respondents had ever heard or seen anything about the issue.[6] The unfamiliarity of net neutrality seems to satisfy one criterion of a "hard" issue according to Carmines and Stimson (1980).

Finally, net neutrality is somewhat complicated because it involves understanding how telecommunications are structured in this country. In addition, citizens have to reconcile the role that the federal government might play in regulating the Internet. As Peha, Lehr, and Wilkie (2007) note: "The technical complexity of controversies like network neutrality make it difficult for policymakers to define and frame the issue, much less identify an appropriate solution that reconciles the conflicting interests" (p. 710).

Of course, one major drawback of using this issue is that the ultimate decision is a binary choice—that is, individuals either support or oppose net neutrality legislation. A simple decision in this case reduces the demand on individuals' cognitive resources.

One can imagine that policy areas like health care or education would greatly increase the cognitive complexity facing citizens because of the need to keep track of and understand multiple, competing proposals. For such issues, individuals—especially those lacking political sophistication—would be forced to find ways to reduce the heavy cognitive burden of making decisions. Yet, given its technical and unfamiliar nature, net neutrality should still put it closer to the "hard" end of the issue difficulty spectrum, which presents a unique opportunity to test the persuasive effects of metaphors in a real policy debate.

Data

A total of 131 undergraduates enrolled in an introductory political science course at Stony Brook University completed this study for extra credit during the spring of 2008. Fifty-two percent of the subjects were male, and 53% identified their ethnicity as "White," 31% as "Asian," 10% as "Latino," and 6% as "African American." Forty-one percent of the subjects identified themselves as Democrats, 20% as Republican, 31% as Independent, and 8% as other affiliations. Using a 7-point measure of ideological orientation reveals that 50% of the sample holds liberal views, 27% moderate views, and 23% conservative views. Eighty-eight percent of the subjects reported never having heard of network neutrality, and of those who had heard about it, only 12% reported that they were "very knowledgeable" about the issue, which again suggests that this issue fulfills Carmines and Stimson's (1980) definition of a "hard" issue.

Experimental Manipulation

Subjects were asked to read a one-page article about net neutrality. The first three paragraphs explained the current debate surrounding the issue (see appendix for the exact wording), while the last paragraph contained the experimental manipulation. Subjects were exposed to either a concluding passage that contained a policy metaphor ($n = 63$) or a non-metaphorical (literal) equivalent message ($n = 68$) in support of net neutrality. The metaphor condition (72 words) invoked a toll booth metaphor (identified in italics) and read as follows:

> Congressman Alan Davidson, who specializes in technology issues, supports Network Neutrality legislation. He recently told reporters: "Telecoms want to set up *toll booths* on the Internet to stand between content providers and their customers. Network Neutrality would prevent this from happening. It would ensure that we don't have a system where some companies have access to an *express lane*, while the rest are stuck *waiting in line at the toll booth*."

The toll booth metaphor was chosen for several important reasons. First, toll booths are generally familiar and activate negative associations for those who have experienced them. Second, the toll booth metaphor maps well onto the existing metaphor of the *Internet as an information superhighway*. And finally, this policy metaphor has actually been used by net neutrality advocates (e.g., see "Save the Internet"; see also Moyers, 2011), which bolsters the external validity of this experiment.

The literal message (64 words) used similar language without invoking a toll booth metaphor (differences between conditions are identified in italics):

> Congressman Alan Davidson, who specializes in technology issues, supports
> Network Neutrality legislation. He recently told reporters: "Telecoms want to
> *charge fees* on the Internet to *connect* content providers *to* their customers.
> Network Neutrality would prevent this from happening. It would ensure that
> we don't have a system where some companies have access to *fast services*,
> while the rest are *left with slower connections*."

In this equivalent (non-metaphorical) message, the speaker argues that network neutrality
would prevent telecoms from imposing special fees on the Internet and protect users from
a two-tiered system. Note again that the only discernible difference between the two condi-
tions is that the equivalent message does not invoke the policy metaphor. The experimental
manipulation is dummy coded for the analyses so that a value of 1 represents exposure to
the policy metaphor and 0 means exposure to the literal equivalent.

Measures

Policy Attitude. The primary dependent variable is a four- item semantic differential scale
that was created to gauge subjects' attitudes toward net neutrality. Subjects were asked:
"How favorable or unfavorable do you feel toward Network Neutrality legislation?" The
three remaining scale items were anchored by the following endpoints: "very good idea–
very bad idea," "very necessary–very unnecessary," and "very positive–very negative."
Each item was measured on a 9-point scale, which created a composite index that could
range from 4 (very negative attitudes toward network neutrality) to 36 (very positive
attitudes). The resulting variable was then rescaled from 0 to 1 ($\alpha = 0.93$, $M = 0.58$,
$SD = 0.23$).

Political Sophistication. Political sophistication was measured using eight general knowl-
edge questions about politics.[7] The eight-item political sophistication measure ($KR\text{-}20 =$
0.71, $M = 0.62$, $SD = 0.26$) was recoded from 0 to 1 and mean-centered.

Control Variables. Respondents who are knowledgeable about the issue or computers may
hold different attitudes toward net neutrality than their less technologically savvy counter-
parts. Issue familiarity is dummy coded so that respondents who reported ever having heard
of the issue receive a value of 1, while the rest serve as the reference group. Level of com-
puter expertise (1 = expert, 0 = beginner) and interest in computers (1 = very interested,
0 = not at all interested) are 4-point measures, recoded from 0 to 1 and mean-centered.
Party identification and ideological orientation are also included in the analyses, as one
would expect Republicans and conservatives to oppose net neutrality because this legisla-
tion essentially calls for greater government oversight and regulation. Party identification
is the standard 7-point measure used by the ANES, recoded to a 0 to 1 scale (1 = strong
Democrats, 0 = strong Republicans) and mean-centered. Similarly, ideological orientation
is the 7-point ANES measure, recoded from 0 to 1 (1 = very liberal, 0 = very conservative)
and mean-centered. Gender is coded as a dummy variable, where males serve as the ref-
erence category. Finally, the ethnic diversity of subjects allows us to include an additional
control for race, which is dummy coded so that Whites serve as the reference category.

Results

To test whether a message with a policy metaphor is more persuasive than one with a
literal statement, I regressed policy attitudes toward net neutrality on the experimental

Table 1
Study 1 regression results

Variable	Model I	Model II
Experimental condition	0.004	0.006
	(0.041)	(0.040)
Political sophistication	0.128	0.264*
	(0.085)	(0.105)
Condition × Sophistication	—	−0.333*
		(0.156)
Issue familiarity	0.111	0.113†
	(0.068)	(0.067)
Computer expertise	−0.057	−0.064
	(0.088)	(0.087)
Computer interest	0.191*	0.188*
	(0.083)	(0.082)
Party ID	0.155†	0.185†
	(0.092)	(0.091)
Ideology	0.011	−0.011
	(0.113)	(0.112)
Female	0.029	0.028
	(0.046)	(0.045)
Non-White	−0.075†	−0.078†
	(0.044)	(0.044)
Intercept	0.592**	0.595**
	(0.039)	(0.038)
R^2	.14	.17
Adjusted R^2	.07	.10
N	129	129

Note. The dependent variable is support for network neutrality. "Experimental condition" is dummy coded, where 1 = exposure to the metaphor and 0 = exposure to the literal equivalent. All variables range from 0 to 1. Standard errors are in parentheses.
†$p < .10$; *$p < .05$; **$p < .01$.

manipulation variable, as well as political sophistication and the control variables described above. Looking at Model I in Table 1, we see that there is a significant main effect for interest in computers, such that moving from the lowest to highest level of interest increases support for network neutrality by 19% of the scale. In addition, there are marginally significant effects for party identification, for which moving from strong Republican to Democrat increases support by 16% of the scale, and race, which decreases support by 8% of the scale for non-Whites. Contrary to my first hypothesis, there is no main effect for the experimental condition, $\beta = 0.004$, $SE = 0.041$, *ns*, which means that exposure to a policy metaphor did not cause greater attitude change relative to the literal message.

Recall, however, that I also hypothesized that political sophistication may moderate the effects of the metaphor on policy attitudes for hard issues like net neutrality. I suggested that unsophisticated citizens may have difficulty understanding complicated issues and would benefit from the novel connections made by a metaphor. By implication, political sophisticates should have the ability to comprehend the conventional

(i.e., non-metaphorical) persuasive appeal; thus, they would be persuaded to support the issue whether it was couched in metaphorical or literal language.

To test this moderation hypothesis, I added an interaction term to the model between the experimental condition and political sophistication. Turning to Model II (Table 1), we first see that there is significant main effect for political sophistication, $\beta = 0.264$, $SE = 0.105$, $p < .05$. More importantly, I find support for the moderation hypothesis with a significant two-way interaction between the experimental condition and political sophistication, $\beta = -0.333$, $SE = 0.156$, $p < .05$.

One way to explicate these results is to watch how the coefficient for the experimental treatment variable changes when the model is reestimated, centering sophistication at low, moderate, and high levels (Jaccard & Turrisi, 2003). Because the experimental condition variable is a dummy variable, we can interpret its coefficient as a mean difference—that is, policy attitudes for the metaphor minus literal message condition at different levels of sophistication (when all other variables in the model are 0, which is their mean or reference category). At the lowest levels of sophistication, the coefficient for the experimental condition variable is $\beta = 0.211$, $SE = 0.106$, $p < .05$, which means that exposure to the metaphor (relative to the literal equivalent) increases support by 21% of the scale. At mean levels of sophistication, however, the coefficient for the experimental condition is essentially zero, $\beta = 0.006$, $SE = 0.040$, *ns*, which means that there is no persuasive advantage of using the metaphor. And, at the highest levels of sophistication, the coefficient reverses and is marginally significant, $\beta = -0.121$, $SE = 0.071$, $p < .10$, which suggests that exposure to the literal—not metaphor-based—message increases support by 12% of the scale.

Figure 1 shows predicted policy support and provides a clear picture of the effects of the metaphor at different levels of sophistication.[8] Essentially, it looks as though the policy metaphor has a relatively consistent effect on political attitudes for individuals at all levels
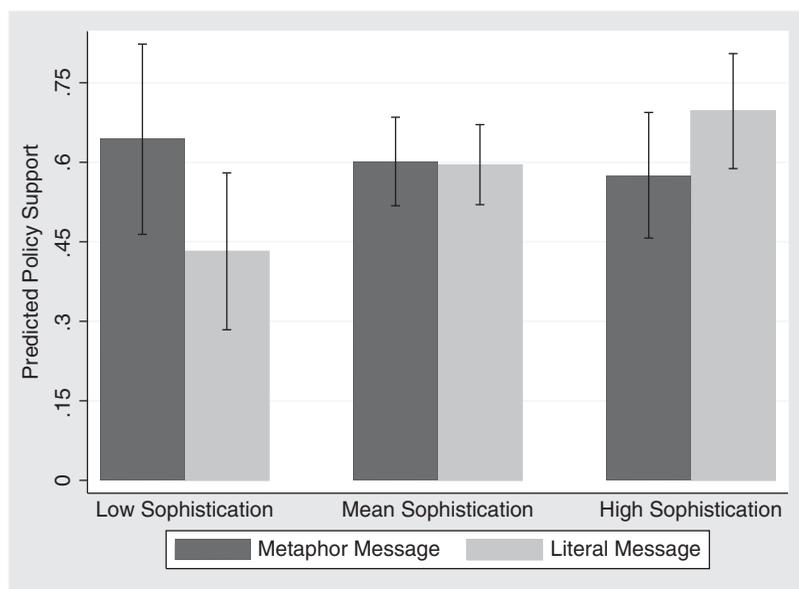

Figure 1. Study 1 predicted levels of policy support, by condition and sophistication. $N = 129$. Predicted values were calculated by holding control variables constant at 0 (i.e., each variable's mean value or reference category).

of sophistication—that is, predicted levels of support for the policy hover around 0.60 ($\hat{y} = 0.64$, $\hat{y} = 0.60$, and $\hat{y} = 0.57$ for low, mean, and high sophistication, respectively). This finding is consistent with Lau and Schlesinger's (2005) previous research on policy metaphors. What varies wildly, however, is predicted support for those exposed to the conventional message—policy support ranges from 0.43 for unsophisticated citizens to 0.70 for political sophisticates. These results suggest that the metaphor-based persuasive appeal has its greatest benefit for unsophisticated citizens, increasing their support of net neutrality by nearly 50% relative to the conventional message.

Discussion

The results of this study are an important first step to demonstrate that a policy metaphor confers a distinct persuasive advantage relative to a comparable literal statement. I find that politically unsophisticated citizens are significantly more likely to support the policy after exposure to a metaphor compared to a literal equivalent. This finding is quite encouraging, given that other theories of how average citizens make sense of politics often find that it is the most sophisticated individuals who are able to correctly utilize heuristics (Lau & Redlawsk, 2001) or frames (Chong & Druckman, 2007b).

In addition, it is worth considering why political sophisticates in the sample appear to be more persuaded by the literal message than the one containing the policy metaphor. One explanation is that the toll booth metaphor that I chose did not fit well with the way more sophisticated individuals would naturally conceive of the issue (Dunbar, 2001). Another alternative is that sophisticates quickly recognized the policy metaphor as an overt persuasive appeal and resisted it on those grounds. Finally, if the metaphor created strong negative associations for subjects, then unsophisticated subjects (but not sophisticates) may have relied upon a likeability heuristic in their decision-making process.

Of course, the results of this study come from a single student sample, which limits the generalizability of these metaphor-induced effects. To address this concern, I test my hypotheses with a similar experimental design using an adult sample in Study 2. In addition, I also explore one potential process by which these persuasion effects occur. More specifically, I test whether policy metaphors elevate perceptions of message quality, which in turn facilitate attitude change.

Study 2

Adult subjects read the same one-page article containing information about the issue of net neutrality. The article included the primary manipulation, which was determined by exposure to one of three message conditions: a metaphor ($n = 44$), literal ($n = 40$), or background-only ($n = 57$) passage.[9] Following the passage, subjects completed a questionnaire that measured their attitudes toward net neutrality, as well as their general political knowledge and other demographic information.

Data

A total of 141 adults completed this study on the Internet for a chance to win a $50 gift certificate to Amazon.com. Respondents were recruited following the Socially-Mediated Internet Surveys (SMIS) approach (Cassese, Huddy, Hartman, Mason, & Weber, 2011), which uses social networking to recruit study participants. As part of the SMIS approach, I had several research assistants act as social mediators by sending invitations to non-student

adults in their contact lists and endorsing the study. In addition, study participants were also encouraged to forward the study on to other individuals so that the adult convenience sample was essentially recruited based upon snowball sampling methods.

Subjects reported living in 18 U.S. states—a majority (65%) are from California, and the second most populous group (13%) is from New York. The mean age of subjects is just under 44 years old. Eighty-four percent of respondents identified their ethnicity as "White," 10% as "Asian," 4% as "Latino," and 2% as "African American." Once again, there are more Democrats (48%) than Republicans (28%), Independents (16%), or those with other political affiliations (8%). The sample also consists of more liberals (46%) than conservatives (33%) or moderates (21%). There are many more female (67%) than male (33%) participants, and a majority (60%) of subjects indicated that they held at least a bachelor's degree. As expected, only a small group of subjects (14%) reported ever having heard of net neutrality.

Measures

Policy Attitude. The primary dependent variable is a two- item semantic differential scale that was created to gauge subjects' attitudes toward net neutrality. Subjects were asked: "Overall, do you think Network Neutrality is a good idea or a bad idea?" The other scale item asked whether subjects thought that network neutrality was "very necessary" or "very unnecessary." Each item was measured on a 9-point scale, which created a composite index that could range from 2 (very negative attitudes toward net neutrality) to 18 (very positive attitudes). The resulting variable was then rescaled from 0 to 1 ($\alpha = 0.89$, $M = 0.55$, $SD = 0.29$).

Message Quality. Message quality is a two-item semantic differential scale. Subjects rated "how convincing or unconvincing" and "how clear or unclear" they thought the speaker's argument was in favor of net neutrality. Note that these items were intended to tap a dimension of quality related to comprehension as defined by McGuire (1968, 1985). The 9-point items were summed to create an index that ranged from 2 (very poor message quality) to 18 (very high message quality), which was then rescaled from 0 to 1 ($\alpha = 0.80$, $M = 0.57$, $SD = 0.24$).

Independent Variables. The same set of independent variables and coding scheme were used from Study 1.[10] In addition, a measure of education is included in the models, since there is variation on this item in the adult sample. Education is a 5-point self-reported measure in which low values indicate little or no schooling (i.e., less than a high school diploma) and high values identify those subjects who hold advanced degrees. Education has been recoded from 0 to 1 and mean-centered.

Results

To test the general persuasiveness of a policy metaphor relative to a literal equivalent and baseline (control) condition, I regressed attitudes toward net neutrality on the two experimental condition dummy variables (the metaphor condition serves as the reference category), as well as political sophistication and a set of control variables. Model I in Table 2 shows that there are marginally significant main effects for political sophistication and issue familiarity, both of which increase an individual's support for the policy by 15% of the scale. More importantly, I find strong evidence that a metaphor is more

Table 2
Study 2 regression results

Variable	Model I: attitude	Model II: quality	Model III: attitude
Literal condition	−0.140*	−0.137*	−0.036
	(0.064)	(0.057)	(0.053)
Baseline condition	−0.170**	—	—
	(0.060)		
Message quality	—	—	0.840**
			(0.107)
Political sophistication	0.153†	0.225*	−0.025
	(0.092)	(0.097)	(0.091)
Education	−0.044	−0.096	0.231*
	(0.093)	(0.115)	(0.104)
Issue familiarity	0.150†	0.019	0.158†
	(0.078)	(0.090	(0.081)
Computer expertise	0.168	0.036	0.060
	(0.105)	(0.135)	(0.122)
Computer interest	0.004	0.091	0.066
	(0.126)	(0.158)	(0.142)
Party ID	0.108	0.007	0.012
	(0.102)	(0.107)	(0.096)
Ideology	−0.022	−0.056	−0.010
	(0.121)	(0.133)	(0.120)
Female	0.058	−0.002	0.028
	(0.057)	(0.062)	(0.055)
Non-White	−0.062	−0.025	−0.107†
	(0.067)	(0.070)	(0.063)
Intercept	0.611**	0.651**	0.099
	(0.060)	(0.058)	(0.087)
R^2	.16	.18	.56
Adjusted R^2	.08	.06	.49
N	137	82	82

Note. The metaphor condition serves as the reference category for the literal and baseline conditions. The baseline condition was excluded from the mediation analysis because subjects did not receive supporting arguments; thus, they did not provide ratings of message quality. Sobel statistic $= -0.115$, $p < .05$; total mediated effect $= 76.25\%$; ratio of the indirect to direct effect $= 3.21$. All variables range from 0 to 1. Standard errors are in parentheses.
$^{\dagger}p < .10$; $^{*}p < .05$; $^{**}p < .01$.

persuasive than a literal equivalent, $\beta = -0.140$, $SE = 0.064$, $p < .05$, or baseline (control) condition, $\beta = -0.163$, $SE = 0.059$, $p < .01$.[11] Substantively speaking, exposure to the metaphor increases support for the policy relative to the literal equivalent by 14% of the scale. Moreover, after recoding the literal condition as the reference category and rerunning the models, I find that the message containing the conventional persuasive appeal is completely ineffectual relative to the baseline condition, $\beta = -0.030$, $SE = 0.060$, *ns*.
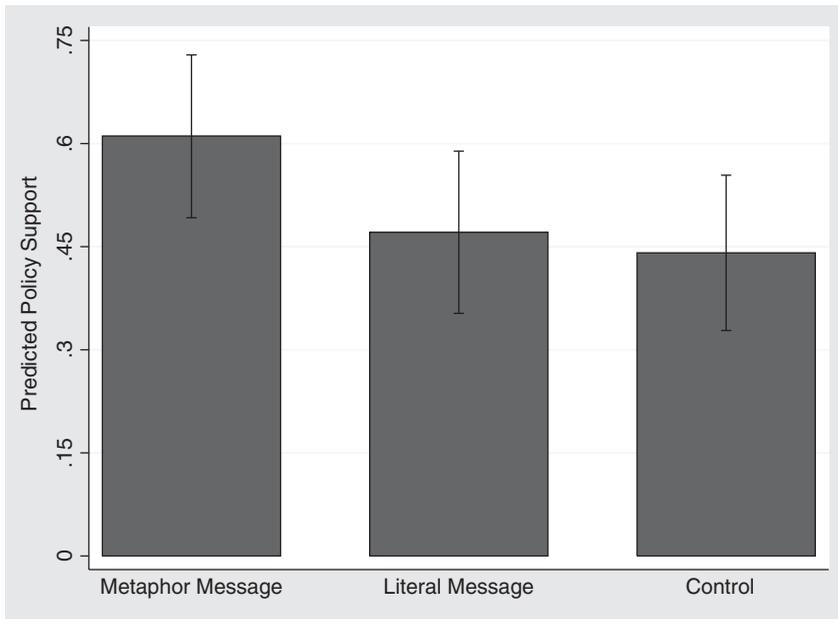
Figure 2. Study 2 predicted levels of policy support, by experimental condition. $N = 137$. Predicted values were calculated by holding control variables constant at 0 (i.e., each variable's mean value or reference category).

To explicate these results further, I plotted predicted policy support by experimental condition in Figure 2. Beginning with the control condition, we see that participants' predicted support for network neutrality is a modest 0.44 on a scale from 0 to 1. Individuals who were exposed to the comparable literal statement in favor of network neutrality show no effects of persuasion, as their predicted support is 0.47, a nonsignificant difference of 0.03 from the control condition. In stark contrast, for those subjects exposed to the metaphor, support of the policy increases to a predicted value of 0.61, which is nearly 40% higher than the control condition. Note that this is consistent with the findings from Study 1, in which metaphor-induced policy support ranged from 0.64 for unsophisticated citizens to 0.57 for political sophisticates.

Interestingly, I find no support for the moderation hypothesis, in which political sophistication would influence this persuasion effect. Both of the treatment dummy variables and their interactions are not statistically significant: Literal Condition × sophistication, $\beta = -0.141$, $SE = 0.215$, *ns*, and Control × Sophistication, $\beta = -0.183$, $SE = 0.198$, *ns.* The failure to find an interaction effect suggests that the metaphor influenced policy attitudes for subjects at all levels of political sophistication; yet, unlike Study 1, even sophisticates did not respond well to the literal message.

Now let us turn our attention to one potential mediator of this metaphor-induced attitude change, namely subjective perceptions of message quality. Recall that use of a policy metaphor should heighten ratings of message quality because the metaphor aids in comprehension and reasoning. As a result of this function, message quality should mediate the effects of experimental condition (metaphor vs. conventional or control message) on policy attitudes. To test this mediational hypothesis (see Baron & Kenny, 1986), I reran Model I (Table 2) omitting the baseline condition because there were no arguments for participants

to rate. On this reduced sample, I still find that a policy metaphor is more persuasive than a literal equivalent ($\beta = -0.151$, $SE = 0.070$, $p < .05$), which satisfies the first criterion of mediation. Next, I regressed the mediating variable—perceptions of message quality—on the experimental condition dummy variable and a set of controls (see Model II, Table 2). I find that exposure to a policy metaphor significantly predicts perceptions of message quality relative to a literal equivalent, $\beta = -0.137$, $SE = 0.057$, $p < .05$, which satisfies the second mediation criterion. Finally, I regressed attitudes toward net neutrality on the policy metaphor, message quality, and a set of controls (see Model III, Table 2).

In an equation with the mediator and experimental condition variable, the effects of the policy metaphor are no longer statistically significant, $\beta = -0.036$, $SE = 0.053$, *ns*. In contrast, message quality significantly predicts levels of policy support, $\beta = 0.840$, $SE = 0.107$, $p < .001$. These results satisfy Baron and Kenny's (1986) final mediation criterion. In fact, the message quality mediator accounts for a whopping 76% of the total effect, Sobel statistic $= -0.115$, $p < .05$, which suggests that increased ratings of message quality are at least one important process through which metaphors may facilitate political persuasion.

Discussion

The results from this study confirm my first hypothesis, namely that a policy metaphor is more persuasive than a literal equivalent. In fact, I demonstrated that exposure to the metaphor increased support for net neutrality legislation by 30% to 40% relative to conventional messages. One way in which this persuasion occurs is by heightening perceptions of message quality, although admittedly I can only speculate about the exact cause of this specific process (e.g., ease of comprehension, higher quality argument). Unlike in Study 1, however, the persuasive advantage of metaphor over literal messages does not appear to be moderated by political sophistication; instead, adults at all levels of sophistication accepted the policy metaphor and rejected the conventional message.

The inconsistent results for political sophistication could be attributed to differences in the samples. To test this possibility, I pooled respondents from the two studies and conducted several difference of means tests for levels of political sophistication, interest in computers, and computer expertise.[12] Looking at the results, there appear to be no major differences in political sophistication between samples, $t(270) = 0.44$, *ns*.

Two alternative explanations to consider, which also map onto key dimensions of information-processing models, are motivation and ability to carefully scrutinize message arguments (e.g., see Chaiken et al., 1989; Petty & Cacioppo, 1986). First, it is possible that participants in Study 2 were more motivated and, thus, more likely to draw inferences from the policy metaphor than subjects in Study 1 (e.g., see Ottati et al., 1999). Data from the pooled results seem to refute this possibility, since I fail to find a statistically significant difference in reported levels of interest in computers between the adult ($M = 0.73$) and student samples ($M = 0.68$), $t(269) = 1.39$, *ns*.

Second, it is possible that students in Study 1 were more comfortable with technology-related issues, and thus were more likely to rate themselves as experts than the older adult sample in Study 2. In other words, students may have been more capable of understanding the core arguments about the issue of net neutrality. Consequently, adults may have had more to gain from an apt metaphor than the more technologically savvy students. There is some evidence that this may be the case, as I find a statistically significant mean difference in expertise, $t(270) = 2.51$, $p < .05$, such that those in the student sample ($M = 0.47$) rated themselves 21% higher in terms of expertise than those in the adult sample ($M = 0.39$). These findings suggest that adults may have been less knowledgeable

about technology-related issues (as measured by computer expertise) than their younger counterparts.[13] As a result, the toll booth metaphor may have afforded adults with novel mappings that may have already been apparent to subjects in the student sample.

General Discussion

In two experiments, I demonstrated that a toll booth metaphor significantly increased support for net neutrality legislation relative to a similarly worded literal message. In Study 1, this persuasive effect was moderated by political sophistication, such that unsophisticated individuals significantly benefited from the policy metaphor, while those at moderate to high levels of sophistication did not. For the adult sample in Study 2, the toll booth metaphor was more persuasive than the conventional message, regardless of an individual's level of sophistication. I also demonstrated one process through which policy metaphors influenced political attitudes, namely by increasing subjective perceptions of message quality, although admittedly this measure only indirectly captures understanding and reasoning about politics. Taken together, these studies show that the policy metaphor had a consistently strong effect on political attitudes, while the conventional messages often failed to persuade.

There are several ways to replicate and extend this work on policy metaphors. First, future research should include direct measures of comprehension and try to follow the decision-making process, so that we can better explain metaphor-induced persuasion. Scholars may even want to allow participants to construct their own metaphors, which Dunbar (2001; see also Pinker, 2007) argues can be a powerfully persuasive device (rather than simply imposing the experimenter's preferred metaphor on subjects in the lab).

Second, although I focused on the cognitive implications of metaphor-based persuasion, it is possible that the toll booth metaphor operated through affective processes. For example, Schlesinger and Lau (2000) argue that metaphors may evoke emotional responses, which can be used in the same way as the likeability heuristic (Sniderman et al., 1991) among those lacking political sophistication. As anecdotal evidence and research demonstrate (Belt, 2003; Blanchette & Dunbar, 2001; Gibbs, 2002; Read et al., 1990; Thagard & Shelley, 2001; Weston, 2007), speakers often use policy metaphors to evoke an emotional response in their audience, which we know affects attitudes and behavior (Marcus, 2000). Researchers could explore differences in cognitive and affective functions of metaphors by including measures that would capture potential affective (e.g., discrete emotional reactions) mediators of persuasion. Likewise, scholars interested in these differences could vary the types of metaphors used in persuasive messages to tap either cognitive or affective functions.

Third, it is not entirely clear whether my findings are driven by increased levels of motivation or ability (or both) after exposure to a policy metaphor. For instance, Ottati et al. (1999) demonstrate that a sports metaphor can motivate systematic message processing for individuals who enjoy sports. If this finding is replicated, researchers should consider exploring the implications of metaphor-induced systematic processing because it should generate attitudes that are stronger than those formed via heuristic routes to persuasion. Measures of attitude strength could be included in future studies, and designs could be undertaken that will test other aspects of attitude strength. For instance, researchers could employ panel designs to test differences in stability for those attitudes generated from metaphors versus those from comparable literal messages. Or, subjects could be exposed to counterarguments after answering attitude items to determine the resistance of such metaphor-based attitudes.

Fourth, future studies should test the effectiveness of metaphors for a broad range of issues that vary in their level of complexity, while paying special attention to finding strong comparable literal statements. The issue difficulty dimension should help flush out any effects due to ability (i.e., political sophistication) or motivation. This could be done by choosing issues that vary in their conceptual difficulty (i.e., "easy" vs. "hard" issues) or by manipulating the comprehensibility of information concerning a specific issue.

Finally, studies that can validate the persuasiveness of metaphors in realistic settings that expose individuals to competing metaphors or literal messages are needed. This is the direction that current research in framing has moved, although it is unclear whether different combinations of metaphoric versus literal messages would result in the same null results reported in many counterframing studies (e.g., Chong & Druckman, 2007b). Yet, Read et al. (1990) have suggested that since "a metaphor often conveys its message by implication, it may be harder to counterargue" (p. 145). One way to test this possibility would be to pit competing messages against one another (e.g., metaphor vs. literal, metaphor vs. metaphor).

Ultimately, I agree with cognitive scientists who argue that metaphors are more than fancy rhetoric (Gibbs, 1994, 1996; Lakoff & Johnson, 1980; Pinker, 1997, 2007). Rather than relegating them exclusively to the realm of poetry, plays, and prose, we should recognize that metaphors are fundamental to human thought (Gibbs, 1994, 1996; Lakoff & Johnson, 1980; Pinker, 1997). More specifically, I see a metaphor's ability to explain abstract concepts in more familiar domains of experience as something that allows public discourse to occur in one, not two different languages (Sniderman, 1993). In short, citizens who typically lack political sophistication can be brought back into the debate with an apt policy metaphor.

Notes

1. Lakoff and Johnson (1980; see also Gibbs, 1994, 1996) argue that all concepts are inherently metaphorical and embodied in our everyday experiences.

2. Note that a demand-side metaphor like *drug use is an illness* has different implications for how to address the problem in society; namely, drug users should *treated* like patients suffering from an illness

3. It may also be worth noting that metaphors can be used to obscure thinking, as Orwell (1947) argued in his essay "Politics and the English Language."

4. The meta-analysis also included 12 unpublished works (largely from doctoral dissertations and master's theses), which would bring the total number of experiments on metaphor-induced persuasion to 29. However, given that these unpublished studies were not subjected to peer review, I opted to exclude them from my discussion.

5. For each study, Sopory and Dillard (2002) estimated effect sizes (r) based upon cell-to-cell comparisons calculated from the reported t or F statistics.

6. The bipartisan survey was conducted by the Glover Park Group and Public Opinion Strategies in September 2006.

7. The exact wording for these items is as follows (correct responses are indicated in italics; frequencies of correct answers are in parentheses): (a) Whose responsibility is it to determine if a law is constitutional or not? *Supreme Court* (79%); (b) Which party currently has the most elected members in the U.S. House of Representatives? *Democratic Party* (62%); (c) What job does Harry Reid currently hold? *Senate Majority Leader* (35%); (d) How much of a majority of both the House of Representatives and Senate are required to override a presidential veto? *2/3* (63%); (e) Which one of the parties is more conservative than the other at the national level? *Republican Party* (79%); (f) How many justices are there on the U.S. Supreme Court? *9* (53%); (g) What job does Condoleezza

Rice currently hold? *Secretary of State* (82%); and (h) Which branch of government does the U.S. Constitution give the sole authority to declare war? *Legislative Branch* (44%).

8. Predicted values were calculated by holding all other variables constant at their mean values or reference categories.

9. The wording of the metaphor and literal conditions varied only slightly from Study 1, with the most notable difference being the addition of one line. For the metaphor-based message, the last line read: "I don't know about you, but I don't like the idea of having *toll booths at every on-ramp on the information superhighway*." In contrast, the last line of the literal comparison read: "I don't know about you, but I don't like the idea of having *special fees imposed on content providers on the Internet*."

10. Given that political sophistication is central to one of the hypotheses, I provide the summary statistics for this measure: $KR\text{-}20 = 0.70$, $M = 0.60$, $SD = 0.29$. The exact same items from Study 1, were used in this index, with the following frequencies of correct responses: (a) 79%, (b) 62%, (c) 35%, (d) 63%, (e) 79%, (f) 53%, (g) 82%, and (h) 44%.

11. The coefficient is negative in this case because the metaphor condition serves as the reference category.

12. For difference of means tests, all variables were recoded to range from 0 to 1 so that the results could be meaningfully interpreted.

13. Models in which policy attitudes were regressed on interactions of the experimental condition variable with computer expertise or interest were not statistically significant, regardless of whether I used the pooled data or considered each study individually.

References

Allbritton, D. W. (1995). When metaphors function as schemas: Some cognitive effects of conceptual metaphors. *Metaphor and Symbolic Activity*, *10*, 33–46.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.

Belt, T. L. (2003). *Metaphor & political persuasion*. Unpublished PhD thesis, University of Southern California.

Berinsky, A. J., & Kinder, D. R. (2006). Making sense of issues through media frames: Understanding the Kosovo crisis. *Journal of Politics*, *68*, 640–656.

Blanchette, I., & Dunbar, K. (2001). Analogy use in naturalistic settings: The influence of audience, emotion, and goals. *Memory & Cognition*, *29*, 730–735.

Bosman, J. (1987). Persuasive effects of political metaphors. *Metaphor and Symbolic Activity*, *2*, 97–113.

Bosman, J., & Hagendoorn, L. (1991). Effects of literal and metaphorical persuasive messages. *Metaphor and Symbolic Activity*, *6*, 271–292.

Bowers, J. W., & Osborn, M. M. (1966). Attitudinal effects of selected types of concluding metaphors in persuasive speeches. *Speech Monographs*, *33*, 147–155.

Brewer, P. R. (2002). Framing, value words, and citizens' explanations of their issue opinions. *Political Communication*, *19*, 303–316.

Carmines, E. G., & Stimson, J. A. (1980). The two faces of issue voting. *American Political Science Review*, *74*, 78–91.

Cassese, E. C., Huddy, L., Hartman, T. K., Mason, L., & Weber, C. R. (2011, April). *Socially-Mediated Internet Surveys (SMIS): Obtaining motivated participants and rare samples for political research*. Paper presented at the annual meeting of the Midwest Political Science Association.

Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 212–252). New York, NY: Guilford Press.

Chong, D., & Druckman, J. N. (2007a). Framing theory. *Annual Review of Political Science*, *10*, 103–126.

Chong, D., & Druckman, J. N. (2007b). A theory of framing and opinion formation in competitive elite environments. *Journal of Communication*, *57*, 99–118.

Delli Carpini, M. X., & Keeter, S. (1996). *What Americans know about politics and why it matters*. New Haven, CT: Yale University Press.

Dunbar, K. (2001). The analogical paradox: Why analogy is so easy in naturalistic settings, yet so difficult in the psychological laboratory. In D. Gentner, K. J. Holyoak, & B. N. Kokinov (Eds.), *The analogical mind: Perspectives from cognitive science* (pp. 313–334). Cambridge, England: Cambridge University Press.

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt, Brace, Jovanovich.

Fainsilber, L., & Ortony, A. (1987). Metaphorical uses of language in the expression of emotions. *Metaphor and Symbolic Activity*, *2*, 239–250.

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition* (2nd ed.). New York, NY: McGraw-Hill.

Gamson, W. A., & Modigliani, A. (1987). The changing culture of affirmative action. In R. Braumgart (Ed.), *Research in political sociology* (pp. 137–177). Greenwich, CT: JAI Press.

Gentner, D. (1982). Are scientific analogies metaphors? In D. S. Miall (Ed.), *Metaphor: Problems and perspectives* (pp. 106–132). Atlantic Highlands, NJ: Humanities Press.

Gentner, D. (1983). Structure-mapping: A theoretical framework for analogy. *Cognitive Science*, *7*, 155–170.

Gentner, D., & Markman, A. B. (1997). Structure mapping in analogy and similarity. *American Psychologist*, *52*, 45–56.

Gibbs, R. W. J. (1994). *The poetics of mind: Figurative thought, language, and understanding*. New York, NY: Cambridge University Press.

Gibbs, R. W. J. (1996). Why many concepts are metaphorical. *Cognition*, *61*, 309–319.

Gibbs, R. W. J. (2002). Identifying and appreciating poetic metaphor. *Journal of Literary Semantics*, *31*, 101–112.

Jaccard, J., & Turrisi, R. (2003). *Interaction effects in multiple regression*. Thousand Oaks, CA: Sage.

Johnson, J. T., & Taylor, S. E. (1981). The effect of metaphor on political attitudes. *Basic and Applied Social Psychology*, *2*, 305–316.

Kam, C. D. (2005). Who toes the party line? Cues, values, and individual differences. *Political Behavior*, *27*, 163–182.

Kinder, D. R., & Sanders, L. M. (1996). *Divided by color: Racial politics and democratic ideals*. Chicago, IL: University of Chicago Press.

Lakoff, G. (1996). *Moral politics: What conservatives know that liberals don't*. Chicago, IL: University of Chicago Press.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago, IL: University of Chicago Press.

Lau, R. R., & Redlawsk, D. P. (2001). Advantages and disadvantages of cognitive heuristics in political decision making. *American Journal of Political Science*, *45*, 951–971.

Lau, R. R., & Schlesinger, M. (2005). Policy frames, metaphorical reasoning, and support for public policies. *Political Psychology*, *26*, 77–114.

Lavine, H., Burgess, D., Snyder, M., Transue, J., Sullivan, J. L., Haney, B., & Wagner, S. H. (1999). Threat, authoritarianism, and voting: An investigation of personality and persuasion. *Personality and Social Psychology Bulletin*, *25*, 337–347.

Lavine, H., & Snyder, M. (1996). Cognitive processing and the functional matching effect in persuasion: The mediating role of subjective perceptions of message quality. *Journal of Experimental Social Psychology*, *32*, 580–604.

Lupia, A. (1994). Shortcuts versus encyclopedias: Information and voting behavior in California insurance reform elections. *American Political Science Review*, *88*, 63–76.

Marcus, G. E. (2000). Emotions in politics. *Annual Review of Political Science*, *3*, 221–250.

Marcus, G. E., Neuman, W. R., & MacKuen, M. (2000). *Affective intelligence and political judgment*. Chicago, IL: University of Chicago Press.

McGuire, W. J. (1968). Personality and attitude change: An information-processing theory. In A. G. Greenwald, T. C. Brock, & T. M. Ostrom (Eds.), *Psychological foundations of attitudes* (pp. 171–196). San Diego, CA: Academic Press.

McGuire, W. J. (1985). Attitudes and attitude change. In L. Gardner & E. Aronson (Eds.), *The handbook of social psychology* (Vol. 2, 3rd ed., pp. 233–346). New York, NY: Random House.

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, *63*, 81–97.

Mio, J. S., & Lovrich, N. P. (1998). Men of zeal: Memory for metaphors in the Iran-contra hearings. *Metaphor and Symbol*, *13*, 49–68.

Mio, J. S., Thompson, S. C., & Givens, G. H. (1993). The commons dilemma as metaphor: Memory, influence, and implications for environmental conservation. *Metaphor and Symbol*, *8*, 23–42.

Mondak, J. (1993). Source cues and policy approval: The cognitive dynamics of public support for the Reagan agenda. *American Journal of Political Science*, *37*, 186–212.

Moyers, B. (2011). *The net at risk: Net neutrality*. Retrieved from. http://www.pbs.org/moyers/moyersonamerica/net/neutrality.html

Nelson, T. E., Clawson, R. A., & Oxley, Z. M. (1997). Media framing of a civil liberties conflict and its effect on tolerance. *American Political Science Review*, *91*, 567–583.

Orwell, G. (1947). *Politics and the English language: An essay*. New York, NY: Herbert W. Simpson.

Ottati, V., Rhoads, S., & Graesser, A. C. (1999). The effect of metaphor on processing style in a persuasion task: A motivational resonance model. *Journal of Personality and Social Psychology*, *77*, 688–697.

Peha, J. M., Lehr, W. H., & Wilkie, S. (2007). The state of the debate on network neutrality. *International Journal of Communication*, *1*, 709–716.

Petty, R. E., & Cacioppo, J. T. (1981). *Attitudes and persuasion: Classic and contemporary approaches*. Dubuque, IA: William C. Brown.

Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York, NY: Springer-Verlag.

Petty, R. E., & Wegener, D. T. (1999). The elaboration likelihood model: Current status and controversies. In S. Chaiken & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 41–72). New York, NY: Guilford Press.

Pinker, S. (1997). *How the mind works*. New York, NY: W. W. Norton.

Pinker, S. (2007). *The stuff of thought: Language as a window into human nature*. New York, NY: Penguin Group.

Popkin, S. L. (1991). *The reasoning voter: Communication and persuasion in presidential campaigns*. Chicago, IL: University of Chicago Press.

Rahn, W. M. (1993). The role of partisan stereotypes in information processing about political candidates. *American Journal of Political Science*, *37*, 472–496.

Read, S. J., Cesa, I. L., Jones, D. K., & Collins, N. L. (1990). When is the federal budget like a baby? Metaphor in political rhetoric. *Metaphor and Symbolic Activity*, *5*, 125–149.

Robins, S., & Mayer, R. E. (2000). The metaphor framing effect: Metaphorical reasoning about text-based dilemmas. *Discourse Processes*, *30*, 57–86.

Schlesinger, M., & Lau, R. R. (2000). The meaning and measure of policy metaphors. *American Political Science Review*, *94*, 611–626.

Schon, D. A. (1979). Generative metaphor: A perspective on problem-setting in social policy. In A. Ortony (Ed.), *Metaphor and thought* (pp. 254–283). Cambridge, England: Cambridge University Press.

Simon, H. A. (1974). How big is a chunk? *Science*, *183*, 482–488.

Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2007). The affect heuristic. *European Journal of Operational Research*, *177*, 1333–1352.

Sniderman, P. M. (1993). The new look in public opinion research. In A. W. Finifter (Ed.) *Political science: The state of the discipline, II* (pp. 219–245). Washington, DC: American Political Science Association.

Sniderman, P. M., Brody, R. A., & Tetlock, P. E. (1991). *Reasoning and choice: Explorations in political psychology*. New York, NY: Cambridge University Press.

Sopory, P., & Dillard, J. P. (2002). The persuasive effects of metaphor: A meta-analysis. *Human Communication Research*, *28*, 382–419.

Thagard, P., & Shelley, C. (2001). Emotional analogies and analogical inference. In D. Gentner, K. J. Holyoak, & B. N. Kokinov (Eds.), *The analogical mind: Perspectives from cognitive science* (pp. 335–362). Cambridge, MA: MIT Press.

Weston, D. (2007). *The political brain: The role of emotion in deciding the fate of the nation*. New York, NY: Public Affairs.

Appendix: Network Neutrality Article (Main Body of Passage)

Network Neutrality and the Future of the Internet

By Samuel Johnson

Network Neutrality is at the center of an ongoing debate in Washington, pitting major technology companies against one another. While few people have heard of this issue, its outcome could drastically affect the future of the Internet. On one side of the issue are telecommunications companies like AT&T and Verizon that own the networks that make up the Internet. On the other side of the debate are content providers like Google, Yahoo!, and Microsoft that transmit information over the Internet to their customers.

Recently, some of these content providers have begun offering services like streaming videos and voice communication that take up a large amount of a network's overall capacity. Telecoms say that these data-intensive services cause enormous stress on their networks that can lead to slower or dropped Internet connections for their customers. To resolve this problem, telecoms want to charge content providers a special fee to route video, voice, and other large data streams more efficiently. Telecoms argue that these fees are necessary to offset the rising costs of expanding and improving the infrastructure of the Internet.

Content providers want Congress to pass Network Neutrality legislation to prevent telecoms from charging them special fees based upon the type of data that they transmit over the Internet. They argue that the prospect of telecoms imposing new fees on innovative ventures is exactly the kind of thing that deters online commerce.

Note. All subjects read the above paragraphs (245 words). The article concluded with the experimental manipulation.